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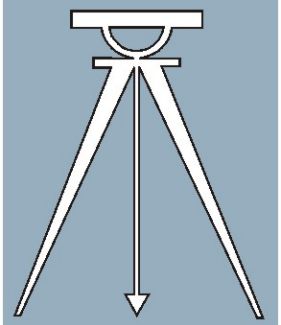
Installation

J-Rail Shuttles and Elevators



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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MAISHUTLBE/22175A

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

BIUUUD19 (Published) Book specs- Dates: 20081231 / 20081231 / 20081231 Lang: ENG01 Applic: UUU

How to Get the Necessary Repair Components

This document uses Simplified Technical English.
Learn more at http://www.asd-ste100.org.

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: 504-467-2787
Fax: 504-469-9777
Email: parts@milnor.com

— End of BIUUUD19 —

Trademarks

BNUUUU02.R01 0000158093 F.2 E.2 3/3/21 9:47 AM Released

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™	RecircONE®
E-P Express®	Hydro-cushion™	MILRAIL™	RinSave®
E-P OneTouch®	Mentor®	Miltrac™	SmoothCoil™
E-P Plus®	Mildata®	PBW™	Staph Guard®
Gear Guardian®	Milnor®		

End of document: BNUUUU02

Safety 1

BIUUUS27 (Published) Book specs- Dates: 20051111 / 20051111 / 20060323 Lang: ENG01 Applic: VIP VSR VSL VSE VST VGU

Safety—Shuttle

1. General Safety Requirements—Vital Information for Management Personnel [Document BIUUUS04]

Incorrect installation, neglected preventive maintenance, abuse, and/or improper repairs, or changes to the machine can cause unsafe operation and personal injuries, such as multiple fractures, amputations, or death. The owner or his selected representative (owner/user) is responsible for understanding and ensuring the proper operation and maintenance of the machine. The owner/user must familiarize himself with the contents of all machine instruction manuals. The owner/user should direct any questions about these instructions to a Milnor® dealer or the Milnor® Service department.

Most regulatory authorities (including OSHA in the USA and CE in Europe) hold the owner/user ultimately responsible for maintaining a safe working environment. Therefore, the owner/user must do or ensure the following:

- recognize all foreseeable safety hazards within his facility and take actions to protect his personnel, equipment, and facility;
- work equipment is suitable, properly adapted, can be used without risks to health or safety, and is adequately maintained;
- where specific hazards are likely to be involved, access to the equipment is restricted to those employees given the task of using it;
- only specifically designated workers carry out repairs, modifications, maintenance, or servicing;
- information, instruction, and training is provided;
- workers and/or their representatives are consulted.

Work equipment must comply with the requirements listed below. The owner/user must verify that installation and maintenance of equipment is performed in such a way as to support these requirements:

- control devices must be visible, identifiable, and marked; be located outside dangerous zones; and not give rise to a hazard due to unintentional operation;
- control systems must be safe and breakdown/damage must not result in danger;
- work equipment is to be stabilized;
- protection against rupture or disintegration of work equipment;
- guarding, to prevent access to danger zones or to stop movements of dangerous parts before the danger zones are reached. Guards to be robust; not give rise to any additional hazards; not be easily removed or rendered inoperative; situated at a sufficient distance from the danger zone; not restrict view of operating cycle; allow fitting, replacing, or maintenance by restricting access to relevant area and without removal of guard/protection device;
- suitable lighting for working and maintenance areas;
- maintenance to be possible when work equipment is shut down. If not possible, then protection measures to be carried out outside danger zones;
- work equipment must be appropriate for preventing the risk of fire or overheating; discharges of gas, dust, liquid, vapor, other substances; explosion of the equipment or substances in it.

1.1. **Laundry Facility**—Provide a supporting floor that is strong and rigid enough to support–with a reasonable safety factor and without undue or objectionable deflection–the weight of the fully loaded machine and the forces transmitted by it during operation. Provide sufficient clearance for machine movement. Provide any safety guards, fences, restraints, devices, and verbal and/or posted restrictions necessary to prevent personnel, machines, or other moving machinery from accessing the machine or its path. Provide adequate ventilation to carry away heat and vapors. Ensure service connections to installed machines meet local and national safety standards, especially regarding the electrical disconnect (see the National Electric Code). Prominently post safety information, including signs showing the source of electrical disconnect.

WARNING 1: Collision, Crushing and Pinch 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: • Safety fence inclosing 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. Local codes may require additional precautions.

1.2. **Personnel**—Inform personnel about hazard avoidance and the importance of care and common sense. Provide personnel with the safety and operating instructions that apply to them. Verify that personnel use proper safety and operating procedures. Verify that personnel understand and abide by the warnings on the machine and precautions in the instruction manuals.

1.3. **Safety Devices**—Ensure that no one eliminates or disables any safety device on the machine or in the facility. Do not allow machine to be used with any missing guard, cover, panel or door. Service any failing or malfunctioning device before operating the machine.

1.4. **Hazard Information**—Important information on hazards is provided on the machine safety placards, in the Safety Guide, and throughout the other machine manuals. **Placards must be kept clean so that the information is not obscured. They must be replaced immediately if lost or damaged. The Safety Guide and other machine manuals must be available at all times to the appropriate personnel.** See the machine service manual for safety placard part numbers. Contact the Milnor Parts department for replacement placards or manuals.

1.5. **Maintenance**—Ensure the machine is inspected and serviced in accordance with the norms of good practice and with the preventive maintenance schedule. Replace belts, pulleys, brake shoes/disks, clutch plates/tires, rollers, seals, alignment guides, etc. before they are severely worn. Immediately investigate any evidence of impending failure and make needed repairs (e.g., cylinder, shell, or frame cracks; drive components such as motors, gear boxes, bearings, etc., whining, grinding, smoking, or becoming abnormally hot; bending or cracking of cylinder, shell, frame, etc.; leaking seals, hoses, valves, etc.) Do not permit service or maintenance by unqualified personnel.

2. Safety Alert Messages—Internal Electrical and Mechanical Hazards [Document BIUUUS11]

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

WARNING 2: 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 3: 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.

3. Safety Alert Messages—External Mechanical Hazards [Document BIUUUS12]

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

CAUTION 4: 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 5: 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 6: 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.

4. Safety Alert Messages—Unsafe Conditions [Document BIUUUS14]

4.1. Damage and Malfunction Hazards

4.1.1. Hazards Resulting from Inoperative Safety Devices

WARNING 7: 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 8: 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 9: 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.

4.1.2. Hazards Resulting from Damaged Mechanical Devices

WARNING 10: 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 11: 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.

4.2. Careless Use Hazards

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

WARNING 12: 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 13: 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 14: 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.

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

WARNING 15: 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 16: 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 17: 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.

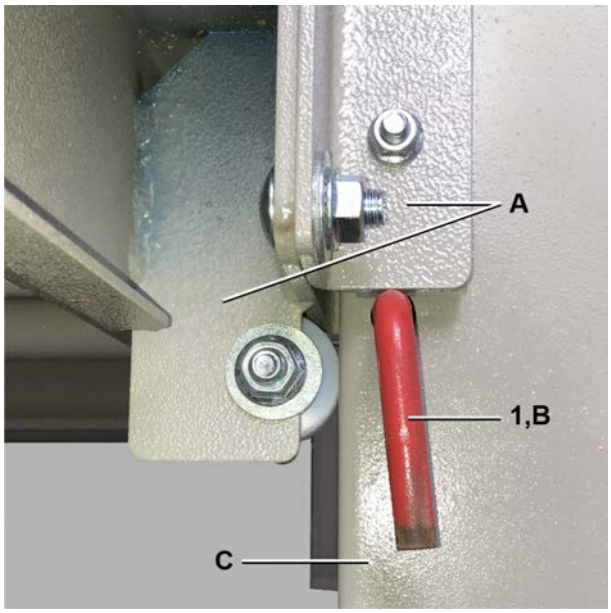
WARNING 18: Strike and Crush Hazards—A traveling machine such as a shuttle can strike, crush, or entrap you if you ride on it or enter its path. Traveling machines or their components can move automatically in any direction. Placing a system machine on line by energizing the machine control may immediately 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.

— End of BIUUUS27 —

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	

Proximity Safeguarding for Automatic Shuttle Conveyors

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

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

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

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 1: 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

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 2: 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.

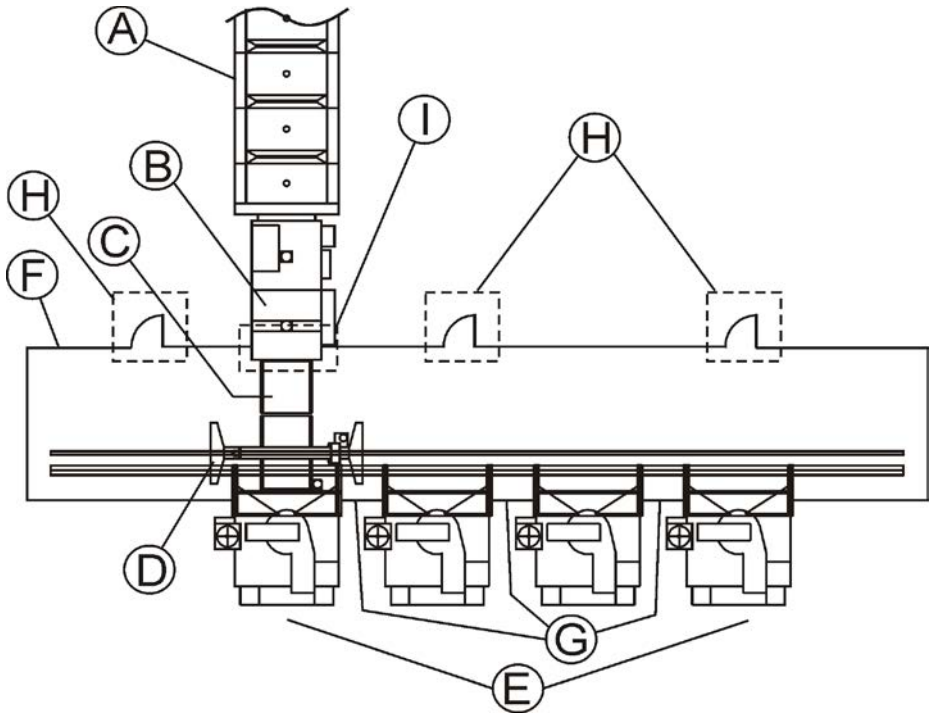
Although the objectives of proximity safeguarding are the same anywhere, design requirements vary with local codes (which occasionally change) and with the plant layout. For this reason, Milnor does not provide detailed designs or materials for proximity safeguarding. If the necessary expertise does 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

Fencing with interlocked gates like that depicted in Figure 1 and Figure 2, 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

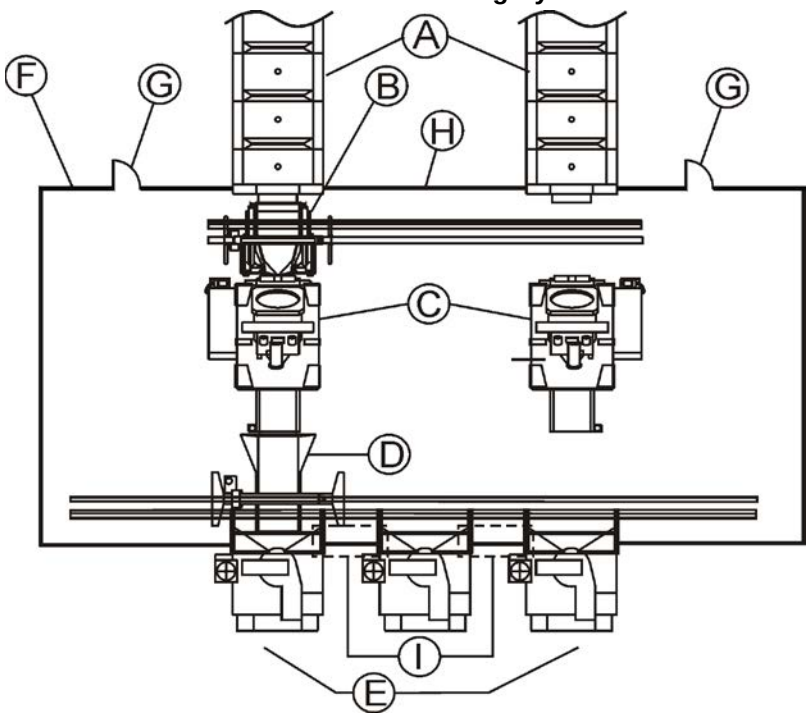


Legend

- **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

Plan View of Laundering System



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—The fence must discourage climbing over and prevent crawling under.

5.2. Fence Materials and Setback—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—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—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—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—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—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 BISUUI01 —

Glossary of Tag Illustrations—Shuttle

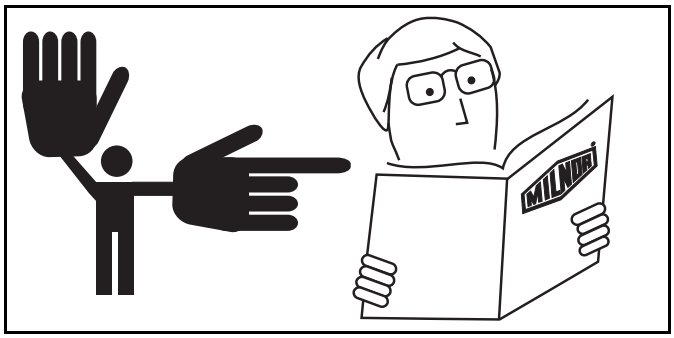
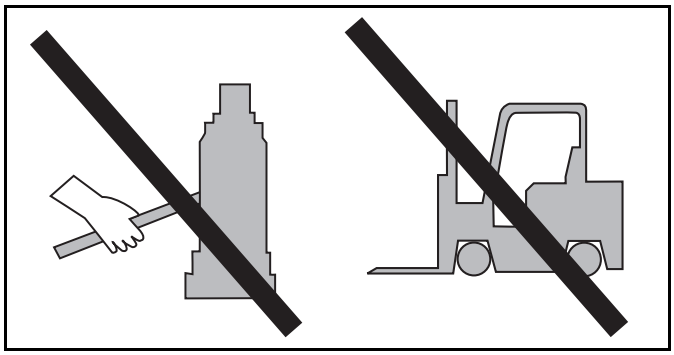
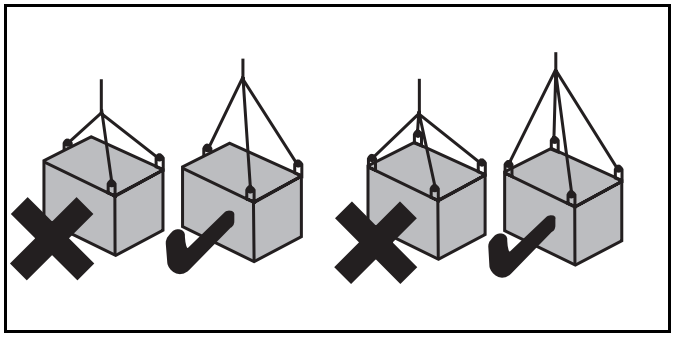
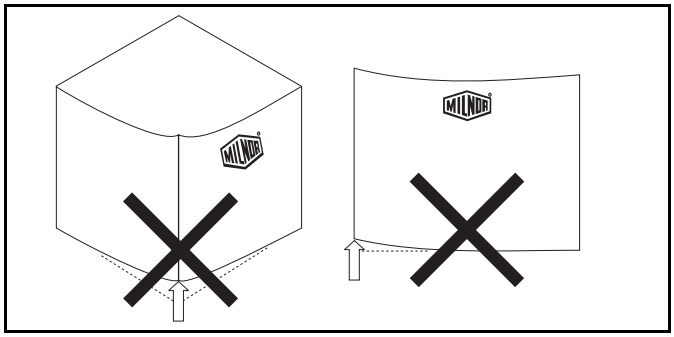
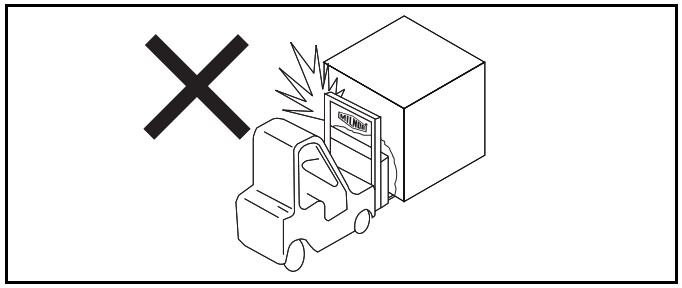
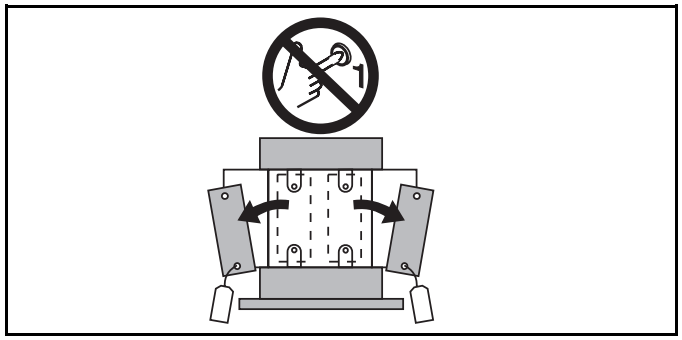
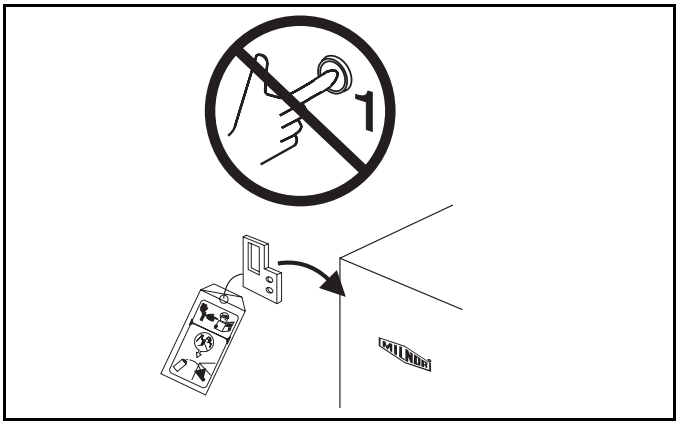
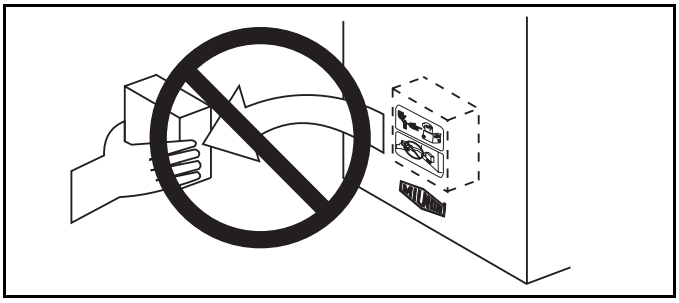
Illustration	Explanation
	Stop! Read the manual first for complete instructions before continuing.
	Do not jack the machine here. Do not lift the machine here.
	Use three point or four point lifting as determined by the lifting eyes furnished. Rig the load using lifting cables of sufficient size and length to ensure cables are not over-stressed.
	Do not lift the machine from one corner or one side edge.

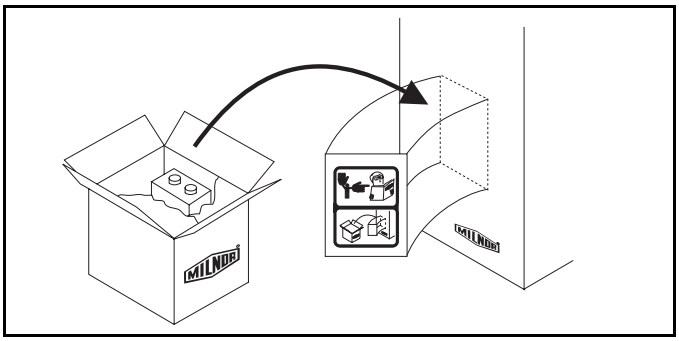
Illustration	Explanation
	Do not strike machine or components during fork lifting.
	Do not start this machine until the packing materials, lifting brackets, etc. with this tag attached or behind this panel are removed. These materials are painted red. Safety stands or brackets (also painted red) may be provided with this machine. Do not discard safety stands or brackets
	Do not step or stand on this machine part.
	This motor or pump should rotate in the direction of the arrow.



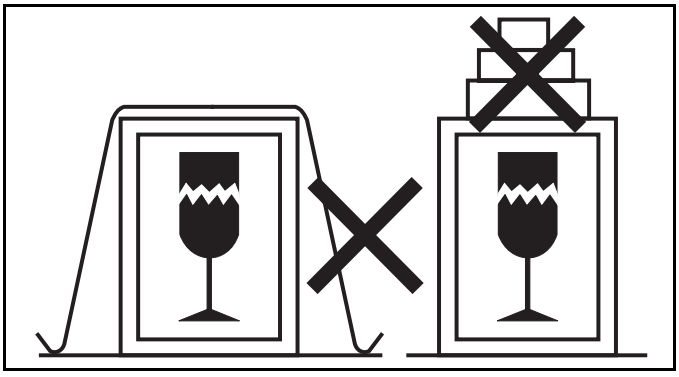
Do not start this machine until the part with this tag is installed on the machine.



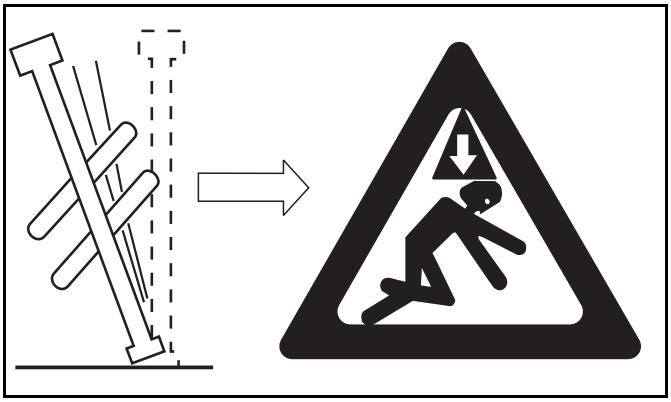
Do not remove this component from the machine.



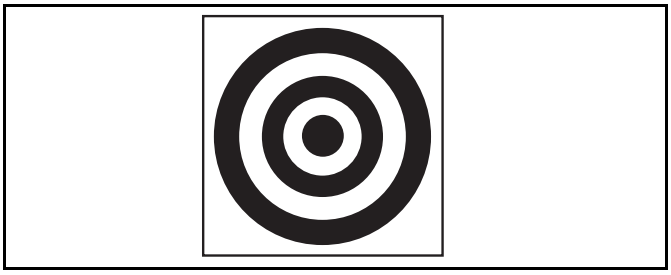
Install the appropriate part here before operating the machine.



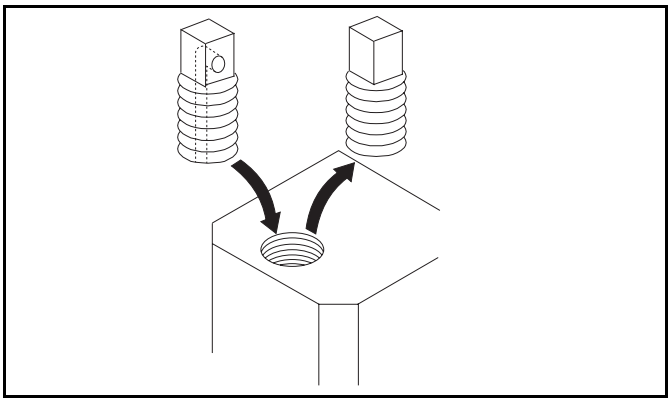
Do not strap or chain over box



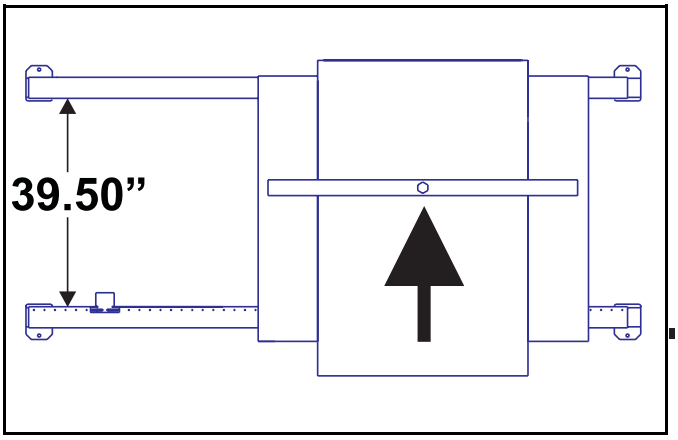
Do not attempt to balance the shuttleon the lower shipping brackets. Always suspend and lift the shuttle from the lifting eyes at the top of the machine.



This is the target that will actuate the shuttle proximity switch with the matching function code.



Replace non-vented plug with vented plug on gear reducer before operating



Rails with holes go on load end.

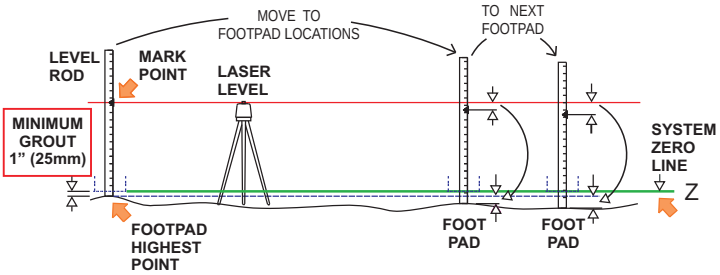
.

Installation 2

ATTENTION INSTALLERS!

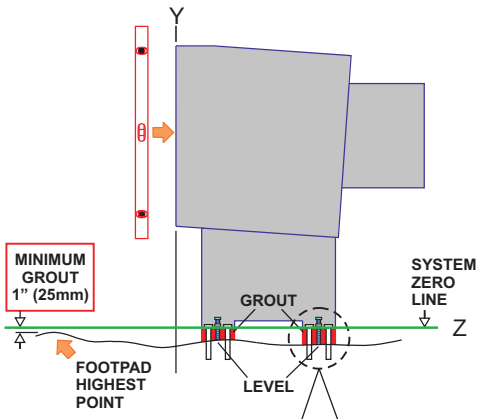
FLOOR IS UNEVEN

- Establish System Zero Line or Z.
- Find highest point in factory floor where footpads will be located.
- System Zero Line or Z is 1" above highest point.



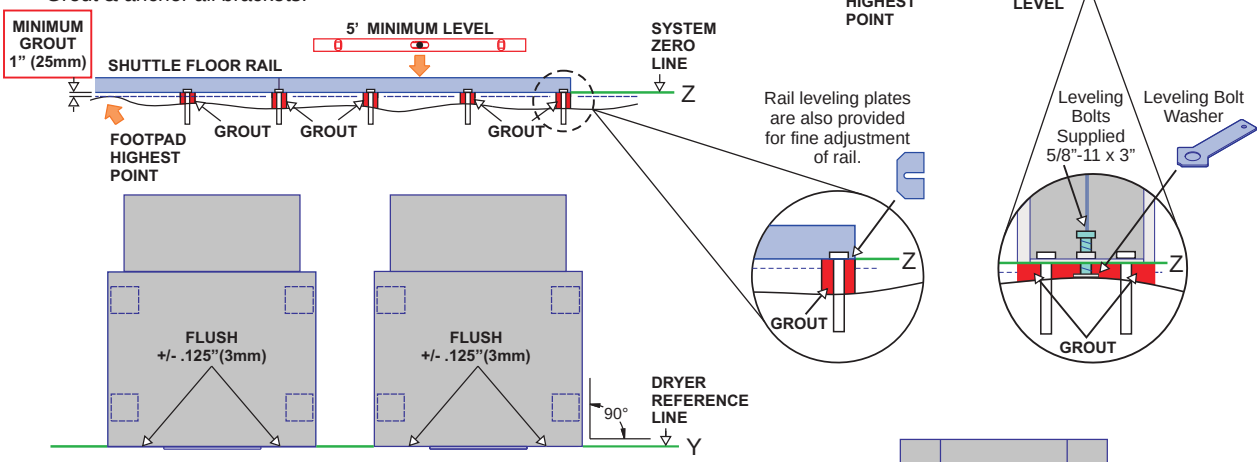
DRYER FEET MUST BE GROUTED

- Level with leveling bolt to System Zero Line or Z.
- Grout & anchor all footpads.

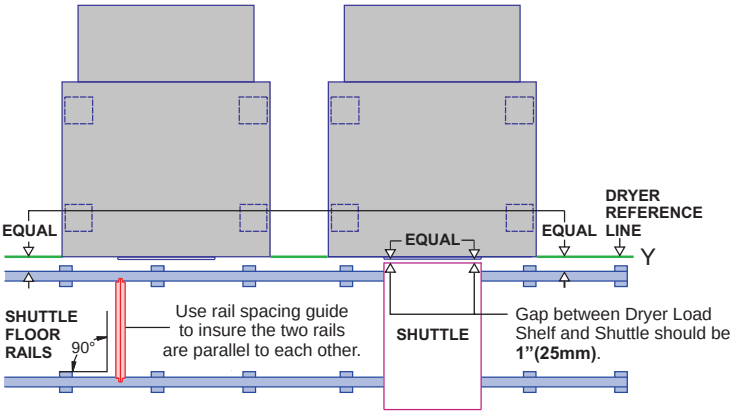


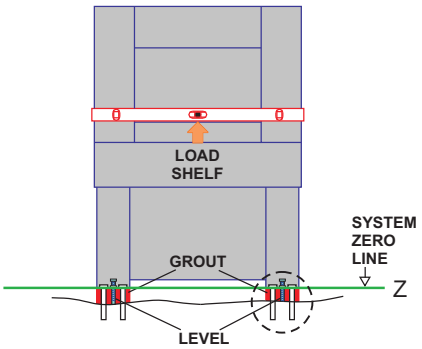
SHUTTLE RAIL BRACKETS MUST BE GROUTED TO Z

- Shim & level to System Zero Line or Z.
- Grout & anchor all brackets.



DRYER FACES MUST BE FLUSH





DRYER MUST BE LEVEL

SHUTTLE RAILS MUST BE PERFECTLY PARALLEL TO DRYER FACES

- Floor rails must be parallel, level, and square along entire length of rail.

B2T2007003/2013125A

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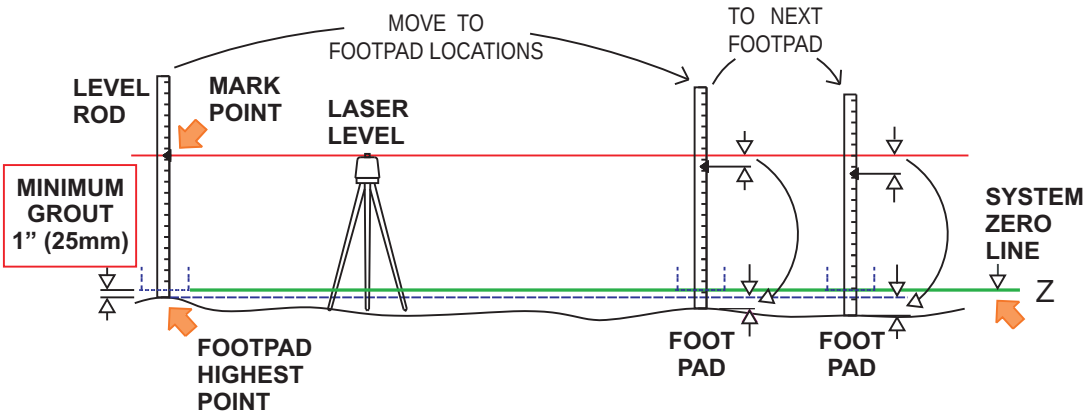
FLOOR IS UNEVEN

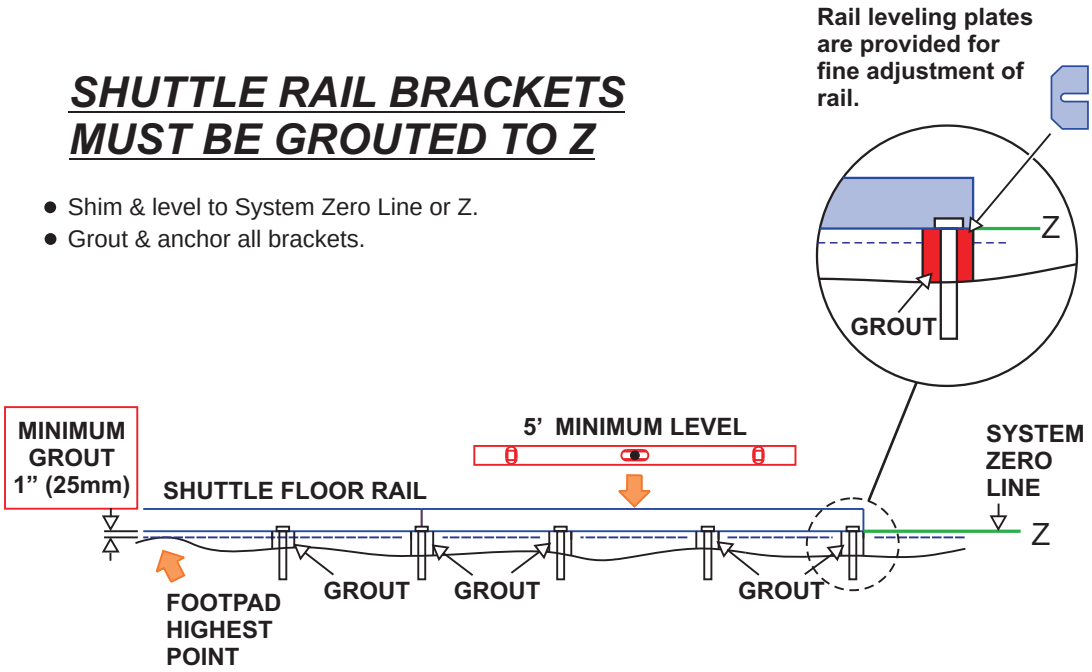
- Establish System Zero Line or Z.
- Find highest point in factory floor where footpads will be located.
- System Zero Line or Z is 1” above highest point.



Rail Installation:
Floor Rails

SHUTTLE RAIL BRACKETS MUST BE GROUTED TO Z

- Shim & level to System Zero Line or Z.
- Grout & anchor all brackets.



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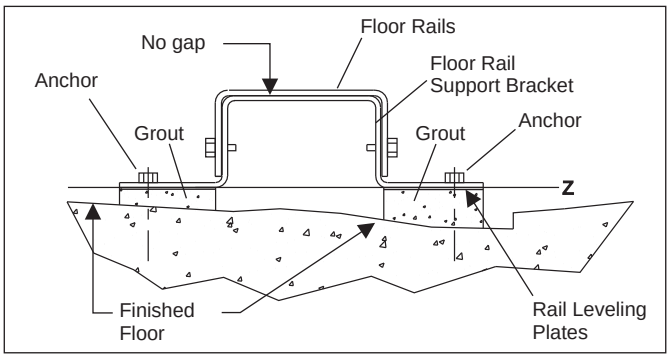
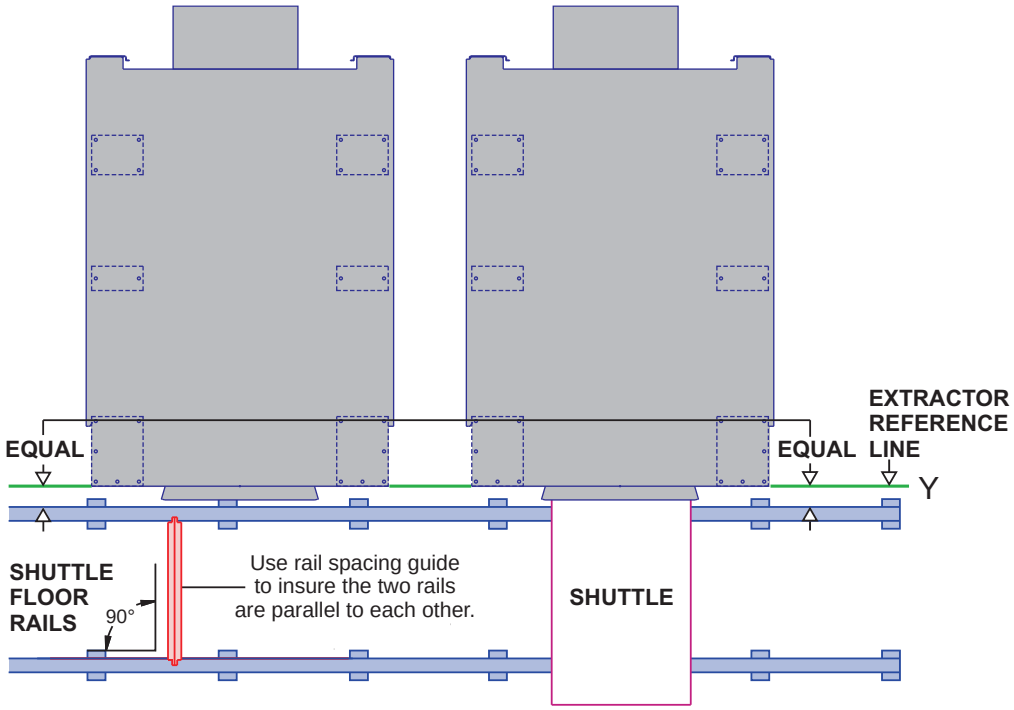
Rail Installation:

Floor Rails



- Shim & level to System Zero Line of Z.
  All floor rails must be level and square along the entire length of rail. Locate each rail support bracket and level uneven finished floor with grout, with a minimum of 1”(25MM) of grout under and around all floor rail support brackets. Use rail leveling plates to fill the gap and level the rail.
  CAUTION: Make sure there is no gap between floor rails and floor rail support brackets.
- Grout & anchor all brackets.
  Anchor the rail at all floor rail support brackets, both sides.
- See (Page 3 of 8) and Dimensional Drawing for proper placement of floor rails.



SHUTTLE RAILS MUST BE PERFECTLY PARALLEL TO EXTRACTORS

- Floor rails must be parallel, level, and square along entire length of rail.

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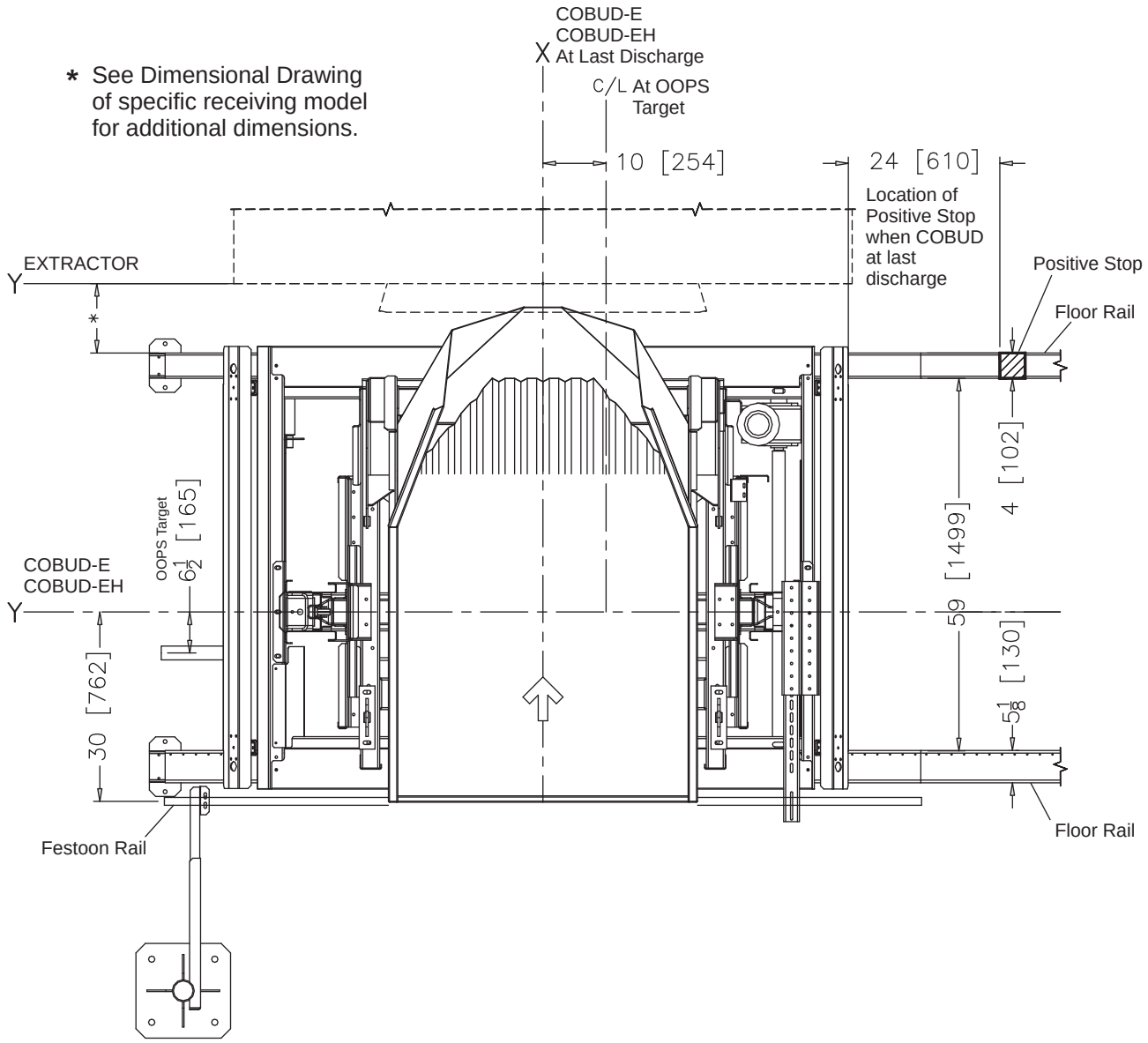
Rail Installation:
Rail **Placement**



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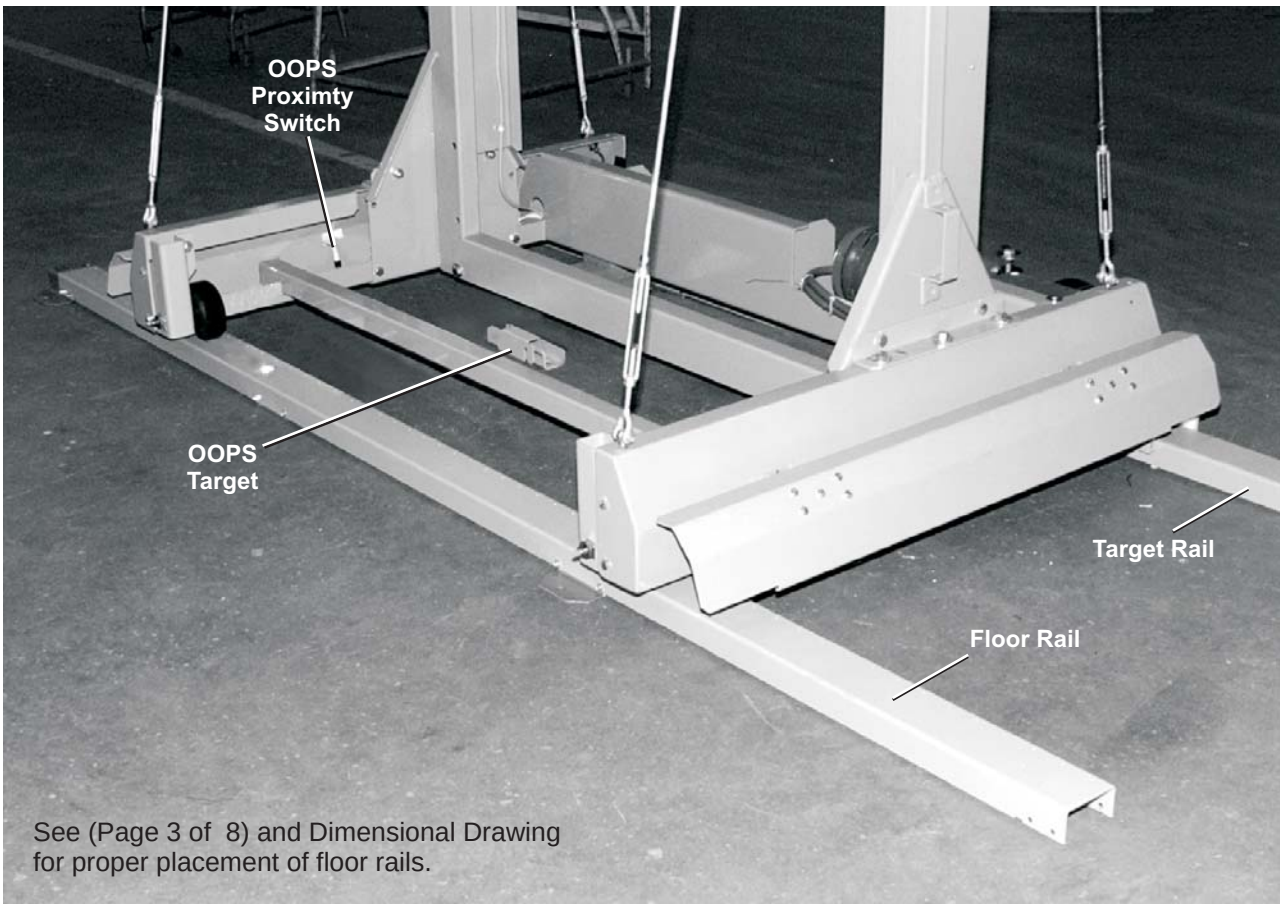
Rail Installation:
Floor Rail



See (Page 3 of 8) and Dimensional Drawing for proper placement of floor rails.

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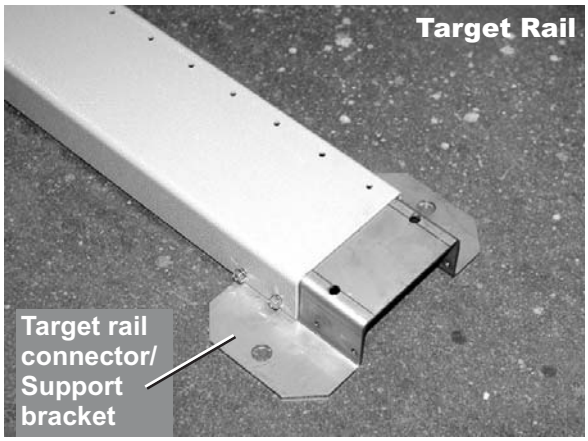
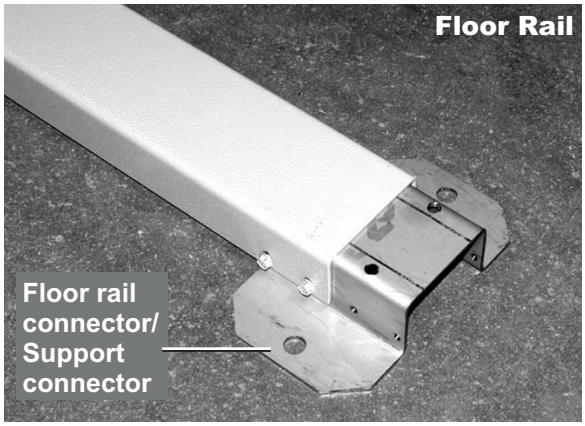
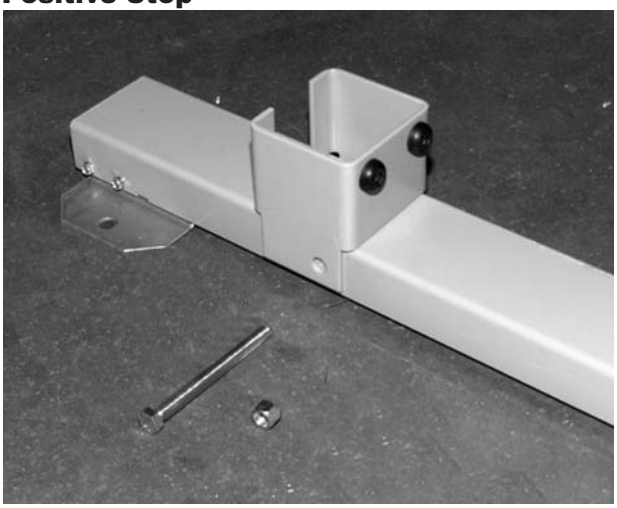
Rail Installation:





Positive Stop



Bring COBUD-E/EH to the Last Discharge. Locate Positive Stop 24” away from kickplate.
(See Page 3 of 8.)

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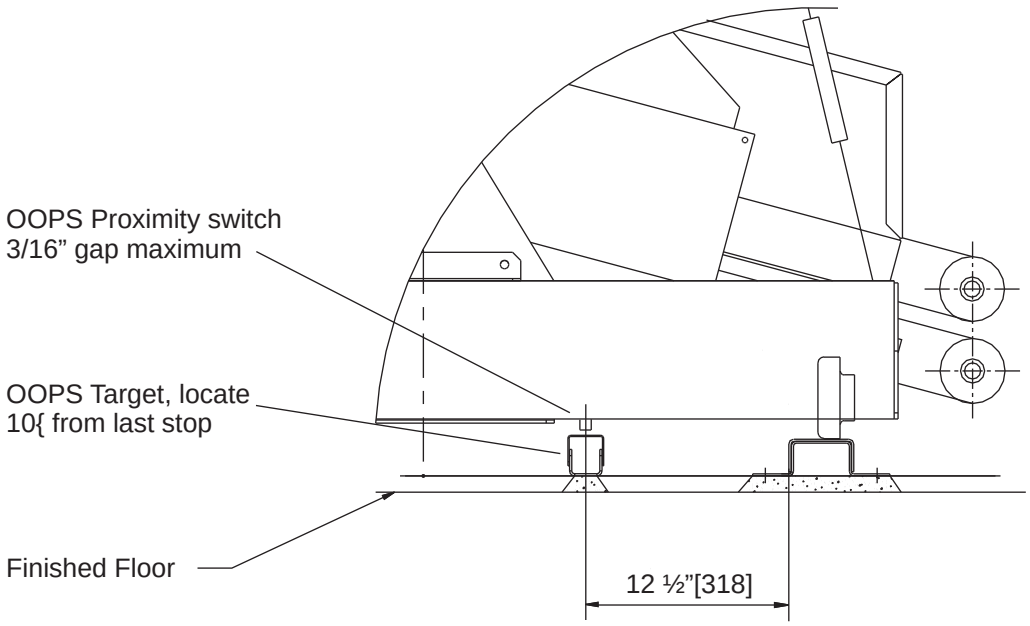
Rail Installation:

Switch &
Target Settings



Switch & Target Installation

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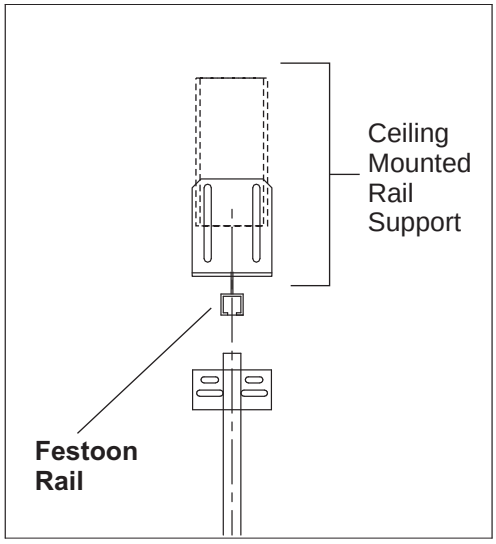
Rail Installation:

Festooning Rail

Upper Rail Hanger 12ga



Ceiling Mounted

Festoon rail connector

Supporting the festoon rail properly is the responsibility of others. Ceiling mounted rail supports are available from Milnor. Festoon rail hanger may also be used to support rail from ceiling. Field innovation is required. See Dimensional Drawing for proper location of festoon rail.

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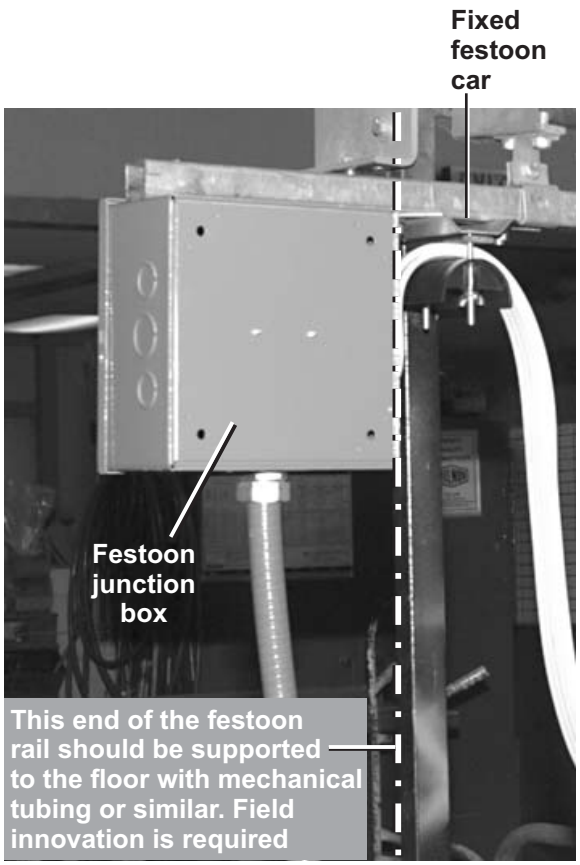
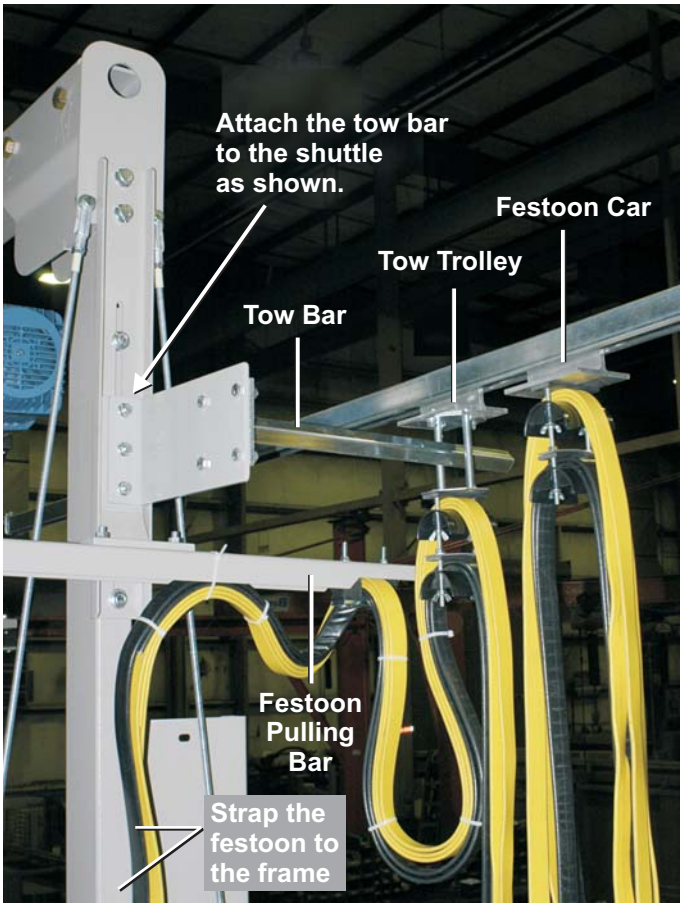
Festoon Installation:

Shuttle - Festoon Connection





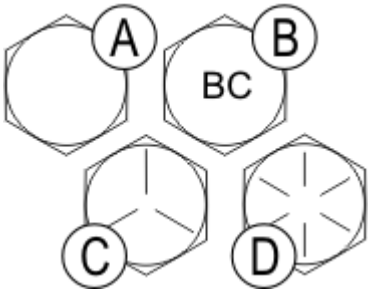
BIUUUM04 (Published) Book specs- Dates: 20180109 / 20180109 / 20180109 Lang: ENG01 Applic: UUU

Torque Requirements for Fasteners

This document uses Simplified Technical English. Learn more at http://www.asd-ste100.org.

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

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

Note 1: Data from the Pellerin Milnor® Corporation “Bolt Torque Specification” (bolt_torque_milnor.xls/2002096).

1.1. Fasteners Made of Carbon Steel

1.1.1. Without a Threadlocker

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	--	--
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
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

Table 5: Threadlocker by the Diameter of the Bolt (see Note 2)

	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 2: 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

Dimension	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
	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

Dimension	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
	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
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

Dimension	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
	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

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

	316 Stainless		18-8 Stainless		18-8 Stainless with Loctite 767	
Dimension	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

	316 Stainless		18-8 Stainless		18-8 Stainless with Loctite 767	
Dimension	**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

WARNING 2: 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 3: 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.

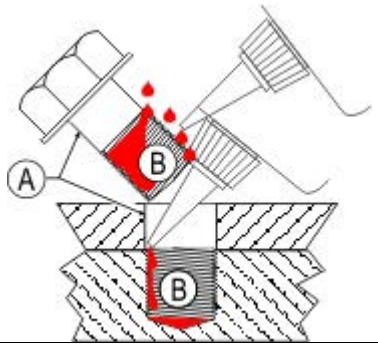
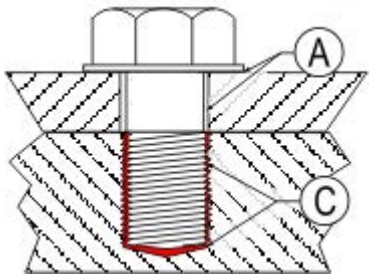
3. How to Apply a Threadlocker

CAUTION 3: 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: Blind Hole

Application	Coverage
	

Legend

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

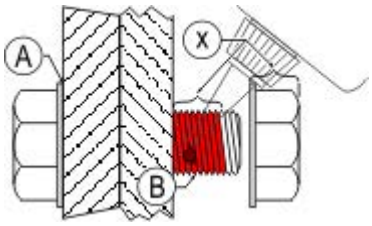
3.1. Blind Holes

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 (Table 5 to Table 11).

3.2. Through Holes

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 (Table 5 to Table 11).

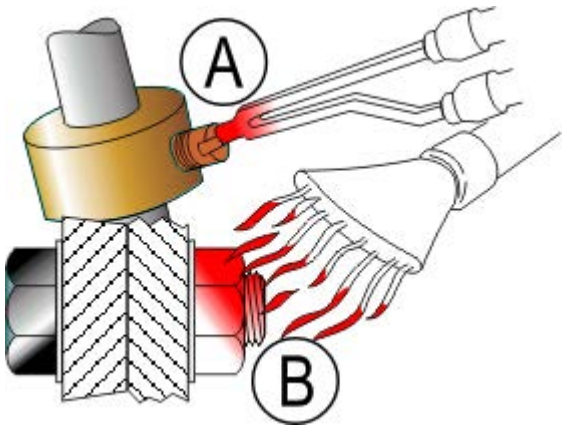
Figure 3: Through Hole

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

3.3. Disassembly—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: Disassembly

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 BIUUUM04 —

ASSEMBLING THE SHUTTLE RAIL HARDWARE

B

⚠ DANGER ⚠

CRUSHING HAZARD. Shuttles, shuttle rails, and rail supports can collapse, crushing personnel and/or damaging equipment and facilities if anchoring methods are unsound or structural supports are inadequate.

- ☞ **Adequately anchor free stands to the floor or floor and wall before imposing any weight on them. Fasteners must be adequate to support the upper rail and loaded shuttle. See instructions for proper anchoring techniques on rail support dimensional drawing(s) in the schematics manual.**
- ☞ **Consult a competent, independent structural engineer to ensure the following before installing ceiling-mounted shuttle rails:**

  Ensure adequate structural support for the rail and loaded shuttle before mounting shuttle rails to building structure.

  Ensure rail-hanging method is rigid enough to accept a significant amount of twisting thrust on the rail.

The connections shown in this section may be located with respect to the overall shuttle rail system by referring to dimensional drawings BDCORAL1BE and BDCORAL1BB. These drawings should be used in conjunction with this instruction, when assembling the shuttle rails.

It is recommended to install the shuttle rail system in the following sequence:

1. Install, level, and align the entire upper (support) rail.
2. Hang the shuttle, which may assist in aligning the lower guide rail.
3. Install one section of lower guide rail, using the shuttle to test for proper rail alignment.
4. Install the remaining sections of the guide rail, aligning them with the first section of guide rail.
5. Install festoon-end electric box to upper support rail.

Upper Support Rail to Support Bracket Connection

The upper rail of the shuttle is supported by hanging brackets which connect to support brackets on the dryers and to free-standing supports. To install the upper rail, first connect all hanging bracket assemblies to the support brackets as shown in FIGURE 1. Lift the upper rail into position by sections, and secure it to the hanging brackets with the hardware shown in FIGURE 1. Level the upper rail completely, using the threaded rods for adjustment.

B

⚠ CAUTION ⚠

PROPERTY DAMAGE HAZARD. Improper mounting of the support rail will prevent the shuttle from traversing or cause uneven wear on shuttle wheels.

- ☞ **Carefully follow instructions in this section for mounting and assembling support rails.**
- ☞ **Maintain accurate horizontal and vertical alignment of the upper (support) rail along its entire length, as shown on dimensional drawings.**
- ☞ **Ensure that the shuttle properly aligns with each Home and Discharge station.**

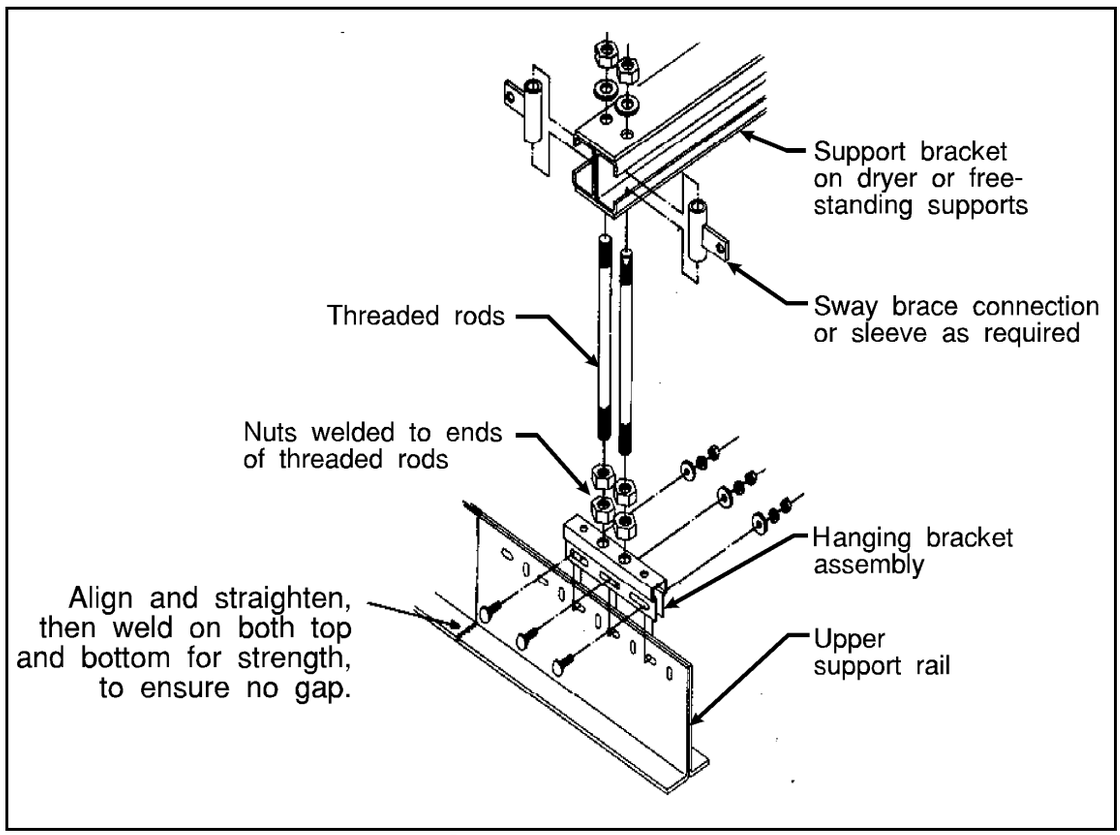


FIGURE 1 (MSIND417AE)
Support Rail to Support Bracket Connection

Support Rail to Rail Connection

The two halves of each support rail section were bolted together at the MILNOR® factory such that the halves are staggered by 17 1/2 inches. This provides for a 17 1/2-inch overlap at each joining of the rail sections (see FIGURE 2). Each such connection must ensure that the ends of the rail halves of both sections butt together with no gap and that both the left and right flanges align horizontally. Notice that because each horizontal bolt slot on one rail-half mates with a vertical bolt slot on the opposing rail-half, precise flange alignment is possible.

Weld each butt joint for strength to ensure no gap. Then grind the weld down to the surface of the metal.

NOTE: One section of support rail will be supplied with a 17 1/2-inch filler piece at each end. This is the starter rail. Where the starter rail connects to the next rail section, the filler piece must be removed and may be attached to the last rail section to properly terminate the rail.

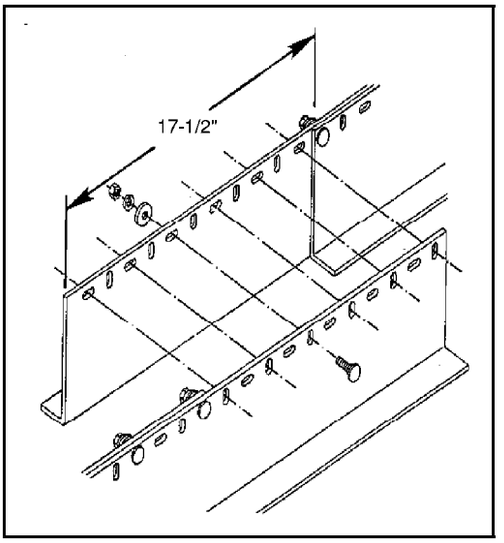


FIGURE 2 (MSIND417AE)
Support Rail to Support Rail Connection

Guide Rail to Support Bracket Connection

The shuttle guide rail is attached to an intermediate mounting bracket, which in turn may be mounted to the dryer, the floor-mounted guide rail support, or the free-standing support. The guide rail must be supported by one of these members at distances not exceeding 7’-0" on center (see dimensional drawings BDCORAL1BE and BDCORAL1BB).

To install the lower guide rail, first mount the intermediate mounting brackets to dryers, floor-mounted guide rail supports, or free-standing supports, as appropriate. The lower rail has continuous holes on the side that must face the dryers. These holes are for the rail-to-bracket connections. The intermediate guide rail support and its associated connecting hardware are shown in FIGURE 3.

The top of the lower rail must be clear of obstructions to avoid the shuttle’s lower belt from catching. The lower rail has continuous holes on the side that should face the dryers, for rail-to-bracket connections, as well as, four holes at the end of each rail for rail-to-rail connections. The hardware for rail-to-rail connections is shown on the next page.

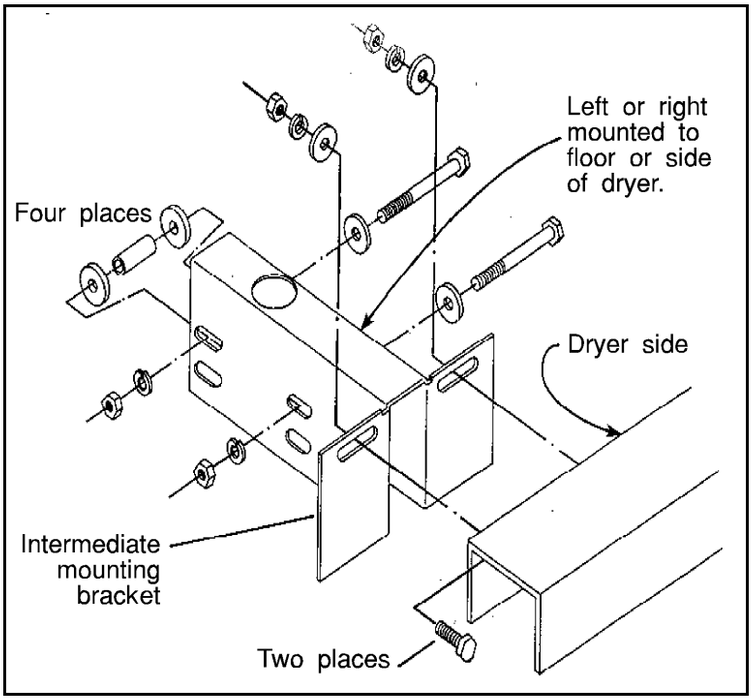


FIGURE 3 (MSIND417AE)
Guide Rail to Support Bracket Connection

Guide Rail to Guide Rail Connection

There are four holes at the end of each rail for rail-to-rail connection. The connection is made by a connecting bracket and eight bolts per side as shown in FIGURE 4.

⚠ CAUTION ⚠

B

PROPERTY DAMAGE HAZARD. Improper mounting of the guide rail will prevent the shuttle from traversing, cause uneven wear on shuttle rollers, or derail the shuttle.

- ☞ **Carefully follow instructions in this section for mounting and assembling support rails.**
- ☞ **Maintain accurate horizontal and vertical alignment of the guide rail along its entire length, as shown on the dimensional drawings.**
- ☞ **Ensure that the COSHA properly aligns with each Home and Discharge station.**
- ☞ **Ensure the top of the guide rail is clear of obstructions to prevent the lower belt from catching.**

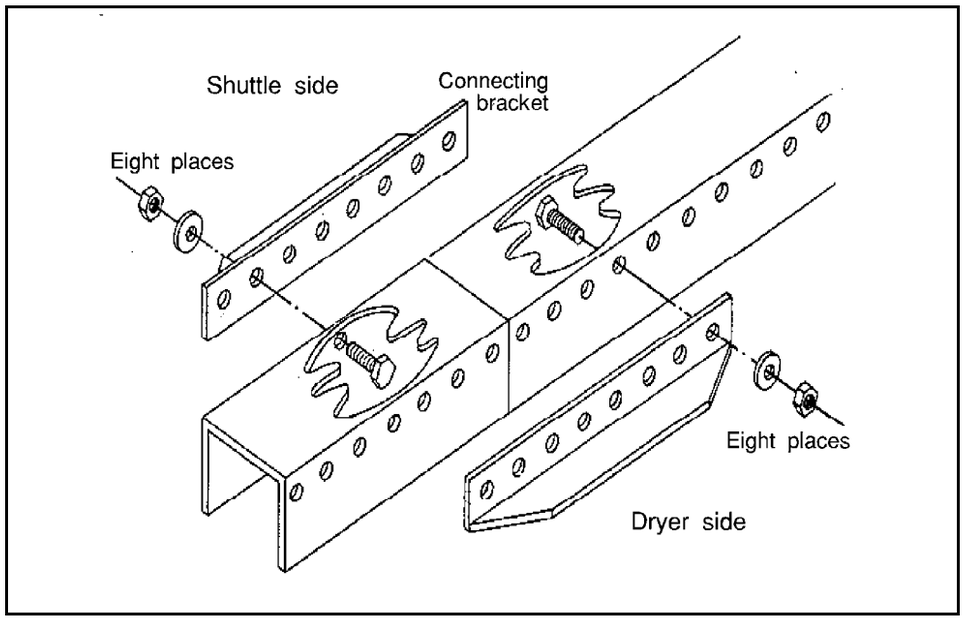


FIGURE 4 (MSIND417AE)
Guide Rail to Guide Rail Connection

Support Rail to Festoon-End Electric Box Connection

The festoon-end electric box is connected to the festoon end of the upper support rail with the hardware shown in FIGURE 5. The festoon cable terminates in the box. The box-mounting bracket serves as the end-rail mechanical stop for festoon cars.

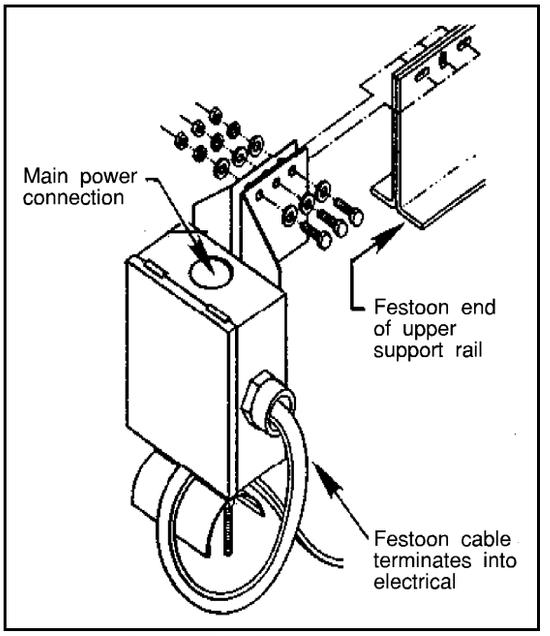


FIGURE 5 (MSIND417AE)
Support Rail to Festoon-End

ON-SITE ASSEMBLY—SHUTTLE AND CONVEYOR DEVICES

Guidelines for Lifting and Supporting

Do not try to balance the shuttle on the lower shipping brackets (FIGURE 1) before installation. These brackets protect the wheels during shipping and are not intended to support the shuttle.

Handle the device only by the lift points provided near the top of the machine (FIGURE 3).

Do not lift, jack, or stand on the shuttle bed or other components (FIGURE 2). These actions may cause personal injury and equipment damage.

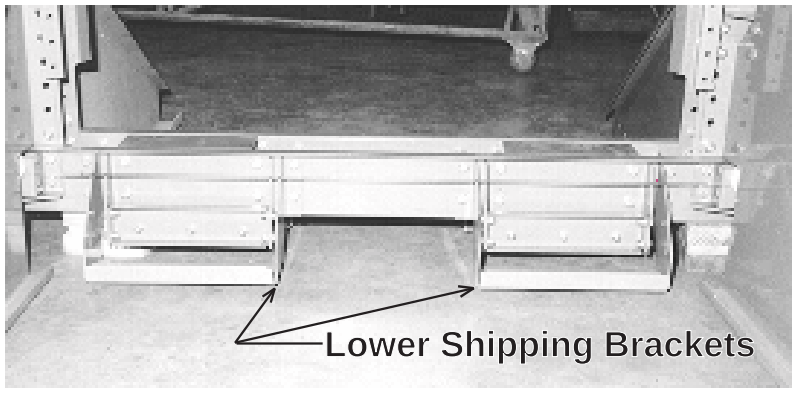


FIGURE 1 (MSIND429AE)
Shuttle Lower Shipping Brackets

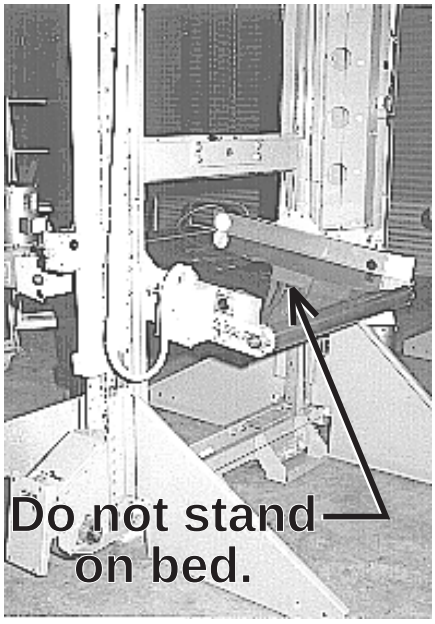


FIGURE 2 (MSIND429AE)
Shuttle (Typical)

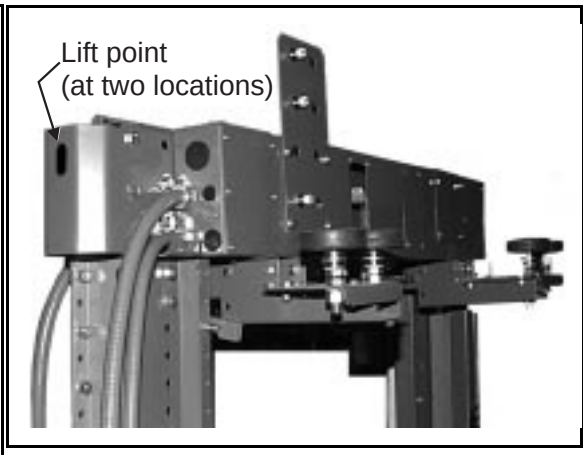


FIGURE 3 (MSIND429AE)
Lift Points at Top of Shuttle

Installing Emergency Stop Cable

The emergency stop cable was removed prior to shipment. Reinstall this cable before operating the device.

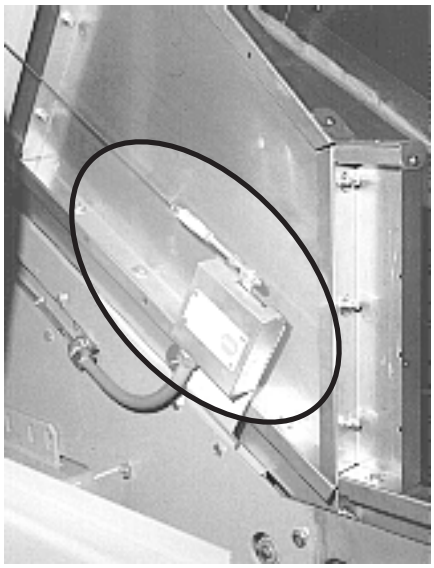


FIGURE 4(MSIND429AE)
Emergency Stop Cable (Typical)

Installing Kickplates

Traversing shuttle models will not operate without the emergency stop kickplates installed. Install the kickplates according to FIGURE 5.

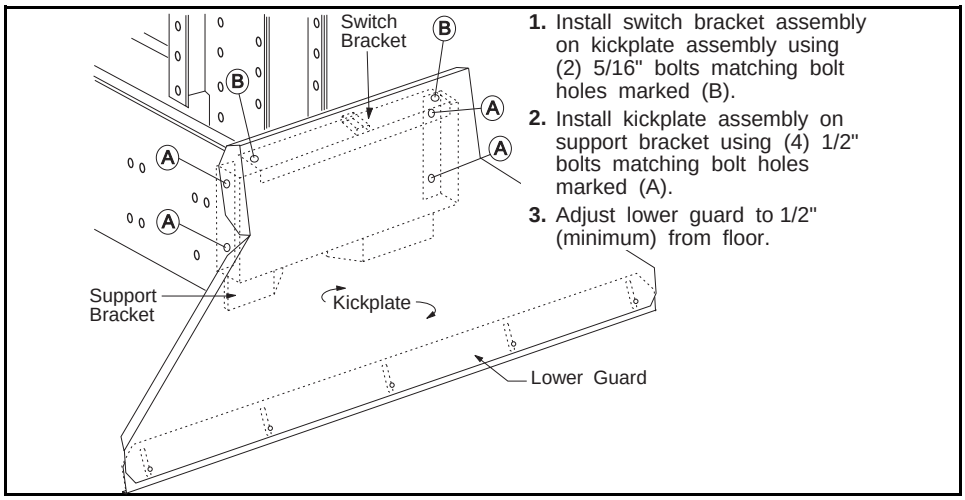


FIGURE 5 (MSSMD429AE)
Kickplate Installation—Traversing Shuttle Models

Installing Adjustable Hoist Down Stop

The adjustable hoist down stop (FIGURE 6) prevents the shuttle bed from descending any further than necessary. Set this stop at the highest position which does not interfere with shuttle operation.

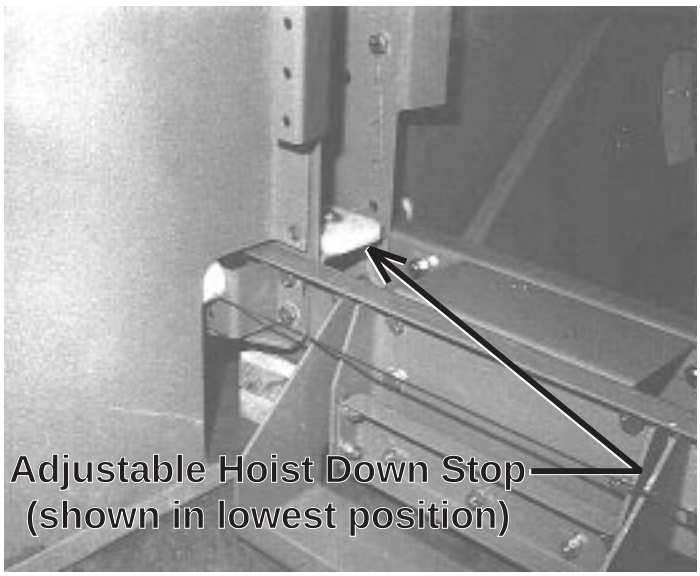


FIGURE 6 (MSIND429AE)
Hoist Down Stop

Installing Safety Stop Bracket

Install the safety stop brackets (FIGURE 7) on each end of the lower track. Use 3/8" self-tapping screws to secure the bracket to the track if the holes do not align.

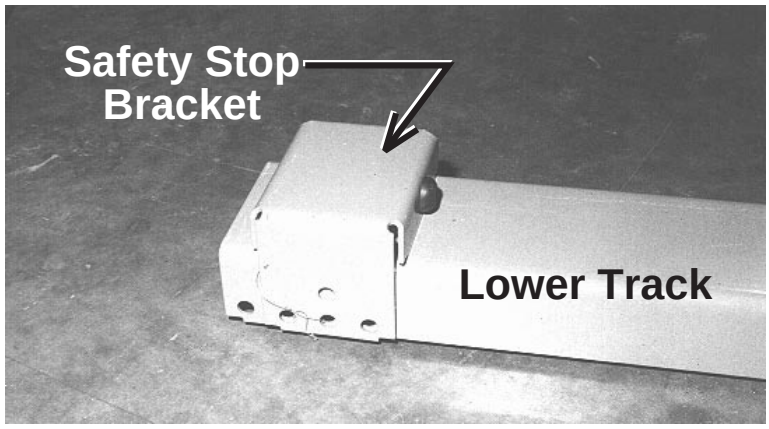


FIGURE 7 (MSIND429AE)
Lower Safety Stop Bracket Location

Installing Leg Plates on CONLO/CONWA Models

Install plate 04-20623 (FIGURE 8) at all leg positions of CONLO and CONWA models except the LOAD end of CONLO/CONWA 304 and 305, or when the conveyor is to be installed horizontally.

Install plate 04-20623B (FIGURE 9) on the LOAD end of CONLO/CONWA 304 and 305 conveyors except when the conveyor is to be installed horizontally.

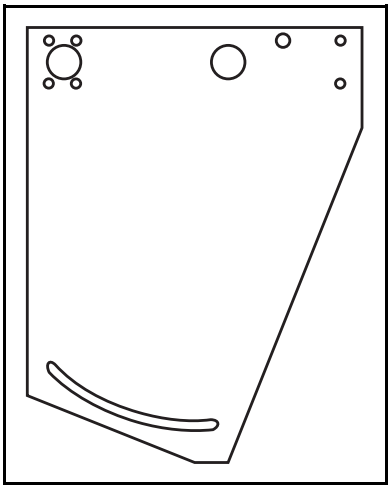


FIGURE 8 (MSIND429AE)
Plate 04-20623

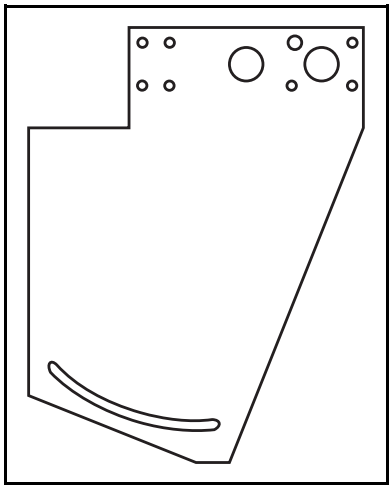


FIGURE 9 (MSIND429AE)
Plate 04-20623B

Installation of the Laser Positioner for Traversing Shuttles

NOTICE P1: "Remove power from the machine" means use the necessary safety procedure for your location. In the USA, this is the OSHA lockout/tagout (LOTO) procedure. More local requirements can also apply.

Milnor traversing shuttles manufactured after December 2010 are provided with a laser system to control shuttle travel along the rail (traverse) and the positions at which the shuttle stops. An older shuttle can be retrofitted with this system if it meets the following criteria:

- The system has, or is upgraded to Dryer/Shuttle controller (Drynet) software version 21010 or later and shuttle software with a matching date code.
- The shuttle has, or is upgraded to the microprocessor board with part number 08BSPE2T (2004 to current). The 08BSPE1T (circa 2000) and 08BSPET (circa 1994) will not work.
- The shuttle manual controls are housed in a stationary cabinet, not a shuttle-mounted box.

The laser positioner replaces the switches, targets, and mounting hardware previously used for this purpose. The laser positioner system uses the Banner L-Gage LT7 Laser.

1. Hardware Installation

WARNING 1: 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.

- Except where specified in this instruction, remove power from the machine to work in or near the shuttle path.

The laser beam must be parallel with the axis of shuttle travel. Typically the laser and target are mounted approximately 7 feet (1.8 meters) above the floor and and horizontally centered on the shuttle frame, but this can be modified to suit the individual circumstances. The beam must be unobstructed at all times. Locate the hardware with respect to the shuttle as follows:

Stationary laser support post—in proximity to the stationary shuttle control cabinet.
Reflector—on the shuttle frame. Detailed mounting instructions follow.

Install the hardware as shown in the figures below. It is necessary to install the laser on the support post but not anchor the post until the laser is aligned with the target.

CAUTION 2: Risk of Costly Damage—Until the laser support post is anchored, it can fall if it or the cable is hit by an object such as a fork lift. This will likely destroy the laser.

- Use care to keep clear of the post except to intentionally reposition it during alignment.
- Route the cable away from any interference and secure it.

Figure 1: Laser to Post

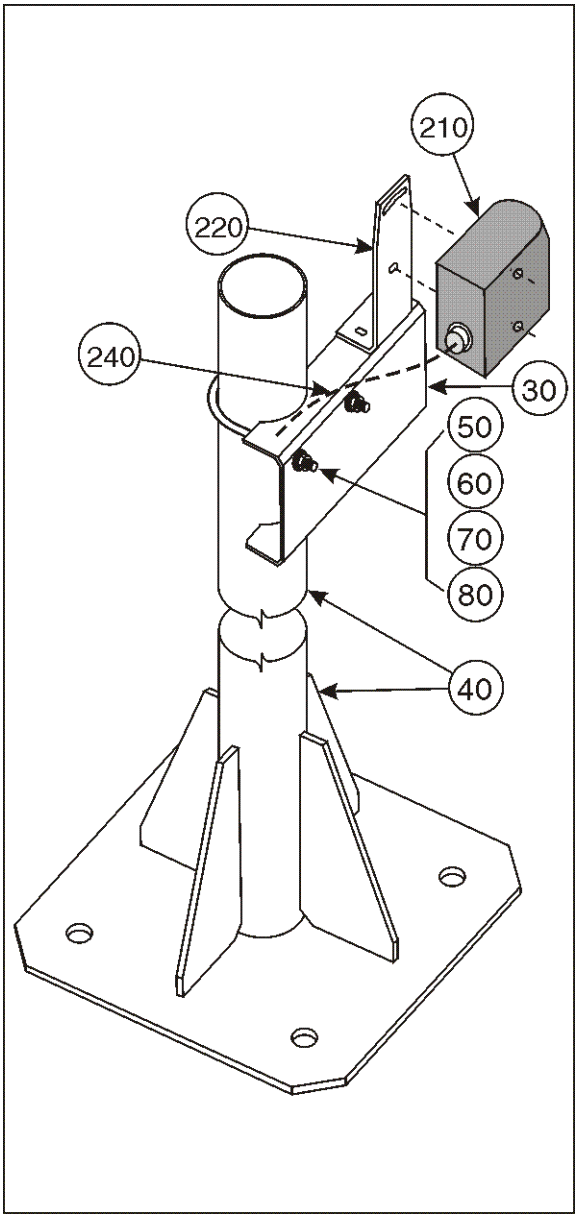


Figure 2: Reflector to Shuttle (Tube or J-rail frame)

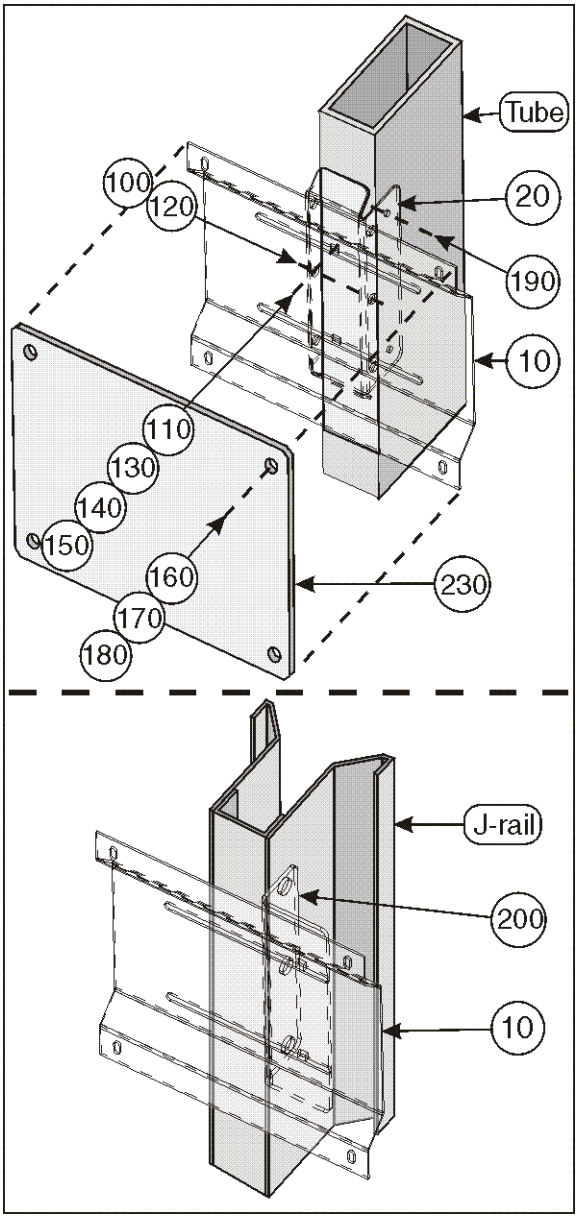


Table 1: Parts List for Figure 1 and Figure 2

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				
all	A	ALC420223	All mounting hardware except laser manufacturer components.	
Components				
A	10	04 24176	LASER TARGET FRAME	
A	20	04 24177	LASER TARGET TUBE RAIL MTG	Use with tubing type vertical frame member.
A	30	04 24146	LASER MTG CHANNEL	
A	40	W4 24180	LASER MOUNTING POST WLMT	
A	50	27A035C	U-BOLT 3/8-16X5.36 #0127316	
A	60	15U246	FLATWASHER 1"ODX25/64IDX1/8"30	
A	70	15U255	LOCKWASHER MEDIUM 3/8 ZINCPL	
A	80	15G205	HXNUT 3/8-16UNC2B ZINC GR2	
A	100	15A002A	CARBOLT 1/4-20UNC2X3/4 ZINC GR	
A	110	15K046	HXCAPSCR 1/4-20 UNC2A X 2"GR5	
A	120	17N058	HEXRIVNUT 1/4-20 UNC-2B #2520-	
A	130	15U185	FLATWASHER(USS STD) 1/4" ZNC P	
A	140	15U180	LOCKWASHER MEDIUM 1/4 ZINCPL	
A	150	15G178	1/4"-20 HEXFLANGE NUT ZINC	
A	160	15N125	RDMACSCR 10-24UNC2AX1/2 ZC GR2	
A	170	15U135	FLATWASH#10 .4370DX.203IDX.04T	
A	180	15G126SZ	HXLOCKNUT 10-24 UNC STL/ZNC	
A	190	15P011	TRDCUT-F PANHD 10-24X1/2 NIKST	
A	200	04 24178	LASER TARGET J-RAIL MTG	Use with J-rail vertical frame member.
all	210	09RLE0001	Banner L-Gage LT7 Laser and mounting bracket	
all	220	09RLE0001B	Mounting Bracket and included fasteners	
all	230	09RLE0001R	50 meter Retro Reflector	
all	240	09RLE0001C	Multi-conductor cable and connector—30 foot (7.6 meters) length	
	Tube	--	A type of frame used on certain shuttles	
	J-rail	--	A type of frame used on certain shuttles	

2. Electrical Connections

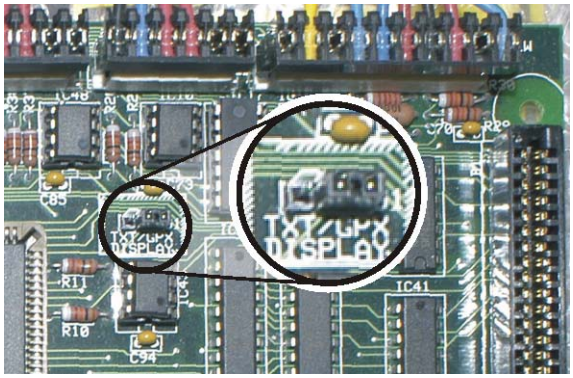
The electrical cable provided with this system has a pre-wired connector on one end that attaches to the laser. Shuttles manufactured after February 2011 have the control box end of the cable pre-wired also. The cable is secured to the control box. If the shuttle was not provided with the cable pre-wired, make connections as explained below. **Do not connect the cable to the laser until the wiring in the electric cabinet is completed.**

1. Determine the best route for the cable. Ensure that:
   - objects cannot strike the cable,
   - there is sufficient slack on each end to reach the connection points.

2. Route the cable and secure the center portion to protect against accidental movement. If not pre-wired, route the cable into the shuttle processor box through the hole in the box shown in Figure 3.
3. Set jumper J1 on the shuttle processor board to the GPX position as shown in Figure 4.

Figure 3: Hole in Shuttle Processor Box for Cable

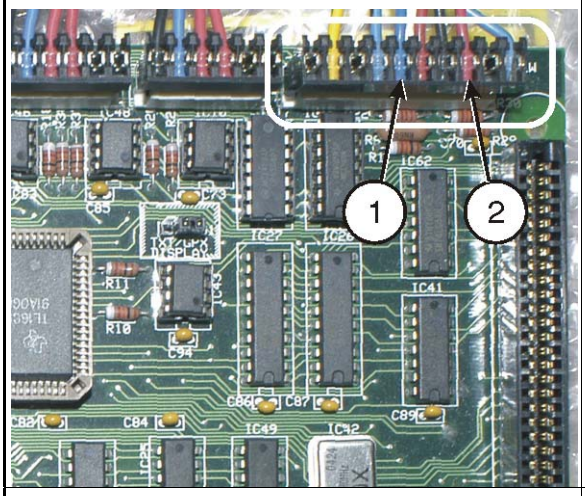
Figure 4: Jumper Position



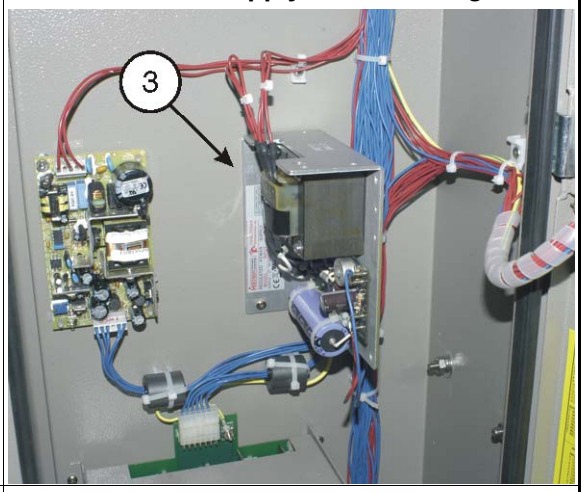
Only four of the conductors (the green, white, red, and blue wires) and the cable shield are used for this application. If the cable must be field-wired, make electrical connections as shown in Figure 5.

Figure 5: Connections—Previously Installed Shuttle

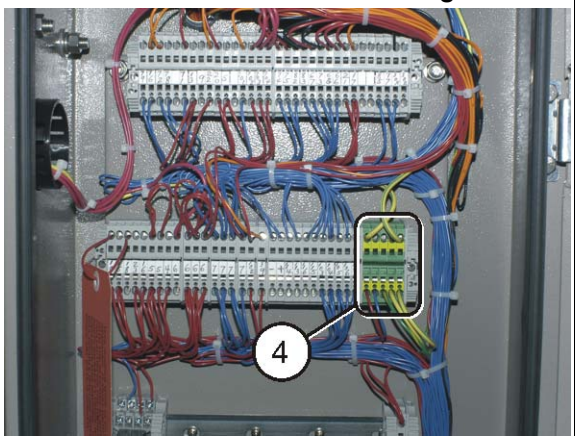
Connection Points in Processor Box



24 VDC Power Supply in Low Voltage Box



Ground Terminals in Low Voltage Box



Legend

1. MTA30, pin 5—connection point for White wire (TX+)
2. MTA30, pin 8—connection point for Gray/Pink wire (TX-)
3. 24VDC power supply—The 24VDC side is wire #102. Trace this wire to an available terminal and connect the red wire (Vcc) at this location.
4. Ground terminals—connect blue wire (Gnd) and cable shield to any available ground terminal.

3. Configure, Align, and Program

These instructions apply specifically to Banner L-Gage LT7 laser device. You received a manual with this device. **Review the safety information in this manual.** The manual provides more information than necessary to implement the laser positioner system for the shuttle. The following sections give the pertinent instructions. You can find detailed information in the Banner manual.

Display or Action	Explanation
	Energize the shuttle (at the MultiTrac or Drynet console). This will also apply power to the laser.
	Set the shuttle to the Manual mode (at the stationary shuttle control panel). This will take the shuttle off line.

Perform the procedures in this section with shuttle power on, but with the machine off line. **Use extreme care when you work in or near the shuttle path.**

3.1. Laser Configuration—Required configuration settings:

Serial interface: RS422

Baud rate: 19,200
Data Bits: 8
Stop Bits: 1
Data method: REPEAT

At the laser device:

Display or Action	Explanation
DIST mm >250000	This or a similar display indicates the laser run mode. The laser displays distance in hundredths of units.
	Accesses the laser program mode. This also activates the visible pilot laser used for alignment.
QuickSet <ENTER>	This is the first sub-menu in the Program menu.
	Scrolls the sub-menus. Select "UNIT".
UNIT <mm>	This display indicates the laser is configured for millimeter units. You can choose millimeters or inches (<inch>). If you want to change units:
	Accesses the *UNIT* field.
UNIT >mm	You can now select inch units.
	Toggles between *mm* and *inch* each time the key is pressed.
	Locks in the selected value.
UNIT <inch>	Indicates that the laser is configured for inch units. When the laser is properly aligned, the Run display will show the distance between the laser and target in hundredths of **inches**.
	Scrolls the sub-menus. Select the "SERIAL" sub-menu.
SERIAL <RS422>	This is the display you should see and indicates that the currently configured interface type is RS422. If you see any other value on the bottom line, access this field as follows.
	Accesses the field to select the type of interface.
SERIAL >RS422	You can now select another type of interface.
	Scrolls the interface types, which are: RS422, SSI 1/8, SSI1/10, and EXT.BUS. Select RS422.
	Locks in the selected value.
SERIAL <RS422>	Indicates that the laser is configured for an RS422 interface.
	Advances to the RS422 sub-menu.
RS422	Because the RS422 selection has it's own sub-menu, this display appears. This

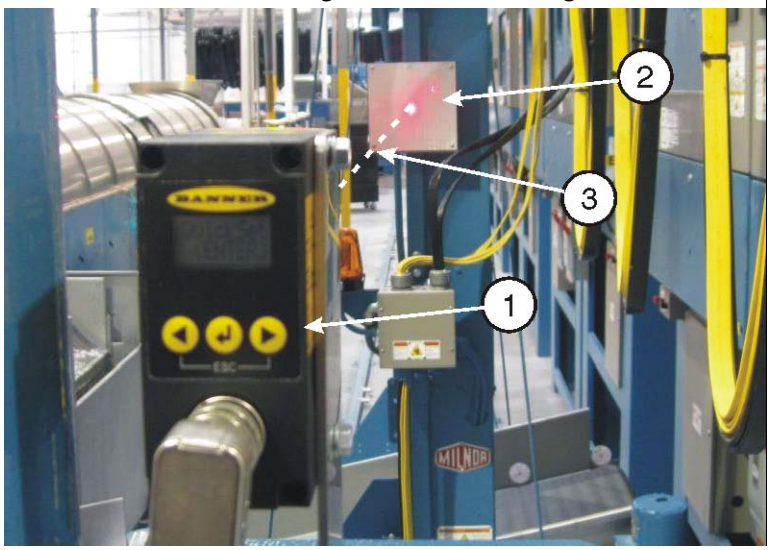
Display or Action	Explanation
<ENTER>	sub-menu has four data fields: baud rate, data bits, stop bit, and data method.
▶	Advances to the first field in the RS422 sub-menu: baud rate.
RS422 <19k2Bd>	19k2Bd is the correct value. If a different value appears on the bottom line, access this field and correct the value in the same manner as above. Otherwise, proceed to the Data Bits field.
▶	Advances to the next field in the RS422 sub-menu: data bits.
RS422 <8DATAb>	8DATAb is the correct value. If <7DATAb> appears on the bottom line, access this field and correct the value. Otherwise, proceed to the Stop Bits field.
▶	Advances to the next field: stop bits.
RS422 <1STOPb>	1STOPb is the correct value. If <2STOPb> appears on the bottom line, access this field and correct the value. Otherwise, proceed to the data method field.
▶	Advances to the next field: data method.
RS422 <REPEAT>	REPEAT is the correct value. If <SINGLE> appears on the bottom line, access this field and correct the value. Otherwise, return to the Run mode.
◀ + ▶, ◀ + ▶...	Returns to each higher-level menu, then the Run mode.

3.2. Laser and Reflector Alignment

1. At the laser device, access the program mode as previously explained. This activates the visible pilot laser used for alignment.
2. Adjust the orientation of the laser on its mounting brackets to place the beam at the center of the target.
3. Operate the shuttle in manual mode to move it along the shuttle path. Find manual operation instructions for the shuttle in the Drynet Dryer/Shuttle operator guide. As the shuttle traverses, observe the position of the beam on the target.
4. Move the laser post, and adjust the orientation of the laser and target to achieve the alignment described in Figure 6.
5. When alignment is achieved, anchor the laser post to the floor.
6. When the laser post is securely anchored, check the alignment again and make final adjustments.
7. Tighten the laser and target bracketry.

Figure 6: Laser and Reflector Alignment

View Looking from Laser to Target

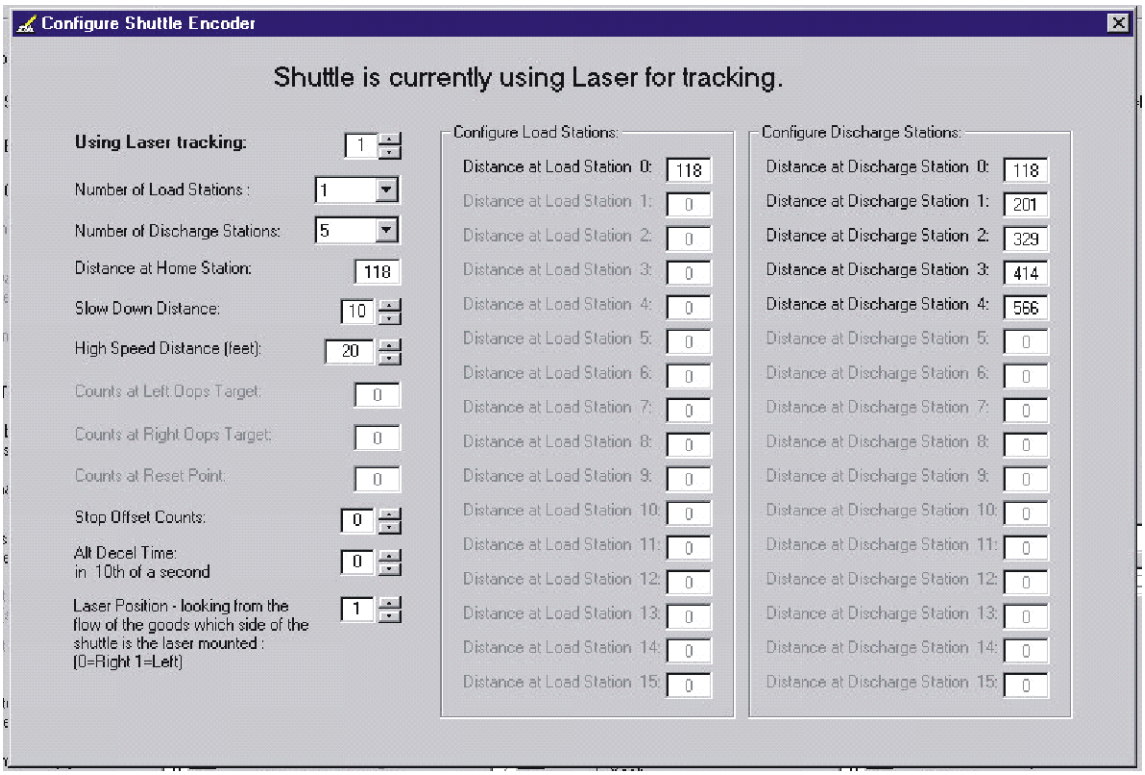


Legend

1. Laser device
2. Target
3. Laser beam. Align the laser device and the target so that the laser beam is parallel to the path of the shuttle and the beam remains centered in the target as the shuttle traverses. The reflector must be perpendicular to the laser beam and reflect the beam back to the laser. Otherwise, the laser will not register changes in distance in the run mode.

3.3. **Drynet Configuration and Programming of Shuttle Stop Positions**—The Drynet Dryer/Shuttle controller requires configure data to use the laser positioner. For example, it must know the distance between the laser and the target, as detected by the laser device, for each position at which the shuttle stops. Determine these values at the laser device. Enter this data at the Drynet or MultiTrac console, in the *Configure Shuttle Encoder* form (Figure 7).

Figure 7: *Configure Shuttle Encoder* **Form Configured for a Laser Device**



1. At the MultiTrac or Drynet console, access the shuttle Encoder form:
   a. In the Dryer/Shuttle Controller (DevComm Setup) window, select *Configure, Shuttles and Cobucs* on the menu. This displays one or more tabbed forms—one for each shuttle device in the system.
   b. Select the tab corresponding to the shuttle with the new laser device. This displays the main configuration form for this shuttle.
   c. Near the bottom right of the form, find the field *Shuttle has an Encoder.* Select (or re-select) the value 1. This displays the *Configure Shuttle Encoder* form (Figure 7).
2. Enter values in the fields on the left column of the encoder form in accordance with Table 2.
3. Do this procedure for each position at which the shuttle stops:
   a. At the stationary shuttle control box, manually move the shuttle to the stop position. Ensure that the shuttle is precisely aligned with the interfacing device.
   b. At the laser device, read the distance value in hundredths of units (inches or millimeters as previously configured). Hence, read the displayed value 26147 as 261 inches or millimeters.
   c. At the Drynet controller, enter this value (whole inches or millimeters) in the appropriate field:
      - Distance at Home Station
      - Distance at Load Station ___
      - Distance at Discharge Station ___

Table 2: Guidelines for Encoder Values for Laser Device

Data Field	Required Value or Guideline
Using laser tracking	1
Number of Load Stations	Per physical layout
Number of Discharge Stations	Per physical layout
Distance at Home Station	See Item 3 below.
Slow Down Distance	Between 6 and 10 inches (152 and 254 mm) recommended
High Speed Distance (feet)	Not currently implemented
Counts at Left Oops Target	Disabled and not applicable to laser device.
Counts at Right Oops Target	
Counts at Reset Point	
Stop Offset Counts	0
At Decel Time: in 10ths of a second	0
Laser Position	Face the direction that goods move as they are loaded onto the shuttle bed. If the post-mounted laser is located to the right of the shuttle, enter 0. If to the left of the shuttle, enter 1.

4. Testing

When you have entered all shuttle stop positions in the Drynet controller, test each position as explained in document BIVSRC01 "How to Test Traversing Shuttle Stop Positions."

— End of BIVSVI01 —

BIVSRC01 (Published) Book specs- Dates: 20110301 / 20110301 / 20110301 Lang: ENG01 Applic: VSR

How to Test Traversing Shuttle Stop Positions

This instruction is for technicians responsible for setup and adjustment of traversing shuttles. This procedure requires the technician to work within the shuttle travel area while operating the shuttle in manual and automatic mode. The shuttle travel area is normally guarded and off limits to personnel while the shuttle has power. This instruction assumes specially qualified and authorized personnel who fully understand the hazards. Use extreme care when you enter the shuttle travel area.

WARNING 1: 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.

- Do not attempt this procedure unless qualified and authorized.
- Ensure that bystanders do not enter the shuttle travel area.

Every shuttle installation is unique with regard to the positions at which the shuttle stops to receive and discharge goods. Each stop position must align with the device it receives from (typically a press) or discharges to (typically a dryer). After you configure the laundering system in the Miltrac, or other system controller and you initially define each stop position, use this procedure to test and adjust each stop position.

Supplement 1

How Shuttle Stop Positions are Controlled

To initially define each stop position, you manually move the shuttle to that position, visually align it with the transferring device, then set the target. Shuttles manufactured prior to December 2010 use physical targets along the rail or shuttle path. Newer shuttles and some older, retrofitted shuttles, use a laser device that measures the distance between the stationary laser and a single target located on the moving shuttle. In the newer type, you read a distance value displayed on the laser and enter this value for that stop position in the Drynet software. The procedure described in this document applies to both the older and the newer technologies.

1. Prepare the Laundering System

This procedure involves:

- the shuttle to be tested,
- any device(s) that load(s) the shuttle, such as a:
  - » press (cake shuttle)
  - » washer-extractor (loose goods shuttle)
  - » storage belt (cake or loose goods)
  - » tunnel (wet goods shuttle)
- any device that receives goods from the shuttle, such as a:
  - » dryer (cake or loose goods conveyor)
  - » no-dry station
  - » storage belt.

For safety and to maintain the necessary control of the devices involved in the test, set the devices per Table 1.

Table 1: Initial Device Settings

Device	Initial Setting		Comments
	Symbol	Description	
Shuttle to be tested	①	Start	Manual operation enabled
	✍	Manual mode	
Any other shuttles that share this path	⊗	Master switch off.	Shut down. Ensure no movement.
Device(s) the shuttle receives goods from	⊗		Shut down. Not needed except to test this stop position
Device(s) the shuttle discharges to	①	Start	Not allowed to receive goods from the shuttle.
	✋ or ✍	Load Not Allowed or Manual mode	

2. Test the Home Position and Aligned Stop Positions

Every shuttle installation has a home position. This is true regardless of how the shuttle is configured to act after it discharges goods (*Always return home*, *Homeless—return home when empty*, or *Homeless*). If there is only one position that loads the shuttle, this always coincides with the home position. The home position may also coincide with a position that receives from the shuttle. Whenever the machine (the shuttle) is stopped (⓪) in Automatic mode (⇄) and you start it (①), the shuttle returns home as part of the initialization procedure. To test the home position and any stop positions that coincide with it:

1. Move the shuttle manually (✍) away from the home position, if it is at home.
2. Set the shuttle to the automatic mode (⇄).
3. Stop, then start the machine (⓪, ①). The shuttle will seek the home position.
4. When the shuttle stops at the home position, set the shuttle to the manual mode (✍).
5. Check shuttle alignment and adjust as required.
6. Repeat these steps as necessary.

3. Test Stop Positions Where the Shuttle Discharges Goods

Choose a position (a device that receives goods from the shuttle) to test. The shuttle will go to this position if:

- this is the only available position to receive goods and
- the shuttle is encoded with batch codes that this position can accept.

With the shuttle at the home position, cause the shuttle to go to the test position as follows:

1. Set the device at the test position so it can receive a load (✋ and ⇄). All other devices that can receive from the shuttle must be set so they cannot receive a load (✋ or ✍).
2. Set the shuttle to the automatic mode (⇄), then stop the machine (⓪).
3. Place a rag or similar object large enough to block the photo eye in the center of the top bed of the shuttle.
4. Start the machine (①). The shuttle bed will run until the photo eye is blocked. The *Cake Data* prompt will appear on the Drynet display or the 2 x 20 display.

5. Enter cake data for a dry code that the device at the test position can receive. Typically, a dryer can receive all but the no-dry code and a no-dry station can only receive the no-dry code. The shuttle will move toward the test position.
6. As soon as the shuttle stops at the test position and before a transfer can occur, stop the machine (⓪).
7. Remove the object from the shuttle bed.
8. Set the shuttle to the manual mode (✍) and start the machine (①).
9. Check shuttle alignment and adjust as necessary.
10. Set the shuttle to automatic mode (⇄). The shuttle will return to the home position.
11. Repeat as necessary.

4. Test a non-Home Position Where the Shuttle Receives Goods

If an installation has two loading positions for the shuttle, at least one of these will not coincide with the home position. In such a case, the shuttle will likely be loaded by a storage device such as an elevating shuttle. To cause the traversing shuttle to move to the non-home loading position:

1. Set the traversing shuttle to the automatic mode (⇄).
2. Place a rag or similar object in the center of the top belt of the device at the test position (the non-home device that loads the traversing shuttle).
3. Energize and start this device (⊛, ①). The storage device bed will run until the photo eye is blocked. The *Cake Data* prompt will appear on the display for this device.
4. Enter cake data. This will summon the traversing shuttle.
5. As soon as the traversing shuttle stops at the test position and before a transfer can occur, stop the loading device (⓪).
6. Remove the object from the loading device bed.
7. Set the traversing shuttle to the manual mode (✍) and start the machine (①).
8. Check shuttle alignment and adjust as necessary.
9. Set both the loading device and the traversing shuttle to automatic mode (⇄). The traversing shuttle will return to the home position.
10. De-energize the loading device (⊗).
11. Repeat as necessary.

— End of BIVSRC01 —

B

MOUNTING SHUTTLE SWITCH ACTUATORS

Shuttle switch actuators are devices mounted on the support rail that actuate the various lever arm-type limit switches located at the top of the shuttle. Separate switches and switch actuators are used for the following basic functions:

SWITCH NAME	FUNCTION
Home	Stops the empty shuttle directly in front of the COINC/Press, where it will receive its next load.
Discharge	Stops the loaded shuttle directly in front of the dryer that is next to receive a load.
Oops	Causes the shuttle to stop, then begin moving slowly in the reverse direction if an error allows it to travel beyond the last normal stop.

The standard locations of the limit switches on the shuttle frame are shown in FIGURE 1. The Home and Discharge functions, which require precise positioning, each use two switches to compensate for over-travel, as the shuttle may be traveling left or right. In either case, only one switch need be actuated to stop the shuttle.

By virtue of its distance away from the support rail centerline, each switch (or pair of switches) travels along a separate path (track) (see FIGURE 1).

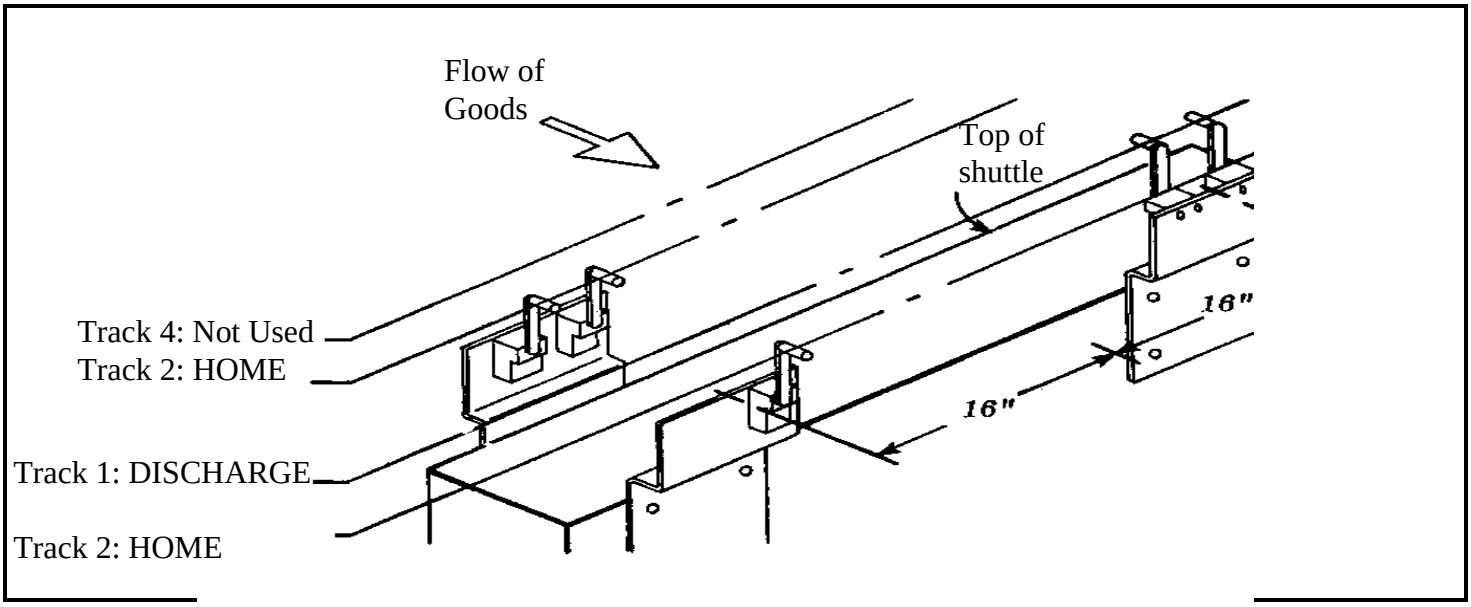


FIGURE 1 (MSIND416AE)
Tracks for Aligning Switches with Actuator

Switch actuators must be mounted in the position in the actuator bracket corresponding to the appropriate track. For example, Oops actuators must always be mounted in the position corresponding to Track 3 (see FIGURE 2). Where appropriate, more than one actuator may be mounted in the same bracket.

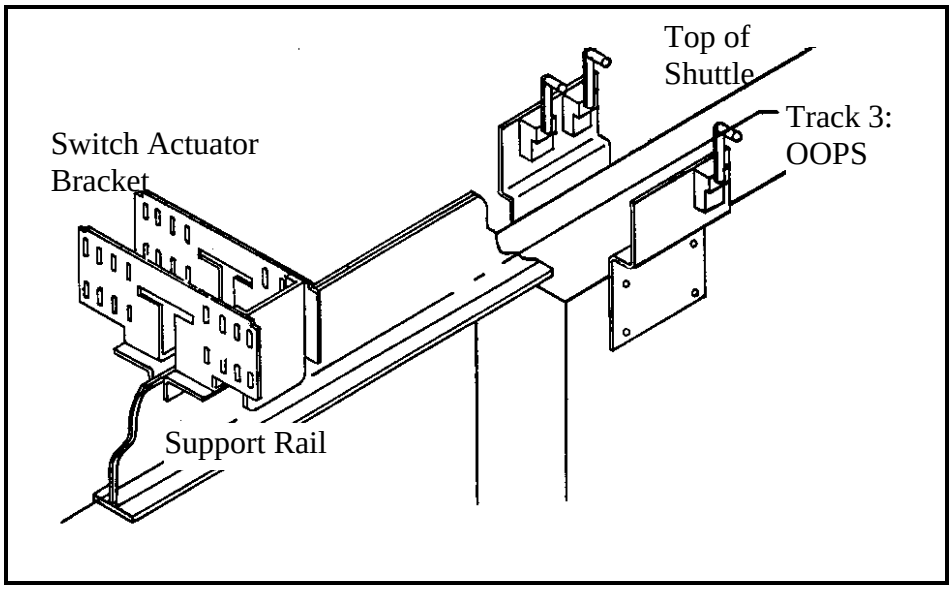


FIGURE 2 (MSIND416AE)
Example: Track 3 Used To Align Oops Switch

Actuator Types and the Crossover Option

Switch actuators are of three mechanical types: fixed, normally extended, and normally retracted (see FIGURE 3). The normally extended and normally retracted types are air-operated.

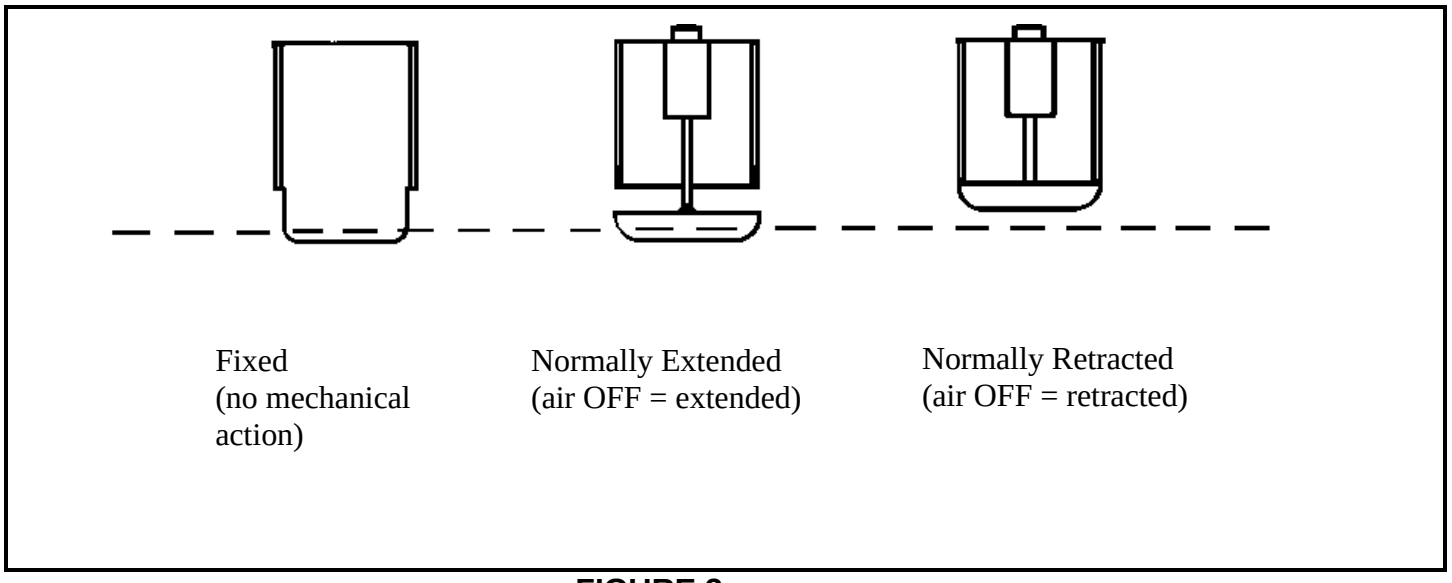


FIGURE 3 (MSIND416AE)
Switch Actuator Types

All Discharge actuators are of the normally retracted type. The type of actuator to be used for the Home and Oops functions depends on whether the crossover option is used. This option only applies to installations that use two or more CBW® systems, both feeding dryers along a common rail. Crossover circuitry allows the operator to select alternate modes of operation wherein the shuttle for one system enters the normal path of the other shuttle to feed the other system's dryers, if the other CBW® system is out of service. This option requires that Oops actuators are placed at various intermediate locations, depending on which dryers can be accessed by more than one shuttle. The types of actuators required for crossover and non-crossover conditions are as follows:

ACTUATOR FUNCTION	ACTUATOR TYPE	
	No Crossover	**With Crossover**
Home	Fixed	See NOTE 1
Discharge	Normally Retracted	Normally Retracted

NOTE 1: A Home actuator must be of the normally extended type if in any Crossover mode, the shuttle not assigned to that Home position must travel across that position. If at a particular installation, this cannot happen in any crossover mode, the Home actuator may be fixed.
NOTE 2: The two Oops actuators at the normal boundary between the two shuttle paths must be of the normally extended type and the single Oops actuators at the ends of the overlapping paths must be of the normally retracted type. As with single shuttle installations, the Oops actuators at the rail ends are of the fixed type. See "Locating Oops Actuators" in this section.

The various switch actuators must be precisely located on the shuttle rail so that the shuttle will stop at the intended positions. Because the limit switches on the shuttle are not centered on the shuttle frame (when viewed from the front) but are offset by 16", the switch actuator bracket for each position (dryer, press, etc.) must be offset from the centerline of that position on the same side and by the same amount as the corresponding switches on the shuttle.

B All actuators must have a minimum spacing of 7.5" between each other.

Locating Home and Discharge Actuators

B A Home actuator is required for every shuttle. A Discharge actuator is required for every dryer and no-dry position with two exceptions:

1. Where a dryer or no-dry position is directly across from (on the same centerline as) another dryer or no-dry position, the two facing positions share the same Discharge actuator and bracket.
2. Where a dryer or no-dry position is directly across from (on the same centerline as) a press/COINC, the dryer or no-dry position does not use a Discharge actuator.

Locating Oops Actuators

For installations with one or more shuttles, but no crossover capability, fixed Oops actuators are required at each end of travel of each shuttle. Where two shuttles operate on the same rail, the two adjoining Oops actuators at the common boundary must be spaced far enough apart to ensure that if both shuttles were stopped at these Oops positions, there would be at least 12" clearance between them.

For installations with crossover capability, Oops actuators are required at the normal limits of travel as well as the limits of travel of the overlapping paths, defined by each crossover mode. The types of Oops actuators used with crossover are identified in FIGURE 4.

Oops actuators must be placed such that the shuttle travels at least 7 1/2" beyond the last programmable stop which may be a dryer or no-dry (Discharge) position or a press/COINC (Home) position before actuating the Oops switch. If a service bay is provided beyond the last programmable shuttle stop, the Oops actuator must be located so that the shuttle travels at least 7 1/2" beyond this position before actuating the Oops switch. A service bay is a manual position and requires no actuator, itself.

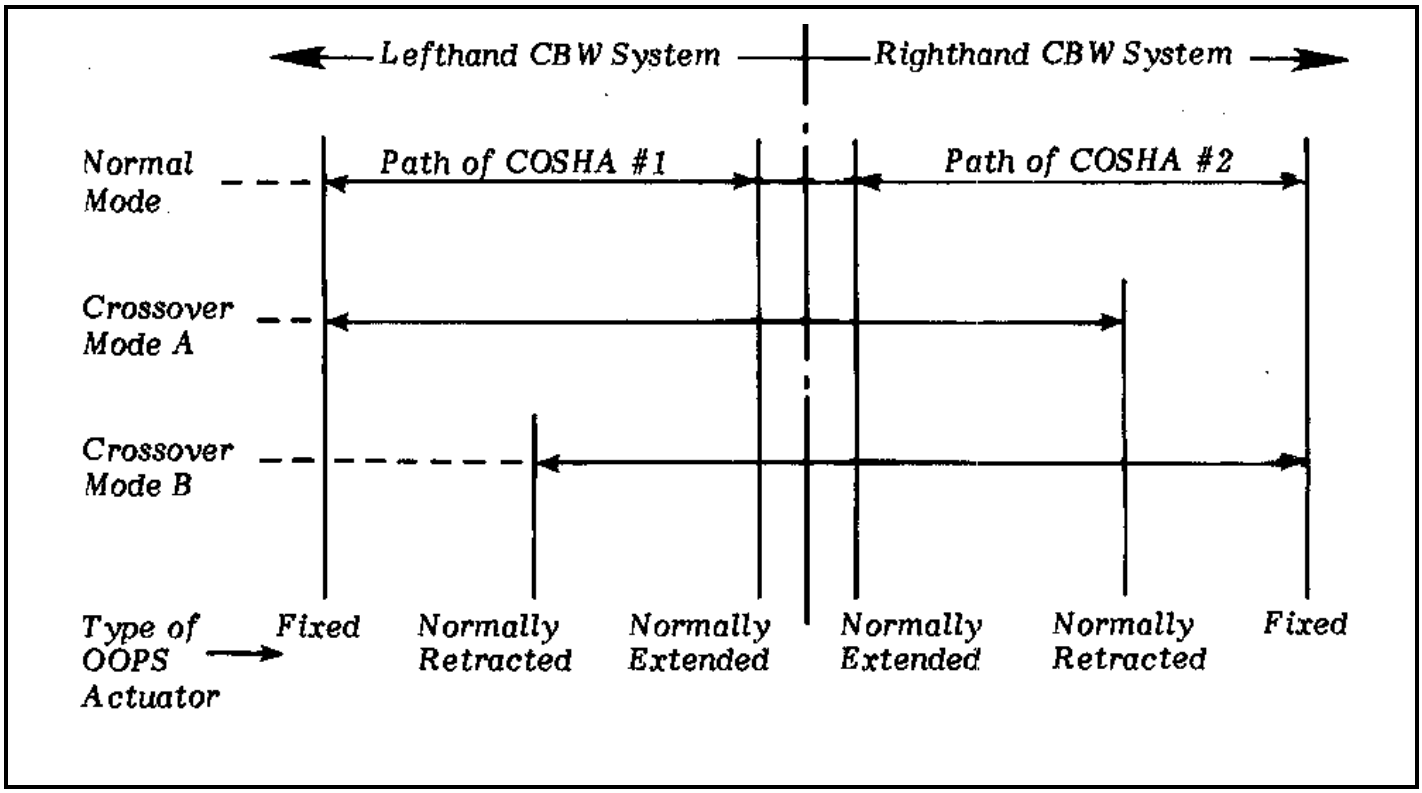


FIGURE 4 (MSIND416AE)
Types of OOPS Actuators Used With Crossover

Stopping Leftward Travel Beyond a Home Position—When the last programmable stop in leftward travel is a press/COINC (Home position), and it is desired that the shuttle travels an additional distance “L” past the Home position before reaching the Oops position (7 1/2" minimum).

- For L between 7 1/2" and 16", add an Oops actuator and mounting bracket at location 1. A=16-L
- For L greater than 16", add an Oops actuator and mounting bracket at location 2. B=L-16

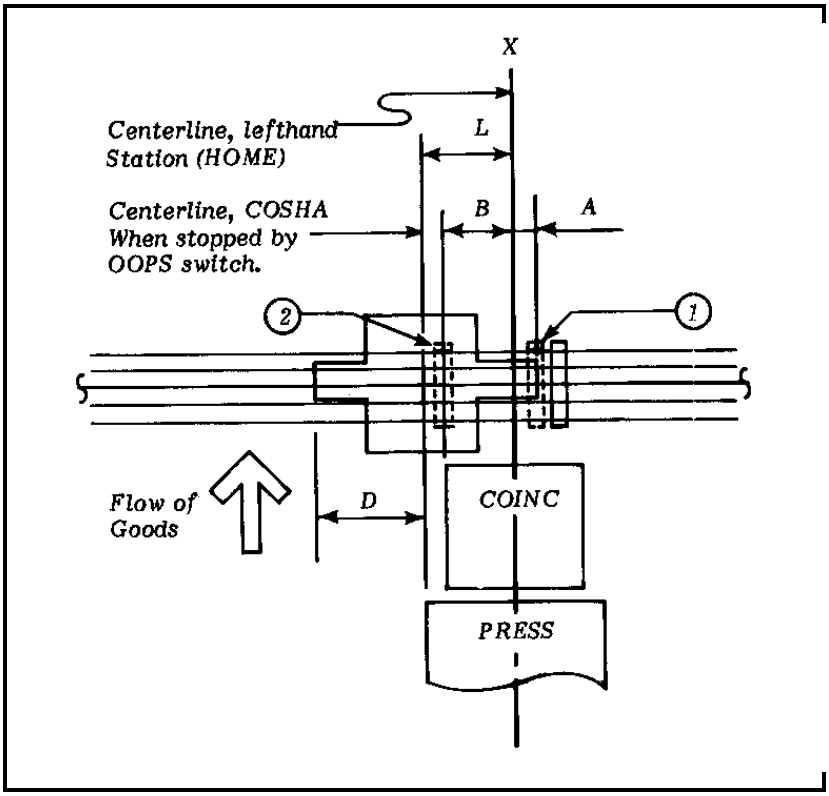


FIGURE 5 (MSIND416AE)
Placement of Left End Oops Switch When Leftmost Position is Home position.

Stopping Leftward Travel Beyond a Discharge Position—When the last programmable stop in leftward travel is a dryer or no-dry (Discharge) position, and clearance at the left end of travel is not critical, it is convenient for the shuttle to travel 32" past the Discharge position before reaching the Oops position (L=32). This allows the Oops and Discharge actuators to share the same mounting bracket, as shown below. Otherwise, separate brackets must be used (see FIGURE 6).

- For L=32, mount the Oops actuator in the same bracket with the Discharge actuator (location 1).
- For L between 7 1/2" and 16", add an Oops actuator and a mounting bracket at location 2. A=16-L
- For L between 16" and 24 1/2" or larger than 39 1/2", add an Oops actuator and mounting bracket at location 3. B=L-16
- For L between 24 1/2" and 39 1/2" (but not 32"), consult the MILNOR® factory.

Stopping Rightward Travel—When it is desired that the shuttle travels an additional distance "R" past the last programmable stop (Home or Discharge position) in the rightward direction (7 1/2" minimum), add an Oops actuator and mounting bracket at location 1. C=R+16 (see FIGURE 7).

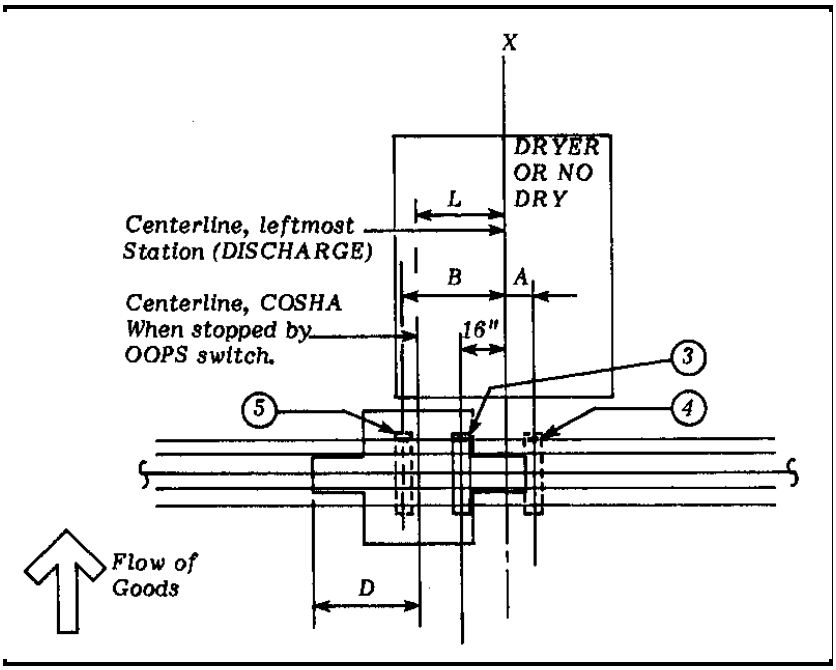


FIGURE 6 (MSIND416AE)
Placement of Left End Oops Switch When Leftmost Position is Discharge

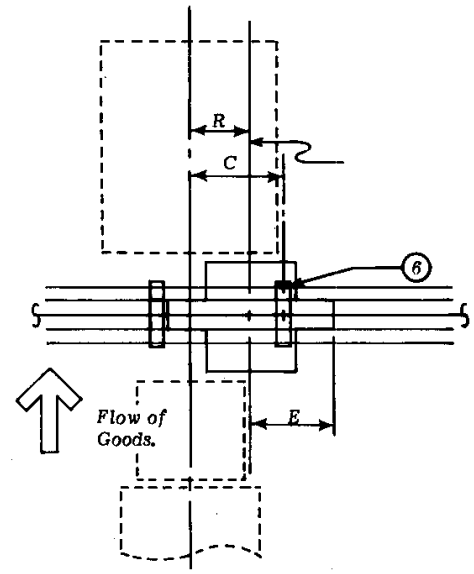


FIGURE 7 (MSIND416AE)
Placement of Right End Oops Switch

B

MAKING SERVICE CONNECTIONS AND ADJUSTMENTS

The service connections required for shuttles are as follows: 1) electric power, 2) control signals, and 3) serial link. The power, control signals, and serial link are routed to the shuttle via festoon cables supplied separately by the MILNOR® factory. The fixed end of the festoon cable terminates in a junction box supplied by the MILNOR® factory. This junction box may be mounted to the support rail. Power and control connections must be made at both festoon ends. See dimensional drawings for information on locating and hanging the festoon cable.

NOTE: Shuttles intended for manual operation do not have serial link connections.

Electric Power Connections

The customer must furnish a remotely mounted disconnect switch with lag-type fuses and wiring between this box and the motor contactor box on the machine (or in the belt box). The sizes of these fuses and wires, along with the motor fuses supplied with your machinery, depend on the machine voltage. For your machine specifications, see the following documents:

Electric Connections

Specification	Document	Document Location
Machine voltage; external fuse and wire sizes	Machine nameplate “FUSE AND WIRE SIZES” chart.	Affixed to machine frame Shuttle schematics manual
Motor fuses	Motor fuse name plate	Affixed to door of motor contactor box.
Phasing motors	“ELECTRIC POWER CONNECTIONS” tag	Inside motor contactor box

Precautions for Power Connections

1. Connections must be made by a competent electrician.
2. Prior to making power connections, read the instructions on all related tags.
3. “Stinger leg,” if any, must be connected to terminal L3, not L1 or L2.
4. Only use Bussman Fusetron FRN (up to 250V), FRS (250V to 600V), or similar lag fuses. The nameplate fuse sizes must not be applied to standard fuses.
5. Verify all motor rotation (see programming, operating, and troubleshooting manual instructions to actuate outputs). Verify that the belts are running in the proper direction. If the belts run in the wrong direction, interchange the wires connected to L1 and L2. Never move L3 if L3 is the stinger leg.

Electric Control Connections

Unlike stand-alone machines, all CBW® system components require power and control cabling between the machine and their external, remotely located controllers. Three sources of information describe various aspects of these connections and must be consulted:

B **1.** CBW® SYSTEM INTERCONNECTIONS (MILTRAC schematic set)—This document is the primary source of information on required field connections. It describes each typical component-to-component interface and the field connections required.

2. CABLING DIAGRAM—A unique cabling diagram is provided with each CBW® system and shows schematically the overall wiring scheme between the components of that installation.

3. SCHEMATICS MANUALS—These manuals are the sets of electrical schematics for each system component and its associated controller (e.g., dryer, press, shuttle, CBW®, etc.). The primary purpose of these schematics is to show circuit logic. Although these schematics are of limited value in making field connections, the Signal Routing Tables provided with each set of schematics can assist in tracing individual conductors through each connection point, including some of those between components.

B SETTING LIMIT SWITCHES

Limit Switches—Including Microswitches—Will Be Damaged If Over-actuated!

Any limit switch will be damaged if it bottoms out forcefully. This can bend the rotary shaft or damage internal components and may cause the switch to stick in one position either permanently or intermittently. Be aware that an intermittently sticking switch can be mistaken for a malfunctioning microprocessor!

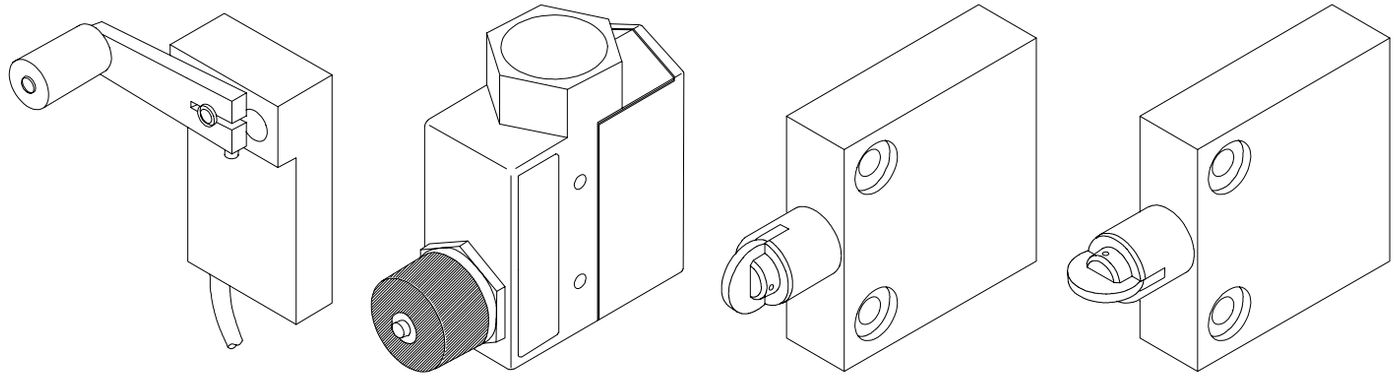


FIGURE 1a
Rotary Lever Switch

FIGURE 1b
Plunger Switch

FIGURE 1c
180° Roller Plunger

FIGURE 1d
90° Roller Plunger Switch

FIGURE 1 (MSSM0116AE)
Limit Switch Types

B

⚠ WARNING ⚠

Limit switches must function properly to ensure the safe operation of the machine.

- ☞ **Inspect switches regularly.**
- ☞ **Never operate a machine with a malfunctioning limit switch.**

Setting Switches

B

Travel of Rotary Lever or Plunger—Set switch and target so that after the switch contacts close (as determined by an ohmmeter), the lever or plunger will then move approximately half of its additional available travel (see FIGURE 2).

NOTE: It is impossible to determine by feel, sound, or experience at what point the switch contacts make. The only reliable method is to use an ohmmeter. Switches may also be bench-tested, and the plunger or rotary shaft scribed to mark this point.

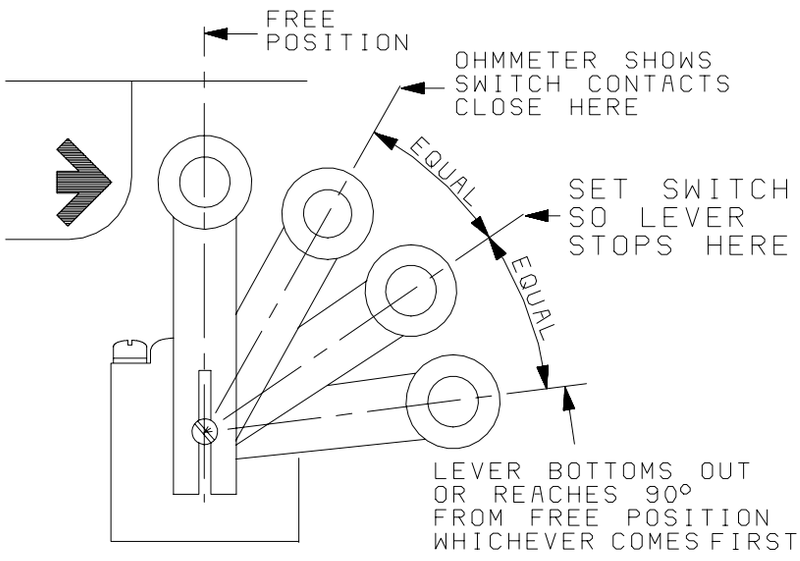


FIGURE 2a
Rotary Lever

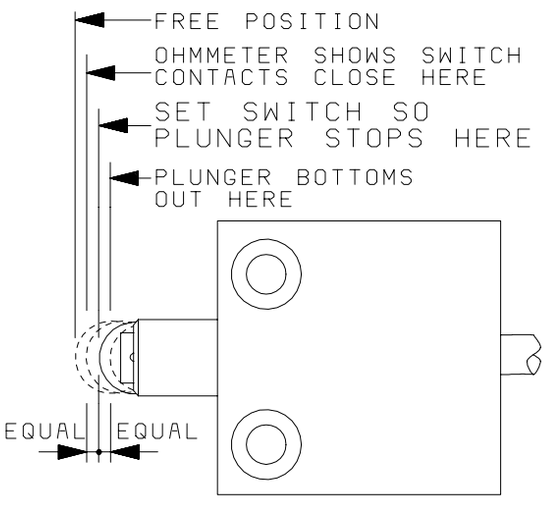


FIGURE 2b
Plunger Switches
(Roller Plunger Switch Shown)

FIGURE 2 (MSSM0116AE)
Where Lever or Plunger Should Stop

Free Position of Rotary Lever—Attach the rotary lever to the shaft so that, in the free position, the lever is at a right angle to the direction of relative movement between the switch and target (see FIGURE 3).

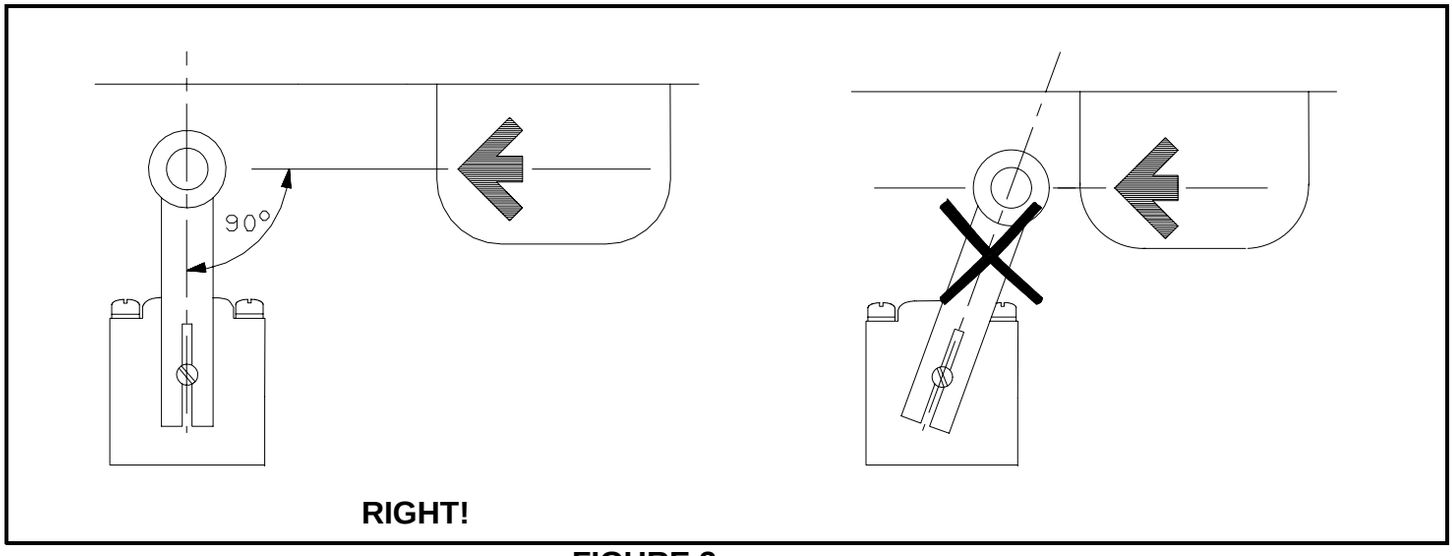


FIGURE 3 (MSSM0116AE)
Free Position of Rotary Lever

Angle of Switch—Set a plunger switch so that the target and plunger move parallel to each other. It will be approximately correct when properly installed on its mounting bracket, but may require fine adjustment.

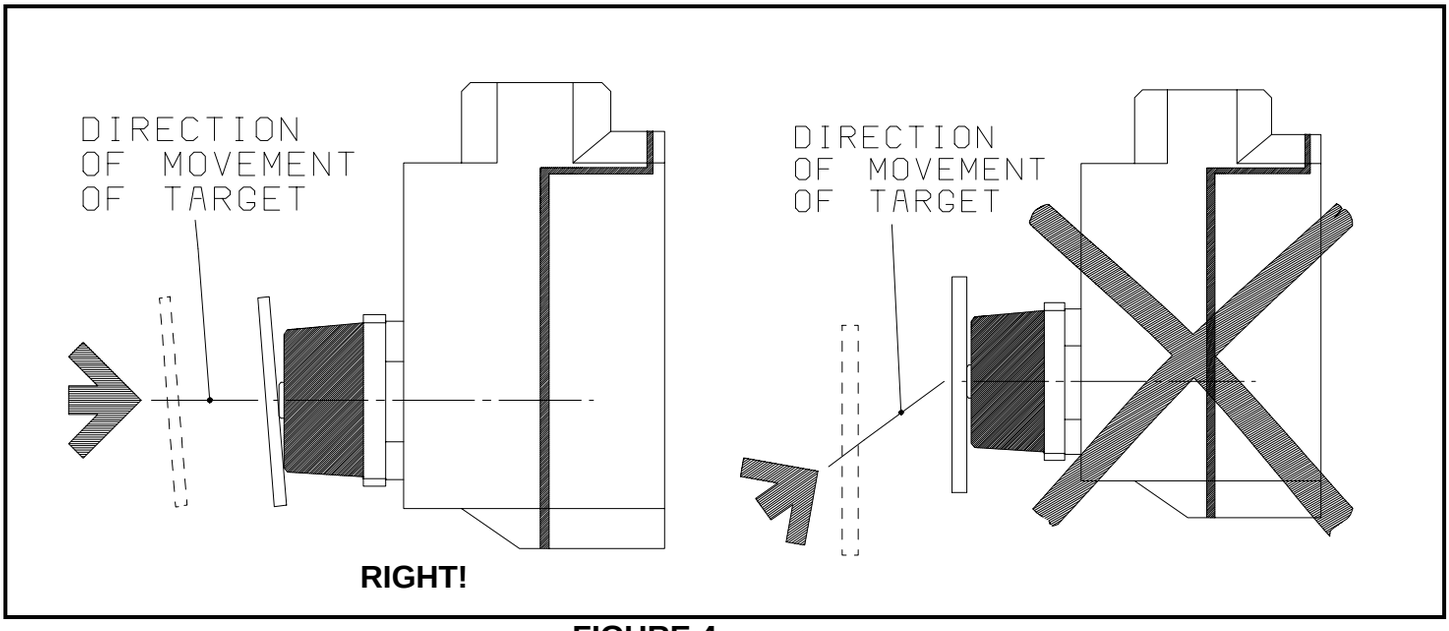


FIGURE 4 (MSSM0116AE)
Plunger Switch Angle

With a roller plunger switch, make sure that the roller rotates in the direction that will accommodate the movement of the target (not at a right angle to the target movement). Also, be sure that a replacement switch has the roller oriented the same way as the switch it replaces (see FIGURE 5).

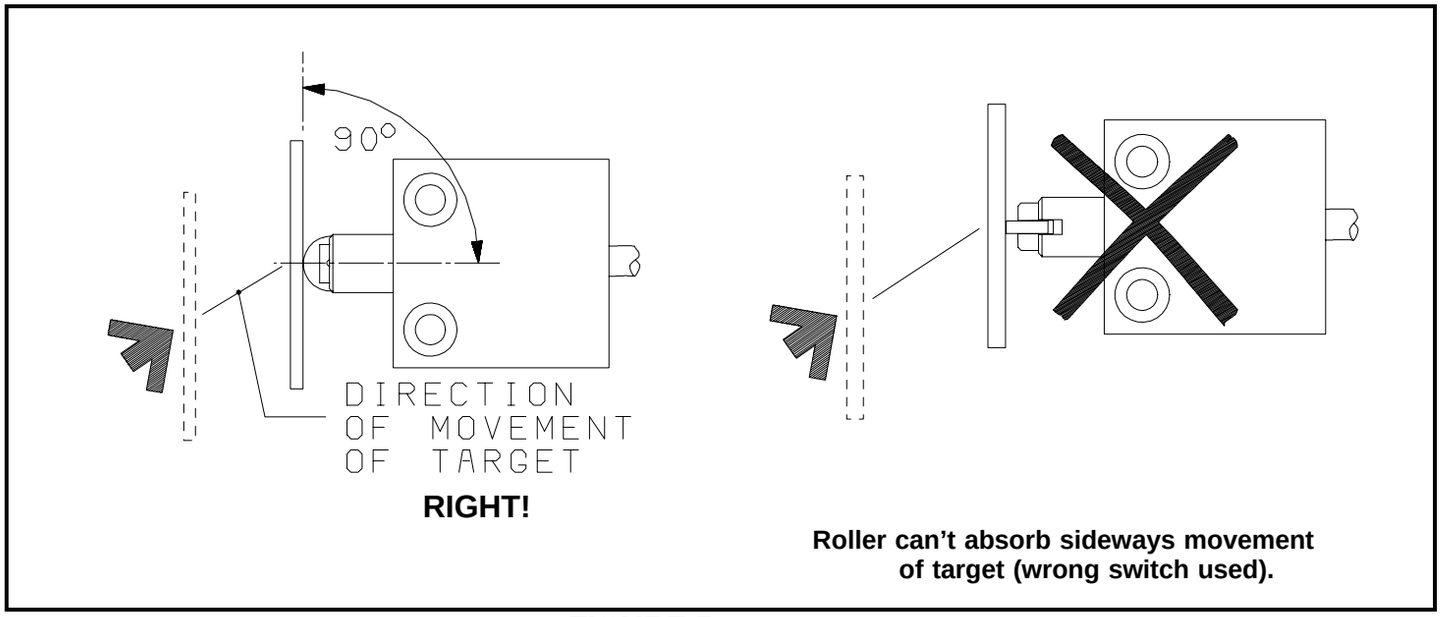


FIGURE 5 (MSSM0116AE)
Roller Plunger Switch Angle

SETTING PHOTOSENSORS

⚠ CAUTION ⚠

Excessive torque when turning potentiometers to their limits will damage them.

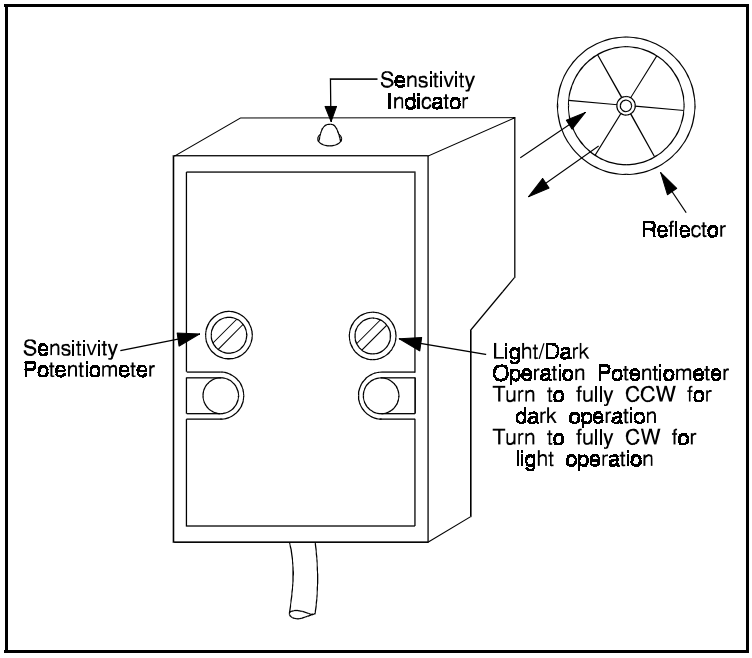


FIGURE 1 (MSSM0122AE)
Retroflective Photosensor (rear)

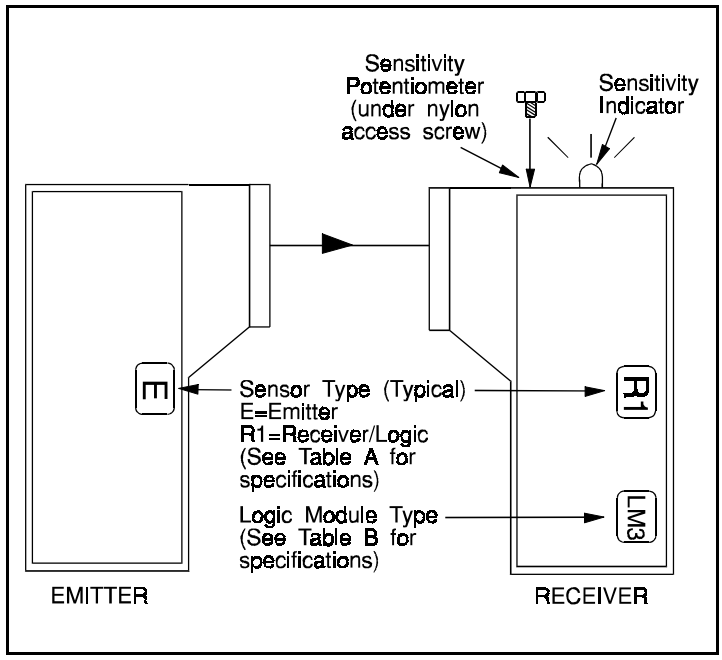


FIGURE 2 (MSSM0122AE)
Opposed-mode Photosensors

As of this writing, Milnor® uses two types of photosensors: the Banner VALU-BEAM SM-800 Retroflective and the Banner LM3 Opposed-mode models (see FIGURES 1 and 2). Both types must be properly adjusted for light or dark operation and for sensitivity. In addition, for some functions, opposed-mode photosensors have adjust-able time delays. While these devices are set at the Milnor® factory, photosensors supplied as original equipment may require adjustment to suit local conditions, and replacement units must be set initially.

NOTE: When set for dark operation, the photosensor provides an input to the Milnor® microprocessor when the beam is blocked by an object. When set for light operation, the photosensor provides an input to the microprocessor when the object normally blocking the beam is removed.

Setting Retroflective Photosensors

Retroflective photosensors use a combined receiver/emitter and separate reflector to sense when an object blocks the focused light beam. These sensors have a top-mounted sensitivity indicator that flashes faster as sensitivity is increased. Sensitivity and light/dark operation settings are made via potentiometers (see FIGURE 1). **Most Milnor® applications require dark operation.**

1. **Light/Dark Operation Potentiometer**—Adjust this single-turn potentiometer fully counterclockwise if the application calls for dark operation, or fully clockwise if it calls for light operation. When turning the potentiometer, avoid excessive torque to prevent damage.

2. **Sensitivity Potentiometer**—If this potentio-meter is turned clockwise, sensitivity increases and the sensitivity indicator flashes more rapidly. When the potentiometer is fully clockwise, the sensor is most sensitive. Adjust the sensitivity by turning the potentiometer clockwise until the indicator flashes very rapidly.

Setting Opposed-mode Photosensors

⚠ DANGER ⚠

SHOCK HAZARD—Electrical power can cause death or severe injury. Lock OFF and tag out power to the machine main bus before opening photosensor.

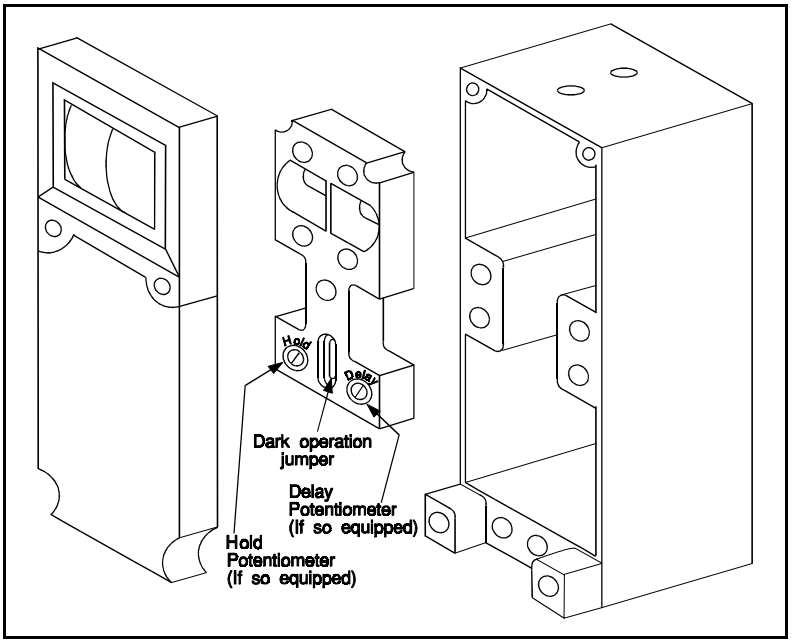


FIGURE 3 (MSSM0122AE)
Exploded View of Opposed-mode Receiver/Logic Module

Opposed-mode sensors use two units: an emitter to produce an infrared beam and a receiver/logic module to sense when objects block the beam (see FIGURE 2). The emitter-type determines the beam type and range (see Table A). The receiver/logic type determines whether the receiver reads light or dark and when it provides an input to the MILNOR microprocessor (see Table B). Receiver/logic modules are equipped with a dark operation jumper for dark operation (FIGURE 3). Removing this jumper changes the sensor to light operation. Depending on the function, the receiver/logic module may also have potentiometers for **On/Off-delay** and **Hold.** An **On-delay** potentiometer sets the amount of time the light (or dark) beam must be seen by the receiver/logic module before the input (to the MILNOR® microprocessor) makes. An **Off-delay** potentiometer sets how long the input lasts even if the beam has ceased. A **Hold** potentiometer sets the time the input will last.

Receiver/logic modules are provided with a sensitivity potentiometer (see FIGURE 2). If the potentiometer is turned fully counter-clockwise, the sensor is least sensitive, and the sensitivity indicator is extinguished. As the potentiometer is turned clockwise, sensitivity increases, and the indicator flashes more rapidly. When the potentiometer is fully clockwise, the sensor is most sensitive, and the indicator flashes so rapidly it appears steadily **ON**. Adjust the sensitivity by turning the potentiometer clockwise until the indicator begins flashing very rapidly.

Table A: Opposed-mode Sensor Types and Characteristics

Emitter/Logic Module Types	Beam	Range
E/R1	Infrared beam	150 feet (45 meters)
ED/RD1	Infrared beam	10 feet (3 meters)
EXD/RXD1	Infrared beam	30 feet (9 meters)
EV/RX1	Visible red beam	100 feet (30 meters)
EX/RX1	Infrared beam	700 feet (200 meters)

Table B: Opposed-mode Receiver/Logic Module Types and Characteristics

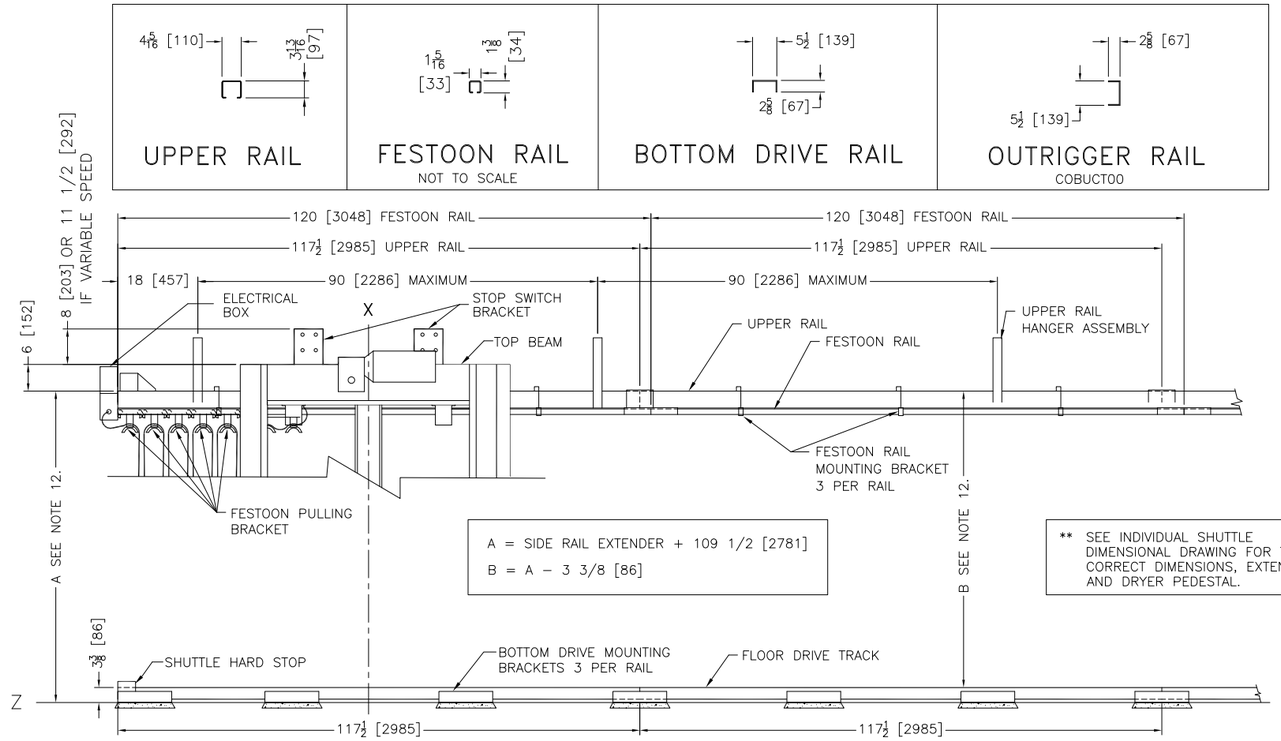
NOTE1: On-delay is the time delay before an input (to the MILNOR® microprocessor) is made.
NOTE 2: Hold is the length of time the input (to the MILNOR® microprocessor) is made.

Receiver/Logic Module type	The logic module provides an input to the MILNOR® microprocessor when it sees any of the following:
LM1	a light.
LM2	a change from light to dark. The input continues until the next light-to-dark change.
LM3	dark (if dark operation jumper installed) or light (if dark operation jumper removed).
LM4-2	a change from light to dark (if dark operation jumper installed) or a change from dark to light (if dark operation jumper removed).
LM4-2NR	same as LM4-2 above, but the input (to the Milnor® microprocessor) will **hold** (continue) for an adjustable time before the logic module will see the next change.
LM5	a steady light (or dark) for an adjustable **on-delay** time.
LM5R	the same as LM5 above, but the input (to the Milnor® microprocessor) will **hold** for an adjustable time.
LM5-14	a light (or dark) that lasts more than the adjustable **on-delay** time. The input (to the Milnor® microprocessor) will also **hold** for an adjustable time even if the light (or dark) ceases.
LM5T	a light (or dark). The input (to the Milnor® microprocessor) will **hold** for an adjustable time then end, even if the light (or dark) continues.
LM6-1	a light (or dark). The interval between lights (or darks) is calculated and compared to an adjustable reference time. The input (to the Milnor® microprocessor) ends if the reference time is exceeded. Alternately, the module can be adjusted so that the input ends if the interval between light (or dark) drops below the reference time.
LM8	a light (or dark) past an adjustable **on-delay** time. If the light (or dark) continues past the **on-delay** time, the input (to the Milnor® microprocessor) makes for an adjustable **hold** time. If the light (or dark) still remains at the end of the **hold** time, the input (to the Milnor® microprocessor) ends, and the **on-delay** time starts over.
LM8-1	light (or dark) past an adjustable **on-delay** time. The input to the Milnor® microprocessor makes for an adjustable **hold** time then ends.
LM8A	light (or dark) past an adjustable **on-delay** time.
LM10	five dark to light transitions. The input (to the Milnor® microprocessor) remains made for five additional light to dark transitions, then ends.

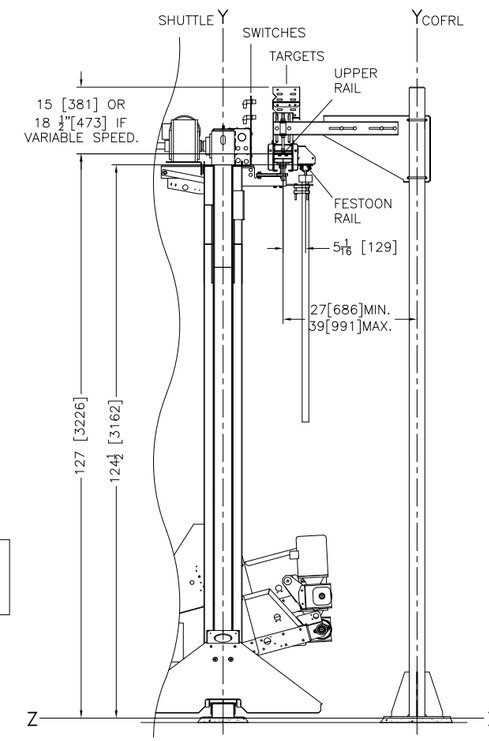
Dimensional Drawings 3

3

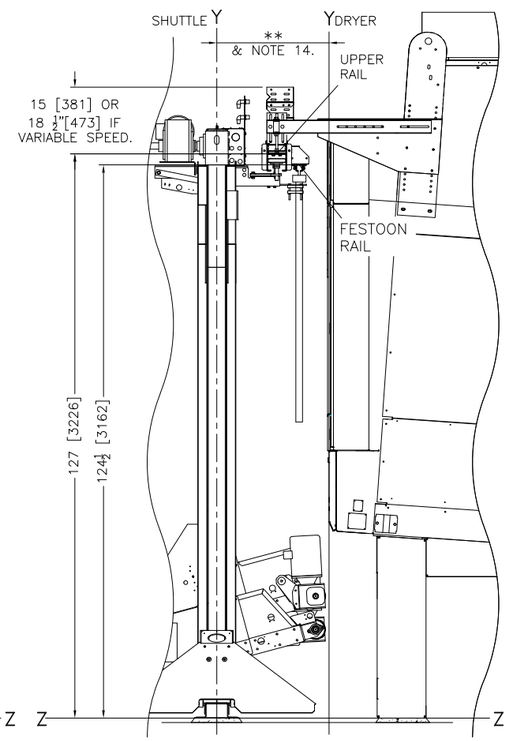
C-Rail Shuttles 3.1



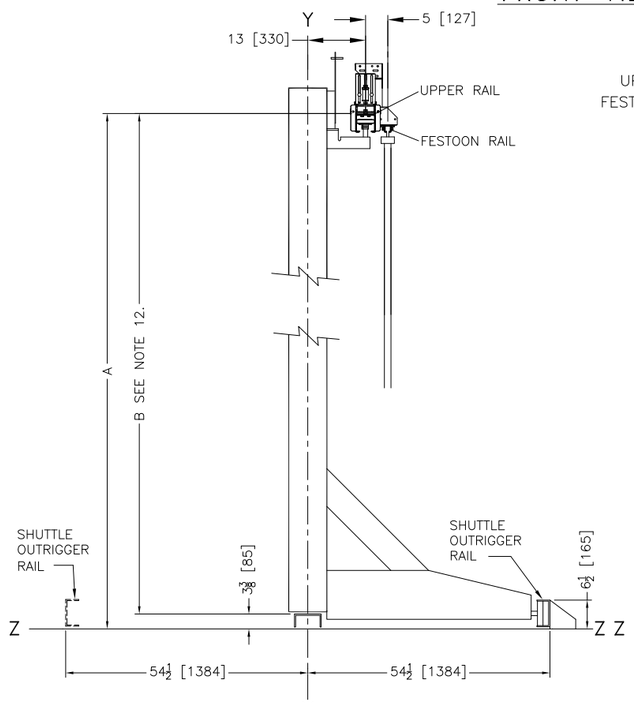
FRONT VIEW



COFRL RAIL SUPPORT

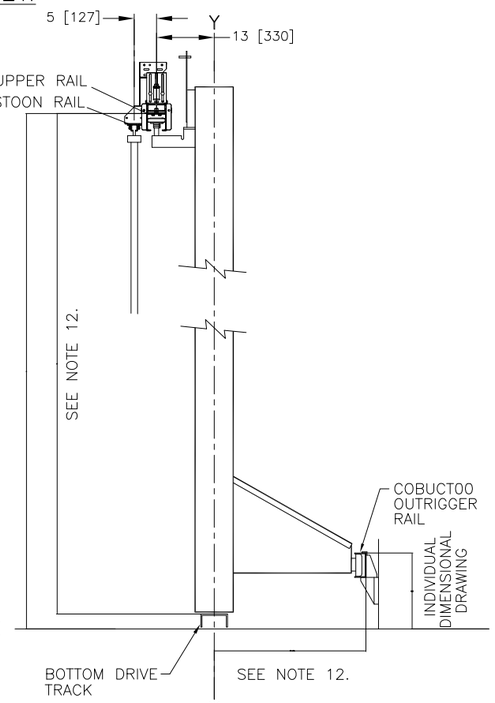


DRYER RAIL SUPPORT

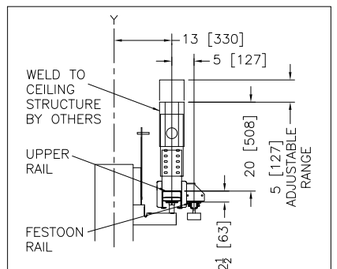


SHUTTLE RIGHT SIDE VIEW

OUTRIGGER RAIL USED CL4014CS/MS/FS/GS



COBUCT00 RIGHT SIDE VIEW



CEILING SUPPORT

(OVERALL HEIGHT WHEN CEILING SUPPORTED)

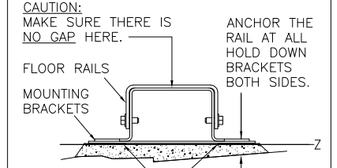
FLOOR RAIL INSTALLATION

ALL FLOOR RAILS MUST BE LEVEL, SQUARE, AND PERFECTLY PARALLEL TO THE DRYERS ALONG THE ENTIRE LENGTH.

CAUTION:

MAKE SURE THERE IS NO GAP HERE.

ANCHOR THE RAIL AT ALL HOLD DOWN BRACKETS BOTH SIDES.



GROUT TO Z AT ALL HOLD DOWN BRACKETS.
SHIM TO INSURE NO GAP BETWEEN BRACKETS AND RAIL.

NOTES

14 ALL RAILS MUST BE LEVEL, PERFECTLY PARALLEL, AND SQUARE TO THE DRYERS ALONG THE ENTIRE LENGTH OF RAIL.

13 CAUTION – ANY TWISTING AND/OR SKEWING OF THE RAILS MAY CAUSE EXCESSIVE WEAR OR DAMAGE OF DRIVE WHEELS AND/OR MOTOR.

12 DIMENSIONS MUST BE HELD WITHIN ±1 [25] ALONG THE ENTIRE RAIL LENGTH.

11 SWAY BRACES ARE RECOMMENDED FROM EVER CEILING MOUNTED RAIL SUPPORT. SWAY BRACE DESIGN AND HARDWARE IS NOT THE RESPONSIBILITY OF PMC.

10 CEILING MOUNTED RAIL SUPPORTS MAY BE USED TO SUPPORT RAIL FROM CEILING. FIELD INNOVATION IS REQUIRED, INCLUDING VERIFICATION BY COMPETENT OTHER PERSONS THAT THE CEILING IS ADEQUATE TO SUPPORT AND STEADY THE LOAD. THIS IS NOT THE RESPONSIBILITY OF PMC.

9 FOR RAIL INSTALLATION, BOTH UPPER SUPPORT RAIL AND LOWER GUIDE RAIL MUST BE SUPPORTED EVERY 84 [2134] OF LINEAL RAIL.

8 WHENEVER CLEARANCE REQUIREMENTS PERMIT, THE DRYER MOUNTED SUPPORT BRACKET FOR THE SUPPORT RAIL IS SHIPPED PREASSEMBLED ON THE DRYER.

7 DISTANCE BETWEEN RAILS, RELATIVE POSITIONING AND HEIGHT OFF FLOOR VARIES WITH MACHINE SPECIFICATION FOR EACH INSTALLATION. SEE SHUTTLE DIMENSIONAL DRAWINGS.

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

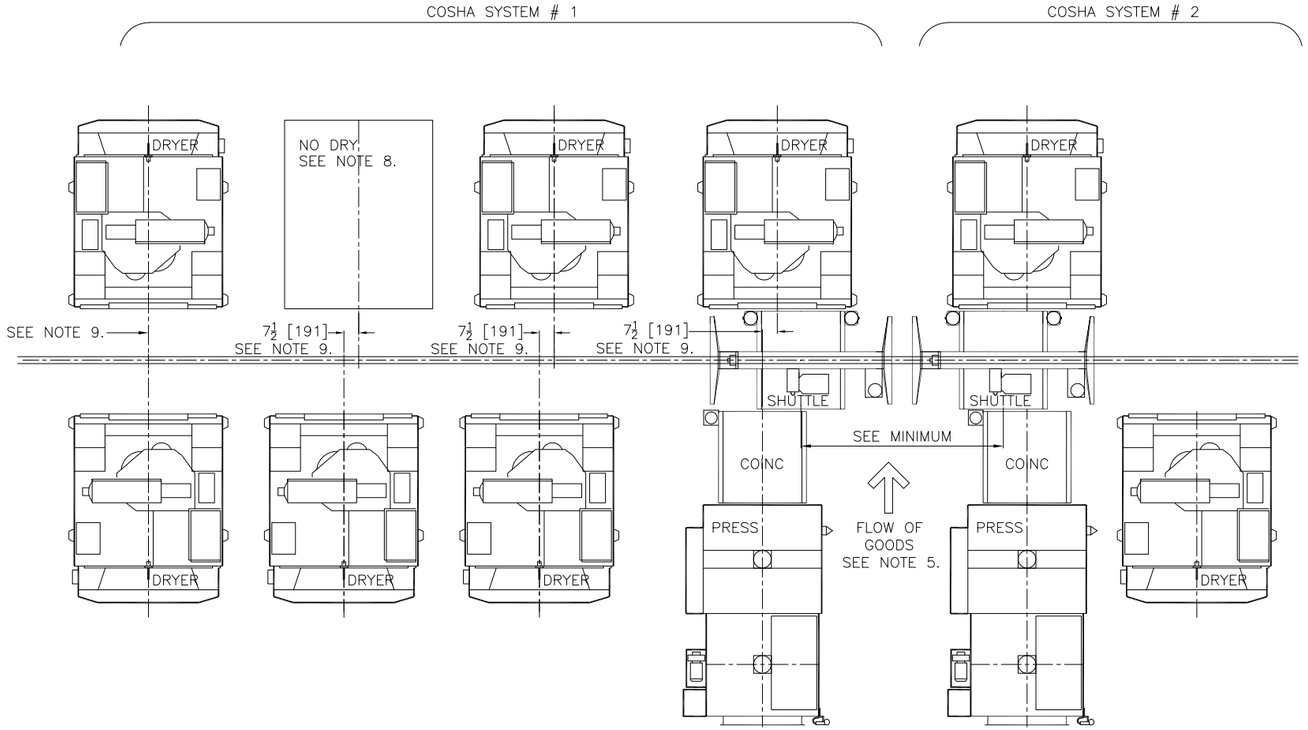
THE FLOOR AND/OR OTHER SUPPORT COMPONENTS MUST HAVE SUFFICIENT STRENGTH (AND RIGIDITY WITH DUE CONSIDERATION FOR NATURAL OR RESONANT FREQUENCY THEREOF) TO WITHSTAND THE FULLY LOADED WEIGHT OF THE MACHINE INCLUDING THE GOODS, THE WATER, AND ANY REPEATED SINUSOIDAL (ROTATING) FORCES GENERATED DURING ITS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

SHUTTLE RAILS (J-RAIL SHUTTLES)

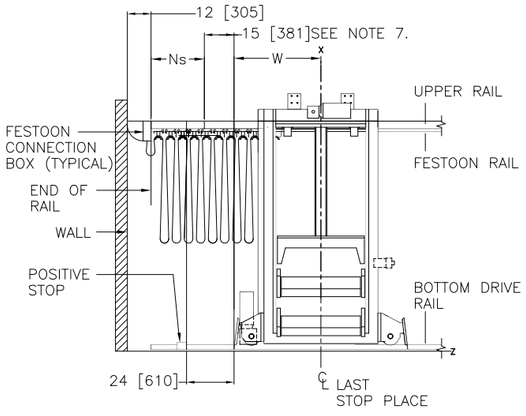
DM .0 0.25M
INCHES 0 12

BDLTRAILCE
2020224D

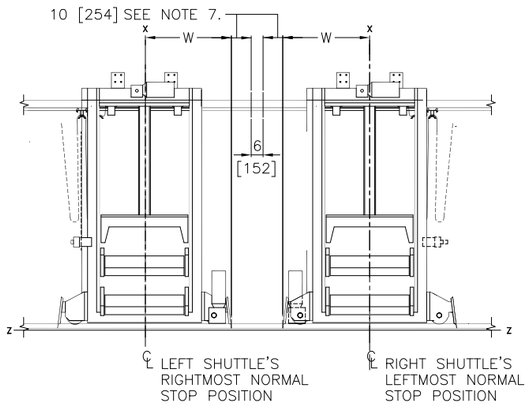
PELLERIN MILNOR CORPORATION
P.O. Box 400 Kenner, LA 70063, USA, Phone 504/467-9591,
FAX 504/468-3094, Email: milnorinfo@milnor.com



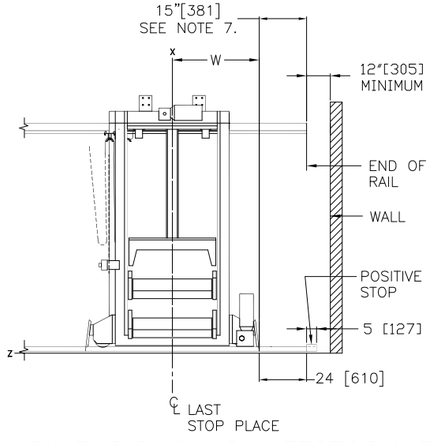
PLAN VIEW – MINIMUM COMPONENT SPACING



MINIMUM DIMENSIONS FESTOON END TO END OF RAIL & WALL



MINIMUM DIMENSIONS BETWEEN TWO SHUTTLES WHEN FESTOONING FROM OPPOSITE ENDS.



MINIMUM DIMENSIONS NON-FESTOON END TO END OF RAIL & WALL

W = WIDTH DIMENSION FROM "X" TO OUTERMOST PART OF SHUTTLE.
(SEE DRAWING OF YOUR SPECIFIC SHUTTLE FOR THIS DIMENSION)

HOW TO CALCULATE THE MINIMUM PARKING LENGTH FOR FESTOON CARS:

Ns = FESTOON CAR PARKING SPACE FOR SYSTEMS WITH STRAIGHT RAILS ONLY.

$$= \left[\frac{(\text{TOTAL RAIL LENGTH} - 117.5")}{117\ 1/2"} + 3 \right] \text{X } 6"$$

NOTES

9 COSHA RECEIVE AND/OR DISCHARGE POSITIONS ON OPPOSITE SIDES OF THE RAIL MAY BE EITHER EXACTLY ALIGNED OR OFFSET BY AT LEAST 7 1/2" [191].

8 WHENEVER POSSIBLE, NO-DRY POSITIONS SHOULD BE ALLOCATED THE SAME SPACE AND CLEARANCE AS A DRYER TO ACCOMMODATE THE FUTURE ADDITION OF A DRYER.

7 SHUTTLE: TO ACCOMMODATE THE SHUTTLE "OOPS SWITCH" AND THE MECHANICAL END SAFETY STOP, THE TOTAL RAIL LENGTH AT EACH END MUST PERMIT THE SHUTTLE TO TRAVEL AT LEAST 15" [381] BEYOND ITS LAST NORMAL STOP PLACE. MOREOVER, IF THE CABLE SUPPORT CARS ARE CARRIED BY THE SHUTTLE SUPPORT RAIL, THERE MUST BE SUFFICIENT ADDITIONAL RAIL LENGTH TO PARK ALL THE RECOMMENDED FESTOON CABLE SUPPORT CARS AS WELL. FESTOON CARS REQUIRE 6"[152] EACH.

6 ALL MINIMUM DIMENSIONS ARE ABSOLUTE MINIMUMS AND DO NOT NECESSARILY ALLOW FOR EASE OF MAINTENANCE. GREATER CLEARANCE SHOULD BE ALLOWED WHERE DESIRED.

5 ALL REFERENCES TO LEFT AND RIGHT ARE, WHEN VIEWED, IN THE DIRECTION OF THE FLOW OF GOODS FROM THE PRESS ONTO THE SHUTTLE.

4 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 [1209] IF OBJECT IS ANY LIVE PART.
CHECK LOCAL ELECTRIC CODES FOR FURTHER RESTRICTIONS.

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

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.

MINIMUM CLEARANCE ALONG SHUTTLE RAIL

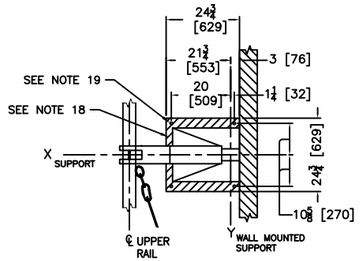
NOT TO SCALE | DWG# BDSHTCLRCE 2020205D

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

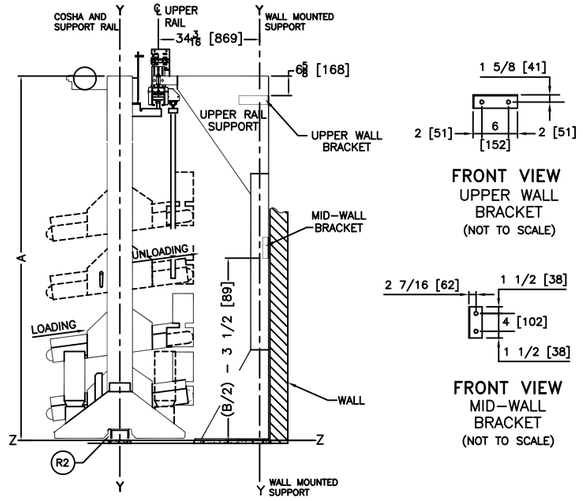
WHEN THIS DRYER PEDESTAL EXTENDER IS USED WITH DRYER 6450, 6458, 6464		WHEN THIS DRYER PEDESTAL EXTENDER IS USED WITH DRYER 5804, 5040, 5050		SHUTTLE SIDE RAIL EXTENDER		HEIGHT DIMENSIONS			
						COFRE SUPPORT DIMENSION "A"		C–RAIL DIMENSION "B"	
INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm
–10 1/2 *	–267	0	0	7	178	123	3124	116 1/2	2959
–7 *	–178	3 1/2	89	10 1/2	267	126 1/2	3213	120	3048
–3 1/2 *	–89	7	178	14	356	130	3302	123 1/2	3137
0	0	10 1/2	267	17 1/2	356	133 1/2	3391	127	3226
3 1/2	89	14	356	21	533	137	3480	130 1/2	3314
7	178	17 1/2	445	24 1/2	622	140 1/2	3569	134	3404
10 1/2	267	21	533	28	711	144	3658	137 1/2	3492
14	356	24 1/2	622	31 1/2	800	147 1/2	3746	141	3581
21	533	31 1/2	800	38 1/2	978	154 1/2	3924	148	3759
28	711	38 1/2	978	45 1/2	1156	161 1/2	4102	155	3937
31 1/2	800	42	1067	49	1245	165	4191	158 1/2	3962
35	889	45 1/2	1156	52 1/2	1334	168 1/2	4280	162	4115

OUTRIGGER RAIL HEIGHT			
	MMT/MXT4232 FOOT HEIGHT SPECIFIED	DIMENSION "C"	
		INCHES	mm
TUNNEL 60"C/L	+0" FOOT	14 3/8	365
TUNNEL 67"C/L	+7" FOOT	21 3/8	543

WALL MOUNTED SUPPORTS



PLAN VIEW

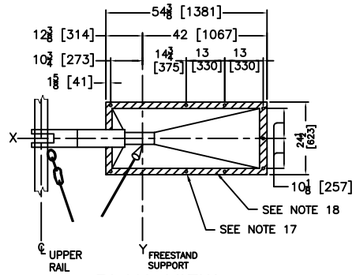


RIGHT SIDE VIEW

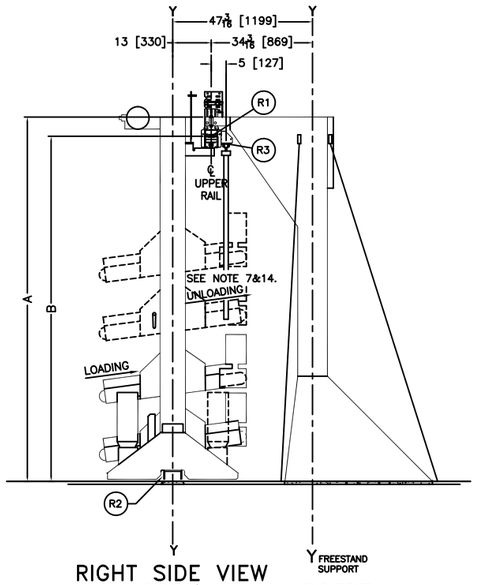
FRONT VIEW
UPPER WALL BRACKET
(NOT TO SCALE)

FRONT VIEW
MID–WALL BRACKET
(NOT TO SCALE)

COFRE FREESTAND SUPPORTS

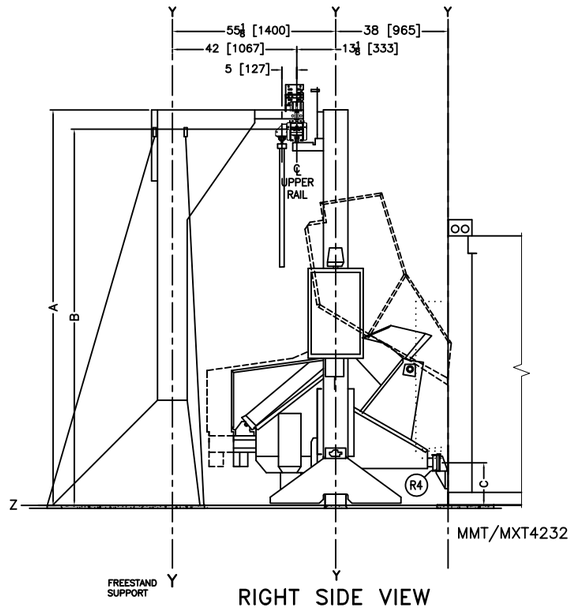


PLAN VIEW



RIGHT SIDE VIEW
COSHA

COFRE



RIGHT SIDE VIEW
COBUC–T

NOTES

23 MID–OUTRIGGER RAIL IS SAME AS COSHA SUPPORT RAIL.

22 FOR MID–OUTRIGGER RAIL USE FREESTAND SUPPORTS. IF DRYER SUPPORTS ARE USED CONSULT FACTORY.

21 MID–OUTRIGGER RAIL MUST BE PARALLEL WITH GUIDE RAIL OR FLOOR DRIVE RAIL AND MUST BE SUPPORTED EVERY 84" OF LINEAL RAIL.

20 REQUIRED, ONE 13/16 [21] DIAMETER HOLE FOR 3/4 [19] ANCHOR BOLTS PER LOWER RAIL FLOOR MOUNT SUPPORT.

19 7/8 [221] DIAMETER HOLES FOR 3/4 [181] DIAMETER ANCHOR BOLTS (FOUR PLACES).

18 SHADED AREA INDICATES AREA THAT MUST BE CONTINUOUSLY SUPPORTED.

17 7/8 [221] DIAMETER HOLES FOR 3/4 [191] DIAMETER ANCHOR BOLTS (NINE PLACES). REQUIRE THE TWO FRONT ANCHOR BOLTS AND THE THREE REAR ANCHOR BOLTS (FIVE PLACES).

16 THREADED ROD MAY BE CUT TO APPROXIMATELY 1 1/2 [38] MINIMUM. ALLOW THREE EXPOSED COMPLETE THREADS.

15 CAUTION – ANY TWISTING AND/OR SKEWING OF THE RAILS MAY CAUSE EXCESSIVE WEAR OR DAMAGE OF DRIVE WHEELS AND/OR MOTOR.

14 OPTIONAL LOCATION FOR SWAY BRACING RECOMMENDED FOR 30" EXTENDED FREESTAND SUPPORT NOT SUPPLIED BY PMC (2 PLACE).

13 LOCATION OF SWAY BRACE SUPPLIED FOR 30" EXTENDED FREESTAND SUPPORT (1 PLACE).

12 SWAY BRACES ARE RECOMMENDED FROM EVER CEILING MOUNTED RAIL SUPPORT AND FROM BOTH ENDS OF UPPER CURVED RAIL. SWAY BRACE DESIGN AND HARDWARE IS NOT THE RESPONSIBILITY OF PMC.

11 CEILING MOUNTED RAIL SUPPORTS MAY BE USED TO SUPPORT RAIL FROM CEILING. FIELD INNOVATION IS REQUIRED, INCLUDING VERIFICATION BY COMPETENT OTHER PERSONS THAT THE CEILING IS ADEQUATE TO SUPPORT AND STEADY THE LOAD. THIS IS NOT THE RESPONSIBILITY OF PMC.

10 UPPER SUPPORT RAIL AND LOWER GUIDE RAIL MUST BE SUPPORTED EVERY 84 [2134] OF LINEAL RAIL.

9 WHENEVER CLEARANCE REQUIREMENTS PERMIT, THE DRYER MOUNTED SUPPORT BRACKET FOR THE SUPPORT RAIL IS SHIPPED PREASSEMBLED ON THE DRYER.

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

7 DISTANCE BETWEEN RAILS, RELATIVE POSITIONING AND HEIGHT OFF FLOOR VARIES WITH MACHINE SPECIFICATION FOR EACH INSTALLATION. SEE INTERFACING DIMENSIONAL DRAWING.

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 FLOR 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

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.

COFRE C–RAIL SUPPORTS

DM 0 0.5M
INCHES 0 12 24

DWG# BDCORAL1DE 2021455D

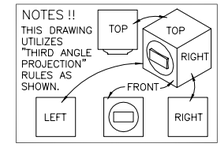
PELLERIN MILNOR CORPORATION
P.O. Box 400 Kenner, LA 70063, USA, Phone 504/467–9591,
FAX 504/469–1849, Email: mktg@milnor.com

3

Elevators 3.2

WHEN THIS DRYER PEDESTAL EXTENDER IS USED WITH DRYER 7272TG1/TS1		WHEN THIS DRYER PEDESTAL EXTENDER IS USED WITH DRYER 6458TG1/TS1		WHEN THIS DRYER PEDESTAL EXTENDER IS USED WITH DRYER 58080TG1/TS1		WHEN THIS DRYER PEDESTAL EXTENDER IS USED WITH DRYER 58058TG2/TS1		WHEN THIS DRYER PEDESTAL EXTENDER IS USED WITH DRYER 58040TG2/TS1		WHEN THIS DRYER PEDESTAL EXTENDER IS USED WITH DRYER 50040TS1		USE THIS COELD/F SIDE RAIL EXTENDERS FOR COELD/F 111, 11X, 112		COELD/COELF 111,11X,112 DIMENSIONS						DIMENSION "D" 580XX DRYERS LOAD HEIGHT		DIMENSION "D" 6458 DRYERS LOAD HEIGHT		DIMENSION "D" 7272 DRYERS LOAD HEIGHT	
														DIMENSION "A"		DIMENSION "B"		DIMENSION "C"					
INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm
–	–	10 1/2	–267	–	–	–	–	0	0	0	0	3 1/2	89	115 1/2	2845	118 1/2	2921	56	1422	57	1448	57 1/2	1460	57 1/2	1460
–	–	–7	–178	–	–	–	–	3 1/2	267	3 1/2	267	7	178	119	3112	122	3188	59 1/2	1511	60 1/2	1537	61	1638	61	1638
–7	–178	0	0	–	–	–	–	10 1/2	267	10 1/2	267	14	356	126	3200	129	3277	66 1/2	1689	67 1/2	1715	68	1727	68	1727
–3 1/2	–89	3 1/2	89	–	–	0	0	14	356	14	356	17 1/2	445	129 1/2	3289	132 1/2	3366	70	1778	71	1803	71 1/2	1816	71 1/2	1816
0	0	7	178	–	–	3 1/2	89	17 1/2	445	17 1/2	445	21	533	133	3378	136	3454	73 1/2	1867	74 1/2	1892	75	1905	75	1905
3 1/2	89	10 1/2	267	0	0	7	178	21	533	21	533	24 1/2	622	136 1/2	3454	139 1/2	3543	77	1956	78	1981	78 1/2	1994	78 1/2	1994
7	178	14	356	3 1/2	89	10 1/2	267	24 1/2	622	24 1/2	622	28	711	140	3556	143	3632	80 1/2	2045	81 1/2	2070	82	2083	82	2083
14	356	21	533	10 1/2	267	17 1/2	445	31 1/2	800	31 1/2	800	35	889	147	3734	150	3810	87 1/2	2223	88 1/2	2248	89	2261	89	2261
21	533	28	711	17 1/2	445	24 1/2	622	38 1/2	978	38 1/2	978	42	1067	154	3912	157	3988	94 1/2	2400	95 1/2	2426	96	2438	96	2438
28	711	35	889	24 1/2	622	31 1/2	800	45 1/2	1156	45 1/2	1156	49	1245	161	4089	164	4166	101 1/2	2578	102 1/2	2604	103	2616	103	2616
35	889	42	1067	31 1/2	800	38 1/2	978	52 1/2	1334	52 1/2	1334	56	1422	168	4267	171	4343	108 1/2	2756	109 1/2	2781	110	2794	110	2794
42	1067	49	1245	38 1/2	978	45 1/2	1156	59 1/2	1511	59 1/2	1511	63	1600	175	4445	178	4521	115 1/2	2934	116 1/2	2959	117	2972	117	2972
49	1245	56	1422	45 1/2	1156	52 1/2	1334	66 1/2	1689	66 1/2	1689	CONSULT FACTORY		182	4623	185	4700	122 1/2	3112	123 1/2	3137	124	3150	124	3150
56	1422	63	1600	52 1/2	1334	66 1/2	1689	CONSULT FACTORY		CONSULT FACTORY		CONSULT FACTORY		189	4801	192	4877	129 1/2	3289	130 1/2	3315	131	3327	131	3327

NOTES !!
THIS DRAWING UTILIZES "THIRD ANGLE PROJECTION" RULES AS SHOWN.

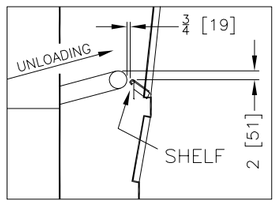


N1	STANDARD SIDE BASE. NOT SHOWN IN LEFT VIEW FOR CLARITY.
M3	BELT MOTOR. ALTERNATES LEFT/RIGHT PER LEVEL.
*M2	HOIST MOTOR IN ALTERNATE "AWAY FROM PRESS" LOCATION.
*M1	HOIST MOTOR IN "FACING PRESS" LOCATION.
F1	FOUR, ANCHOR BRACKETS. USE 1 [25] DIAMETER ANCHOR BOLTS (NOT SUPPLIED BY PMC). BOLTS MUST PROTRUDE 6 [152] MINIMUM ABOVE BASELINE Z.
E4	EMERGENCY STOP BUTTONS. SEE NOTE 15.
*E3	LOW VOLTAGE CONTROL BOX IN RIGHT HAND POSITION. (LEFT HAND POSITION "DASHED").
*E2	HIGH VOLTAGE CONTROL BOX IN RIGHT HAND POSITION. (LEFT HAND POSITION "DASHED").
*E1	ELECTRICAL CONNECTION
C2	POSITION OF MILNOR DRYER ROLLER TO SHOW PROPER INTERFACE. SEE NOTE 7.
C1	OPTIONAL, HORIZONTAL BED, MINIMUM LOAD HEIGHT "F" IS 12 [305]
ITEM	LEGEND

DIMENSION "F" VARIES WITH DISCHARGE HEIGHT OF ADJACENT MACHINE. SEE NOTE 7 AND 14.

ADJACENT MACHINE	DISCHARGE HEIGHT		DIM "F" COELF/ COELD LOADING HEIGHT	
	INCHES	mm	INCHES	mm
MILNOR PRESS 50K	13 3/16	335	11	279
MILNOR PRESS 60K SEE NOTE BELOW	16 9/16	335	14 3/8	365
ALLIED PRESS	32 3/16	818	30 1/4	769
ALLIED PRESS	6 5/8	168	6 1/2	165

NOTE: THE MILNOR 60K PRESS CAN ONLY TO THE COELD/COELF 11X

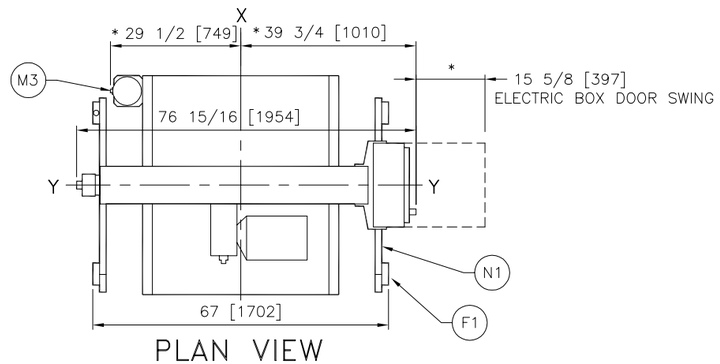


DETAIL: 6458 & 7272 SHELF LOADING ONLY

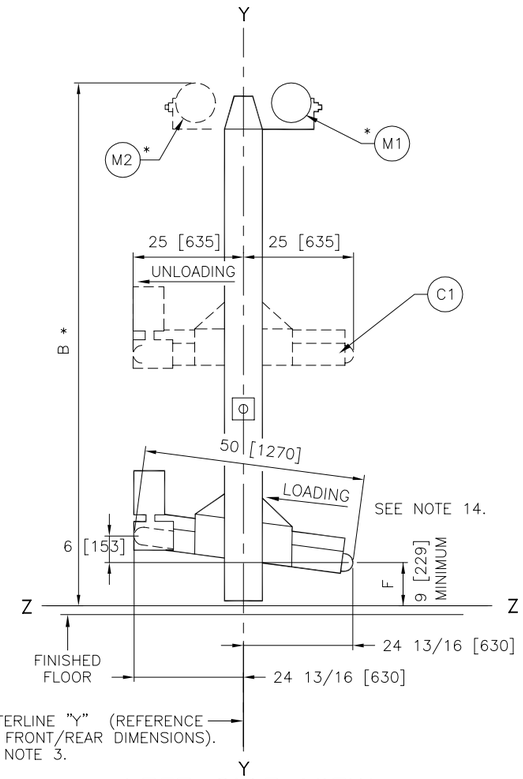
DIMENSION "G" VARIES WITH MACHINE MODEL: SEE NOTE 10

COELF/ COELD MODEL	NUMBER OF BATCHES	DIMENSION "G"	
		INCHES	mm
111	1	14 3/4	375
11X	1 HICAKE	34 3/4	883
112	1	14 3/4	375

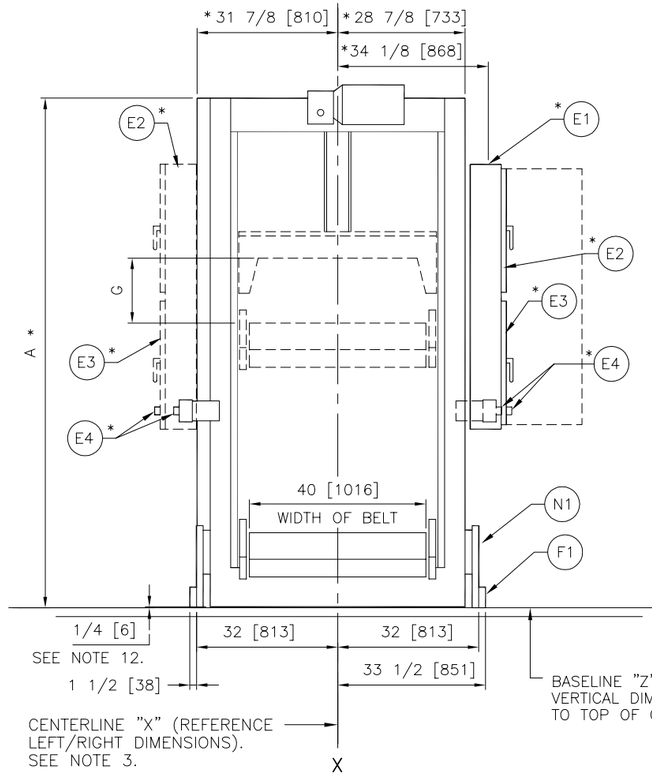
DRYER MODEL NO.	DIMENSION "H"	
	INCHES	mm
50040	31	787
58040	27	686
58058	27	686
58080	27 1/2	698
6458	26	660
7272	26	660



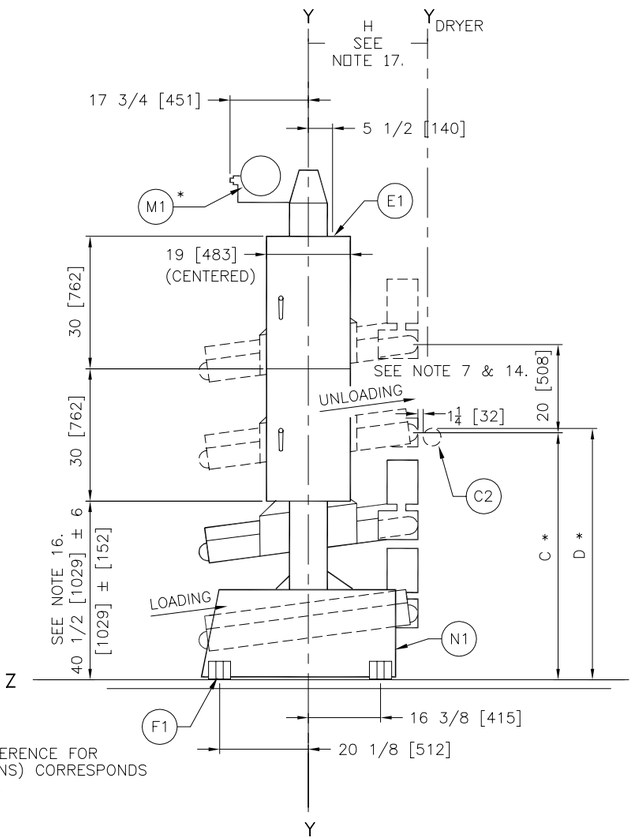
PLAN VIEW



LEFT SIDE VIEW



FRONT (LOAD END) VIEW



RIGHT SIDE VIEW

NOTES

17 DIMENSION "H" IS FROM "Y" OF THE SHUTTLE TO "Y" OF THE DRYER. SEE DRYER DIMENSIONAL DRAWING

16 DIMENSION VARIES WITH HEIGHT OF EXTENDERS WHEN ADDED.

15 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.

14 WHEN COELF/COELD IS LOADED DIRECTLY FROM 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 BD5031MPAE.

13 CAUTION – BELT END ROLLER MUST BE 1 [25] ABOVE DRYER ROLLER AS SHOWN WHEN CAKE IS DISCHARGED INTO THE DRYER. IF BELT IS SET TOO LOW, THE DRYER ROLLER WILL LIFT THE CAKE, CAUSING IT TO BREAK UP AND SOME PIECES MAY DROP ON FLOOR.

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

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

10 COELF/COELD MODEL NUMBERS SHOWN IN THE TABLE INDICATE NUMBER AND CONFIGURATIONS OF BATCHES STORED ON CONVEYOR. IE: COELF112/COELD112 ACCOMMODATES ONE BATCH ON THE CONVEYOR WIDTH, ONE BATCHES ON THE CONVEYOR LENGTH AND TWO LEVELS OF CONVEYOR FOR A TOTAL OF TWO BATCHES. IN SINGLE CONVEYOR COELF/COELDS, MODEL NUMBERS ENDING IN AN "X" DENOTE COELF/COELDS WITH EXTRA "HICAKE" CLEARANCE, DIMENSION "G". IE: COELF11X\ COELD11X ACCOMMODATES ONE BATCH ON THE CONVEYOR WIDTH, ONE BATCH ON THE CONVEYOR LENGTH AND ONE LEVEL EXTRA "HICAKE" CONVEYOR. COELF111/ COELD111 IS SHOWN IN THE LEFT VIEW AND FRONT VIEW. COELF112/COELD112 IS SHOWN IN THE LEFT VIEW.

*9 THE COELF/COELD IS AVAILABLE IN VARIOUS HEIGHTS, CONVEYOR SIZES AND COMPONENT PLACEMENT CONFIGURATIONS AS SHOWN IN THE TABLES HEREIN. COMPONENT LOCATIONS AND DIMENSIONS SHOWN WITH AN ASTERISK ARE THOSE EFFECTED BY MACHINE SPECIFICATIONS. IT IS NECESSARY TO REFER TO THE SPECIFICATIONS FOR YOUR MACHINE AS WELL AS THIS DRAWING FOR COMPLETE DIMENSIONAL INFORMATION.

8 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.

7 SEE INTERFACING DIMENSIONAL DRAWING FOR RELATIVE POSITIONING OF MACHINES AND HEIGHT OFF FLOOR.

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

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.

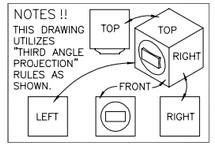
COELD/COELF 111, 11X, 112

DM 0 0.5M 1M
INCHES 0 12 24 36

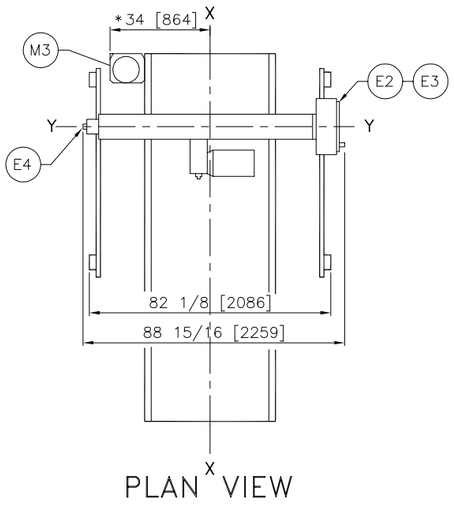
DWG# BDCOEL11BE 2006255D

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

WHEN THIS DRYER PEDESTAL EXTENDER IS USED WITH DRYER 7272TG1/TS1		WHEN THIS DRYER PEDESTAL EXTENDER IS USED WITH DRYER 6458TG1/TS1		WHEN THIS DRYER PEDESTAL EXTENDER IS USED WITH DRYER 58080TG1/TS1		WHEN THIS DRYER PEDESTAL EXTENDER IS USED WITH DRYER 58058TG2/TS1		WHEN THIS DRYER PEDESTAL EXTENDER IS USED WITH DRYER 58040TG2/TS1		WHEN THIS DRYER PEDESTAL EXTENDER IS USED WITH DRYER 50040TS1		USE THIS COELD/F SIDE RAIL EXTENDERS FOR COELD/F 111, 11X, 112		COELD/COELF 121 DIMENSIONS						DIMENSION "D" 580XX DRYERS ROLLER LOAD HEIGHT		DIMENSION "D" 6458 DRYERS LOAD HEIGHT		DIMENSION "D" 7272 DRYERS LOAD HEIGHT	
														DIMENSION "A"		DIMENSION "B"		DIMENSION "C"							
INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm
–	–	−10 1/2	−267	–	–	–	–	0	0	0	0	3 1/2	89	115 1/2	2845	118 1/2	2921	56	1422	57	1448	57 1/2	1460	57 1/2	1460
–	–	−7	−178	–	–	–	–	3 1/2	267	3 1/2	267	7	178	119	3112	122	3188	59 1/2	1511	60 1/2	1537	61	1549	61	1549
−7	−178	0	0	–	–	–	–	10 1/2	267	10 1/2	267	14	356	126	3200	129	3277	66 1/2	1689	67 1/2	1715	68	1727	68	1727
−3 1/2	−89	3 1/2	89	–	–	0	0	14	356	14	356	17 1/2	445	129 1/2	3289	132 1/2	3366	70	1778	71	1803	71 1/2	1816	71 1/2	1816
0	0	7	178	–	–	3 1/2	89	17 1/2	445	17 1/2	445	21	533	133	3378	136	3454	73 1/2	1867	74 1/2	1892	75	1905	75	1905
3 1/2	89	10 1/2	267	0	0	7	178	21	533	21	533	24 1/2	622	136 1/2	3454	139 1/2	3543	77	1956	78	1981	78 1/2	1994	78 1/2	1994
7	178	14	356	3 1/2	89	10 1/2	267	24 1/2	622	24 1/2	622	28	711	140	3556	143	3632	80 1/2	2045	81 1/2	2070	82	2083	82	2083
14	356	21	533	10 1/2	267	17 1/2	445	31 1/2	800	31 1/2	800	35	889	147	3734	150	3810	87 1/2	2223	88 1/2	2248	89	2261	89	2261
21	533	28	711	17 1/2	445	24 1/2	622	38 1/2	978	38 1/2	978	42	1067	154	3912	157	3988	94 1/2	2400	95 1/2	2426	96	2438	96	2438
28	711	35	889	24 1/2	622	31 1/2	800	45 1/2	1156	45 1/2	1156	49	1245	161	4089	164	4166	101 1/2	2578	102 1/2	2604	103	2616	103	2616
35	889	42	1067	31 1/2	800	38 1/2	978	52 1/2	1334	52 1/2	1334	56	1422	168	4267	171	4343	108 1/2	2756	109 1/2	2781	110	2794	110	2794
42	1067	49	1245	38 1/2	978	45 1/2	1156	59 1/2	1511	59 1/2	1511	63	1600	175	4445	178	4521	115 1/2	2934	116 1/2	2959	117	2972	117	2972
49	1245	56	1422	45 1/2	1156	52 1/2	1334	66 1/2	1689	66 1/2	1689	CONSULT FACTORY		182	4623	185	4700	122 1/2	3112	123 1/2	3137	124	3150	124	3150
56	1422	63	1600	52 1/2	1334	66 1/2	1689	CONSULT FACTORY		CONSULT FACTORY		CONSULT FACTORY		189	4801	192	4877	129 1/2	3289	130 1/2	3315	131	3327	131	3327



N1	STANDARD SIDE BASE. NOT SHOWN IN LEFT VIEW FOR CLARITY.
M3	BELT MOTOR.
*M2	HOIST MOTOR IN ALTERNATE "AWAY FROM PRESS" LOCATION.
*M1	HOIST MOTOR IN "FACING PRESS" LOCATION.
F1	FOUR, ANCHOR BRACKETS. USE 1 [25] DIAMETER ANCHOR BOLTS (NOT SUPPLIED BY PMC). BOLTS MUST PROTRUDE 6 [152] MINIMUM ABOVE BASELINE Z.
E4	EMERGENCY STOP BUTTONS. SEE NOTE 15.
*E3	LOW VOLTAGE CONTROL BOX IN RIGHT HAND POSITION. (LEFT HAND POSITION "DASHED").
*E2	HIGH VOLTAGE CONTROL BOX IN RIGHT HAND POSITION. (LEFT HAND POSITION "DASHED").
*E1	ELECTRICAL CONNECTION
C2	POSITION OF MILNOR DRYER ROLLER TO SHOW PROPER INTERFACE. SEE NOTE 7.
C1	OPTIONAL, HORIZONTAL BED, MINIMUM LOAD HEIGHT "F" IS 14 [356]
ITEM	LEGEND



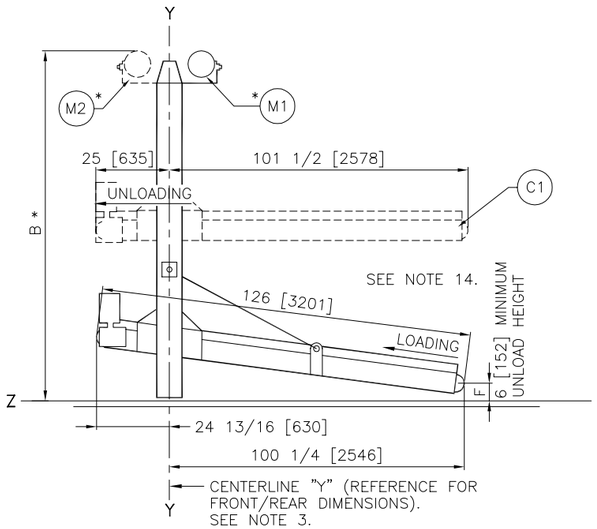
PLAN VIEW

DRYER MODEL NO.	DIMENSION "H" INCHES	mm
50040	31	787
58040	27	686
58058	27	686
58080	27 1/2	698
6458	26	660
7272	26	660

DIMENSION "F" VARIES WITH DISCHARGE HEIGHT OF LOAD END OF ADJACENT MACHINE SEE NOTE 7 & 14.

ADJACENT MACHINE	DISCHARGE HEIGHT INCHES	mm	DIM "F" COELD/COELF LOADING HEIGHT FROM ℄ ROLLER TO "Z" INCHES	mm
MILNOR PRESS 50K	13 3/16	335	10	254
MILNOR PRESS 60K	16 9/16	421	13 3/8	340
ALLIED PRESS	32 3/16	818	29 1/4	743
MILNOR COINC	31	787	29	737

DETAIL: 6458 & 7272 SHELF LOADING ONLY



LEFT SIDE VIEW

FRONT (LOAD END) VIEW

BASELINE "Z" (REFERENCE FOR VERTICAL DIMENSIONS) CORRESPONDS TO TOP OF GROUT. SEE NOTE 3 & 4.

RIGHT SIDE VIEW

NOTES

17 DIMENSION "H" IS FROM "Y" OF THE SHUTTLE TO "Y" OF THE DRYER. SEE DRYER DIMENSIONAL DRAWING

16 DIMENSION VARIES WITH HEIGHT OF EXTENDERS WHEN ADDED.

15 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.

14 WHEN COELF/COELD IS LOADED DIRECTLY FROM 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 BD5031MPAE.

13 CAUTION – BELT END ROLLER MUST BE 1 [25] ABOVE DRYER ROLLER AS SHOWN WHEN CAKE IS DISCHARGED INTO THE DRYER. IF BELT IS SET TOO LOW, THE DRYER ROLLER WILL LIFT THE CAKE, CAUSING IT TO BREAK UP AND SOME PIECES MAY DROP ON FLOOR.

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

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

10 COELF/COELD MODEL NUMBERS SHOWN IN THE TABLE INDICATE NUMBER AND CONFIGURATIONS OF BATCHES STORED ON CONVEYOR. IE: COELF121/COELD121 ACCOMMODATES ONE BATCH ON THE CONVEYOR WIDTH, TWO BATCHES ON THE CONVEYOR LENGTH AND ONE LEVEL OF CONVEYOR FOR A TOTAL OF TWO BATCHES. IN SINGLE CONVEYOR COELF/COELDS, MODEL NUMBERS ENDING IN AN "X" DENOTE COELF/COELDS WITH EXTRA "HICAKE" CLEARANCE, DIMENSION "G". IE: COELF12X\ COELD12X ACCOMMODATES ONE BATCH ON THE CONVEYOR WIDTH, TWO BATCHES ON THE CONVEYOR LENGTH AND ONE LEVEL EXTRA "HICAKE" CONVEYOR. COELF121/ COELD121 IS SHOWN ON THIS DRAWING.

*9 THE COELF/COELD IS AVAILABLE IN VARIOUS HEIGHTS, CONVEYOR SIZES AND COMPONENT PLACEMENT CONFIGURATIONS AS SHOWN IN THE TABLES HEREIN. COMPONENT LOCATIONS AND DIMENSIONS SHOWN WITH AN ASTERISK ARE THOSE EFFECTED BY MACHINE SPECIFICATIONS. IT IS NECESSARY TO REFER TO THE SPECIFICATIONS FOR YOUR MACHINE AS WELL AS THIS DRAWING FOR COMPLETE DIMENSIONAL INFORMATION.

8 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.

7 SEE INTERFACING DIMENSIONAL DRAWING FOR RELATIVE POSITIONING OF MACHINES AND HEIGHT OFF FLOOR.

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

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.

COELD/COELF 121

DM 0 0.5M 1M
INCHES 0 12 24 36

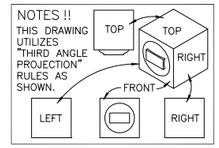
DWG# BDCOEL21BE 2006255D

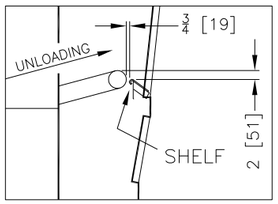
PELLERIN MILNOR CORPORATION
P.O. Box 400 Kenner, LA 70063, USA, Phone 504/467-9591, FAX 504/469-1849, Telex ITT 460124/PELM UI, Cable PELMILNOR

WHEN THIS DRYER PEDESTAL EXTENDER IS USED WITH DRYER 7272TG1/TS1		WHEN THIS DRYER PEDESTAL EXTENDER IS USED WITH DRYER 6458TG1/TS1		WHEN THIS DRYER PEDESTAL EXTENDER IS USED WITH DRYER 58080TG1/TS1		WHEN THIS DRYER PEDESTAL EXTENDER IS USED WITH DRYER 58058TG2/TS1		WHEN THIS DRYER PEDESTAL EXTENDER IS USED WITH DRYER 58040TG2/TS1		WHEN THIS DRYER PEDESTAL EXTENDER IS USED WITH DRYER 50040TS1		USE THIS SIDE RAIL EXTENDER		RESULTING COLFB111/112 DIMENSIONS						DIMENSION "D" 580XX DRYERS ROLLER LOAD HEIGHT		DIMENSION "D" 6458 DRYERS LOAD HEIGHT		DIMENSION "D" 7272 DRYERS LOAD HEIGHT	
														DIMENSION "A"		DIMENSION "B"		DIMENSION "C"							
INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm
		−10 1/2	267	–	–	–	–	0	0	0	0	24 1/2	622	133	3378	136	3454	56	1422	57	1448	57 1/2	1460	57 1/2	1460
–	–	−7	−178	–	–	–	–	3 1/2	89	3 1/2	89	28	711	136 1/2	3467	139 1/2	3543	59 1/2	1511	60 1/2	1537	61	1549	61	1549
−7	−178	0	0	–	–	–	–	10 1/2	267	10 1/2	267	35	889	143 1/2	3645	146 1/2	3721	66 1/2	1689	67 1/2	1715	68	1727	68	1727
−3 1/2	−89	3 1/2	89	–	–	0	0	14	356	14	356	38 1/2	978	147	3734	150	3810	70	1778	71	1803	71 1/2	1816	71 1/2	1816
0	0	7	178	–	–	3 1/2	89	17 1/2	445	17 1/2	445	42	1067	150 1/2	3823	153 1/2	3899	73 1/2	1867	74 1/2	1892	75	1905	75	1905
3 1/2	89	10 1/2	267	0	0	7	178	21	533	21	533	45 1/2	1156	154	3912	157	3988	77	1956	78	1981	78 1/2	1994	78 1/2	1994
7	178	14	356	3 1/2	89	10 1/2	267	24 1/2	622	24 1/2	622	49	1245	157 1/2	4000	160 1/2	4077	80 1/2	2045	81 1/2	2070	82	2083	82	2083
14	356	21	533	10 1/2	267	17 1/2	445	31 1/2	800	31 1/2	800	56	1422	164 1/2	4178	167 1/2	4255	87 1/2	2222	88 1/2	2248	89	2261	89	2261
21	533	28	711	17 1/2	445	24 1/2	622	38 1/2	978	38 1/2	978	63	1600	171 1/2	4356	174 1/2	4432	94 1/2	2400	95 1/2	2426	96	2438	96	2438
28	711	35	889	24 1/2	622	31 1/2	800	45 1/2	1156	45 1/2	1156	70	1778	178 1/2	4534	181 1/2	4610	101 1/2	2578	102 1/2	2604	103	2616	103	2616
35	889	42	1067	31 1/2	800	38 1/2	978	52 1/2	1334	52 1/2	1334	77	1956	185 1/2	4712	188 1/2	4788	108 1/2	2756	109 1/2	2781	110	2794	110	2794
42	1067	49	1245	38 1/2	1156	45 1/2	1156	59 1/2	1511	59 1/2	1511	84	2134	192 1/2	4889	195 1/2	4966	115 1/2	2934	116 1/2	2959	117	2972	117	2972
49	1245	56	1422	45 1/2	1156	52 1/2	1334	66 1/2	1689	66 1/2	1689	91	2311	199 1/2	5067	202 1/2	5143	122 1/2	3112	123 1/2	3137	124	3150	124	3150
56	1422	63	1600	52 1/2	1334	59 1/2	1511	CONSULT FACTORY		CONSULT FACTORY		98	2489	206 1/2	5245	209 1/2	5296	129 1/2	3289	130 1/2	3315	131	3327	131	3327
63	1600	70	1778	59 1/2	1511	66 1/2	1689	CONSULT FACTORY		CONSULT FACTORY		105	2667	213 1/2	5423	216 1/2	5499	136 1/2	3467	137 1/2	3493	138	3505	138	3505
70	1778	77	1956	66 1/2	1689	CONSULT FACTORY		CONSULT FACTORY		CONSULT FACTORY		112	2845	220 1/2	5601	223 1/2	5677	143 1/2	3645	144 1/2	3670	145	3683	145	3683

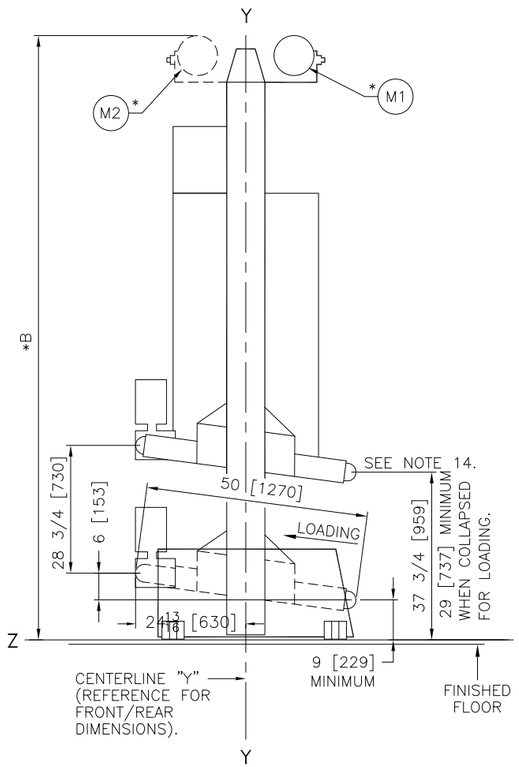
DRYER MODEL NO.	DIMENSION "H" INCHES	DIMENSION "H" mm
50040	31	787
58040	27	686
58058	27	686
58080	27 1/2	698
6458	26	660
7272	26	660

NOTES !!
THIS DRAWING UTILIZES "THIRD ANGLE PROJECTION" RULES AS SHOWN.

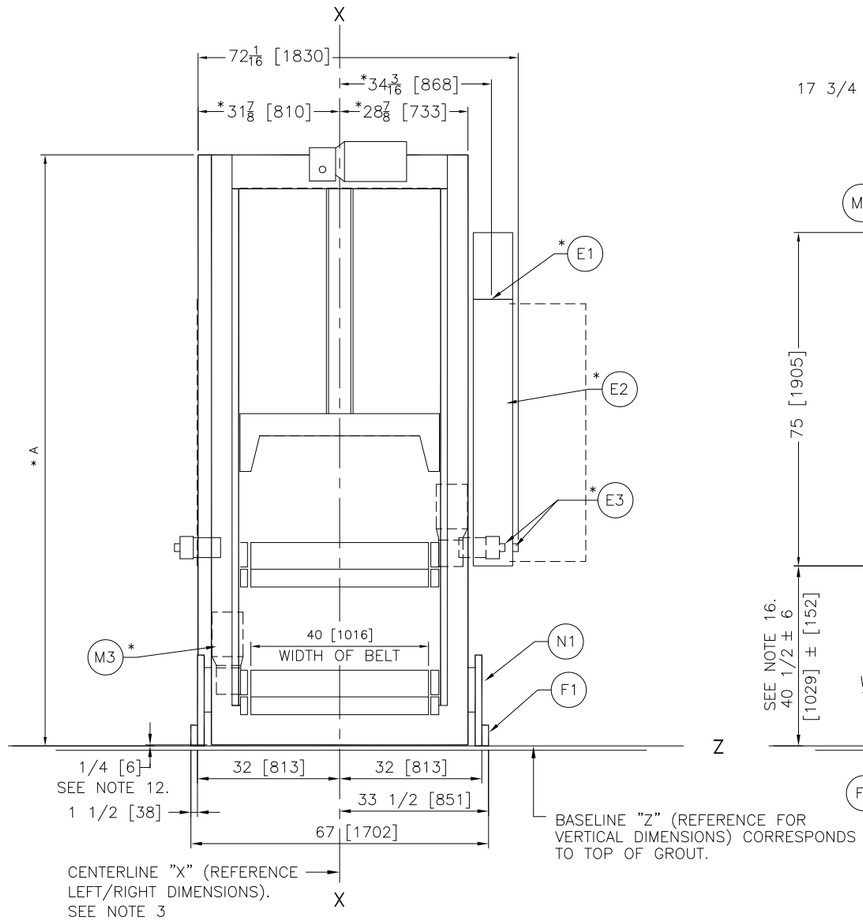




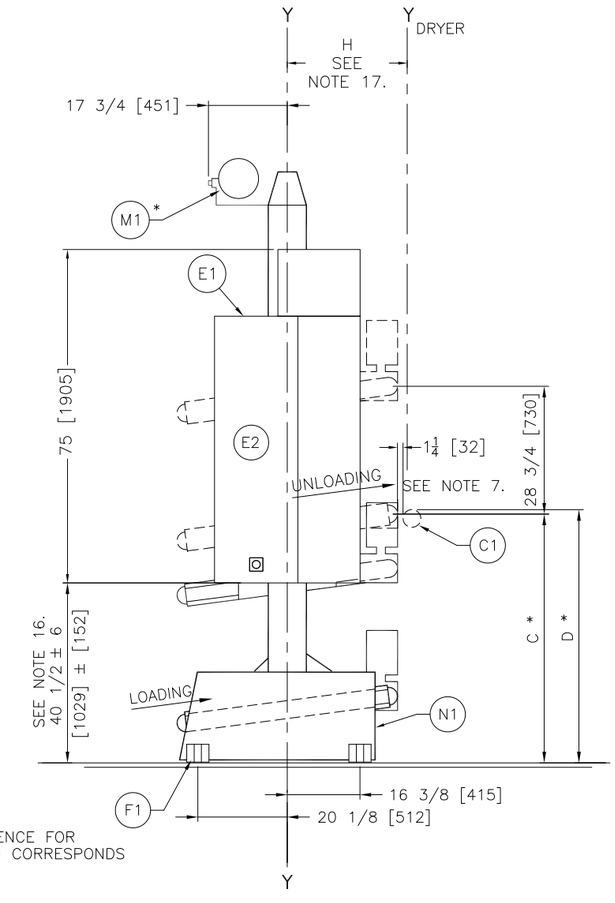
DETAIL: 6458 & 7272
SHELF LOADING ONLY



LEFT SIDE VIEW



FRONT (LOAD END) VIEW



RIGHT SIDE VIEW

ITEM	LEGEND
N1	STANDARD SIDE BASE. NOT SHOWN IN LEFT VIEW FOR CLARITY.
*M3	BELT MOTOR. ALTERNATES LEFT/RIGHT PER LEVEL.
*M2	HOIST MOTOR IN ALTERNATE "AWAY FROM PRESS" LOCATION.
*M1	HOIST MOTOR IN "FACING PRESS" LOCATION.
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 BUTTONS. SEE NOTE 15.
*E2	HIGH & LOW VOLTAGE CONTROL BOXES IN RIGHT HAND POSITION (LEFT HAND POSITION OPPOSITE).
*E1	ELECTRICAL CONNECTION
C1	POSITION OF MILNOR DRYER ROLLER TO SHOW PROPER INTERFACE. SEE NOTE 7.

NOTES

17 DIMENSION "H" IS FROM "Y" OF THE SHUTTLE TO "Y" OF THE DRYER. SEE DRYER DIMENSIONAL DRAWING

16 DIMENSION VARIES WITH HEIGHT OF EXTENDERS WHEN ADDED.

15 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.

14 THE COLFB112 CAN BE LOADED DIRECTLY FROM A COINC CONVEYOR BY FIRST LOADING THE COLLAPSIBLE TOP BED. THE MINIMUM LOAD HEIGHT ON THE TOP BED WHEN COLLAPSED IS 29 [737]. SEE LEFT SIDE VIEW.

13 CAUTION – BELT END ROLLER MUST BE 1 [25] ABOVE DRYER ROLLER AS SHOWN WHEN CAKE IS DISCHARGED INTO THE DRYER. IF BELT IS SET TOO LOW, THE DRYER ROLLER WILL LIFT THE CAKE, CAUSING IT TO BREAK UP AND SOME PIECES MAY DROP ON FLOOR.

12 A MINIMUM 1/4 [6] AIRSPACE MUST BE MAINTAINED BETWEEN THE CROSSMEMBER OF COLFB112 AND TOP OF GROUT OR OTHER FLOOR MATERIAL OR OBSTRUCTION.

11 THE HEIGHT EXTENDERS SHOWN IN THE TABLE ARE STANDARD EXTENTIONS AND THOSE THAT SATISFY MOST FACILITY REQUIREMENTS. HOWEVER, THE COLFB112 MAY BE SPECIAL ORDERED IN OTHER HEIGHTS IF REQUIRED. CONSULT THE MILNOR FACTORY.

10 COLFB112 MODEL NUMBERS SHOWN IN THE TABLE INDICATE NUMBER AND CONFIGURATIONS OF BATCHES STORED ON CONVEYOR. IE: COLFB112 ACCOMMODATES ACCOMMODATES ONE BATCH ON THE CONVEYOR WIDTH, ONE BATCHES ON THE CONVEYOR LENGTH AND TWO LEVELS OF CONVEYOR FOR A TOTAL OF TWO BATCHES.

*9 THE COLFB IS AVAILABLE IN VARIOUS HEIGHTS, CONVEYOR SIZES AND COMPONENT PLACEMENT CONFIGURATIONS AS SHOWN IN THE TABLES HEREIN. COMPONENT LOCATIONS AND DIMENSIONS SHOWN WITH AN ASTERISK ARE THOSE EFFECTED BY MACHINE SPECIFICATIONS. IT IS NECESSARY TO REFER TO THE SPECIFICARIONS FOR YOUR MACHINE AS WELL AS THIS DRAWING FOR COMPLETE DIMENSIONAL INFORMATION.

8 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.

7 SEE INTERFACING DIMENSIONAL DRAWING FOR RELATIVE POSITIONING OF MACHINES AND HEIGHT OFF FLOOR.

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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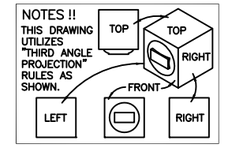
COLFB111,COLFB112 (60K CAKES)

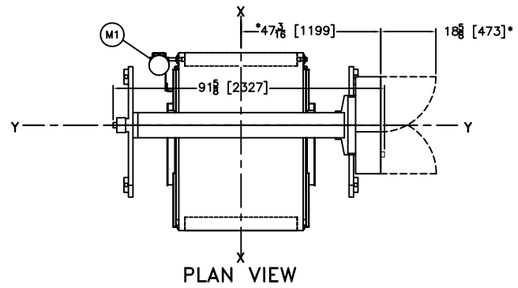
DM 0 0.5M 1M
INCHES 0 12 24 36

DWG# BDCOLF12AE 2013343D

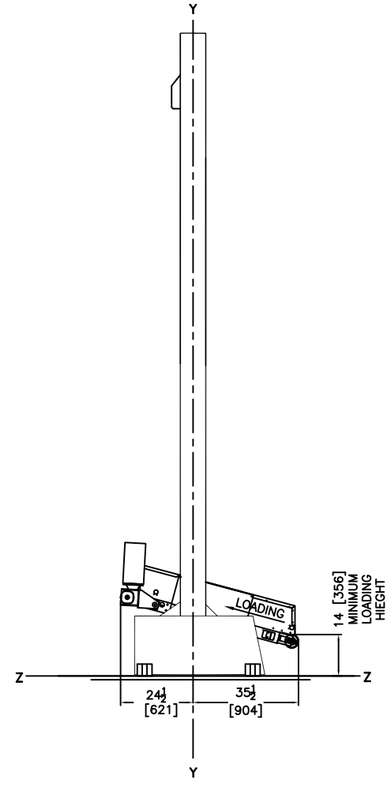
PELLERIN MILNOR CORPORATION
P.O. Box 400 Kenner, LA 70063, USA, Phone 504/467-9591,
FAX 504/469-1849, Telex ITT 460124/PELM UI, Cable PELMILNOR

USE THIS SIDE RAIL EXTENDER		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

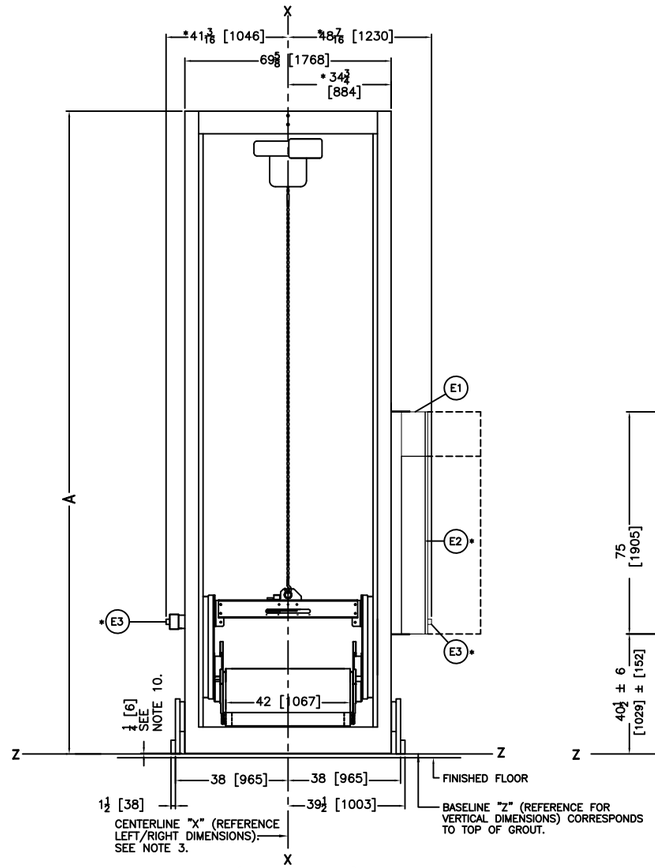




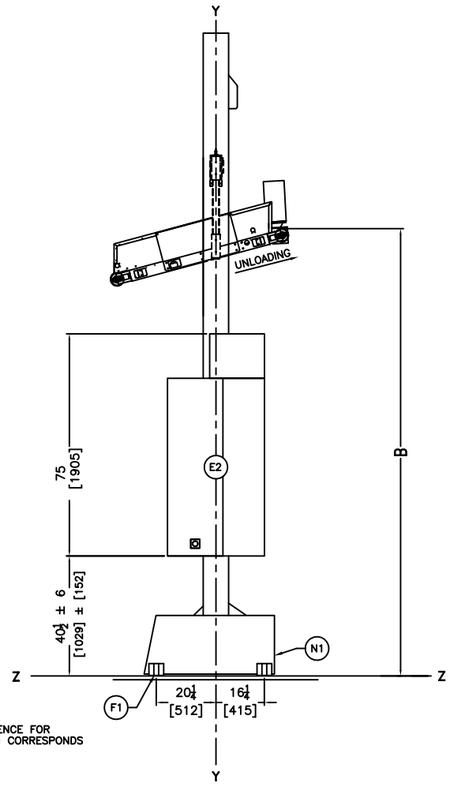
PLAN VIEW



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.

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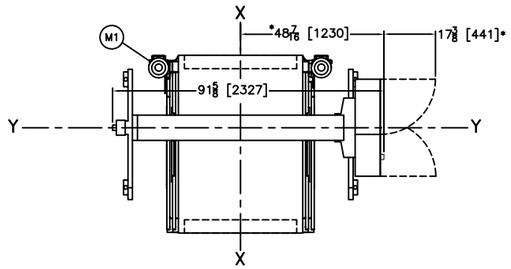
COLFJ111 (60K CAKES)

DM 0 0.5M 1M
INCHES 0 12 24 36

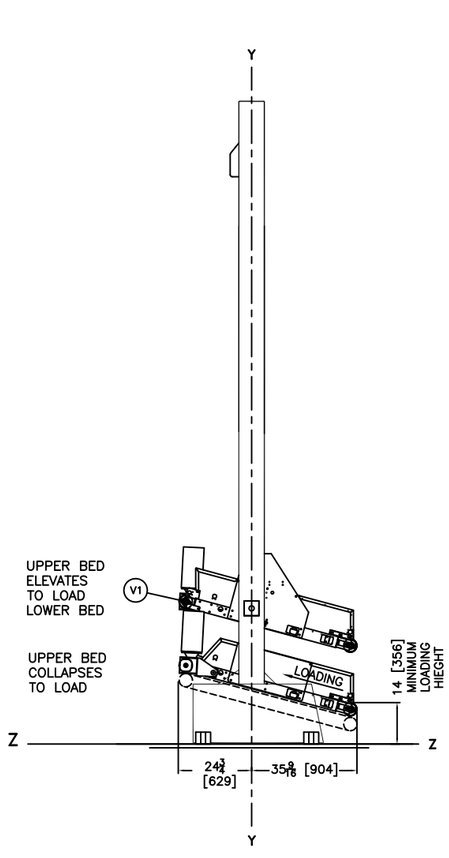
DWG# BDCOLFJ1AE 2013343D

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

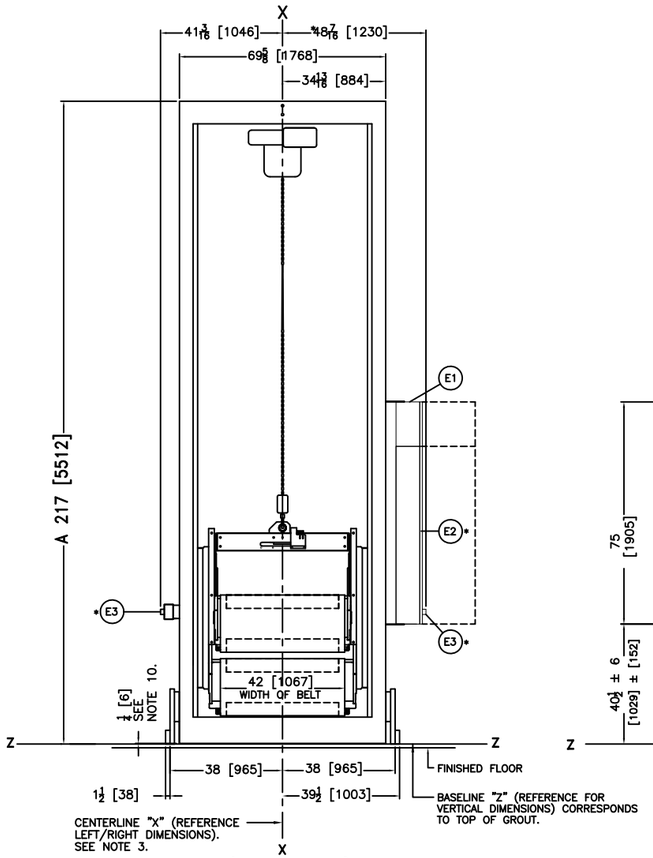
USE THIS SIDE RAIL EXTENDER		COLFJ112			
		DIMENSION "A"		DIMENSION "B"	
INCHES	mm	INCHES	mm	INCHES	mm
105	2667	218	5537	130	3302
112	2845	225	5715	137	3480
119	3023	232	5893	144	3658
126	3200	239	6071	151	3835
133	3378	246	6248	158	4013
140	3556	253	6426	165	4191
147	3734	260	6604	172	4369
154	3912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



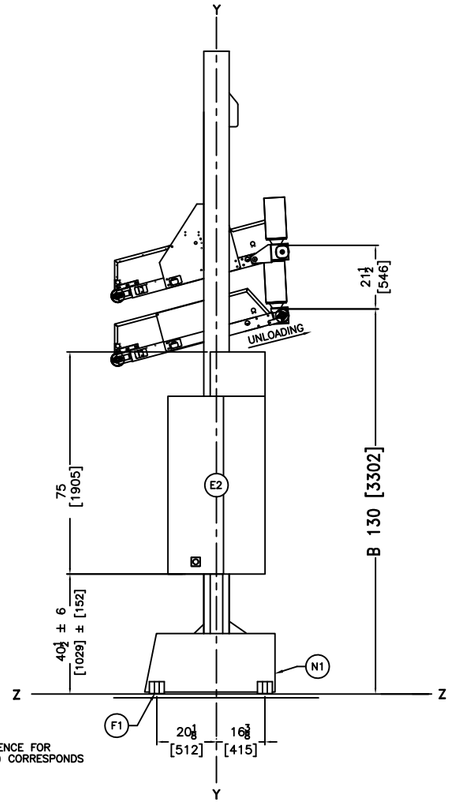
PLAN VIEW



LEFT SIDE VIEW



FRONT (LOAD END) VIEW



RIGHT SIDE VIEW

ITEM	LEGEND
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
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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
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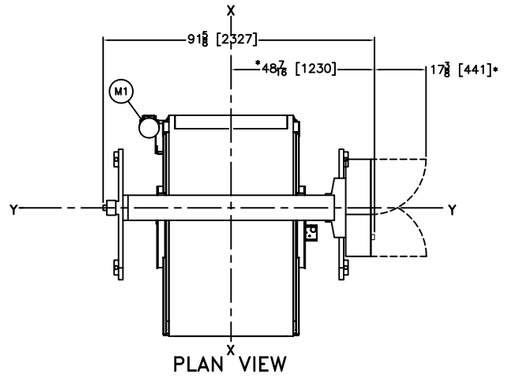
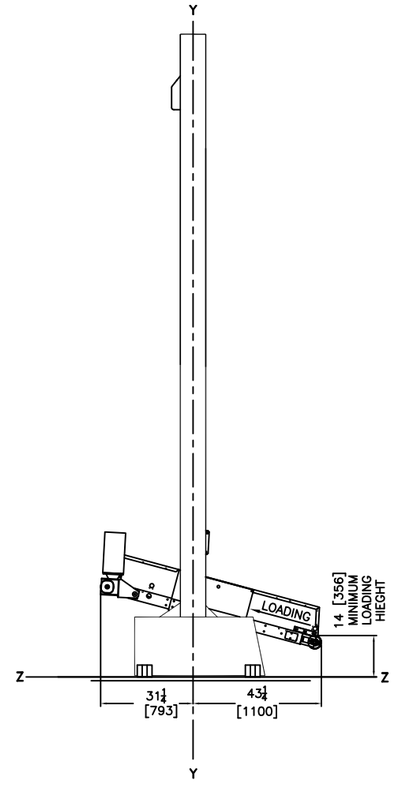
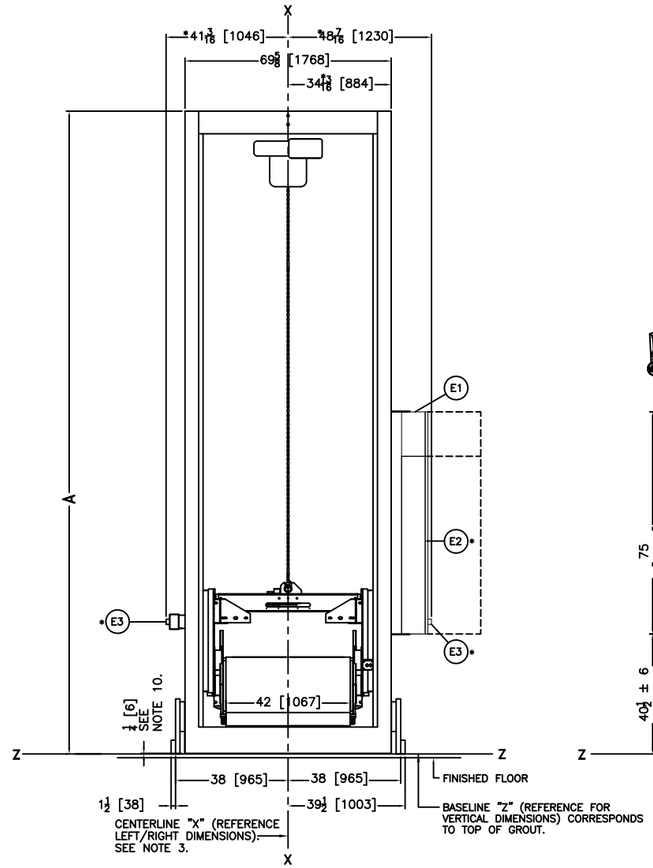


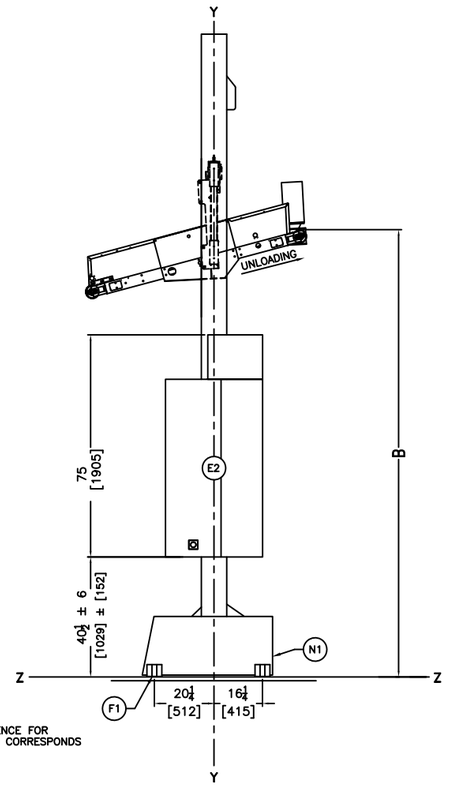
PLAN VIEW



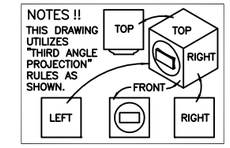
LEFT SIDE VIEW



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
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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.

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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.

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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.

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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.

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ATTENTION

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ATTENTION

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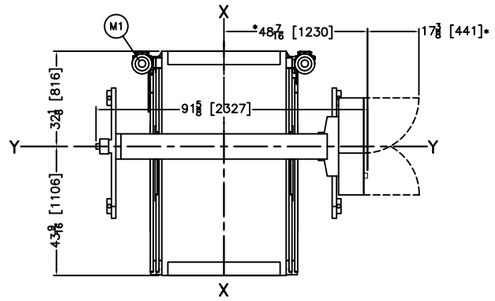
COLFK111 (60K CAKES)

DM 0 0.5M 1M
INCHES 0 12 24 36

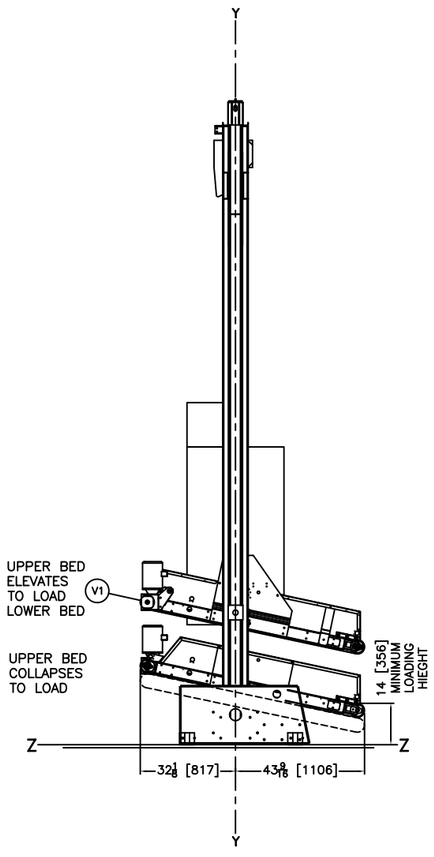
DWG# BDCOLFK1AE
2013343D

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

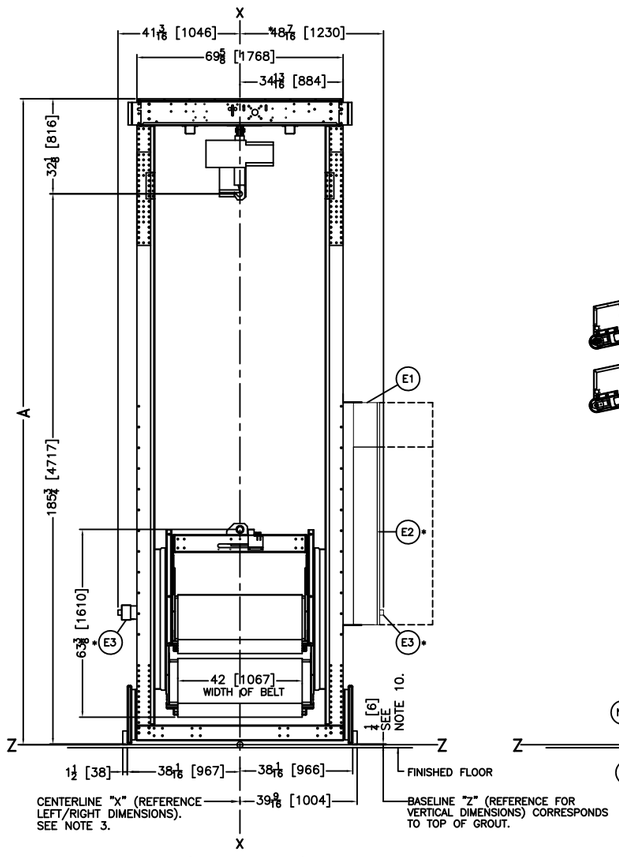
USE THIS SIDE RAIL EXTENDER		COLFK112			
		DIMENSION "A"		DIMENSION "B"	
INCHES	mm	INCHES	mm	INCHES	mm
105	2667	218	5537	132	3353
112	2845	225	5715	139	3531
119	3023	232	5893	146	3708
126	3200	239	6071	153	3886
133	3378	246	6248	160	4064
140	3556	253	6426	167	4242
147	3734	260	6604	174	4420
154	3912	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



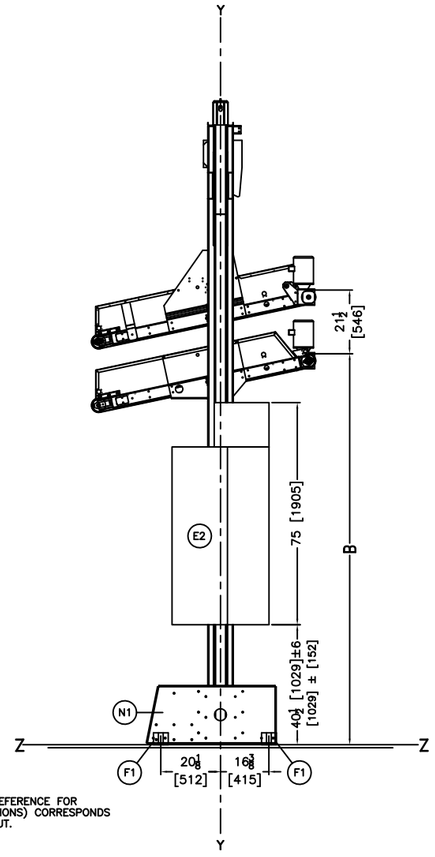
PLAN VIEW



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.

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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