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Service & Mechanical Parts

Centrifugal Extractor MXS4232 and Extractor Conveyors

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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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 —

BIUUUD14 (Published) Book specs- Dates: 20170713 / 20170713 / 20170713 Lang: ENG01 Applic: UUU

Trademarks of Pellerin Milnor Corporation

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

Table 1: Trademarks

AutoSpot™	E-P Plus®	Linear Costa Master™	MilTouch™	PurePulse®
CBW®	Gear Guardian®	Linear Costo™	MilTouch-EX™	Ram Command™
Drynet™	GreenTurn™	Mentor®	Miltrac™	RecircONE®
E-P Express®	GreenFlex™	Mildata®	MultiTrac™	RinSave®
E-P OneTouch®	Hydro-cushion™	Milnor®	PBW™	SmoothCoil™
		MilMetrix®	PulseFlow®	Staph Guard®

— End of BIUUUD14 —

BIUUUS27 (Published) Book specs- Dates: 20051111 / 20051111 / 20060323 Lang: ENG01 Applic: PEU

Safety—Centrifugal Extractor

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.

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 1: 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 2: 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.

WARNING 3: Crush Hazards—Tilting machines only—The machine housing will crush your body or limbs if it descends or falls while you are under it. Housing can descend with power off or on. Manual operation of tilting valves overrides safety interlocks. Improper operation of manual tilting valves may cause the housing to descend.

- Do not remove guards, covers, or panels.
- Do not reach into the machine housing or frame.

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.

WARNING 4: Crush Hazards—Suspended machines only—Spaces between the shell and housing can close and crush or pinch your limbs. The shell moves within the housing during operation.

- Do not reach into the machine housing or frame.
- Keep yourself and others clear of movement areas and paths.

WARNING 5: 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—Cylinder and Processing Hazards

[Document BIUUUS13]

The following are instructions about hazards related to the cylinder and laundering process.

DANGER 6: Entangle and Sever Hazards—Contact with goods being processed can cause the goods to wrap around your body or limbs and dismember you.

- Do not attempt to open the door or reach into the cylinder until the cylinder is stopped.
- Do not touch goods inside or hanging partially outside the turning cylinder.
- 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.

WARNING 7: Crush Hazards—Contact with the turning cylinder can crush your limbs. The cylinder will repel any object you try to stop it with, possibly causing the object to strike or stab you.

- Lock out and tag out power at the main machine disconnect before reaching into the cylinder.
- Do not place any object in the turning cylinder.

WARNING 8: Confined Space Hazards—Confinement in the cylinder can kill or injure you. Hazards include but are not limited to panic, burns, poisoning, suffocation, heat prostration, biological contamination, electrocution, and crushing.

- Do not attempt unauthorized servicing, repairs, or modification.

WARNING 9: Explosion and Fire Hazards—Flammable substances can explode or ignite in the cylinder, drain trough, or sewer. The machine is designed for washing with water, not any other solvent. Processing can cause solvent-containing goods to give off flammable vapors.

- Do not use flammable solvents in processing.

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

5.1. Damage and Malfunction Hazards

5.1.1. Hazards Resulting from Inoperative Safety Devices

WARNING 10: 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 11: 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 12: 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.

5.1.2. Hazards Resulting from Damaged Mechanical Devices

WARNING 13: 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 14: Explosion Hazards—Cylinder—A damaged cylinder can rip apart during extraction, puncturing the shell and discharging metal fragments at high speed.

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

5.2. Careless Use Hazards

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

WARNING 15: 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 16: Goods Damage and Wasted Resources—Entering incorrect cake data causes improper processing, routing, and accounting of batches.

- Understand the consequences of entering cake data.

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

WARNING 17: 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 18: 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 19: Crush Hazards—Tilting machines only—The machine housing will crush your body or limbs if it descends or falls while you are under it. Housing can descend with power off or on. Manual operation of tilting valves overrides safety interlocks. Improper operation of manual tilting valves may cause the housing to descend.

- Secure both red safety supports in accordance with the instructions furnished, then lock out and tag out power at the main machine disconnect before working under the tilted machine.
- Do not operate the manual tilt valves with anyone under the machine.
- Do not operate the tilt controls with anyone under the machine.

WARNING 20: Confined Space Hazards—Confinement in the cylinder can kill or injure you. Hazards include but are not limited to panic, burns, poisoning, suffocation, heat prostration, biological contamination, electrocution, and crushing.

- Do not enter the cylinder until it has been thoroughly purged, flushed, drained, cooled, and immobilized.

— End of BIUUUS27 —

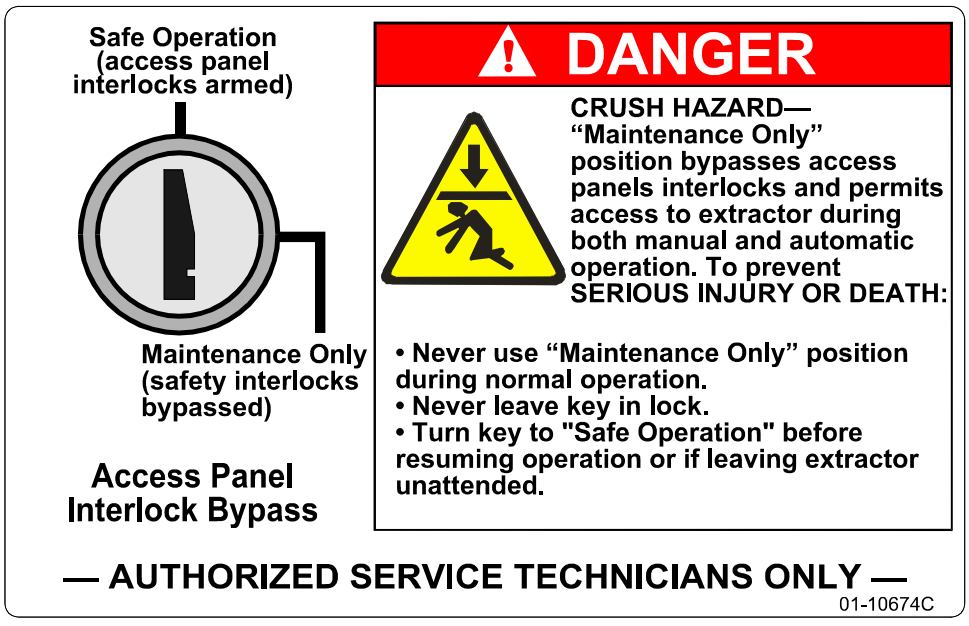
SAFETY ALERT for Owner/Managers and Maintenance Personnel: Using the Access Panel Interlock Bypass Key Switch

The access panels on this machine are equipped with safety lockout switches that disable the machine if a panel is removed. The Access Panel Interlock Bypass key switch permits bypassing this safety feature to allow access to certain moving parts during required maintenance procedures. This key switch, located inside the low voltage control box, is shown in Figure 1.

DANGER 1: Crush Hazard—The "Maintenance Only" position bypasses access panel interlocks and permits access to moving parts during both manual and automatic operation. **To prevent serious injury or death**, comply with, or ensure compliance with the following:

- **Never use the machine for normal operation with this switch in the "Maintenance Only" position.**
- **Never use this switch to clear faults or for any operational function.**
- **Use this switch *only* if you are a trained, authorized service technician**, and only when performing maintenance that requires immediate access to moving parts normally shielded by the access panels.
- Always turn the switch to the "Safe Operation" position **and remove the key** before resuming normal operation or stepping away from the machine.
- Keep the Access Panel Interlock Bypass key secured away from machine operators and all other personnel who do not fully understand the results of using it.
- Keep all electrical and control cabinets closed and securely latched. Keep control cabinet keys away from untrained employees.

Figure 1: Access Panel Bypass Key Switch and Safety Placard



— End of BICP1S01 —

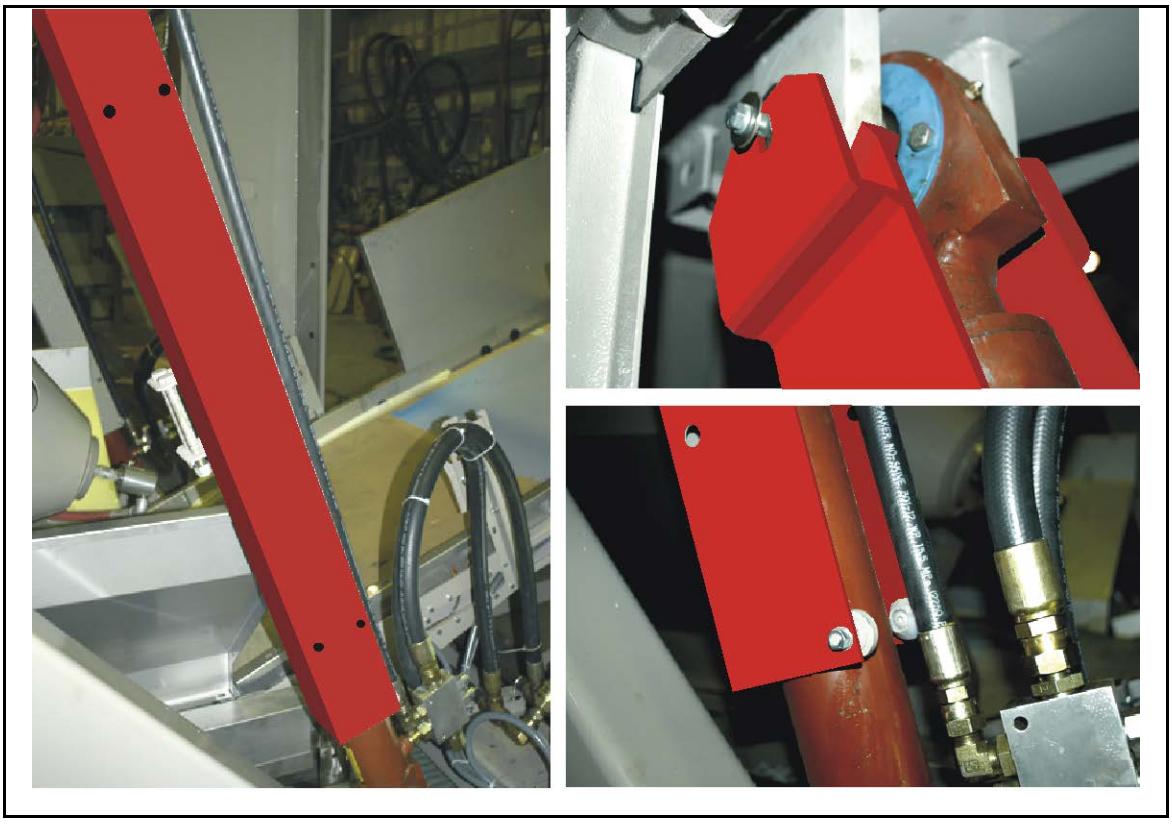
How To Use the Red Safety Support(s) for Maintenance

1. What Safety Supports are Provided and Why

These machines are provided with two safety stands. With the shell full down, the stands are mounted to the tilt cylinders, then with the shell raised, the safety bolts are inserted.

Use the safety support(s) whenever the maintenance to be performed requires you to place any part of your body in or near the path of the vertically moving portion of the machine. When not in use, stow the safety supports as explained herein.

Figure 1: Safety Stands for 48-series Centrifugal Extractor Models (stands mounted but safety bolts not yet inserted)



WARNING 1: Crush Hazard—The safety supports provide protection against the drifting down of the vertically moving portion of the machine during maintenance in the event of a leak in the hydraulic system. They are not intended to restrain the machine from coming down under power.

- Never work in or near the path of the vertically moving portion of the machine unless the safety supports are deployed and power is locked out/tagged out.
- Maintain the safety support(s) in good condition.
- Where a pair of safety supports is provided, always use both safety supports.
- Designate a convenient, secure area to stow these safety components when not in use.

2. How to Deploy the Safety Support(s)

2.1. Put the Machine In Position to Accept the Safety Support(s)—At the controls, use the *Manual* mode to lower the shell completely. Lockout/tagout power to the machine.

2.2. Put the Safety Support(s) in Position—Referring to the figure, mount one safety stand on each tilt cylinder, as follows:

1. Remove all mounting hardware (bolts and rollers) from the safety stand.
2. Place the channel-shaped stand around the tilt cylinder and shaft.
3. Hold the stand so the top of the stand cradles the top pivot mount and secure it at the top with the two mounting (short) bolts.
4. Hold the bottom of the stand against the cylinder and attach the two rollers so the stand can ride on the cylinder.
5. When both stands are mounted, restore power at the controls and manually raise the shell either partially or fully, as needed for the maintenance to be performed.
6. On each stand, install two safety (long) bolts at one of the two side-by-side hole locations in the stand.

2.3. Secure the Safety Support(s) and the Machine—See caution statement **2** below. At the controls, carefully lower the shell just until it is resting on the safety bolts.

Lock out/tag out power to the machine.

CAUTION 2: Machine Damage Hazard—Damage can occur if hydraulic power is applied to the safety stands for an extended time.

- Release the controls as soon as the shell is resting on the stands.

CAUTION 3: Machine Damage Hazard—Safety stand mounting rollers are not intended for prolonged use.

- When servicing is completed, lower the shell completely, lock out/tag out power and dis-mount the safety stands. Do not leave the stands mounted to the machine during normal operation.

— End of BIUUUS06 —

Installation 1

HANDLING AND SETTING CENTRIFUGAL EXTRACTORS

Handling Precautions

1. Remove the protective coverings (leaving the machine on shipping skids) and examine carefully for possible shipping damage. **If the machine is damaged, notify the transportation company immediately.**

   NOTE: Once the machine is given to the carrier, it is solely the responsibility of the carrier to ensure that no damage occurs during transit. In addition to readily apparent damage, carriers are liable for concealed damage. **Do not hesitate to file a claim with the carrier if the machine is damaged in any way during shipment.** Milnor® will be glad to assist you in filing your claim, but is not responsible for any shipping damage to the machine once it has been delivered to the carrier in good condition.

2. Consult Milnor® for instructions if crane lifting is required.

3. Use skids for fork lifting. If possible, leave the machine on shipping skids until it is near its final position. Once the skids are removed, take care in placing forks under the machine. **Do not allow the forks to come in contact with valves, piping, motors, etc., located under the machine.**

4. Never push, pull, lift, jack, or exert pressure on any components that protrude from the machine frame (shell front, door, electric boxes, controls, guards, conduits, conveyors, piping, etc.).

Site Requirements

Space Requirements

1. All openings and corridors through which equipment must pass during installation must be large enough to accomodate the width and the height of the machine as shown on the dimensional drawings. It is occasionally possible to reduce the overall dimensions by removing piping or other special modifications. Consult Milnor® for additional information.

2. Sufficient clearance must be provided for normal operation and maintenance procedures.

Operation Requirements

1. Allow sufficient ventilation for the heat and vapors of normal operation to dissipate.

2. Provide easy access to controls. Operators must be able to view all status lights and reach all controls associated with the machine.

Foundation Requirements—The floor and/or all other support components must have sufficient strength and rigidity with due consideration for the natural or resonant frequency thereof to withstand the fully loaded weight of the machine, including the wet goods and any repeated sinusoidal (rotating) forces generated during its operation. Determining the suitability of floors, foundations, and other supporting structures normally requires *analysis by a qualified structural engineer.*

Setting Procedures

To protect against lateral creeping of the machine during operation (due to vibration), roughen the area of the floor where the grout will be applied. Anchor bolts are required.

1. With the machine near the final location, unbolt the shipping skids. Observing all precautions, lift the machine off its skids, and lower the machine onto blockings. Shim the blockings until the machine is level and approximately 1" (25) clearance exists under each base pad. Install anchor bolts (as shown on the dimensional drawing), but **do not tighten bolts until grout is completely dry.**

2. Apply grout between the existing foundation floor and the base pads, observing the following considerations:

- Use only industrial strength non-shrinking grout.
- If the grout (after mixing) is too thin (causing it to flow from under the base pads), install temporary cardboard framing around pads to retain the grout until it cures.
- If the grout (after mixing) is of proper consistency, pack or trowel by hand.

⚠ CAUTION ⚠

VIBRATION AND MALFUNCTION HAZARD—Voids under base pads can magnify vibration and cause unsatisfactory operation.

☞ **Grout must displace total clearance between base pads and existing foundation floor.**

☞ **Voids must not exist.**

3. Tighten anchor bolts evenly using only one-quarter turn on each bolt before moving to the next one. While tightening, frequently skip from front to back and right to left to insure uniform tension. After tightening all bolts, check each bolt at least twice during the first week of operation.

4. **Please check perforated cylinder for smoothness before placing machine in service. We cannot accept claims for damage to cylinder's smooth finish after machine has been placed in service.**

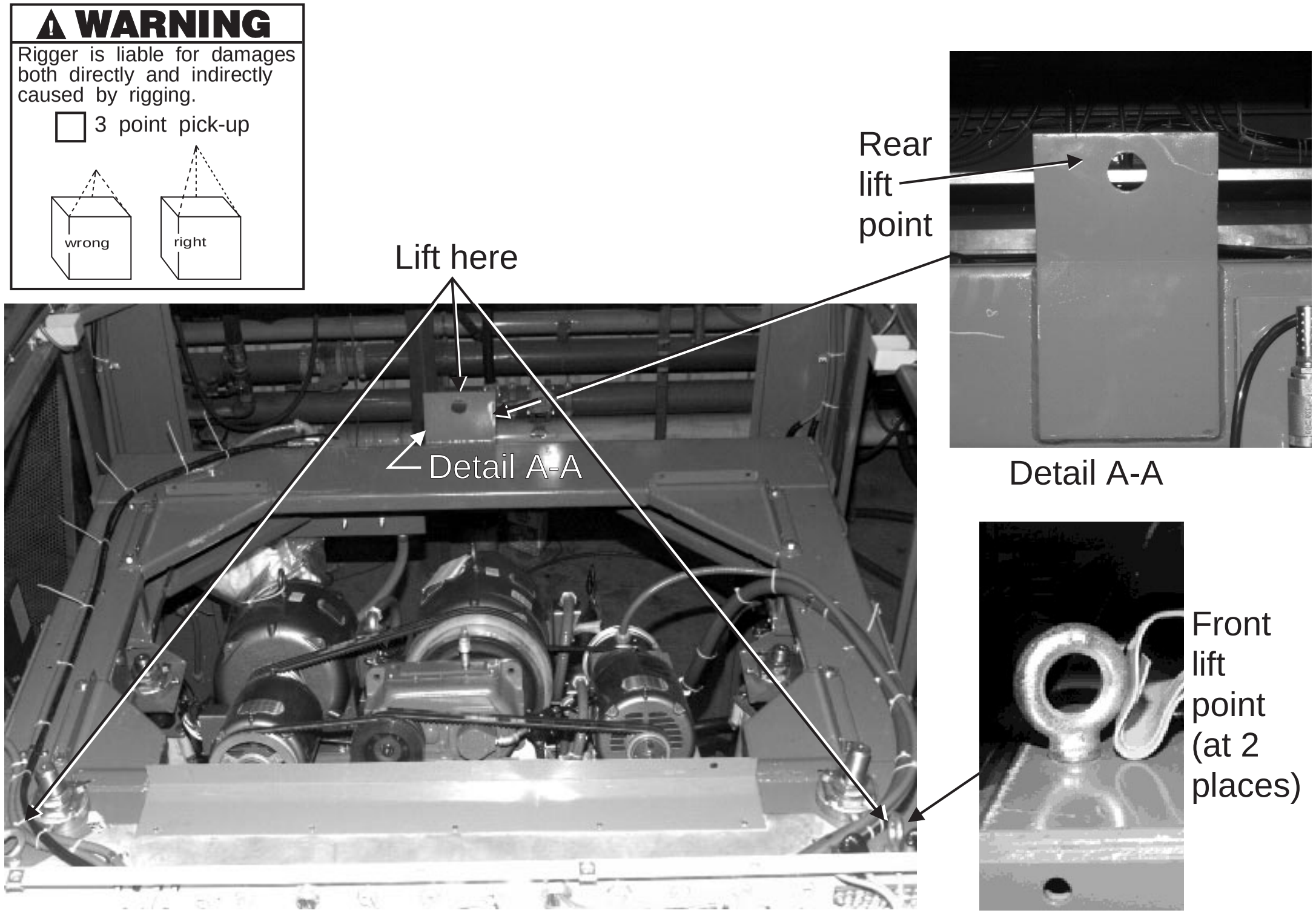
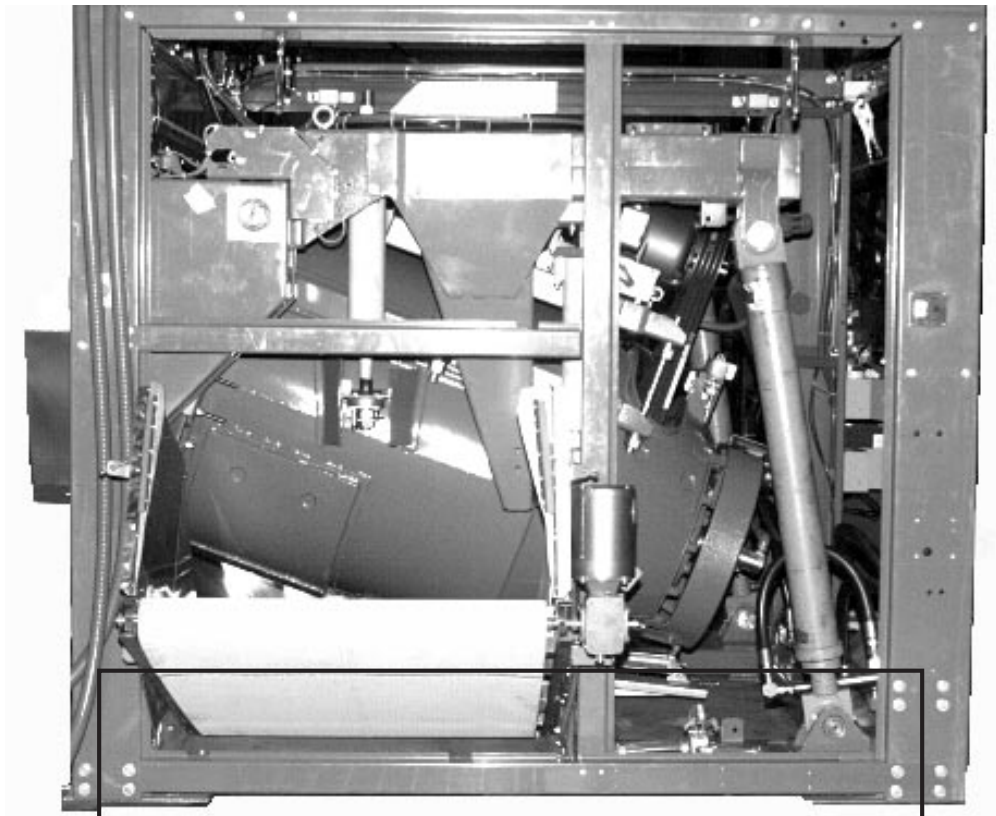
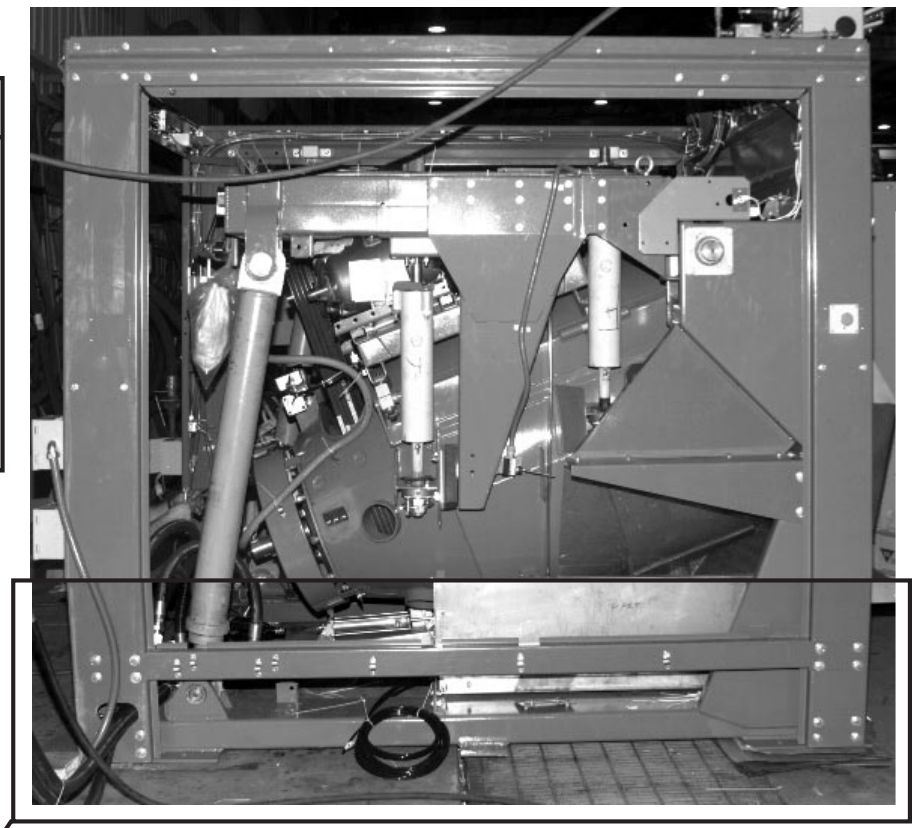


FIGURE 1 (MSINA406AE)
Lifting and Jacking Points



⚠ CAUTION ⚠

Lift and jack at base only (shown below). Forklift blades must not contact conveyor, hydraulic lines, or cosmetics. See "Jacking Precautions" below.



base

Jacking Precautions

NOTE 1: Only lift or jack high enough to place or remove crawlers or other moving aids.

NOTE 2: When jacking machine, spread forks far enough apart to distribute weight properly. Do not rack machine!

FIGURE 2 (MSINA406AE)
Lifting and Jacking Points

⚠ WARNING ⚠

Remove shipping restraints before attempting to run machine, but only after machine is in place. Restraints are usually marked with red, and may be concealed behind access panels. Replace those fasteners which are part of the machine structure.

Front shipping mounting bracket location (painted red)

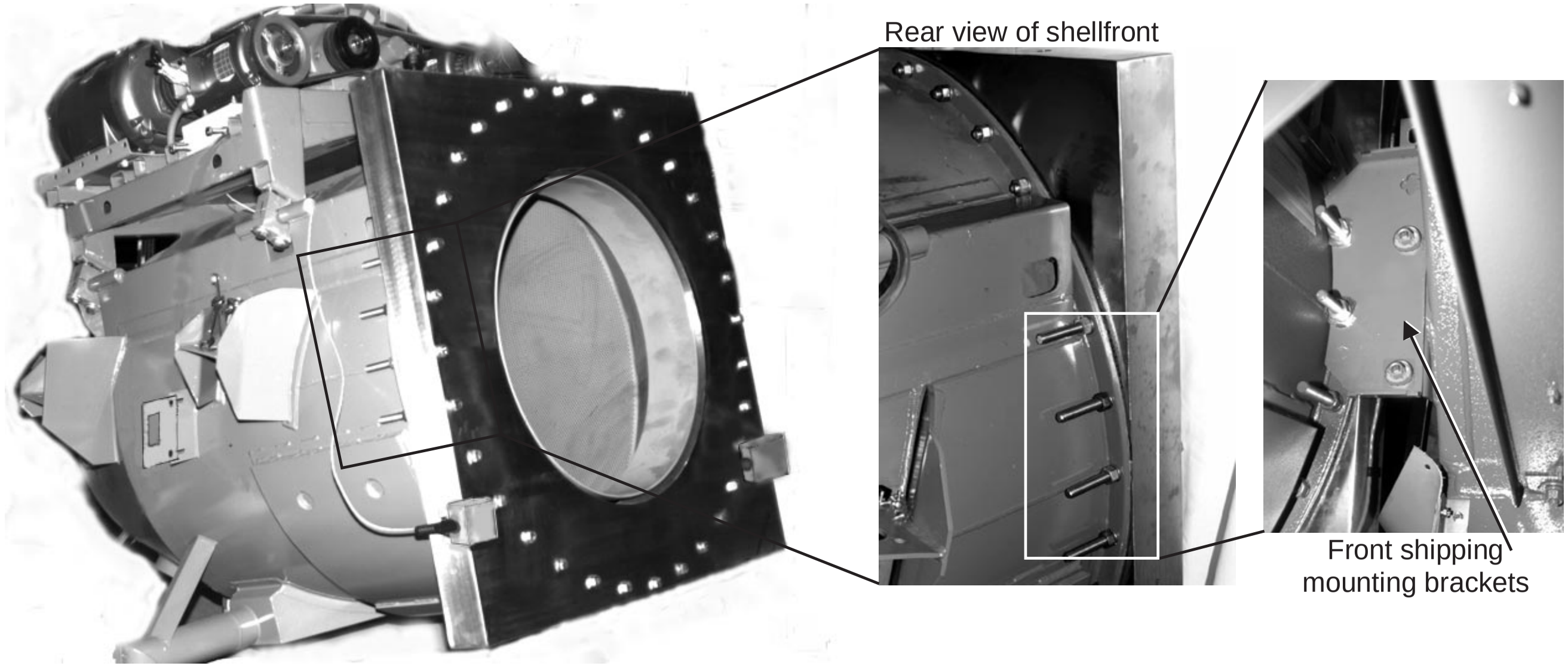


FIGURE 3 (MSINA406AE)
Shipping Brackets and Restraints (painted red)

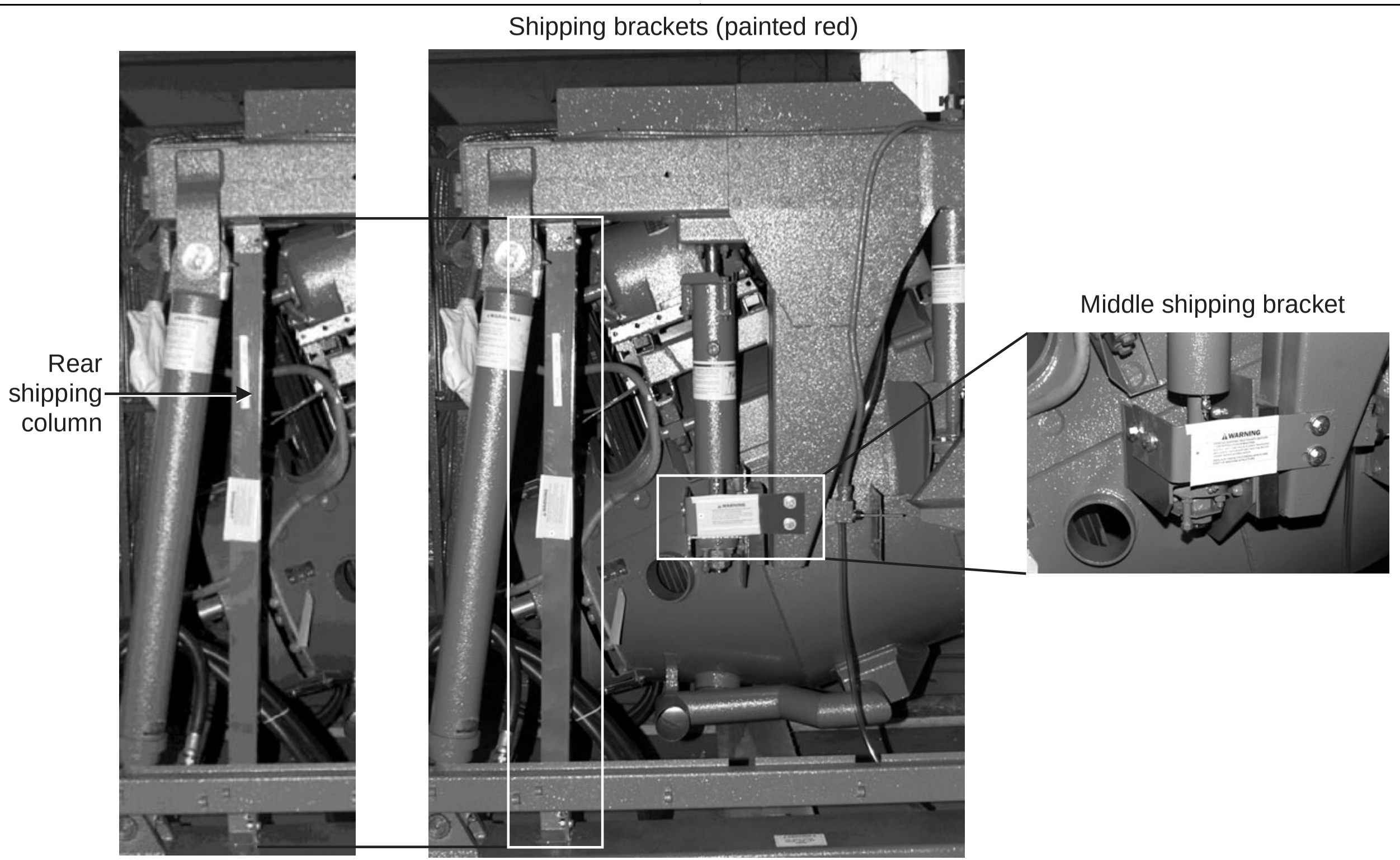


FIGURE 4 (MSINA406AE)
Shipping Restraints and Brackets (painted red)

CENTRIFUGAL EXTRACTOR SERVICE CONNECTIONS

General

These service connections are required (depending on the machine model and optional features):

1. Piped inlets and outlets (compressed air, reuse water, or drain and load chute drain, if equipped). The sizes and locations of piped inlets and outlets are shown on the dimensional drawings for the machine.
2. Electric power connections, (for additional information see "EXTERNAL FUSE AND WIRE SIZES FOR MILNOR® MACHINES" - MAEFUSE1AE).

Requirements for Piped Connections

Inlet pressures must be within the minimum/maximum range specified. Pressure outside of the specified range may cause the machine to operate inefficiently or malfunction, and may damage machine components.

⚠ CAUTION ⚠

MACHINE DAMAGE—Valve bodies will be ruined if twisted and distorted.

☞ **Hold the connection side of the valve with a wrench when connecting plumbing.**

Piped Inlet/Outlet Specifications—The piped inlet and outlet requirements are as follows (see dimensional drawings for the size and location of connection points):

Piped Inlets

Description of Connection	Source Requirements	Piping Specifications
Compressed air inlet	1" NPT 85-115 PSI (5.97-8.08 kilogram/centimeter^2)	Pipe material per plumbing code

Piped Outlets

Description of Connection	Destination Requirements	Piping Specifications
Reuse tank discharge pipe	1 1/2" NPT	Rubber hose, PVC, or other approved material per plumbing code
Drain (non-reuse equipped machines)	3" NPT unrestricted gravity feed to sewer	Same as above
Load chute drain (piped to sewer or reuse tank)	1" (25.4)	Flexible tubing or other approved material per plumbing code

When Making Electrical Power Connections

⚠ DANGER ⚠

ELECTROCUTION HAZARD—Contact with high voltages can kill or seriously injure you.

☞ **All electrical connections must be made by a competent electrician.**

1. Connections must be made by a competent electrician.
2. See fuse and wire sizing information in the schematic manual and on the machine nameplate.
3. "Stinger leg" if any, must be connected to terminal L3 only.
4. Make power connections within beltbox.
5. Only use BUSSMAN FUSETRON FRN (up to 250V), FRS (up to 600V) or similar lag fuses. The nameplate for fuse sizes must not be applied to standard fuses.
6. See nameplate for fuse and wire sizes. If wire runs more than 50 feet (15.24), increase by one wire size per each additional 50 feet (15.24).

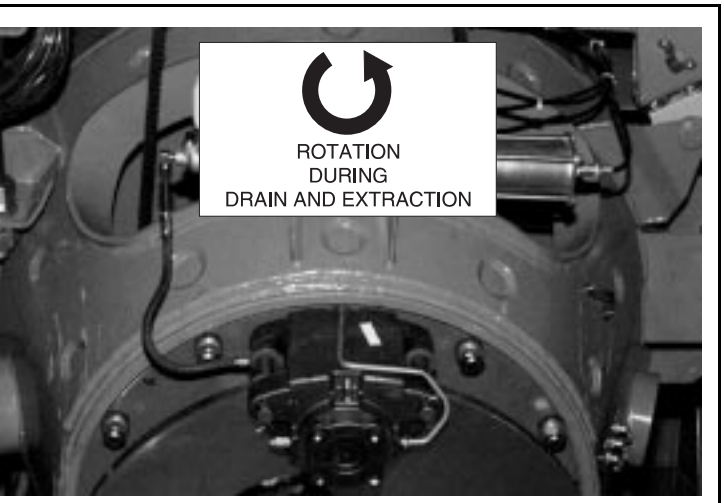


FIGURE 1 (MSIN0906AE)
Cylinder Rotation (Viewed from rear)

7. Verify all motor rotation (see the M7E extractor reference manual for more information). If the cylinder turns in the wrong direction, interchange the wires connected to L1 and L2. **Never move L3, under any circumstances.**

NOTE: Before shipping, all motors are properly phased for correct rotation. It is possible to reverse the direction of rotation in a three-phase machine by interchanging the incoming power leads. Therefore, the rotation of a three-phase machine must be observed and corrected when the machine is first installed. If it is necessary to reverse the rotation, simply swap the incoming power lines to the machine (never move L3 if L3 is a stinger leg). Never attempt to reconnect motors or the motor control devices.

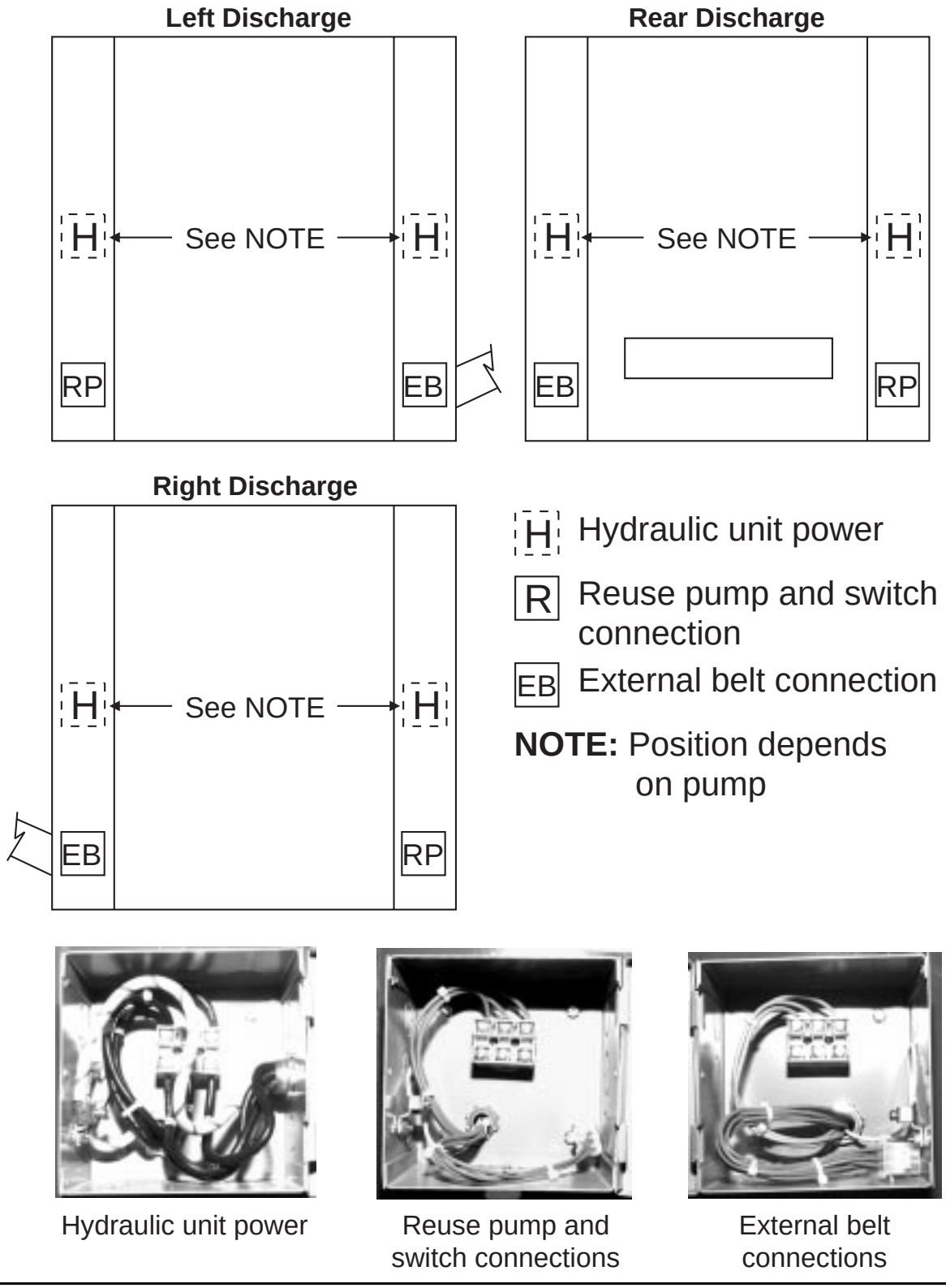
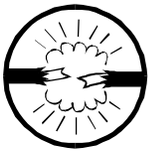


FIGURE 2 (MSIN0906AE)
Electrical Connections

Electric Power and Air Connections

⚠ CAUTION ⚠



Voltage fluctuations of more than 10% above or below the specified voltage for the machine are extremely detrimental to electrical components, especially motors.

☞ **Correct any such condition prior to commissioning the machine.**

The customer must furnish a remotely mounted disconnect switch with lag type fuses, circuit breakers, and wiring between the electrical service box and the junction box on the machine. The sizes of these fuses and wires, along with the motor fuses supplied with the machine, depend on the machine voltage. See fuse and wire sizing information in the schematic manual and on the machine nameplate.

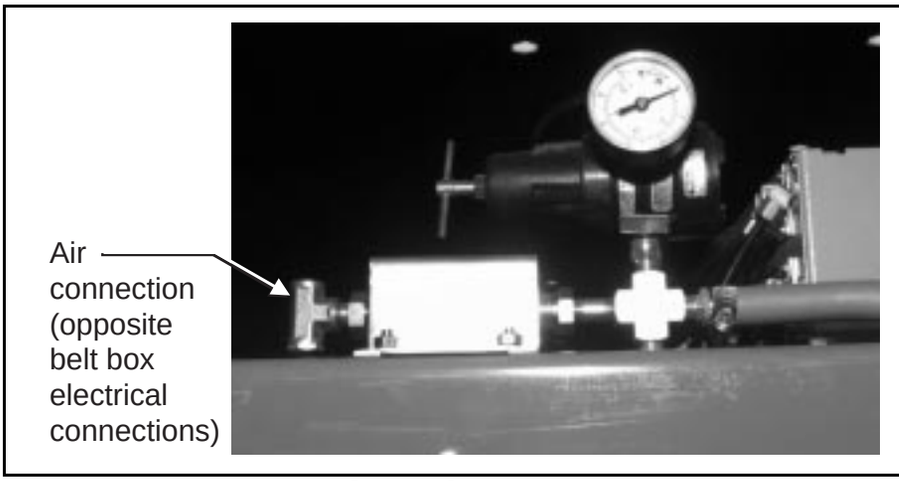


FIGURE 3 (MSIN0906AE)
Air Connection

AIR CONNECTION

MINIMUM 85 PSI (Generally)
MAXIMUM 110 PSI (Check nameplate on machine)

THE BRAKE INTERLOCK PRESSURE SWITCH WILL NOT PERMIT THE MACHINE TO EXTRACT IF THE AIR PRESSURE IS TOO LOW. THE MACHINE WILL ROTATE AT DRAIN SPEED INSTEAD.

If this happens, check your air compressor. If your gauge shows more than 85 PSI the gauge is probably faulty. Some air compressors are set with too great a pressure differential between the lowest pressure obt ainable and the highest pressure obtainable. Hence, if your compressor is set to go on at 60 PSI and off at 110 PSI, the machine will extract quite satisfactorily whenever the air pressure is above 85 PSI, but will not enter extraction at all when the pressure is below 85 PSI.

⚠ CAUTION

USE ONLY YOUR FINGERS TO DEPRESS THE KEYS.

NEVER USE SHARP OBJECTS.

WHEN USED PROPERLY THIS KEYPAD WILL WITHSTAND HEAVY INDUSTRIAL USE.

DAMAGE MAY OCCUR IF KEYS ARE DEPRESSED BY A SCREWDRIVER, PEN, ETC.

FIGURE 4 (MSIN0906AE)
Air and Electrical Connection Precautions

About the Forces Transmitted by Milnor® Washer-extractors

During washing and extracting, all washer-extractors transmit both static and dynamic (cyclic) forces to the floor, foundation, or any other supporting structure. During washing, the impact of the goods as they drop imparts forces which are quite difficult to quantify. Size for size, both rigid and flexibly-mounted machines transmit approximately the same forces during washing. During extracting, rigid machines transmit forces up to 30 times greater than equivalent flexibly-mounted models. The actual magnitude of these forces vary according to several factors:

- machine size,
- final extraction speed,
- amount, condition, and type of goods being processed,
- the liquor level and chemical conditions in the bath preceding extraction, and
- other miscellaneous factors.

Estimates of the maximum force normally encountered are available for each Milnor® model and size upon request. Floor or foundation sizes shown on any Milnor® document are only for on-grade situations based only on previous experience without implying any warranty, obligation, or responsibility on our part.

1. Rigid Machines

Size for size, rigid washer-extractors naturally require a stronger, more rigid floor, foundation, or other supporting structure than flexibly-mounted models. If the supporting soil under the slab is itself strong and rigid enough and has not subsided to leave the floor slab suspended without support, on grade installations can often be made directly to an existing floor slab if it has enough strength and rigidity to safely withstand our published forces without transmitting undue vibration. If the subsoil has subsided, or if the floor slab itself has insufficient strength and rigidity, a deeper foundation, poured as to become monolithic with the floor slab, may be required. Support pilings may even be required if the subsoil itself is “springy” (i.e., if its resonant frequency is near the operating speed of the machine). Above-grade installations of rigid machines also require a sufficiently strong and rigid floor or other supporting structure as described below.

2. Flexibly-mounted Machines

Size for size, flexibly-mounted machines generally do not require as strong a floor, foundation, or other supporting structure as do rigid machines. However, a floor or other supporting structure having sufficient strength and rigidity, as described in Section 3, is nonetheless vitally important for these models as well.

3. How Strong and Rigid?

Many building codes in the U.S.A. specify that laundry floors must have a minimum live load capacity of 150 pounds per square foot (732 kilograms per square meter). However, even compliance with this or any other standard does not necessarily guarantee sufficient rigidity. In any event, it is the sole responsibility of the owner/user to assure that the floor and/or any other supporting structure exceeds not only all applicable building codes, but also that the floor and/or any other supporting structure for each washer-extractor or group of washer-extractors actually has sufficient strength and rigidity, plus a reasonable factor of safety for both, to support the weight of all the fully loaded machine(s) including the weight of the water and goods, and including the published 360º rotating sinusoidal RMS forces that are transmitted by the machine(s). Moreover, the floor, foundation, or other supporting structure must have sufficient

rigidity (i.e., a natural or resonant frequency many times greater than the machine speed with a reasonable factor of safety); otherwise, the mentioned 360º rotating sinusoidal RMS forces can be multiplied and magnified many times. It is especially important to consider all potential vibration problems that might occur due to all possible combinations of forcing frequencies (rotating speeds) of the machine(s) compared to the natural frequencies of the floor and/or any other supporting structure(s). A qualified soil and/or structural engineer must be engaged for this purpose.

Figure 1: How Rotating Forces Act on the Foundation

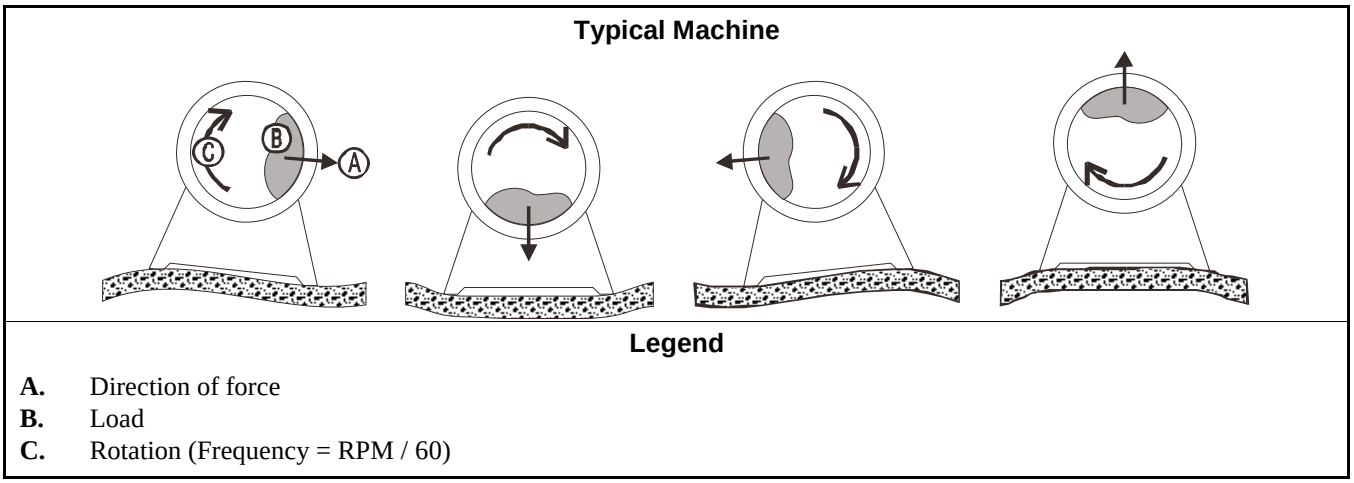


Figure 1 above is intended to depict both on-grade and above-grade installations and is equally applicable to flexibly-mounted washer-extractors, as well as to rigid models installed either directly on a floor slab or on a foundation poured integrally with the slab. Current machine data is available from Milnor® upon request. All data is subject to change without notice and may have changed since last printed. It is the sole responsibility of every potential owner to obtain written confirmation that any data furnished by Milnor® applies for the model(s) and serial number(s) of the specific machines.

— End of BIWUUI02 —

BIUUUI02PE (Published) Book specs- Dates: 20160712 / 20160712 / 20160712 Lang: ENG01 Applic: PEU

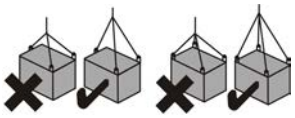
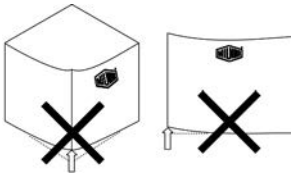
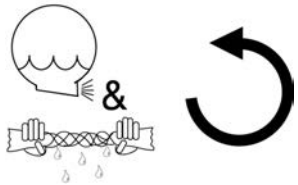
Tag Guidelines for the Models Listed Below

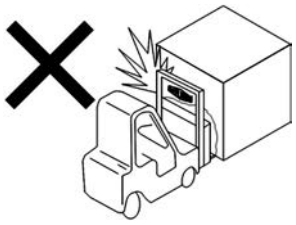
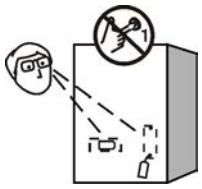
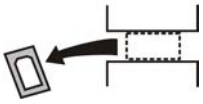
M7V4232C M7V4232L M7V4232R M7V4836C M7V4836L M7V4836R M7V4840C
M9S4232C M9S4232L M9S4232R M9V4232C M9V4232L M9V4232R M9V4840C
M9V4840L M9V4840R MMS4232C MMS4232L MMS4232R MMV4232C MMV4232L
MMV4232R MXS4232C MXS4232L MXS4232R MXV4232C MXV4232L MXV4232R

Notice 1: This information may apply to models in addition to those listed above. It applies to paper tags. It does not apply to the vinyl or metal safety placards, which must remain permanently affixed to the machine and replaced if no longer readable.

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

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

Display or Action	Explanation
	Read the manuals before proceeding. This symbol appears on most tags. The machine ships with safety, operator, and routine maintenance guides for customer use. Milnor dealer manuals for installing, servicing, and commissioning this machine are also available from the Milnor Parts department.
	B2TAG88005: This carefully built product was tested and inspected to meet Milnor® performance and quality standards by (identification mark of tester).
	B2TAG94078: Do not forklift here; do not jack here; do not step here—whichever applies.
	B2TAG94079: Rig for crane lifting (either 3-point or 4-point, depending on the number of lifting eyes provided) using a steep angle on the chains (closer to vertical than horizontal).
	B2TAG94081: Motor must rotate in this direction. On single motor washer-extractors and centrifugal extractors, the drive motor must turn in this direction during draining and extraction. This tag is usually wrapped around a motor housing. If the motor turns in the opposite direction when the machine is first tested, the electrical hookup is incorrect and must be reversed as explained in the schematic manual.
	B2TAG94084: Do not lift from one corner of the machine, as this can cause the frame to rack, damaging it.
	B2TAG94097: The cylinder must rotate **counterclockwise** during draining and extraction (spin) when viewed from here (rear of machine). Otherwise, reverse the electric power connections, as explained in the schematic manual.

Display or Action	Explanation
	B2TAG94118: Do not strike shipping container during fork-lifting. Fragile components inside.
	B2T2001028: Look for tags inside the machine. These tags may identify shipping restraints to be removed or components to be installed. Do not start the machine until these actions are completed.
 	B2T2002013: Do not start the machine until shipping restraints are removed. This tag will appear on the outside of the machine to alert you to the presence of internal shipping restraints. A tag will also appear on the restraint to help identify it. Most, but not all shipping restraints display the color red. Some shipping restraints are also safety stands. Do not discard these.

— End of BIUUUI02 —

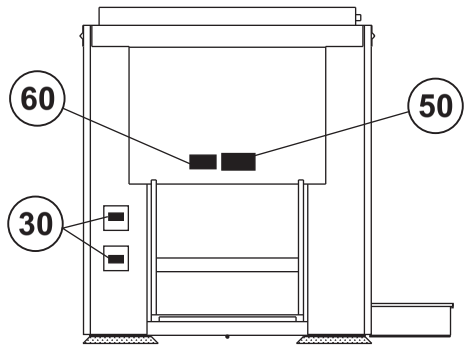
Safety Placard Use and Placement

M9V4232C,L,R, **MXS4232C,L,R** & M**9**V4840C,L,R

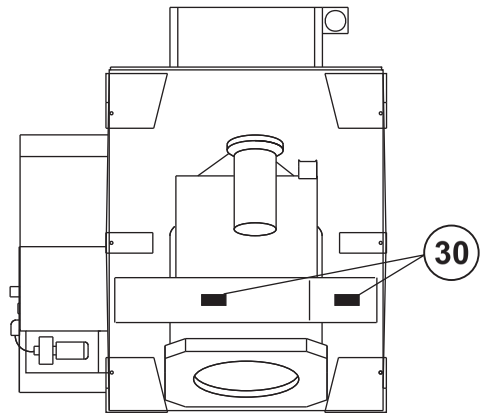
Pellerin Milnor Corporation
P. O. Box 400, Kenner, LA 70063-0400

Litho in U.S.A.

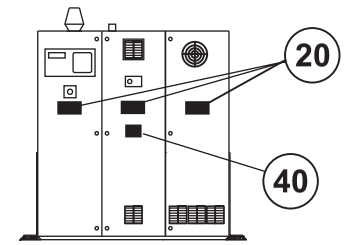
Notes:
1. **Replace placard immediately, if removed or unreadable.**
2. **Approximate locations of placards are shown. Mounting holes are provided on machine. If aluminum placard use #8 self-tapping screws.**



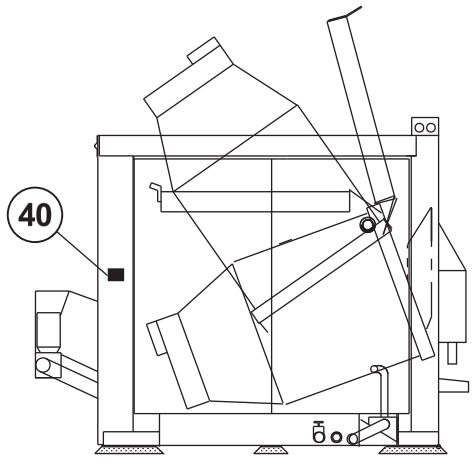
REAR VIEW



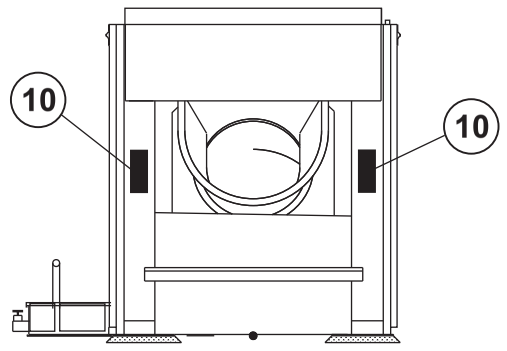
PLAN VIEW



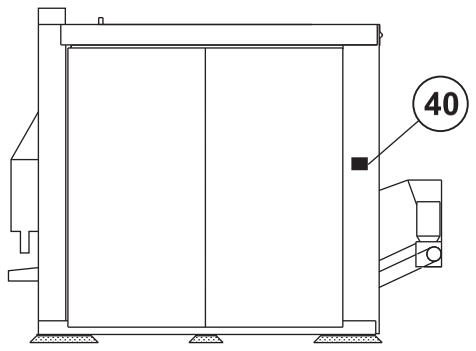
CONTROLS FRONT VIEW



LEFT VIEW



FRONT (LOAD END) VIEW



RIGHT VIEW

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P. O. Box 400, Kenner, LA 70063-0400

Litho in U.S.A.

Parts List—Safety Placard Placement

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

Used In	Item	Part Number	Description	Comments
----------	----------	----------	----------ASSEMBLIES----------	----------
			none	
----------	----------	----------	----------COMPONENTS----------	----------
all	10	01 10583A	NPLT:64/72 W/E WARN FRT-TCATA	
all	20	01 10377A	NPLT:ELEC HAZARD LG-TCATA	
all	30	01 10375B	NPLT:ELEC HAZARD SMALL-TCATA	
all	40	01 10699B	NPLT:SERV HZRD-ALUM-TCATA	
all	50	01 10634A	NPLT:CONVEYOR HAZARDS-TCATA	
all	60	01 10630A	NPLT:TILT CRUSH HAZARD-TCATA	

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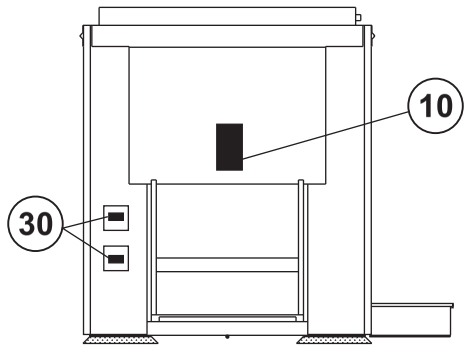
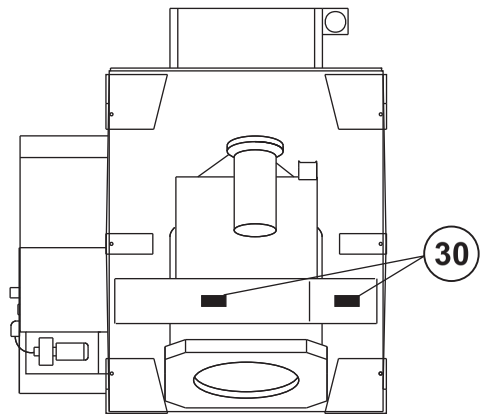
ISO Placards shown on this page

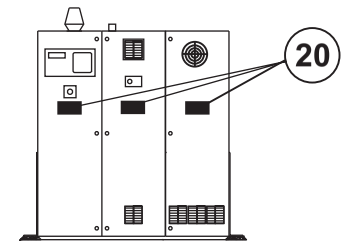
Notes:
1. **Replace placard immediately, if removed or unreadable.**
2. **Approximate locations of placards are shown. Mounting holes are provided on machine. If aluminum placard use #8 self-tapping screws.**



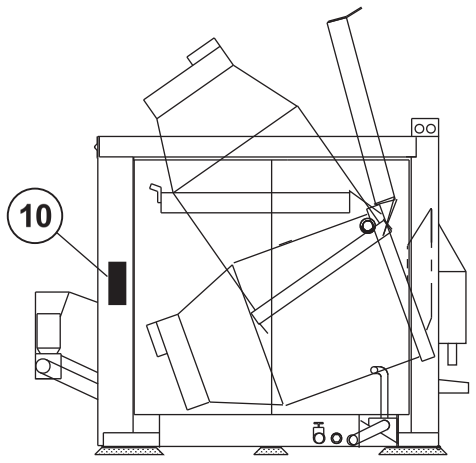
REAR VIEW



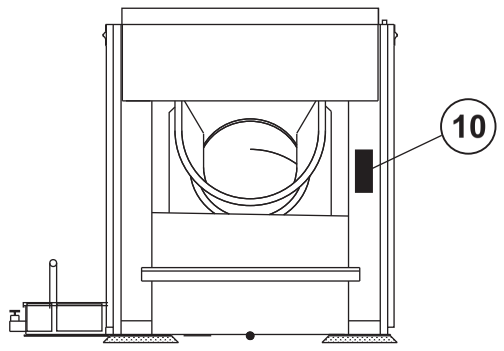
PLAN VIEW



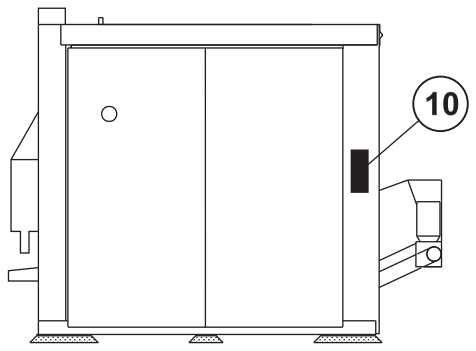
CONTROLS FRONT VIEW



LEFT VIEW



FRONT (LOAD END) VIEW



RIGHT VIEW

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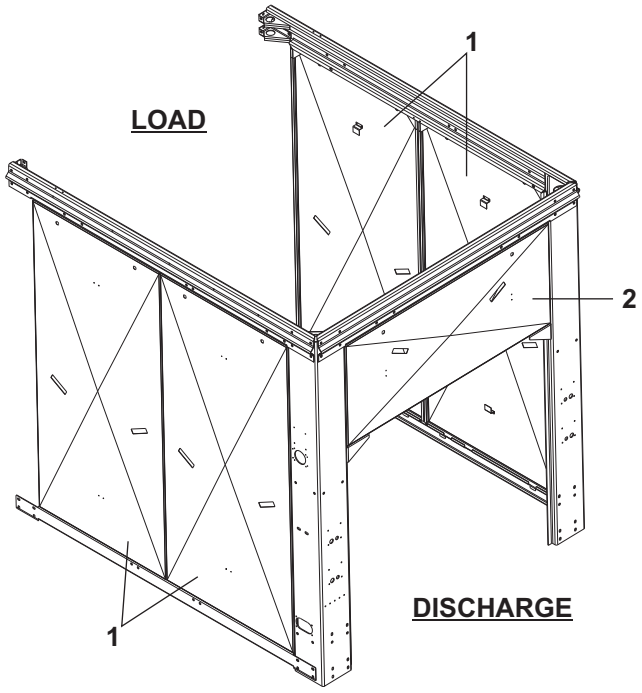
Parts List—Safety Placard Placement

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

Used In	Item	Part Number	Description	Comments
----------	----------	----------	----------ASSEMBLIES----------	----------
			none	
----------	----------	----------	----------COMPONENTS----------	----------
all	10	01 10588X	NPLT:M7E EXTRACTOR WARNG ISO	
all	20	01 10377	NPLTE:"WARNING" 4X4	
all	30	01 10375	NPLTE:"WARNING" 2X2	

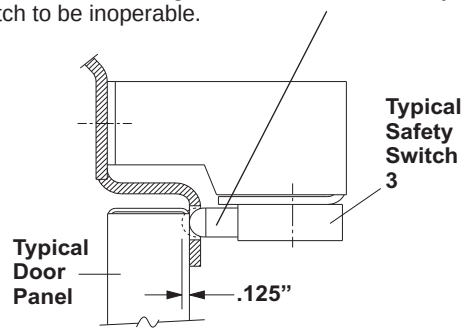
Guards & Covers

MXS4232C,L,R



DOOR SAFETY SWITCH INSTALLATION

Switch plunger must extend .125 inches through the hole before the door panel makes contact. Any distance less or greater will cause the safety switch to be inoperable.



The switch is engaged when the door panel depresses the roller plunger through the access hole.

Parts List—Guards & Covers

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

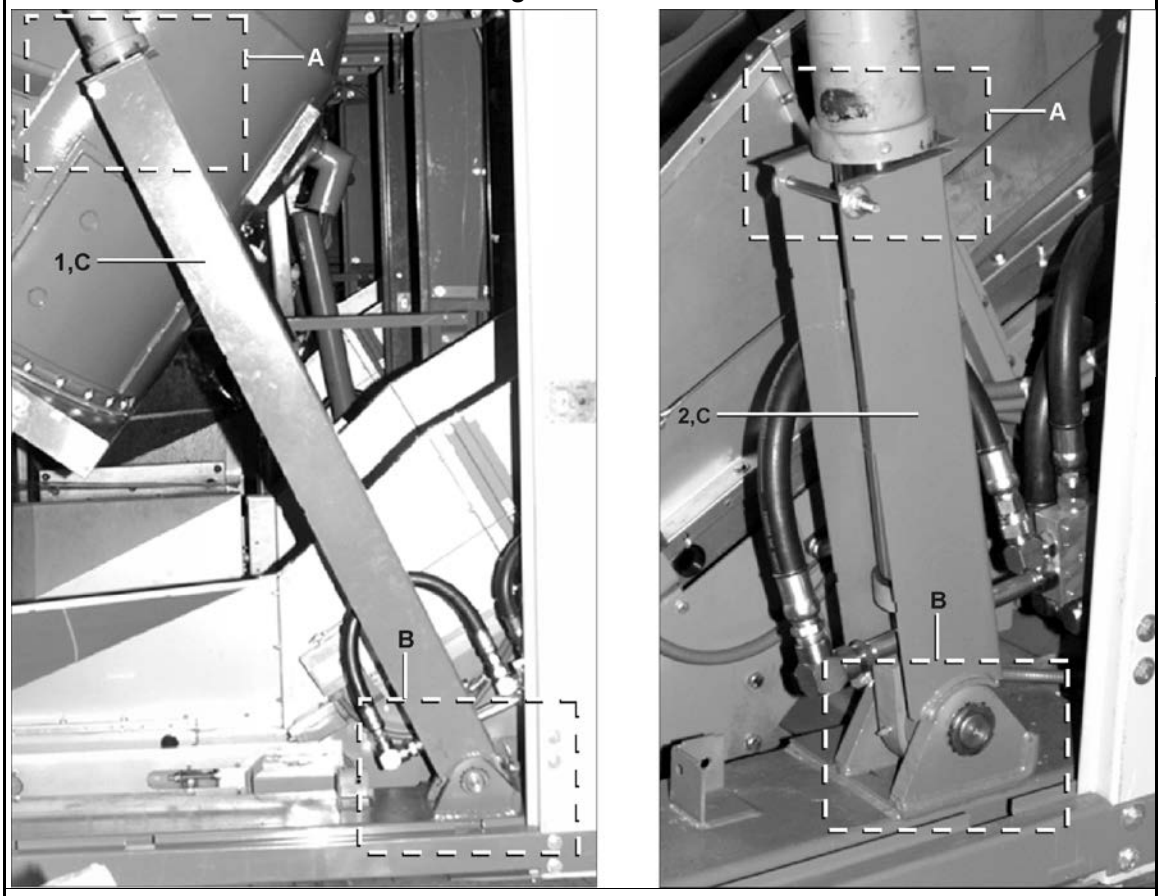
Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	GGS16100	INSTL=COSMETIC CVR 42M9S	
			----------COMPONENTS----------	
all	1	AGS16105	ASSY=COSM IN-LINE DISC DOOR-42M9S	
all	2	AGS16106	ASSY=COSM REAR DISC CONV DOOR 42M9S	
all	3	09RM01209S	CAPSW 9FT 180DEG ROLLER SILVER	

BIPV2M01 (Published) Book specs- Dates: 20130815 / 20130815 / 20130815 Lang: ENG01 Applic: PV2

Safety Stand Installation

Figure 1: Large and small safety stands are supplied.

Right side view

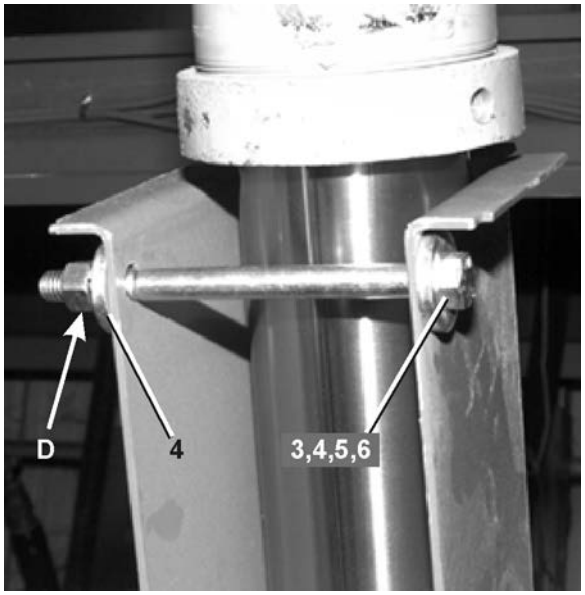


Legend

A. See Detailed view A.
B. See Detailed view B.
C. Two each are supplied.

Figure 2: Detailed view A

Top connection

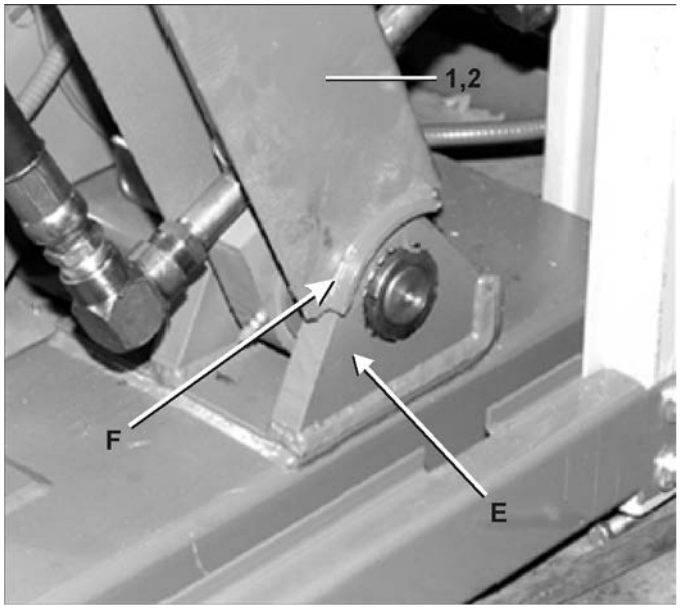


Legend

D. Make sure that the factory supplied fasteners are attached correctly as shown here.

Figure 3: Detailed view B

Bottom connection



Legend

E. Pivot

F. Make sure that the rounded edge of the stand is correctly against the base's pivot.

Table 1: Parts List—

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

Used In	Item	Part Number	Description/Nomenclature	Comments
Assemblies				
	A	GGS16002	SAFETY STAND LARGE 42M7E	
	B	GGS16005	SAFETY STAND SMALL 42M7E	
Components				
all	1	W3 16325	*WLDMT= LARGE SAFETY STAND	
all	2	W3 16324	*WLDMT= SMALL SAFETY STAND	
all	3	15K203D	HEXCAPSCR 1/2-13X5.5 GR5 ZINC	
all	4	15U280	FL+WASHER(USS STD)1/2 ZNC PL+D	
all	5	15U300	LOKWASHER REGULAR 1/2 ZINC PLT	
all	6	15G230	HXNUT 1/2-13UNC2B SAE ZINC GR2	

— End of BIPV2M01 —

Service and Maintenance 2

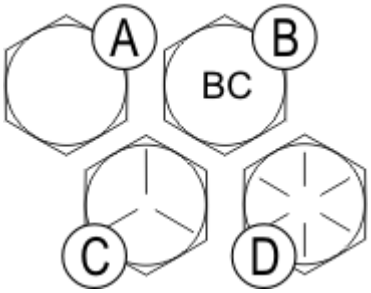
BIUUUM04 (Published) Book specs- Dates: 20180109 / 20180109 / 20180109 Lang: ENG01 Applic: UUU

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

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

Table 7: Torque Values if You Apply LocTite 242

	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
Dimension	Pound-feet	N-m	Pound-feet	N-m	Pound-feet	N-m	Pound-feet	N-m
5/16 x 18	11	15	17	23	25	34	22	30
5/16 x 24	13	18	19	26	27	37	27	37
3/8 x 16	20	27	31	42	44	60	38	52
3/8 x 24	23	31	35	47	50	68	--	--
7/16 x 14	32	43	49	66	70	95	61	83
7/16 x 20	36	49	55	75	78	106	--	--
1/2 x 13	49	66	75	102	107	145	93	126
1/2 x 20	55	75	85	115	120	163	--	--
9/16 x 12	70	95	109	148	154	209	134	182
9/16 x 18	78	106	121	164	171	232	--	--
5/8 x 11	97	132	150	203	212	287	186	252
5/8 x 18	110	149	170	230	240	325	--	--

Table 8: Torque Values if You Apply LocTite 262

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

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

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

Table 10: Torque Values if You Apply LocTite 277

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

1.2. Stainless Steel Fasteners

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.

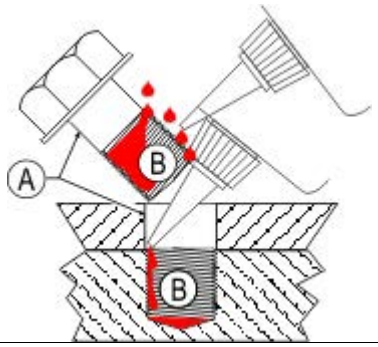
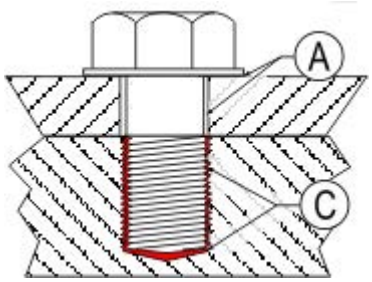
3. How to Apply a Threadlocker

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

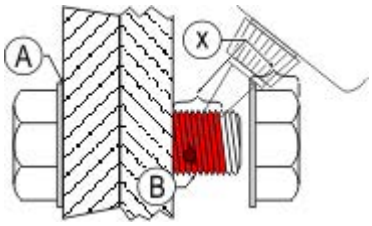
3.1. Blind Holes

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

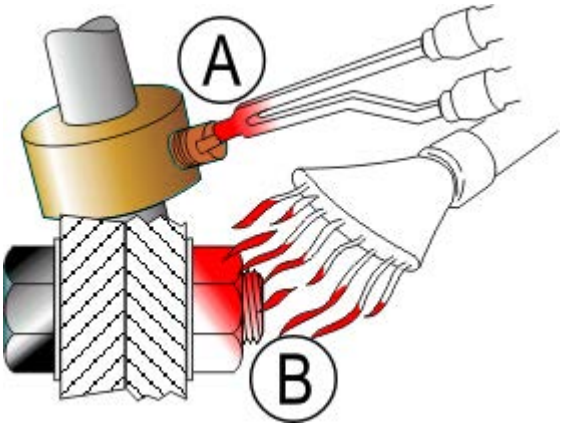
Application	Legend
	**A.** No threadlocker here **B.** Apply the threadlocker to this area **x.** Nut depth

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 —

BIEUUM01 (Published) Book specs- Dates: 20120629 / 20120629 / 20120629 Lang: ENG01 Applic: HDU IFL IFG IFS IHU IEU PVU MXC MXD

Disk Brake Maintenance

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

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.

You can do these types of maintenance on the disk brake:

- do an inspection of the brake as specified in the maintenance schedule,
- replace the friction pads,
- do an overhaul on the calipers,
- replace the hydraulic fluid,
- adjust the connection between the brake cylinder and the air cylinder.

For the first four types of maintenance, you must remove air from (bleed) the hydraulic circuit.

Section 6 tells how to operate the disk brakes. You can use it in some of the types of maintenance in this procedure.

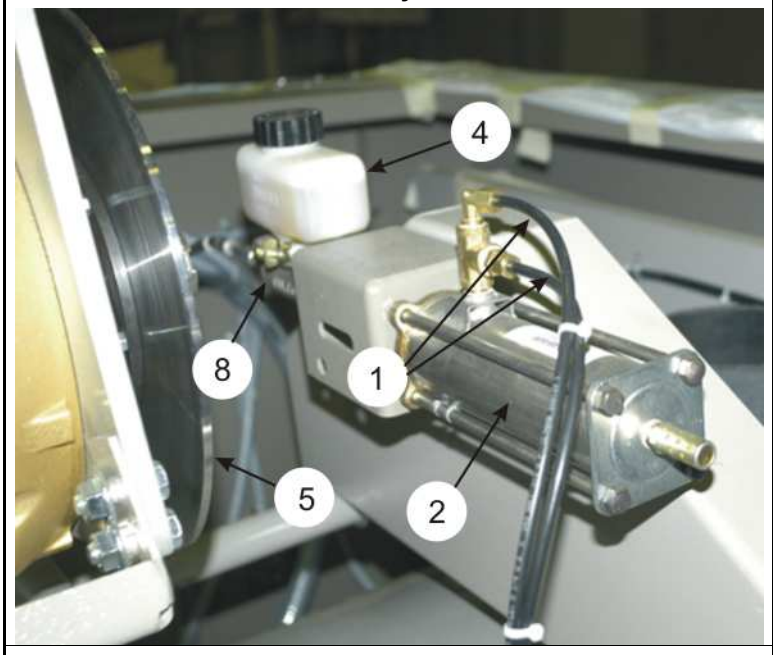
WARNING 2: Risk of injury or death —A machine in operation without safety guards is dangerous.

- You must be an approved maintenance technician.
- Use special caution when this instruction tells you to do work with electrical power on. Remove power from the machine for all other maintenance. Obey safety codes.
- Replace all guards and covers.

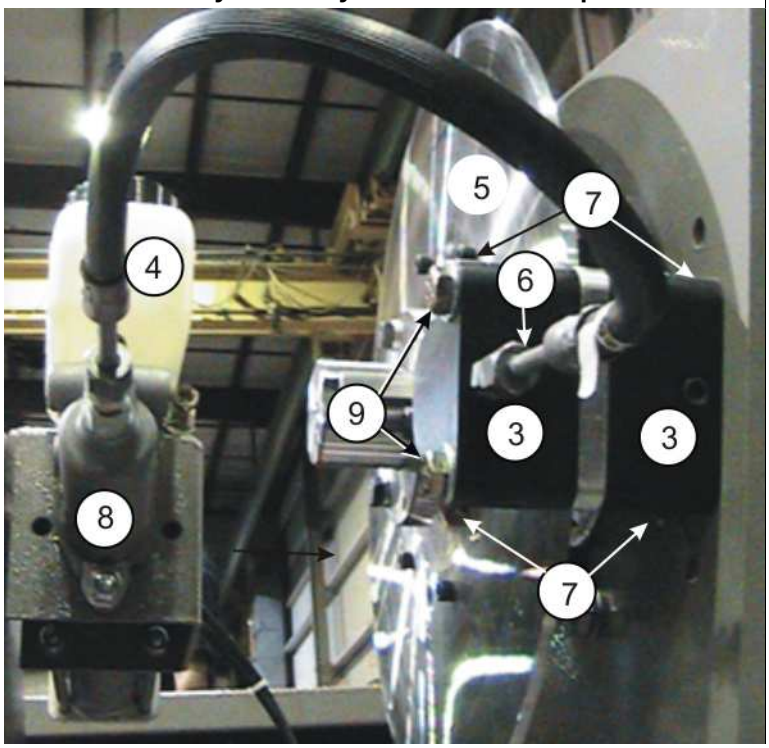
Tip: During parts of this procedure when you open up the calipers or hydraulic lines, put a cloth under the calipers to catch hydraulic fluid and parts that will fall. For safety, fully remove spilled hydraulic fluid after brake maintenance. This will help you easily identify leaks.

Figure 1: A typical hydraulic brake system

The air cylinder



The hydraulic cylinder and the caliper



Legend

1. Tubing for air
2. Air cylinder
3. Caliper body halves (Figure 2, item 2)
4. Hydraulic reservoir
5. Rotor disk
6. Hydraulic inlet
7. Valves to drain fluid and bleed the brake
8. Hydraulic cylinder
9. Bolts to attach the caliper (Figure 2, item 1)

1. The Inspection of the Brake

Note 1: The brakes shown in this document can look different from your equipment.

Note 2: Do this inspection when the maintenance schedule tells it is necessary. Do this inspection after you replace friction pads or do a caliper overhaul.

1.1. Examine the fluid in the reservoir. —Change the hydraulic fluid if it smells, has contamination, or has an unusual color. See Section 4.

> **Note 3:** Brake fluid can become defective from heat in the brake system. Brake fluid absorbs water from air. Water in the brake system causes corrosion.

If necessary, add new DOT 3 fluid to 0.25 inch (6.35 millimeters) from the top of the reservoir. Follow the precautions on the container.

1.2. Examine the rotor disk surface (Figure 1, item 5). —Replace the disk if it is worn or if it is not flat.

1.3. Examine the brake pads (Figure 2, item 4). —To do this, you will remove/replace the calipers and bleed the hydraulic system. See Section 3 and Section 4.

1. **Remove power from the machine (see Notice P1).**
2. Remove the bolts (Figure 1, item 9) that attach the caliper halves (Figure 1, item 7).
3. Remove the caliper halves.
4. Replace the pads as told in Section 2 if
   - the pads make an unusual noise when you apply the brake
   - if the rotor is worn or damaged
   - if the pad thickness is less than 1/16 inches (2 mm) (Figure 2, item 14) above the mounting screw (Figure 2, item 3). Always replace the two brake pads at the same time.
5. Put the caliper halves in their positions on the brake assembly. Tighten the mounting bolts to 30 foot-pounds (41 Newton-meters).
6. Bleed the hydraulic systems as told in Section 4.4.
7. Supply electrical power to the machine.

1.4. Examine the condition of all of the brake system.

1. Make sure that brake mounting components are tightly installed.
2. Make sure that fittings are tight. Make sure that there are no leaks.

2. How to Do a Friction Pad Replacement

You must have the necessary replacement friction pads for your machine. Refer to the brake parts document in your machine manual. You will find part numbers for components or overhaul/repair kits. The overhaul/repair kit contains O-rings, pads, and other components.

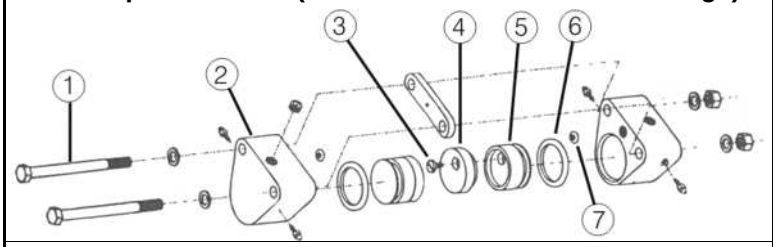
1. **Remove power from the machine (see Notice P1).**
2. Remove the used fluid. See Section 4.3.
3. Remove the two bolts that attach the caliper (Figure 1, item 9) and the two caliper halves (Figure 1, item 3) to get access to the friction pads. Do not disconnect the hydraulic line (Figure 1, item 6).
4. If there are leaks, see Section 3 "How to Do a Caliper Overhaul " before you continue.
5. Replace each friction pad:
   a. Remove the brass screw (Figure 2, item 3) that attaches the pad to the piston.
   b. Attach the new pad to the piston. Tighten the screw.
   c. Make sure that the screw head is fully in the recess in the pad.
6. Make sure that the connection o-rings are clean and in their positions (Figure 2, item 7).

7. Put the caliper halves in their positions on the brake assembly. Tighten the mounting bolts to 30 foot-pounds (41 Newton-meters).
8. Bleed the brake. See Section 4 "How to Change Hydraulic Fluid and Remove (Bleed) Air from the Brake Circuit ".
9. Supply electrical power to the machine.

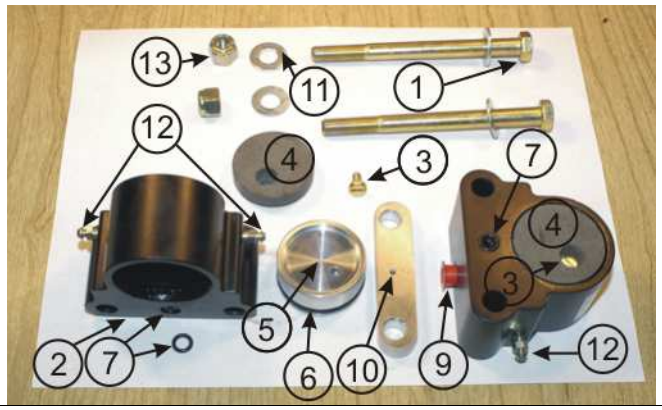
3. How to Do a Caliper Overhaul

Figure 2: The Caliper Components

The Expanded View (Shows the Piston and the O-rings)



The Caliper and the Pad



Legend

1. The bolts to attach the caliper (Figure 1, item 9)
2. Caliper body halves (Figure 1, item 3)
3. Brass screw
4. Friction pad
5. Piston
6. The Piston O-ring
7. The connection O-ring and its position
8. Plug for the hydraulic inlet
9. A hydraulic inlet (connected on one caliper, a plug (item 8) on the other)
10. The hole in the spacer
11. Washer
12. One of the four valves to bleed the fluid
13. Nut
14. The pad thickness must be more than than 1/16 inches (2 mm) above item 3

Fittings for the Hydraulic Inlet

Look at the pad thickness above the top of the screw

Tip: Hydraulic fluid flows from one caliper to the other caliper. Fluid flows through the connection O-rings (Figure 2, item 7) and the hole in the spacer (Figure 2, item 10). When you disconnect the calipers, hydraulic fluid can flow from the hole at the connection O-rings. Air can get in the line. After you connect the calipers, you must bleed the system.

You must have the necessary kit for the overhaul of your machine. Refer to the brake parts document in your machine's manual.

1. **Remove power from the machine (see Notice P1).**
2. Get access to the caliper halves (see Section 2).
3. Do an overhaul on each caliper:
   a. Remove and discard the connection O-rings (Figure 2, item 7) on the caliper bodies.
   b. Apply compressed air to the fitting for the hydraulic inlets (see Figure 2, item 8) to push the pistons out.
   c. Replace the piston O-rings (Figure 2, item 6).
   d. Put the pistons in the caliper body. Carefully tap the pistons with a wood or rubber hammer to install it.
   e. Replace the connection O-rings. (Figure 2, item 7)
   f. Replace the friction pads (see Section 2).
4. Replace the caliper halves as specified in Section 2.
5. Bleed the brake circuit (see Section 4).
6. Supply electrical power to the machine.

4. How to Change Hydraulic Fluid and Remove (Bleed) Air from the Brake Circuit

4.1. Risks and Precautions

WARNING 3: Risk of injury —Machine power must be on for these procedures.

- Stay away from operating mechanisms.

CAUTION 4: Risk of injury and damage —This procedure releases pressurized brake fluid.

- Keep brake fluid out of your eyes and mouth. Wear eye protection.
- Follow procedures carefully to prevent damage to the face of the disk or the pistons.

CAUTION 5: Risk of malfunction . —Air in hydraulic fluid will compress. Compressed air in the brake line will cause brake malfunctions.

- Remove (bleed) air from the brake circuit before you operate the machine.

4.2. Requirements —These personnel and items are necessary for this procedure:

- two technicians
- an 8-ounce container of new brake fluid
- Alternative procedures to remove air and used brake fluid:
  - » a suction pump (faster procedure) (see Figure 3)
  - » with pressure in the hydraulic cylinder and gravity (see Figure 4)

Tip: The Vacula suction pump can do the work more quickly than by gravity and pressure in the hydraulic cylinder. It is also cleaner because all of the hydraulic fluid goes into the container supplied. It helps you not spill the hydraulic fluid.

- If you use a suction pump as shown in Figure 3, follow the manufacturer's instructions.
- If you use the tools as shown in Figure 4, follow the instructions in Section 4.3 and Section 4.4.

Figure 3: Pumps Used to Remove Hydraulic Fluid Quickly

Alternative Pumps for Suction of Hydraulic Fluid

Legend

1. A manual suction pump
2. The Vacula suction pump uses compressed air and holds used hydraulic fluid.

Figure 4: Typical Tools to Remove Air (Bleed) Brakes and Used Hydraulic Fluid

These tools use gravity and pressure in the hydraulic cylinder	Legend
	**1.** a clean 12 ounce container **2.** a flexible hose to attach from the bleed valves to a container **3.** a wrench for the bleed valves (Figure 2, item 12) **4.** a suction device to remove brake fluid from the reservoir

4.3. Use the tools in Figure 4 to remove the used hydraulic fluid and clean the line. —Do these steps:

1. Use a suction tool (Figure 4, item 4) to remove the used fluid from the reservoir. Clean the contamination.
2. Connect the tubing (Figure 4, item 2) and container (Figure 4, item 1) to the valve on the caliper (Figure 1, item 7).
3. Open the valve.
4. Add new fluid to flush out the lines.
5. Apply/release the brake (See Section 6) approximately 5 to 15 times. This will flush the used fluid out of the lines.
6. Close the valve.

Note 4: These steps will cause air to go into the line.

4.4. Add new hydraulic fluid and remove (bleed) air from the brake circuit.

Note 5: This procedure uses pressure in the hydraulic cylinder and the tools in Figure 4.

1. Fill the reservoir with new DOT 3 brake fluid. When you do the remaining steps, continue to add new fluid to the reservoir. Do not let the reservoir become more than half empty. You must make sure that the reservoir has fluid to prevent air flow into the system from the reservoir.
2. Apply electrical power to the machine. Release the brake.
3. See the part of the machine reference manual that tells how to operate the outputs manually.

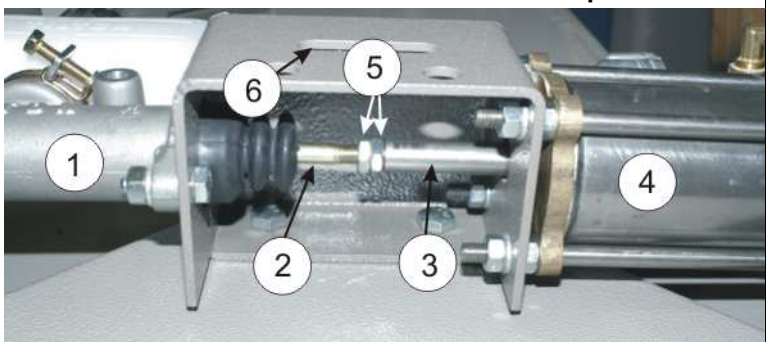
4. Put a small quantity of new brake fluid (approximately inches (50 mm)) in the 12 ounce container (Figure 4, item 1).
5. Do these steps for each bleed valve (Figure 1, item 1) . Two technicians are necessary. This will move the fluid in one direction and push air out of the line:
   a. Attach a clean tube to the valve. Put the other end in the container (Figure 4, item 1) below the fluid.
   b. Make sure that the reservoir is full of fluid.
   c. Apply the brake (See section 6).
   d. Open the bleed valve. (Figure 2, item 12)
   e. Look for air bubbles in the container when you push the air and fluid out through the tube.
   f. Close the valve.
   g. Release the brake.
   h. Continue the steps b through g until no more air comes out of the line.
6. Add fluid to the top of the reservoir. Replace the cap.
7. Operate the brake many times. Make sure that it operates correctly.

5. How to Adjust the Connection between the Brake Cylinder and the Air Cylinder

If you removed the brake cylinder or the air cylinder, you must adjust this connection.

Figure 5: The Connection between the Brake Cylinder and the Air Cylinder

A view of the brake rod and related components

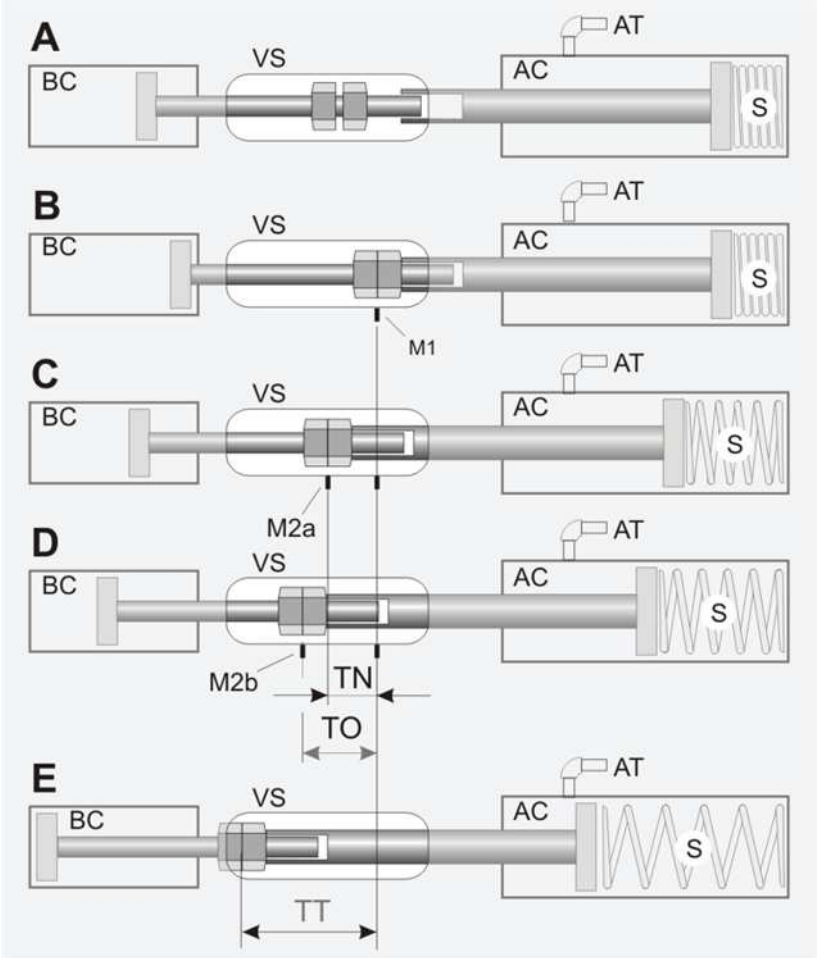


Legend

1. The brake cylinder
2. The rod for the brake cylinder
3. The rod for the air cylinder
4. The air cylinder
5. Two nuts to lock the rods together
6. The slot to see the nuts

Figure 6: The Adjustment between the Brake Rod and the Air Cylinder

Schematic Views of Different Conditions



Legend

AC. Air cylinder (Figure 5, item 4)
BC. Brake cylinder (Figure 5, item 1)
VS. Slot to see the nuts (Figure 5, item 6)
A. Before travel adjustment -- Rods not locked by nuts (Figure 5, item 5)
B. After travel adjustment -- the brake released (See Section 6.2)
C. Brake applied--NEW pads (See Section 6.1)
D. Brake applied--OLD pads
E. This will occur if you apply the brake with the hydraulic line removed
TN. Rod travel, new pads
TO. Rod travel, very worn pads
TT. Full travel with the hydraulic line removed
M1 First mark at the view slot -- the brake released
M2a. Second mark--one possible position -- the brake applied
M2b. Second mark-- a different position -- the brake applied
AT. Air tubing (See Figure 1,1). Air releases the brake.
S. Spring applies the brake

5.1. Adjust for maximum rod travel.

1. Operate the master switch to energize control power.
2. Make sure that the air pressure that releases the brake (Figure 7, item 1) is 85 -100 PSI (5.95 - 07.0 kg/cm-cm).
3. Make sure that the nuts that lock the rods together (Figure 5, item 5) are loose.
4. Release the brake (see Section 6). Let the air cylinder rod fully retract into the air cylinder as shown in Figure 6, A.
5. Turn the brake rod into the air cylinder rod until the brake rod comes out of the brake cylinder fully. See Figure 6, B.
6. Lock the brake rod (Figure 5, item 2) to the air cylinder rod (Figure 5, item 3) with two nuts (Figure 5, item 5).

5.2. Make sure that the brake will continue to operate while the pads wear.

1. Release the brake. On the view slot, put a mark at the position of the lock nuts. (Figure 6, item M1).
2. Apply the brake. See Section 6.
3. Put a mark at the position of the lock nuts when the brake is applied. This can be at position M2a, M2b, or between M2a and M2b. When the pads wear this position will move.
4. Make sure that the distance the rod moves when you apply the brake is 0.75 to 1.0 inches (19-25 mm). If the travel is more than this, the brake piston can hit the mechanical stop before the brake engages fully. This condition is shown in Figure 6 , E (dimension TT).

6. Operation of Brake Systems

Look at the electrical schematics of your machine to find how your brake is controlled. Some machines release the brake when you close the door. Some machines have a control relay to release or apply the brake.

6.1. How to Apply the Brake for Machines with a "Break Release" Output

1. Turn the "brake release" control output off to de-energize the air valve to remove air pressure to the air cylinder (Figure 1, item 1).
2. With no air pressure, a spring in the air cylinder will apply force to the hydraulic cylinder (Figure 1, item 8). This will apply pressure to the brake pads (Figure 2, item 4) against the rotor disk (Figure 1, item 5). (Figure 6, item C,D)

Note 6: If electrical power or compressed air is missing, hydraulic pressure will apply the brake.

6.2. How to Release the Brake for Machines with a "Brake Release" Output

1. Turn the control output called "brake release" on to energize the air cylinder valve.
2. Air pressure compresses the spring and releases the brake. (Figure 6, item B)

6.3. How to Apply and then Release the Brake Quickly —There are two air tubes at (Figure 1, item 1). One supplies compressed air from an air valve. The other sends this compressed air to a pressure switch. If you remove one of the two tubes when compressed air is there, you will apply the brake.

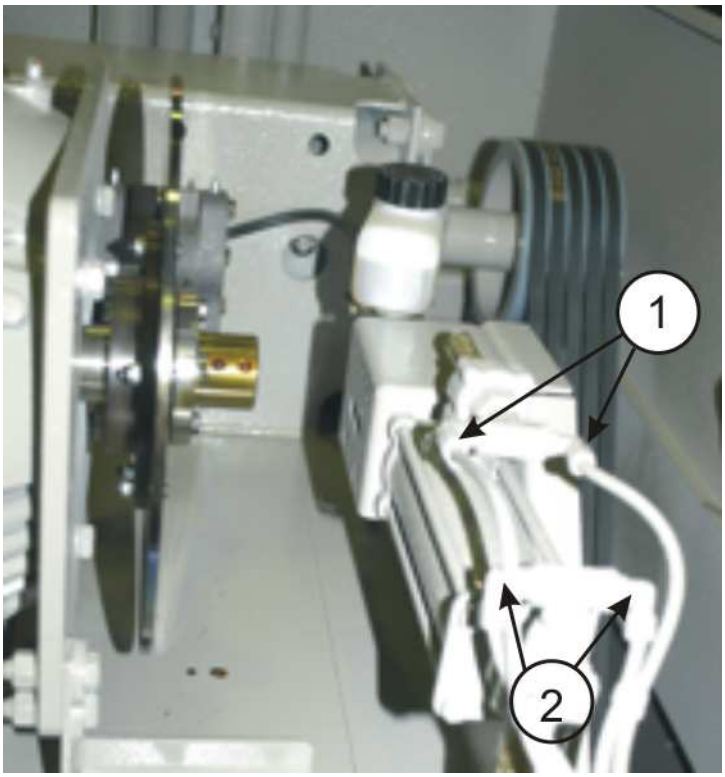
1. Disconnect the air tubing (Figure 1, item 1).

2. Turn the "brake release" output on. The air valve will supply compressed air to one of the tubes. (Figure 1, item 1).
3. Quickly move one of the compressed air tubes (Figure 1, item 1) on and off the air cylinder.
4. After you complete this procedure, connect the air tubing.

6.4. How the Brake Operates on Divided Cylinder Machines

Figure 7: A Typical First and Second Brake on a Divided Cylinder Machine

Two pairs of air tubing connect to different ends of the air cylinder.



Legend

1. Tubing for air that releases the first brake (85 -100 PSI) (5.95 - 07.0 kg/cm-cm)

2. Tubing for air that applies the second brake (10 – 12 PSI) (0.7-0.84 kg/cm-cm)

- On divided cylinder machines, two pair of air tubes connect to different ends of the air cylinder.
- When the cylinder turns, air pressure at Figure 7, item 1 compresses the spring and releases the brake.
- When you operate the stop control, air pressure at 1 is removed. Then the spring in the air cylinder applies the brake.
- If you open the door, the 2nd brake is applied. Then the air pressure at Figure 7, item 2 and the spring apply the brake.

6.5. The Second Brake —If your machine has a second brake which uses air pressure and spring pressure, it will have a pressure regulator. Make sure that you adjust the air pressure of the second brake (Figure 7, item 2) to 10 – 12 PSI (0.7-0.84 kg/cm-cm).

— End of BIEUUM01 —

SERVICING AIR CYLINDERS

This is the general procedure for rebuilding an air cylinder using a Milnor® furnished repair kit, once the air cylinder has been removed from the machine. See the specific air cylinder and major assembly parts drawing(s) for component identification and removal/replacement information.

Maintenance procedures require:

- Two threaded rods and nuts, twice the length of the tie bolts.
- The appropriate repair kit.

⚠ CAUTION ⚠

EXPLOSION HAZARD—Spring tension can cause air cylinder to burst apart with great force during dissassembly. You can be struck by air cylinder parts.

☞ **Follow maintenance instructions carefully.**

☞ **Wear eye protection.**

NOTE: Use a new locknut when re-assembling air cylinder (see the appropriate parts drawing).

1. Replace two diagonally opposite tie bolts with threaded rods and nuts as shown in FIGURE 1.

2. Tighten nuts on the threaded rods until they contact the air cylinder.

3. Remove the other two tie bolts and the nuts, washers, clips, and actuators from the external end of piston stem.

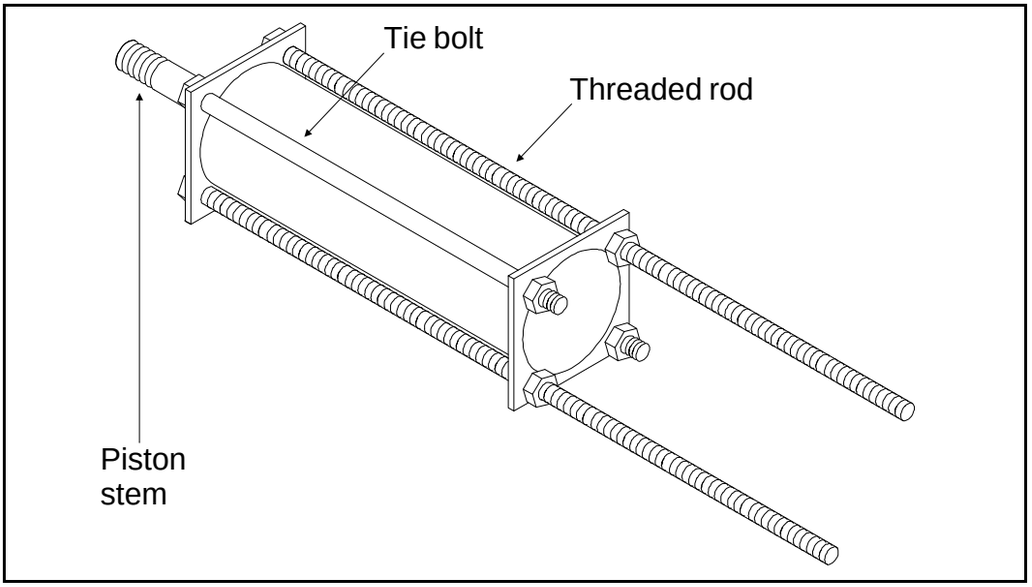


FIGURE 1 (MSSM0130AE)
Using Threaded Rods

4. Loosen nuts on threaded rods evenly, permitting cylinder heads to separate. Use only a few turns on one nut before moving to the other one. Continue until springs have no tension.

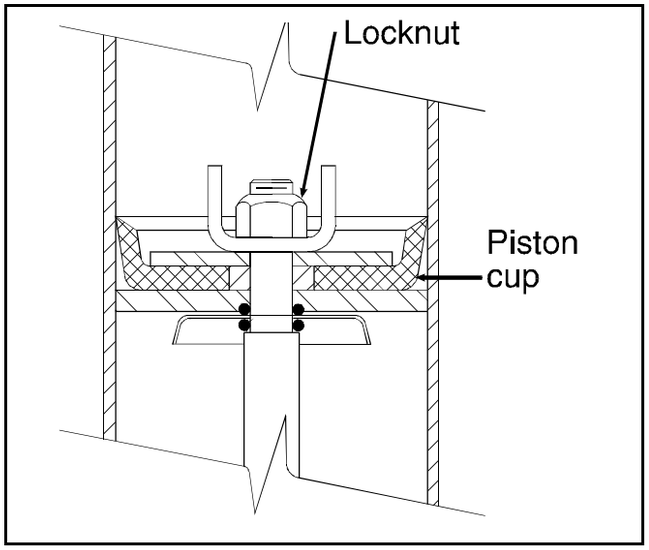


FIGURE 2 (MSSM0130AE)
Correct Piston Cup Shape

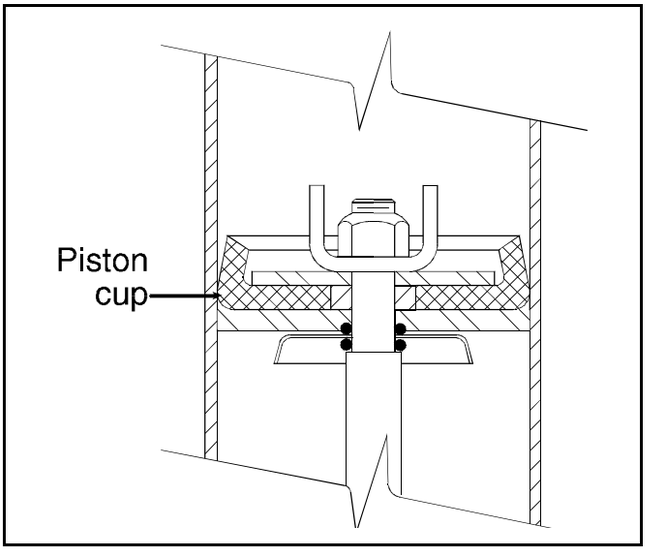


FIGURE 3 (MSSM0130AE)
Distorted Piston Cup Shape

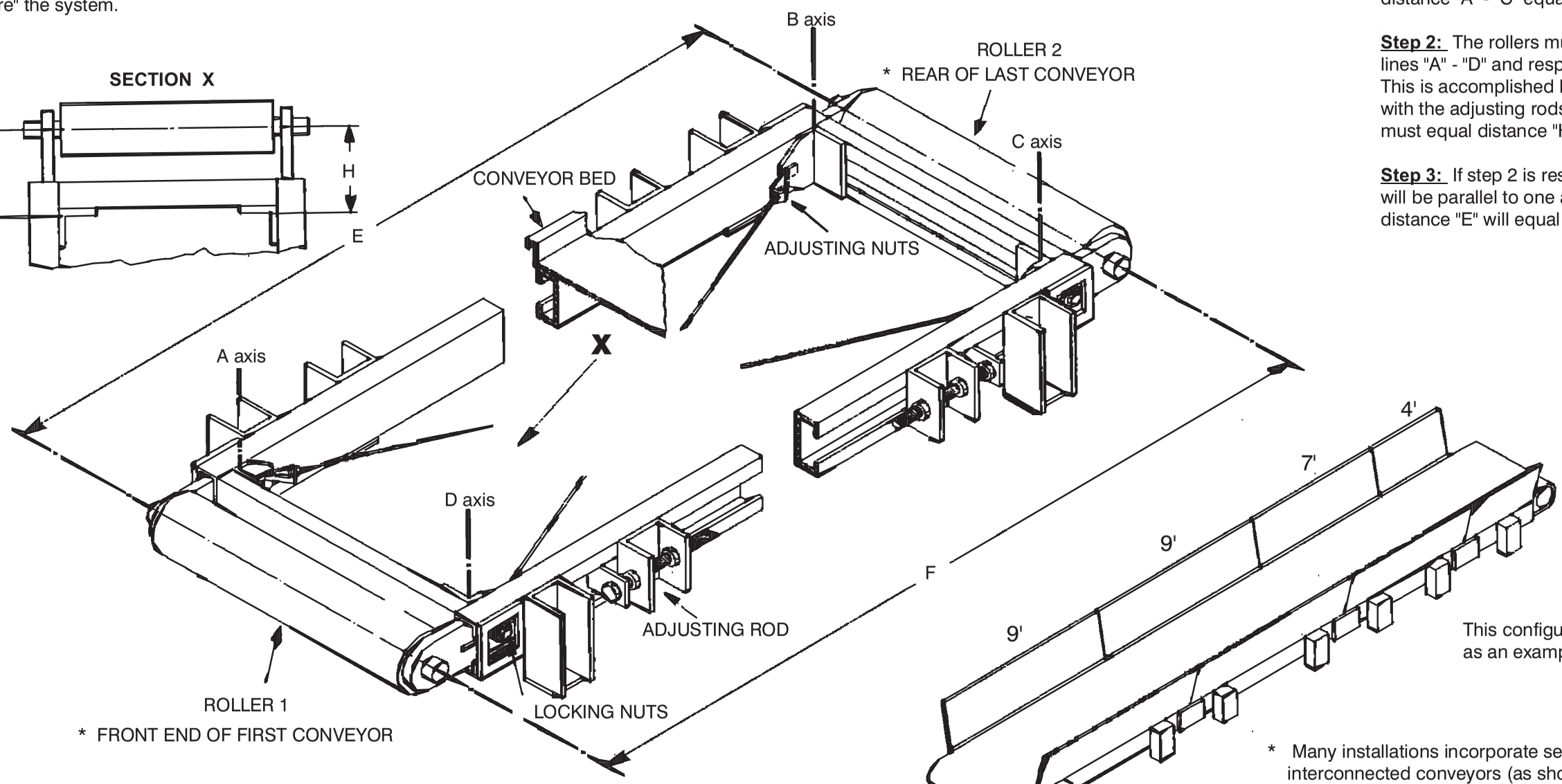
5. Note position and orientation of piston cup(s), washers, and springs. Replace worn parts, then reassemble in reverse order. Tighten locknut until it is just barely possible to turn the piston cup and washer assembly on the stem. Correct piston cup shape is shown in FIGURE 2. **DO NOT** overtighten, as this causes the piston cup to deform to the shape shown in FIGURE 3 and may cause piston to bind in cylinder.

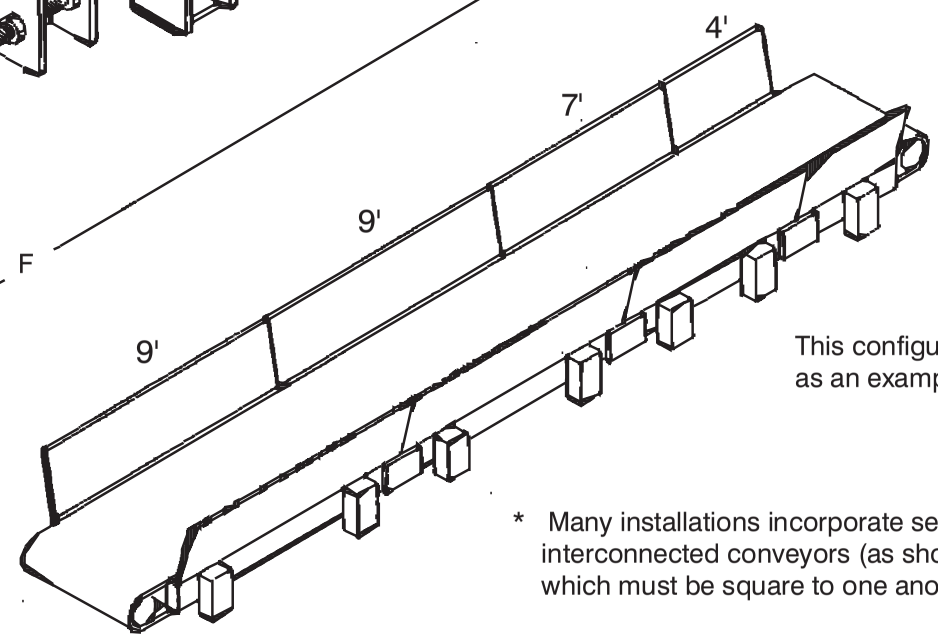
Conveyor Adjustment Procedures

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

Litho in U.S.A.

Comments:
To provide optimum durability of the conveyor belt, it is essential that the conveyor is properly "squared". These instructions define the procedures to "square" the system.





This configuration is shown as an example only.

* Many installations incorporate several interconnected conveyors (as shown above) which must be square to one another.

Step 1: The conveyor frame must be "square". This is accomplished by adjusting the tie rods between points "A" - "C" and "B" - "D". The frame is "square" if and only if met: distance "A" - "C" equals distance "B" - "D".

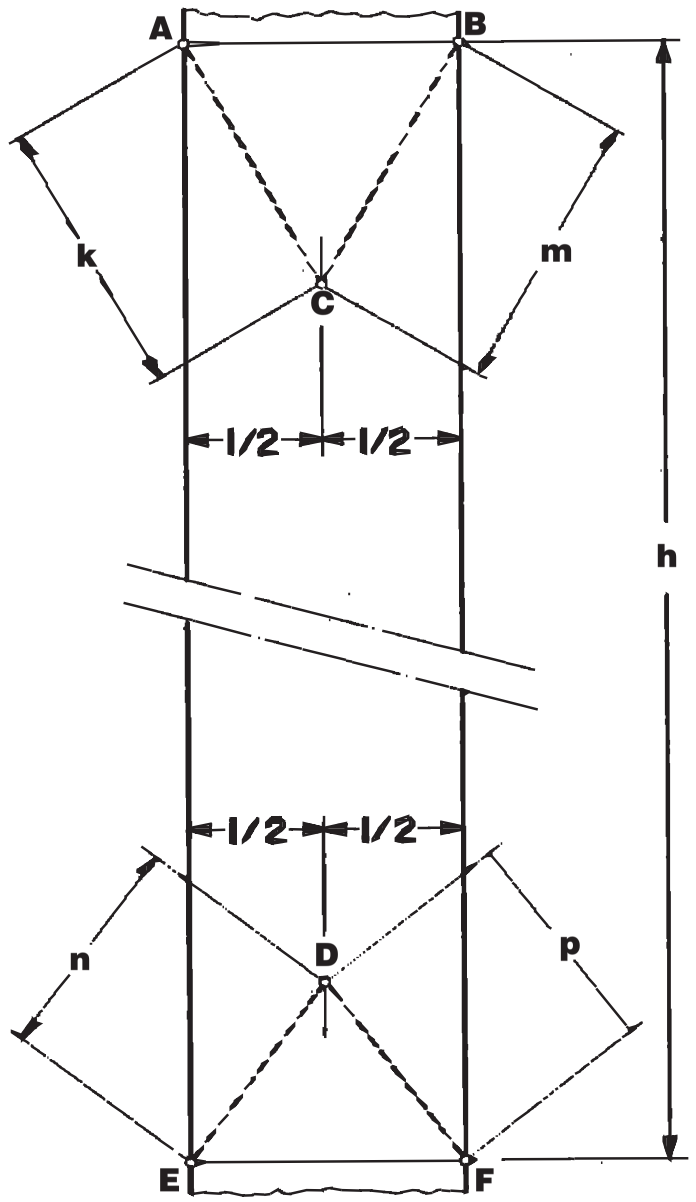
Step 2: The rollers must be parallel to the lines "A" - "D" and respectively "B" - "C". This is accomplished by moving the rollers with the adjusting rods. Therefore distance "G" must equal distance "H".

Step 3: If step 2 is respected the rollers will be parallel to one another, therefore distance "E" will equal distance "F".

Conveyor Adjustment Procedures

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

Litho in U.S.A.



Step 1: At some point well back from the end of the belt, measure and carefully mark a point (C) at the exact center of the belt width.

Step 2: Measure from this centerpoint two equal lengths (k and m) and mark points (A and B) along the edges and near the end of the belt. Be sure length "k" equals length "m".

Step 3: Meausre the total desired length (h) from point "B" to point "F" and mark that point.

Step 4: At some point well back from this end of the belt, mark a point (D) at the exact center of the belt width.

Step 5: Repeat step 2 to find point "E". Be sure that length "n" equals length "p".

Step 6: Cut along lines "A" - "B" and "E" - "F". Cuts must be straight so that the ends may be laced together without causing the belt material to warp.

(THIS PROCEDURE TO BE USED IF A BELT IS TO BE CUT AND LACED IN THE FIELD.)

Conveyor Adjustment Procedures

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

Litho in U.S.A.

Step 1: Check the conveyor frame to make sure it is square in accordance with illustration 1. Make sure the ends of the belt are square and laced properly in accordance with illustration 2.

Step 2: Run the conveyor for enough revolutions to indicate what direction it tracks.
Example: If the belt tracks to the right, adjust the right side non driven end adjusting rod (for double ended drives pick one end to adjust only) by following these steps:

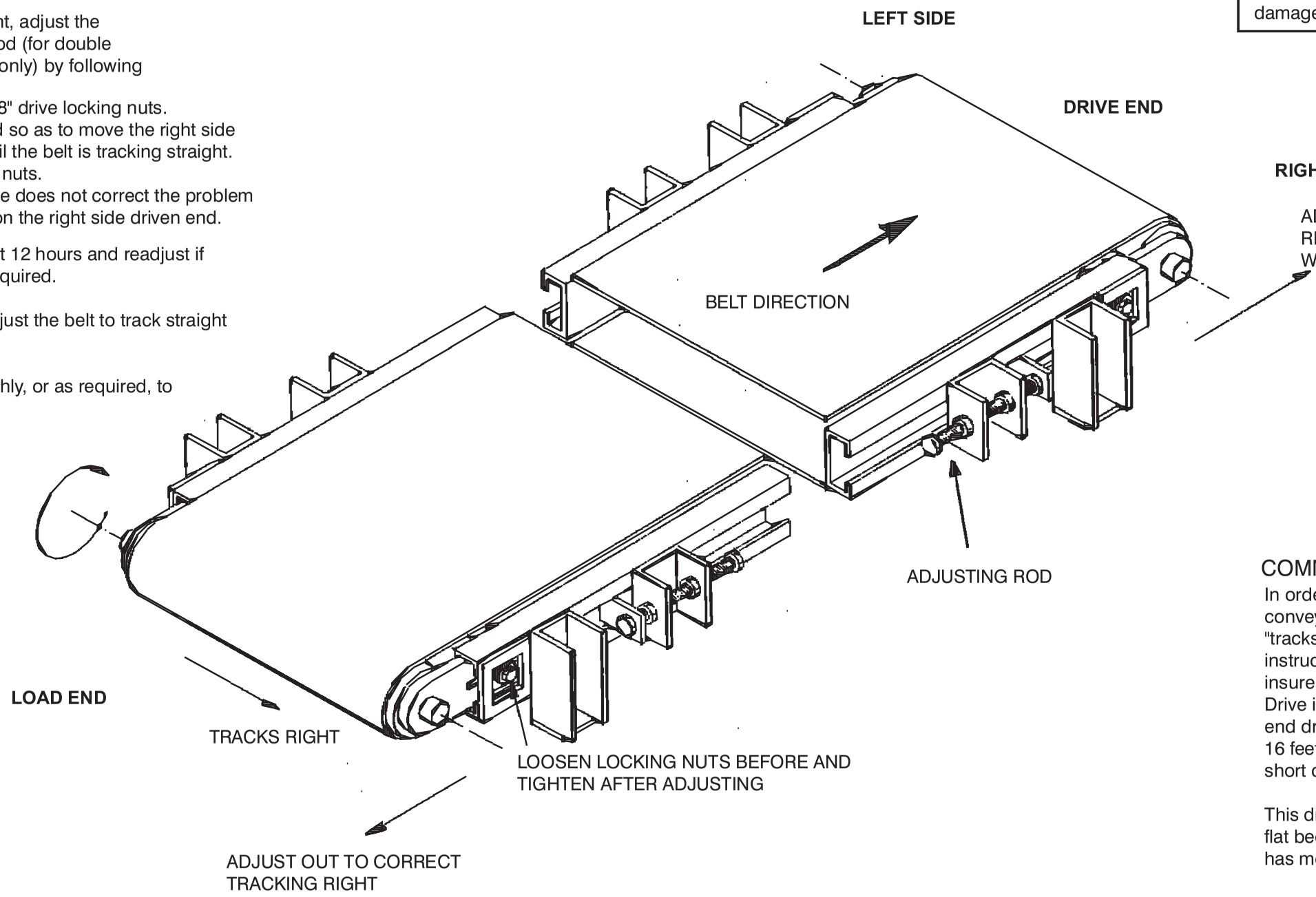
- **Step 2a:** Loosen the two (2) 5/8" drive locking nuts.
- **Step 2b:** Turn the adjusting rod so as to move the right side non-driven end out until the belt is tracking straight.
- **Step 2c:** Retighten the locking nuts.
- **Step 2d:** If the above procedure does not correct the problem apply the same steps on the right side driven end.

Step 3: Run the conveyor for at least 12 hours and readjust if necessary. Frequent inspection is required.

Step 4: After 72 hours operating, adjust the belt to track straight if required.

Step 5: Check the belt at least monthly, or as required, to insure straight tracking.

WARNING:
When moving conveyor, never allow frame to twist; such as would occur if one corner were raised higher than the others. Misalignment and damage to the frame may occur.



COMMENTS:

In order to insure optimum durablity of Milnor conveyor belts, it is essential that the belt "tracks" straight on the conveyor frame. These instructions provide step by step procedures to insure proper belt tracking.
Drive is normally located on discharge end. Double end drives are used on reversing conveyors over 16 feet long. Drive may be located on load end of short conveyors (4 feet).

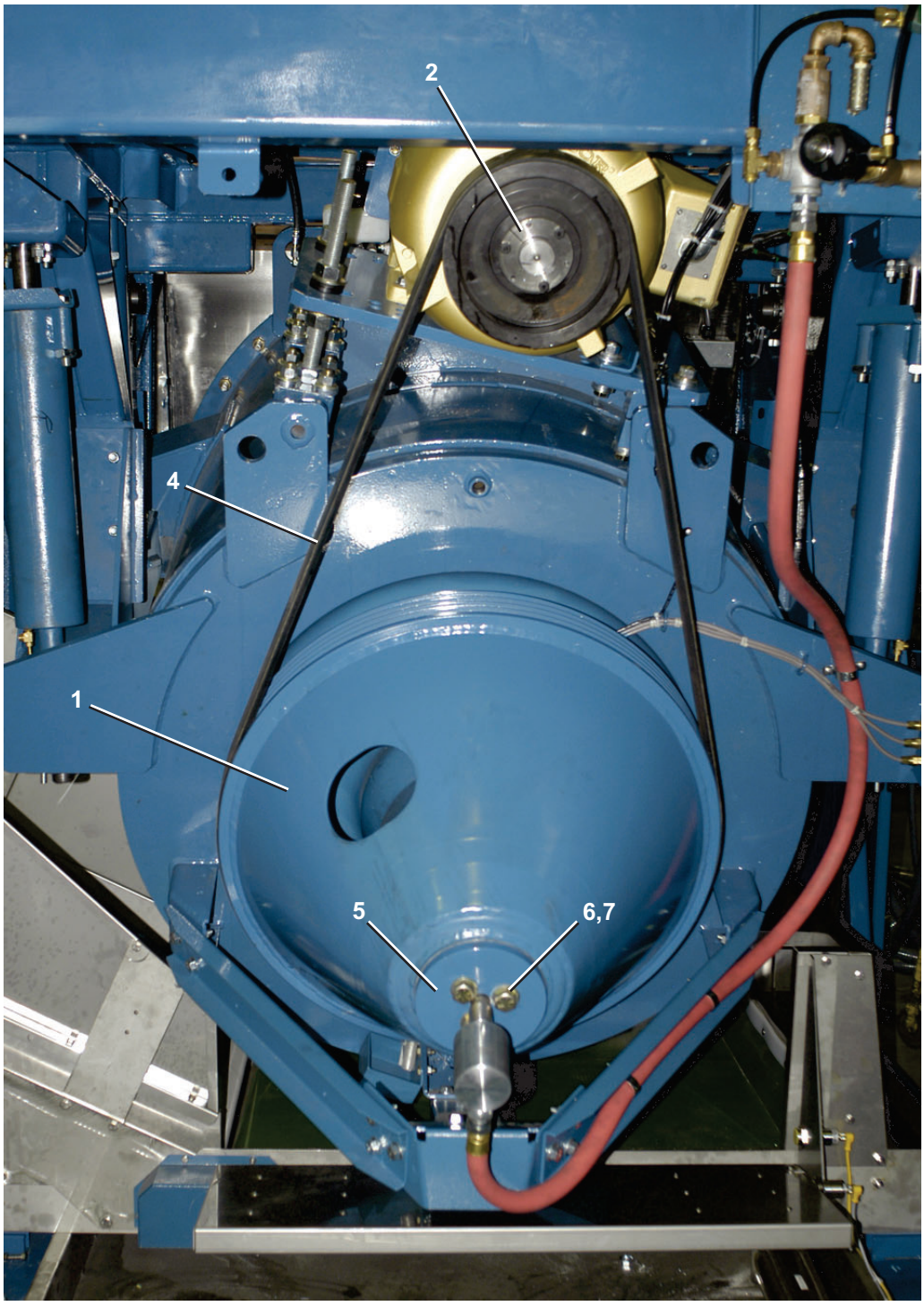
This drawing intended for use with both flat bed and loading conveyor. Loading conveyor has metal dividers on belt, not shown here.

2 Drive Assemblies

2.1

Drive Chart

MXS4232C,L,R



Drive Chart

MXS4232C,L,R

Parts List—Drive Chart

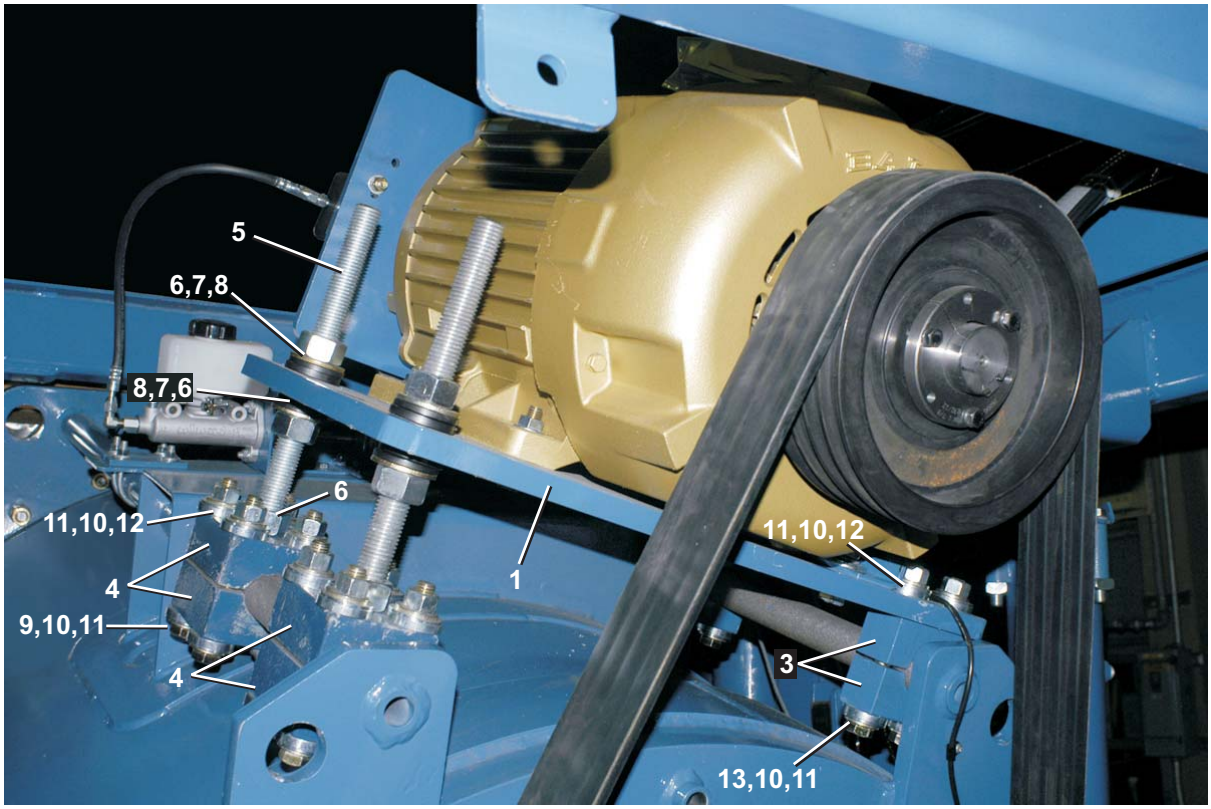
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

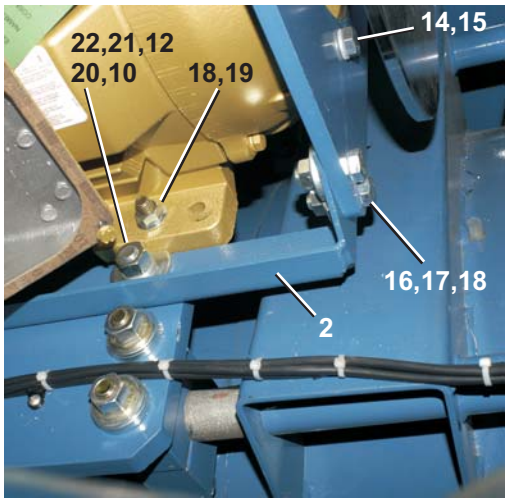
Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	GDB42MXS	INSTL=DRIVE BASE 42MXS	
			----------COMPONENTS----------	
all	1	X3 17340	MACH=PULLEY, FAB, 4232M9S	
all	2	56094B4SF	BALANCED SET: DUCTILE MAX 3915RPM VPUL 4B9.4/ A9.0+1-7/8"SFBUSH W/56Q1RSF	
all	4	56VB133XB4	VBAND RBP133-4RIB = SUPER VBAND	
all	5	X2 21923	PLATE=PULLEY PULL UP, 4840F	
all	6	15U321H	FLTWASH 3/4 HARD ASTM F436	
all	7	15K232A	HEXCAPSCR 3/4-10X2 GR8 ZINC	

Motor Mount

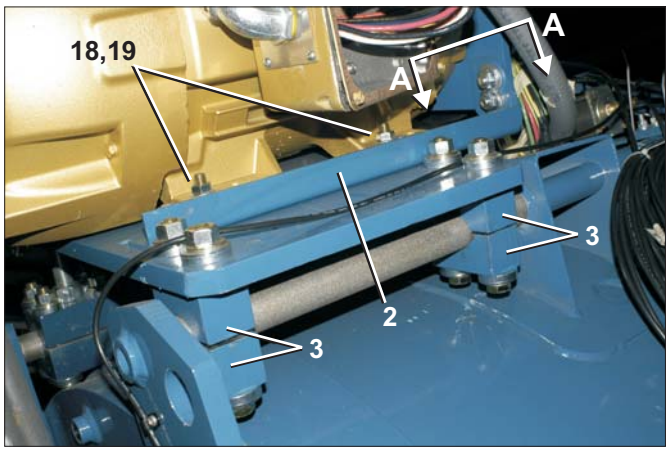
MXS4232C,L,R

Figure 1: Installed views





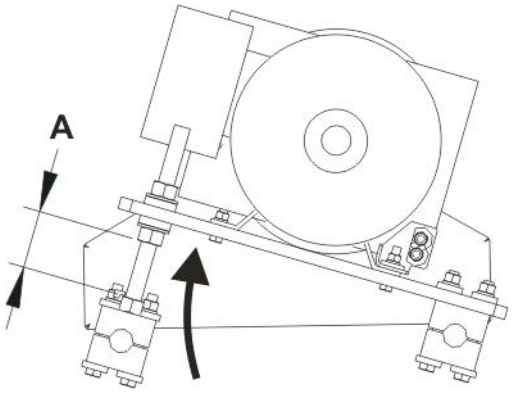
View A-A



Motor Mount

MXS4232C,L,R

Figure 2: Adjust the bolts to put the necessary tension on the belts.



The necessary dimension for a new belt.
A. (MXS4232) = 2-5/8” [66]

Parts List—Motor Mount

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

Used In	Item	Part Number	Description	Comments
			---ASSEMBLIES---	
	A	ADB16004	DRIVE BASE ASSEMBLY 42MXS	
			---COMPONENTS---	
all	1	03 17130	4840M EXTRACTOR MOTOR PLATE	
all	2	C2 11311C	CAST=JACKBOLT CLAMP, 6836F	
all	3	02 11311B	MTR BASE PIVOT CLAMP 4226QHE	
all	4	X2 11311P	PAINT=JACKBOLT CLAMP, 6836F	
all	5	17R031A13A	THRD ROD 1-8 X 13" GR8 ZNPL	
all	6	15G250	HXNUT 1-8UNC2B SAE ZNC GR2	
all	7	15U393	FLTWASH 1" HARD ASTM F436	
all	8	17W060	SPHERICALWASHER SET 1" M/F	
all	9	15K227B	HEXCAPSC 5/8-11X5.5 GR8 ZINC	
all	10	15U316	FLTWASH 5/8 HARD ASTM F436	
all	11	17W030	SPHERICAL WASHER SET 5/8 M/F	
all	12	15G238	HXNUT 5/8-11UNC2B SAE ZINC GR2	
all	13	15K227D	HEXCAPSCR 5/8-11X6 GR8 ZINC	
all	14	15K147	HXCAPSCR 1/2-13UNC2X1 GR5 ZINC	
all	15	15U300	LOKWASHER REGULAR 1/2 ZINC PLT	
all	16	15K162	HXCAPSCR 1/2-13UNC2AX1.5 GR5 P	
all	17	02 11603C	WASHER DBLR=1.5W/CUTOFF SIDE	
all	18	15G222B	HEXFLGNUT 1/2-13 ZINC SERRATED	
all	19	15K191A	HEXCAPSCR 1/2-13X2.5 GR8 ZINC	
all	20	15K221	HEXCAPSCR 5/8-11 UNC2X2GR5 ZIN	
all	21	15U315	LOKWASHER MEDIUM 5/8 ZINCPL	
all	22	02 11603A	WASHER DBLR=2" W/CUTOFF SIDE	

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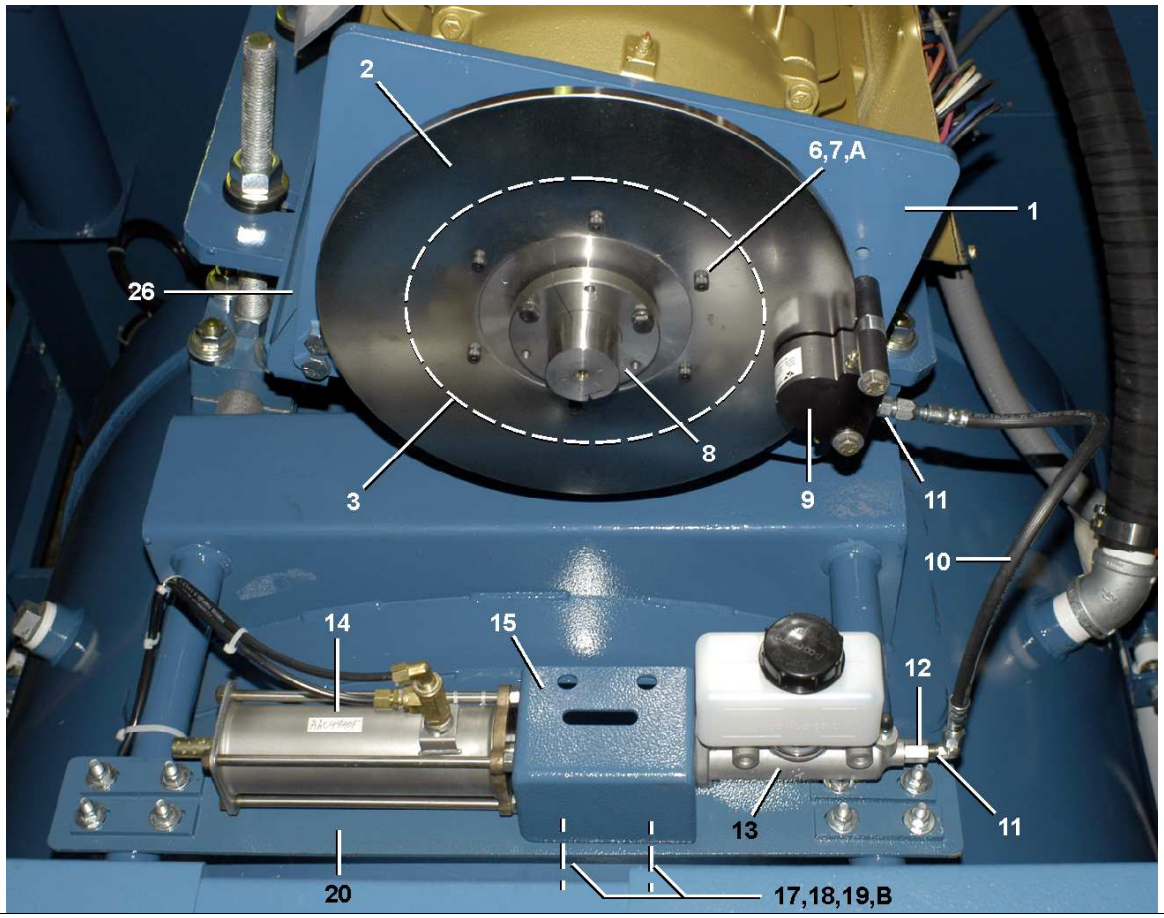
Brake Components and Installation

Figure 1: Brake Components

General View: 48040F7_, 48040H7_, MXS4232_

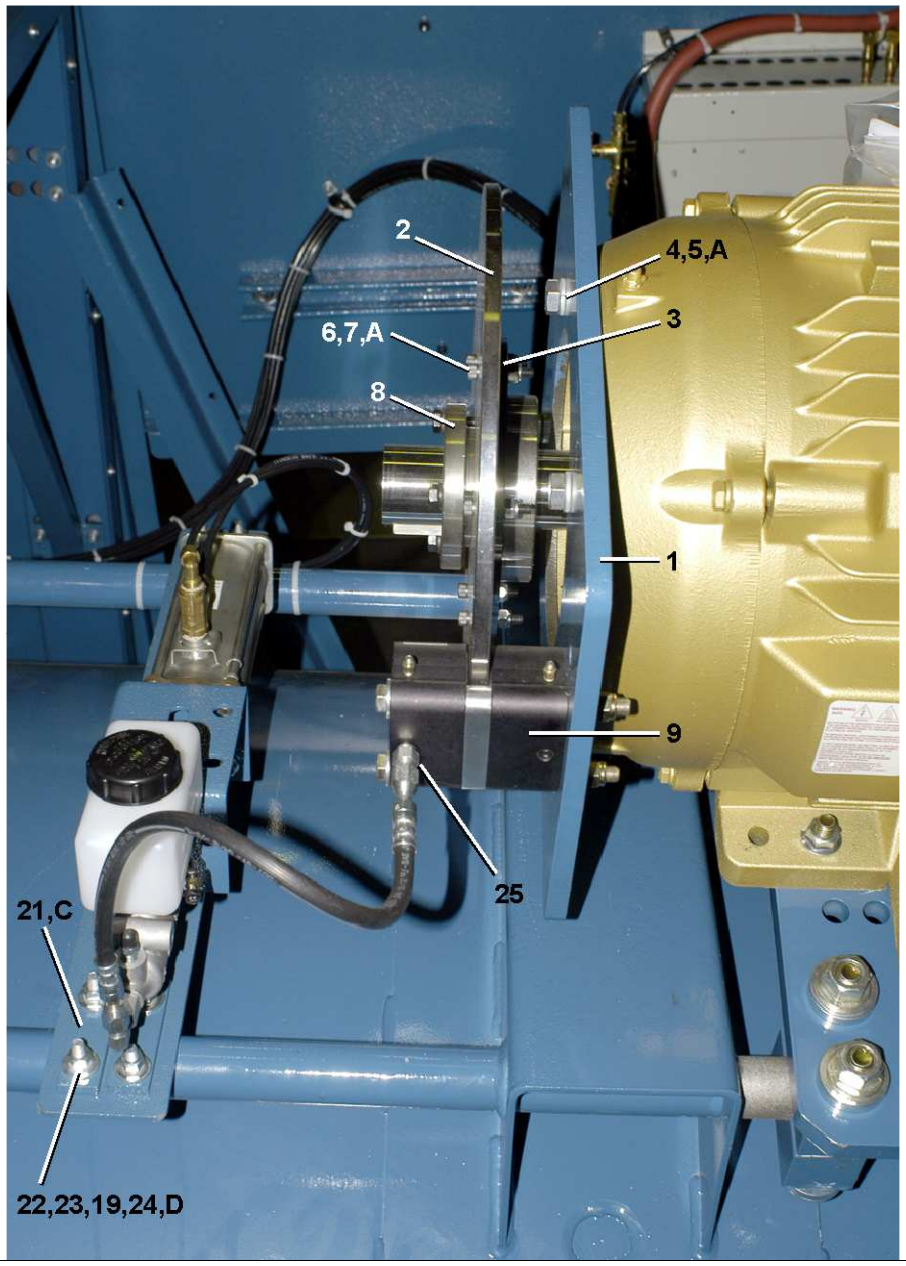


Legend

A. 6 instances
B. 2 instances

Figure 2: Brake Components

General View



Legend

A. 6 instances
C. 4 instances
D. 8 instances

Table 1: Parts List—Brake Components

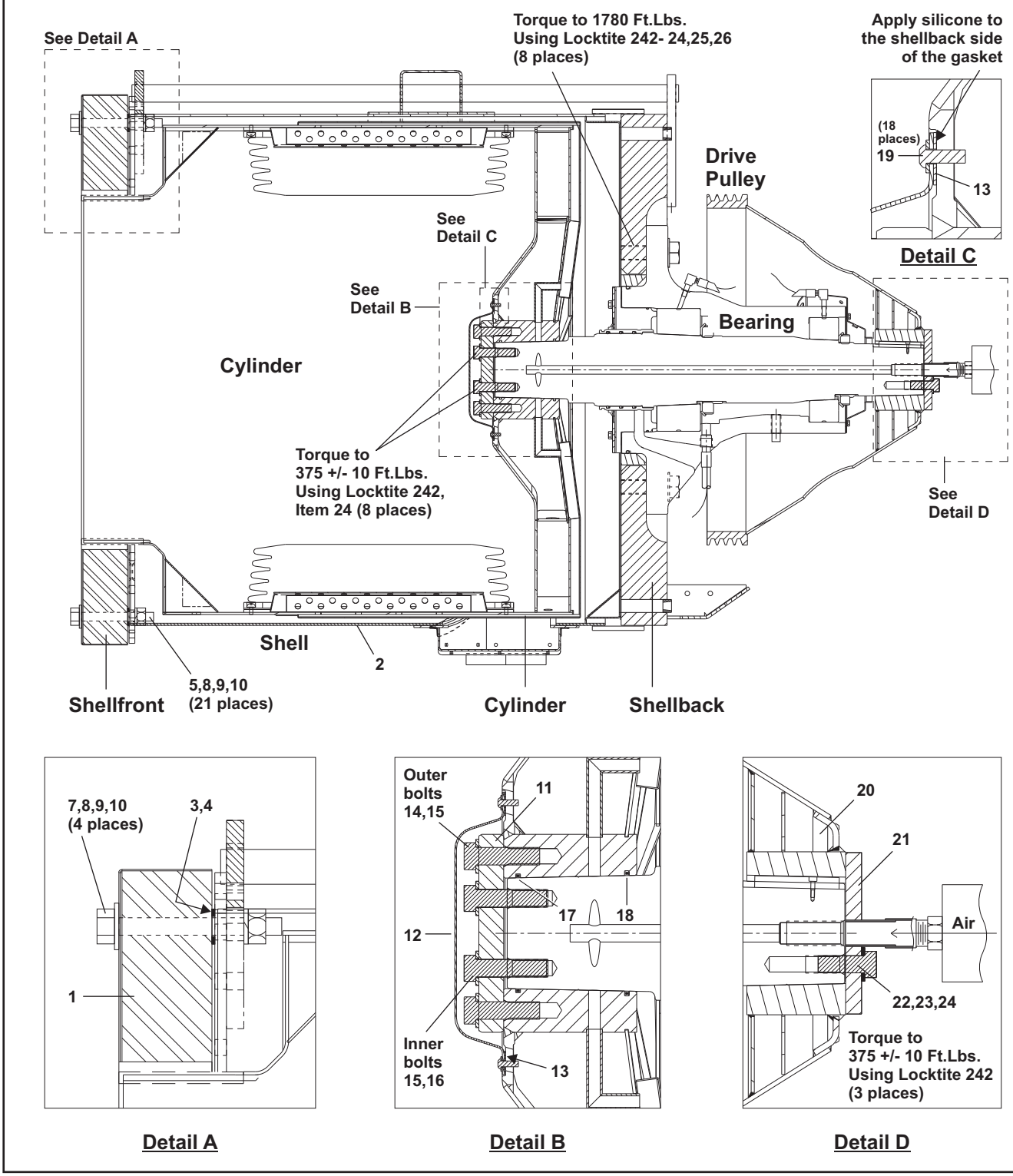
Find the assembly for your machine and the letter shown in the "Item" column. The components for your machine will show this letter or the word "all" in the "Used In" column. The numbers shown in the "Item" column are those shown in the illustrations.				
Used In	**Item**	**Part Number**	**Description/Nomenclature**	**Comments**
Assemblies				
	A	ABR4840F	Installation Group; Disk brake	
Components				
all	1	X2 21858	Mounting plate	
all	2	X2 21866	Disk	
all	3	X2 21867	Hub	
all	4	15K151	Bolt; Hex head; 1/2-13UNC24X1.25	
all	5	15U300	Washer; Lock; 1/2	
all	6	15K041B	Bolt; Socket; 1/4-20X1"	
all	7	15G166A	Nut; Nylon lock; 1/4	
all	8	56Q1RSK	Bushing	
all	9	54KC7974	Caliper	
all	10	54KC7961BG	Brake hose; 1/8" x 18"	
all	11	52AY0ER003	Hydraulic fitting; Adapters; 1/4"MJICX1/8"	
all	12	52XY0ER004	Hydraulic fitting; Adapters; 3/16MJX1/8FP	
all	13	54KMC1125U	Master cylinder	
all	14	AAC4840F	Air cylinder	
all	15	W3 65238	Mounting bracket	
all	16	02 21943	Spacer	
all	17	15K095	Bolt; Hex head; 3/8-16UNC2AX1	
all	18	15U255	Washer; Lock; 3/8	
all	19	15G205	Nut; Hex; 3/8	
all	20	02 22417	Mounting plate	
all	21	02 10539	Spacer	
all	22	27A031C	U-bolt; 5/16-18X1.25	
all	23	15U240	Washer; Flat; 3/8"	
all	24	15U260	Washer; Lock; 3/8	
all	25	54KC7961BSEAL	Seal	
all	26	02 21859C	Torque arm	

— End of BIIFLM10 —

Shell, Cylinder, Bearing, & Pulley Installation

MXS4232C,L,R

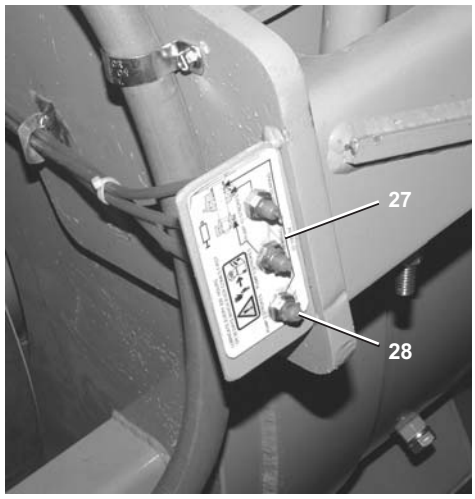
Figure 1: Cross Section and Details

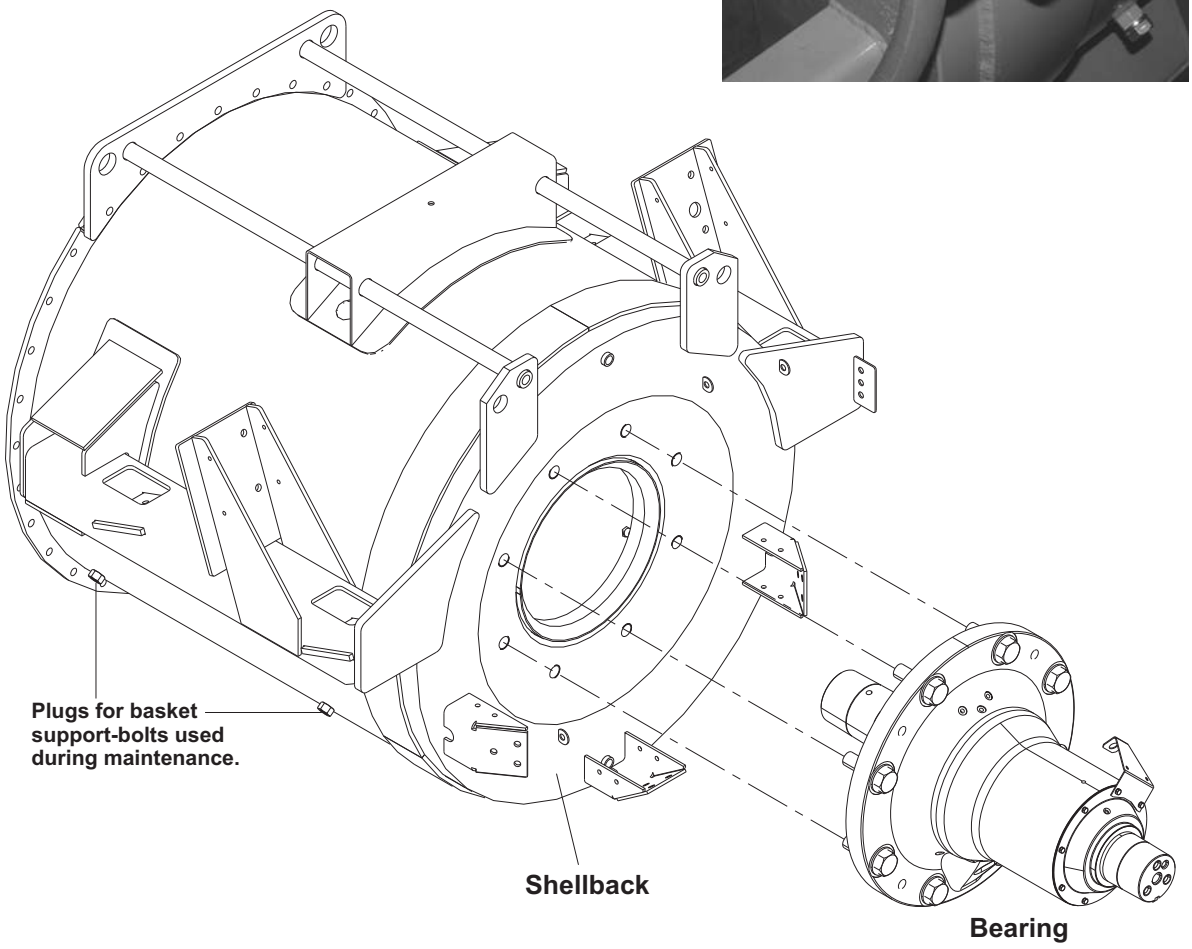


Shell, Cylinder, Bearing, & Pulley Installation

MXS4232C,L,R

Figure 2: Exploded View





Shell, Cylinder, Bearing, & Pulley Installation

MXS4232C,L,R

Parts List—Shell, Cylinder, Bearing, & Pulley

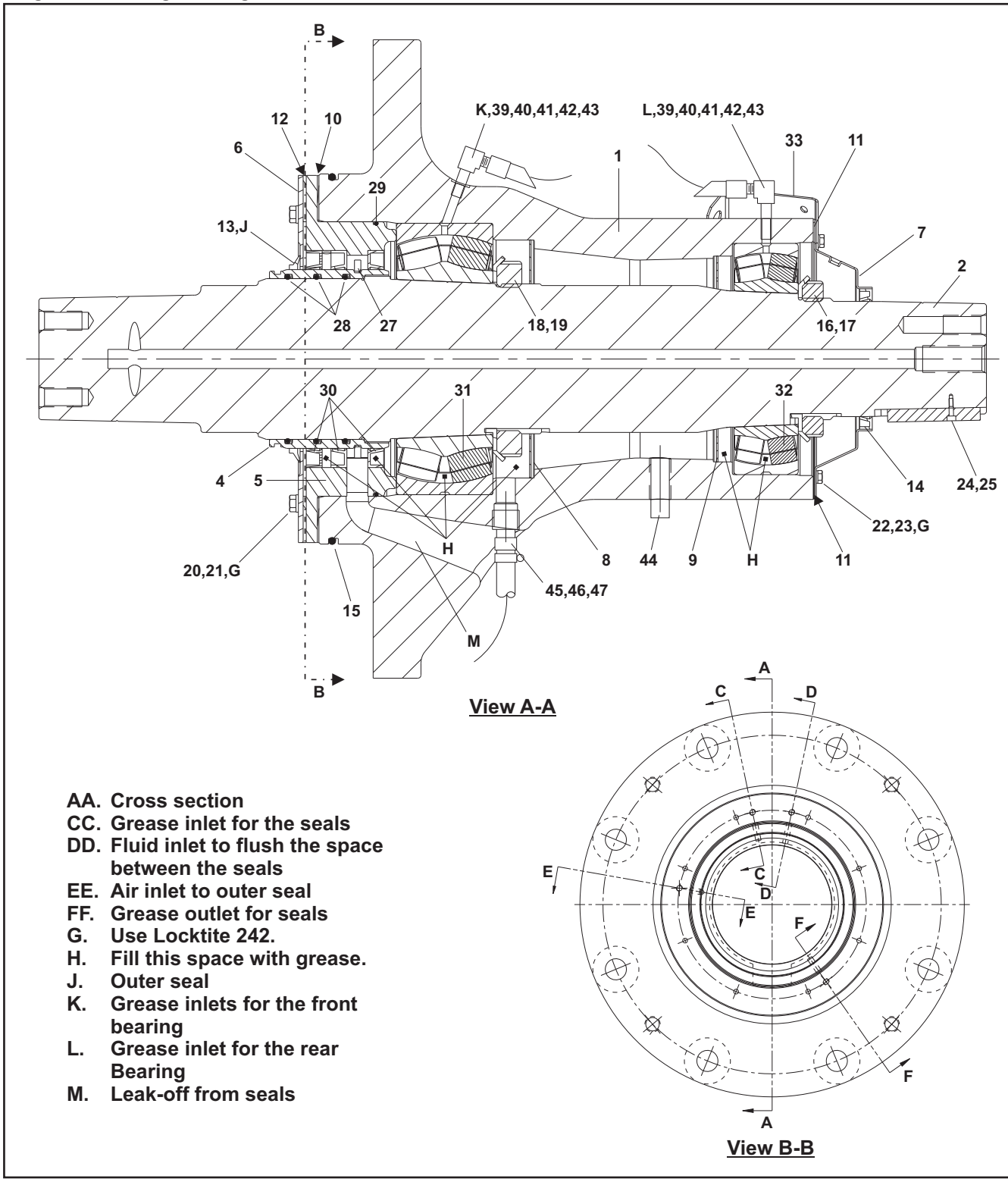
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	ASE16305X	SHELL & FRONT ASSY 4232MXS	
	B	GCA4840F	INSTL=CYLINDER, 4840F7	
	C	GDB42MXS	INSTL=DRIVE BASE 42MXS	
	D	GBM4232M9S	INSTL=BEARING HOUSING 4232M	
			----------COMPONENTS----------	
all	1	W3 16073A	*WLDMT=CHAMFER SHLFRNT 42M7E	
all	2	W3 17310X	WLMT=SHELL, 4232MXS	
all	3	02 11153	GASKET=46"BCX1/16THK=4/42Q+D	
all	4	02 11153A	GASKET=46"BCX1/8THK=4/42Q+D	
all	5	15K227H	HEXCAPSCR 5/8-11X6 SS18-8	
all	6	15K227F	HEXCAPSCR 5/8-11UNX6.5 SS18-8	
all	7	15K227M	HEXCPSCR 5/8-11UNC X 7.5 SS	
all	8	15U318S	FLATWASH 1.12ODX.656IDX.09T 30	
all	9	15U315S	LOKWASHER MEDIUM 5/8 18-8 S/S	
all	10	15G236B	HEX NUT 5/8-11UNC2B BRASS	
all	11	X2 21916	CYL PULL-UP PLATE, 4840F7	
all	12	X2 21917	COVER=CYL HUB, 4840F7 MACH	
all	13	02 21918	GASKET= CYL HUB COVER, 4840F7	
all	14	15K234CA	HEXHDSCR 3/4-10X2.25 GR8 ZINC	
all	15	15U321H	FLTWASH 3/4 HARD ASTM F436	
all	16	15K235AA	HEXHDSCR 3/4-10X2.75 GR8 ZNCPL	
all	17	60C155V	ORING 4.75ID3/16CS VITON75#351	
all	18	60C157V	ORING 4+7/8ID 3/16CS VITON-352	
all	19	15K032	BUTSOKCAPSCR 1/4-20X3/8 SS18-8	
all	20	X3 17340	MACH=PULLEY, FAB, 4232M9S	
all	21	X2 21923	PLATE=PULLEY PULL UP, 4840F	
all	23	15K232A	HEXCAPSCR 3/4-10X2 GR8 ZINC	
all	24	20C007G	THDLOCKSEAL LCT24231 RMUBL50CC	
all	25	15K309	HEXCAPSCR 1.25-7UNC X 4.0 ZINC	
all	26	15U600	FLTWASH 1+1/4 HARD ASTM F436	
all	27	01 10025Y	NPLT:BEARING&SEAL LUB-48"MACH	
all	28	54M021	GRSFIT 1/8PIPE X 1/4STR 1607-B	

Bearing Housing

MXS4232C,L,R

Figure 1: Bearing housing

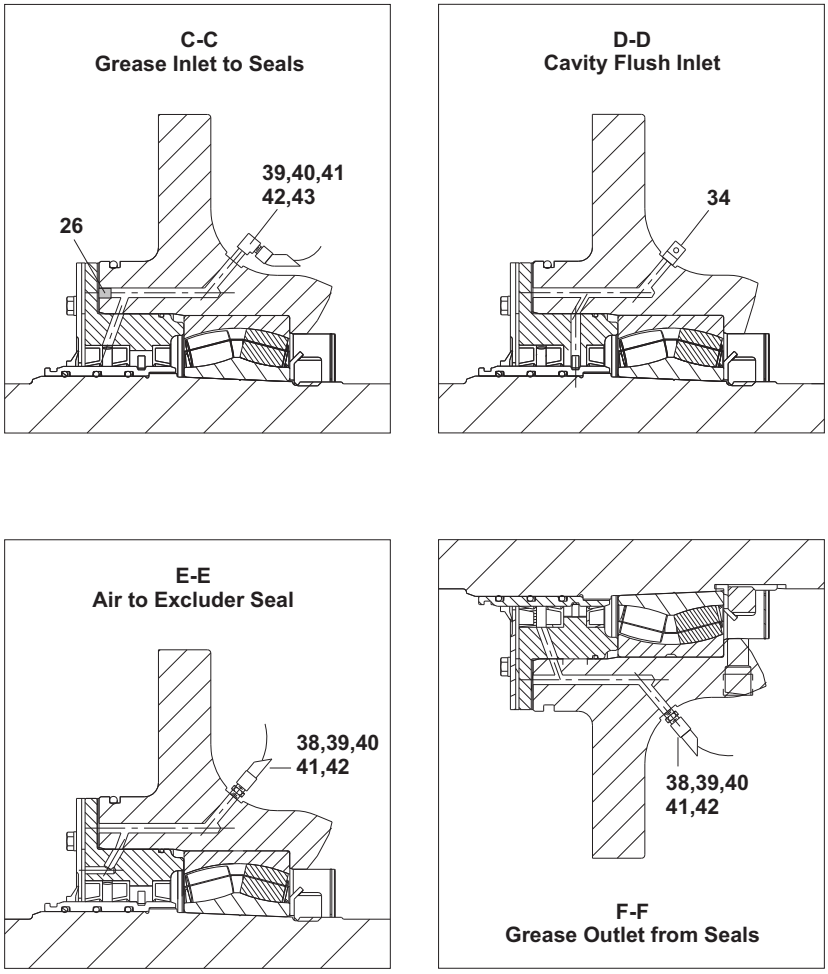


AA. Cross section
CC. Grease inlet for the seals
DD. Fluid inlet to flush the space between the seals
EE. Air inlet to outer seal
FF. Grease outlet for seals
G. Use Locktite 242.
H. Fill this space with grease.
J. Outer seal
K. Grease inlets for the front bearing
L. Grease inlet for the rear Bearing
M. Leak-off from seals

Bearing Housing

MXS4232C,L,R

Figure 2: Section views



Bearing Housing

MXS4232C,L,R

Parts List—Bearing Housing

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

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	GBM4232M9S	INSTL=BEARING HOUSING 4232M	
	B	ABM4232M9S	ASSY=BRN HOUSING, 4232M9S	
	C	ABN4232M9S	ASSY=ABM-HSG&SHFT, 4232M9S	
			----------COMPONENTS----------	
all	1	X3 17330	MACH=MAIN BRG HSG, 4232M9/MX	
all	2	X3 17331	MACH = MAIN SHAFT 4232M9V	
all	4	X2 21802	SHAFT SEAL SLEEVE, 4840F7	
all	5	Y3 17332	MACH=FNT SEAL HLD,FAB,4232M	
all	6	X2 21804	PLATE=EXCLUDER SEAL, 4840F7	
all	7	02 21805	REAR SEAL HOLDER, 4840F7	
all	8	02 21806	FRONT GREASE SHIELD, 4840F7	
all	9	03 17335	REAR GREASE SHIELD, 42M	
all	10	02 21810	GASKET=FRNT SEAL HLDR,4840F7	
all	11	02 21811	GASKET=REAR SEAL HLDR,4840F7	
all	12	02 21812	GASKET=EXCLUDER SEAL, 4840F7	
all	13	24S146	SEAL 7.0X8.0X.437 TYPE SSW NIT	
all	14	24S114	SEAL 4.5X5.5X.50 JM# 9170 LUP	
all	15	60C190	ORING 14.0ID 1/4CS BUNA70-457	
all	16	56AHN24	AN24 BEARING LOCKNUT	
all	17	56AHW124	TW124 BEARING LOCKWASHER	
all	18	56AHW30	W30 BEARING LOCKWASHER	
all	19	56AHN30	AN30 BEARING LOCKNUT	
all	20	15K112	HXCAPSCR 3/8-16X1+1/2 SS18-8	
all	21	15U260	LOCKWASHER MEDIUM 3/8 SS18-8	
all	22	15K039	HXCAPSCR 1/4-20UNC2AX3/4 GR5 Z	
all	23	15U180	LOCKWASHER MEDIUM 1/4 ZINCPL	
all	24	X2 21816	MACH=PULLEY KEY, 4840F	
all	25	15N091	PANHDMACHSCR 8/32UNC2X1/2 S/S	
all	26	5SP0CBEHS	NPT PLUG 1/8 HXCTRSNK BRASS	
all	27	02 21817	SLINGER=BRG FRNT SEAL,4840F	
all	28	60C160DB	ORING 6.25ID3/16CS BUNA70 -362	
all	29	60C275	ORING 10.5ID 1/8CS BUN70-275	
all	30	24S148	SEAL 7.0X8.5X.625#07009304LUPN	
all	31	56S23230T	SPHEROLBRG SKF#23230CCK/C3W33	
all	32	56S22226T	SPHEROLBRG SKF#22226 EK/C3	

Bearing Housing

MXS4232C,L,R

Parts List—Bearing Housing

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

Used In	Item	Part Number	Description	Comments
all	33	02 04456	PULLEY PHOTOEYE BRKT, 6836E	
all	34	5SP0CFESSV	NPTPLUG1/8SQSLDBLKSTL LVENT125	
all	35	20C003A	ADHESIVE BLK MAX 1OZ LOC#38050	
all	36	5N0C01KG42	NPT NIP 1/8X1.5 TBE GALSTL S40	
all	37	5SL0CBEA	NPTELB 90DEG 1/8 BRASS 125#	
all	38	53A005B	BODYMALCON1/4X1/8COMP #B68A-4A	
all	39	53A501	TUBE INSERT .163"OD #63PT-4-40	
all	40	53A500	SLEEVE DELRIN 1/4"OD#60PT-4	
all	41	53A059A	NUT 1/4"BR.HOLYOKE AND #61A-4	
all	42	60E004TC	TUBING NYL(NAT)1/4"ODX.17ID	
all	43	53A031B	BODY-EL90MALE.25X1/8 #269C-42B	
all	44	5SP0KGFSS	NPT PLUG 1/2 SOSOLID GALSTL	
all	45	51E511	HOSESTEM BRASS 3/4MP X HOSEID	
all	46	27A044S	HOSECLAMP 11/16-1.25SSCR#64012	
all	47	60E008A	TUBINGNYLREINF.75"IDX1.025"OD	

Cylinders and Cotton Mod Piping

M9V4232C/L/R, MXV4232C/L/R, MMV4232C/L/R M9S4232C/L/R, MXS4232C/L/R, MMS4232C/L/R M9V4840C/L/R

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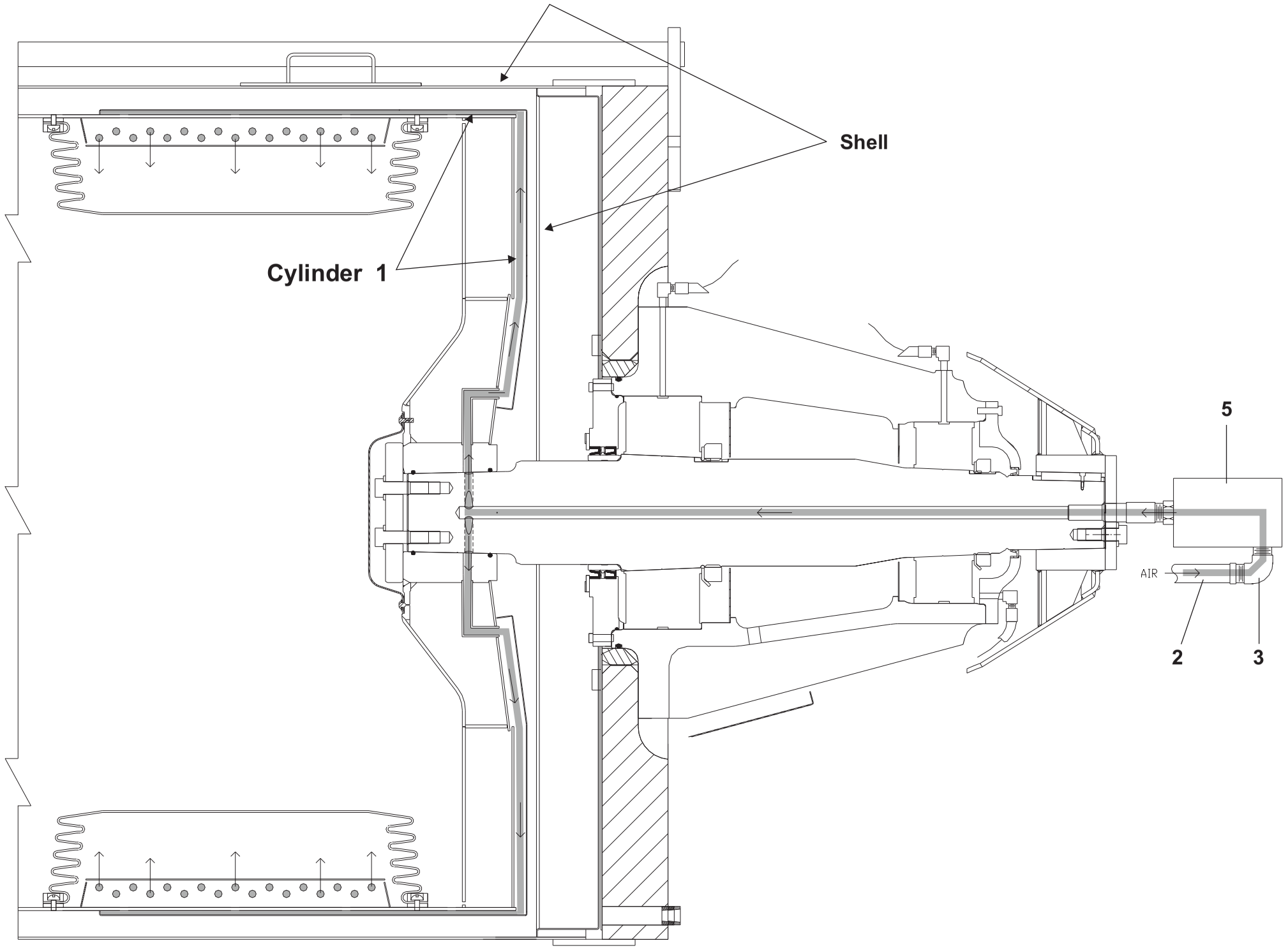
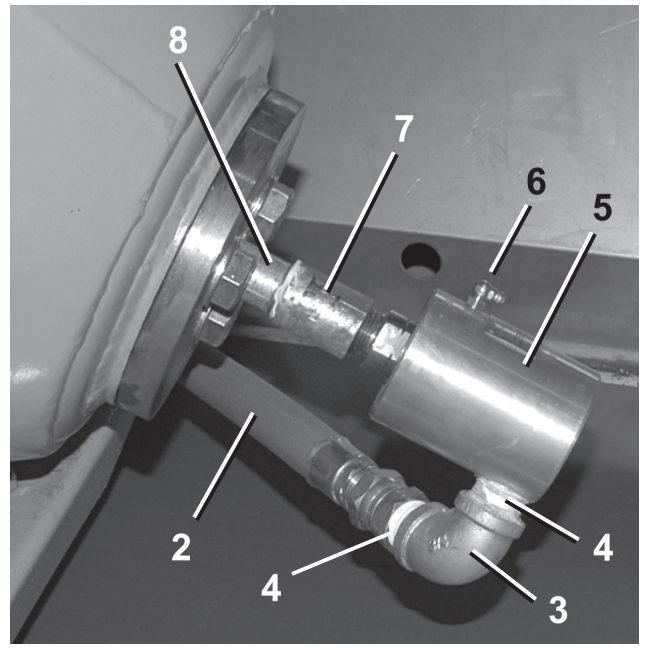


Inflatable rib assembly (See BMP110048.)



Air through bearing to cylinder ribs

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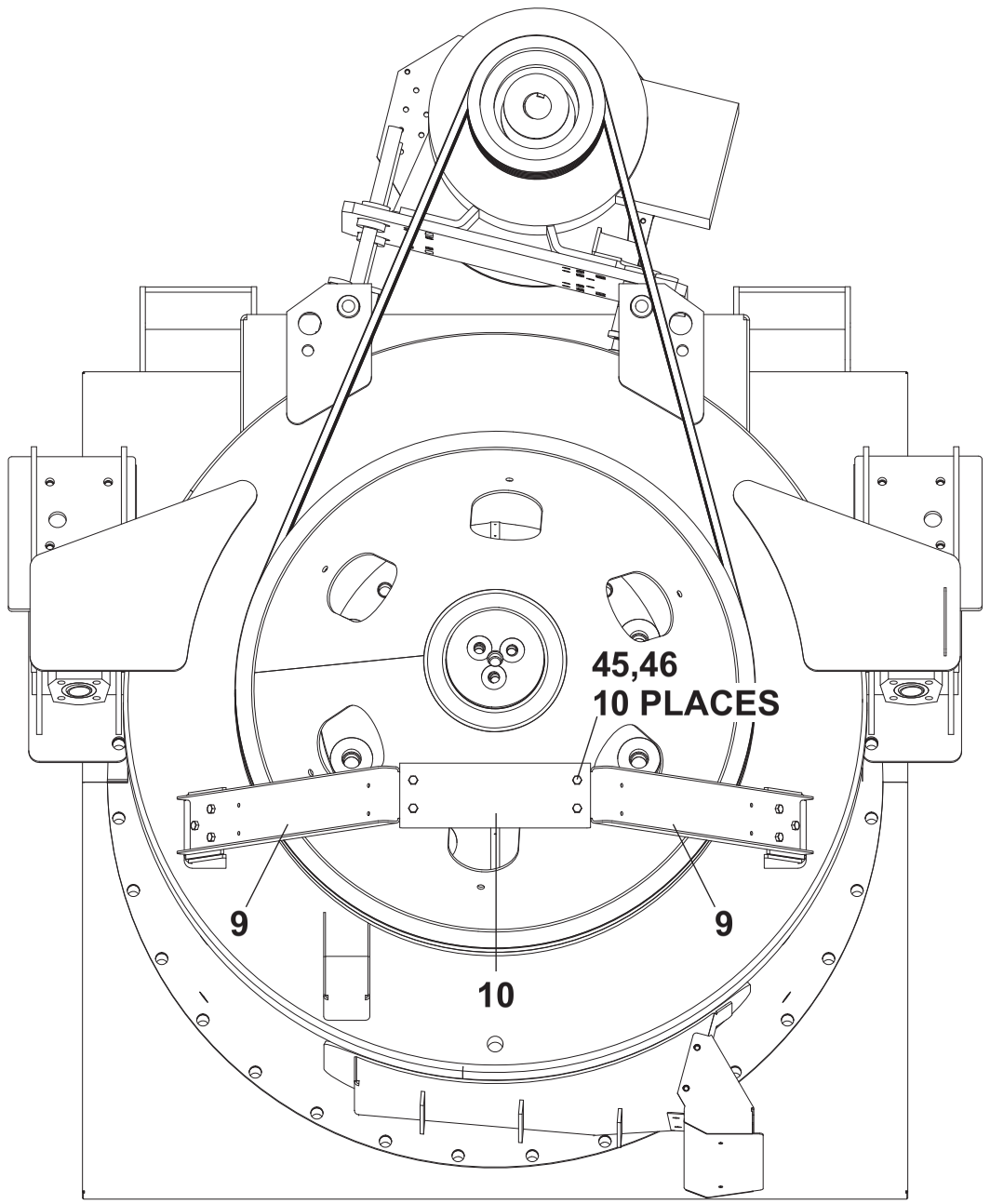

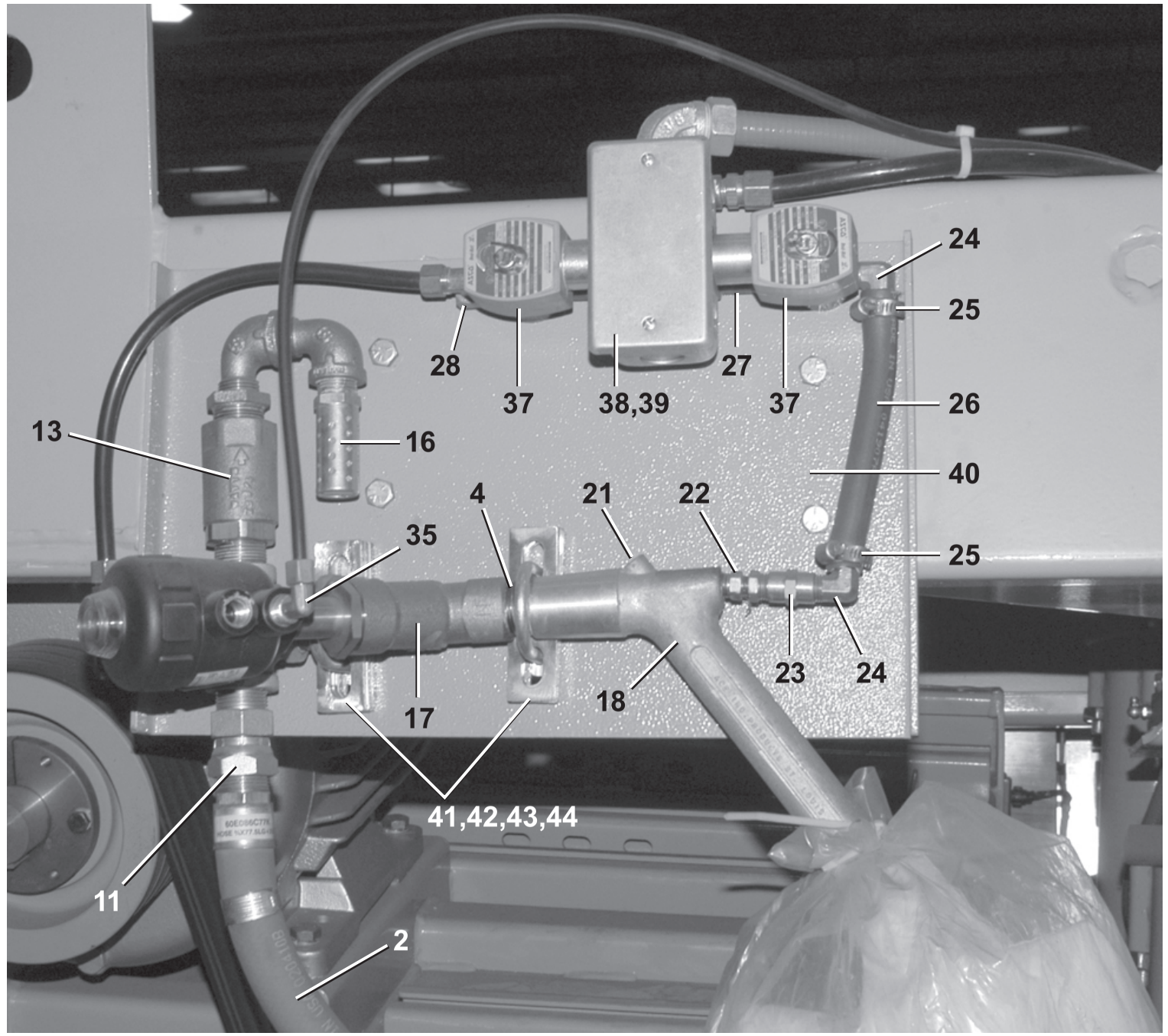

Cotton Mod Piping

Cylinders and Cotton Mod Piping

M9V4232C/L/R, MXV4232C/L/R, MMV4232C/L/R M9S4232C/L/R, MXS4232C/L/R, MMS4232C/L/R M9V4840C/L/R

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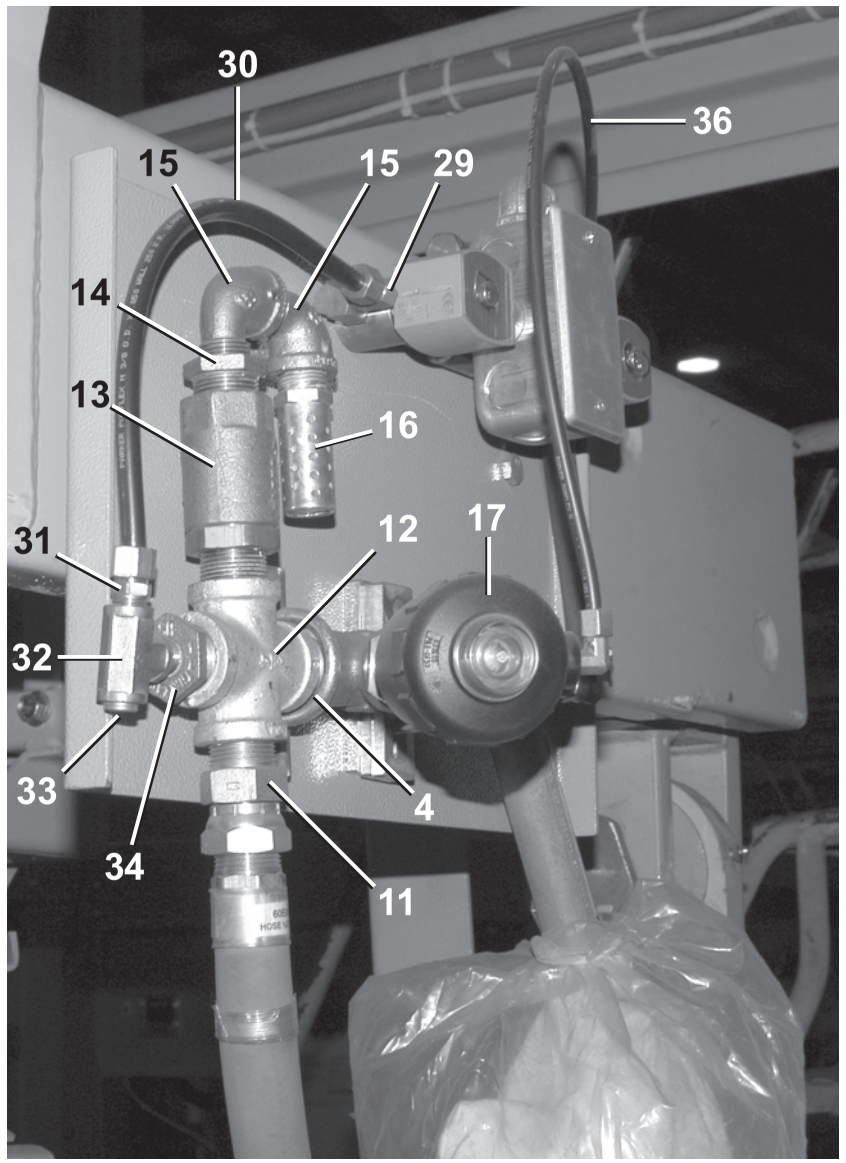
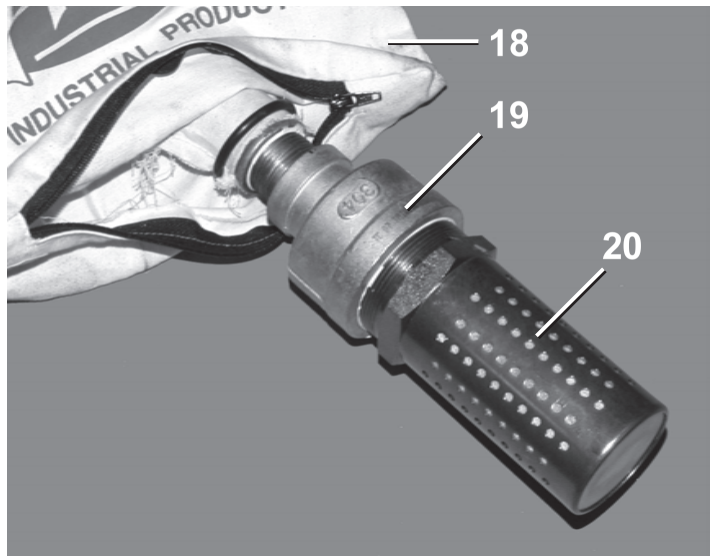
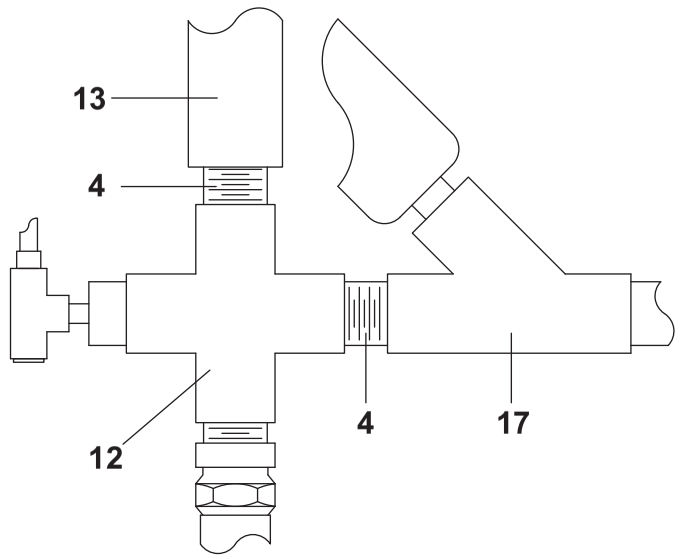


Cotton Mod Piping



Vacuum and muffler



Detail: Cross tee

Parts List—Cylinders and Cotton Mod Piping

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

Used In	Item	Part Number	Description	Comments
			----------REFERENCE ASSEMBLIES----------	
	A	ACM16001	COTTON MOD PIPING ASSY	M9V4232, MXV4232 M9S4232, MXS4232 MMV4232, MMS4232
	B	ACM17002	CYLINDER BELT LINER ASSY-4840M	M9V4840
			----------COMPONENTS----------	
all	1	ACA42CTM9E	*7GA CYL COTTON MOD 4232M9E	M9E4232 COT CYLINDER
all	1	ACA4232C01	ASSY=7GA CYLINDER COT MOD, 4232M9/MX	M9S/MXS4232 COT CYL.
all	1	ACA42TFMXV	7GA CYL TEFLON 4232MXV COT	MXV4232 COT TEFLON
all	1	ACA42TFMMV	ASSY=CYL COT TEFLON 4232MMV	MMV4232 COT CYLINDER
all	1	ACA4232MV1	ASSY=7GA CYL TEF COT MOD, 4232MMS	MMS4232 COT TEFLON
all	1	ACA4840COT	CYL ASSY COTTON 4840M	M9V4840 COT CYLINDER
A	2	60E086C77K	WATERHOSE=.75"X77.5" LG + 2 EN	
B	2	60E086C106	HOSE ASSY=3/4"X106"LG+ENDS	
all	3	5SL0PNFA	NPTELB 90DEG 3/4 GALMAL 150#	
all	4	5N0PCLSG42	NPT NIP 3/4XCLS TBE GALSTL S40	
all	5	24S075	ROTUNION 3/4"	
all	6	54M021	GRSFIT 1/8PIPE X 1/4STR 1607-B	
all	7	5SCC0PNF	NPT COUP 3/4 GALMAL 150#	
all	8	5N0P03AG42	NPT NIP 3/4X3 TBE GALSTL SK40	
A	9	03 17059	4840M AIR HOSE BAR	
B	10	03 17039	4840M AIR SUPPORT BRKT	
all	11	51X019	UNIONSTRADT 3/4"#0107-12-12	
all	12	5SX0PNF	NPT CROSS 3/4" GALMAL 150#	
all	13	96D046	CK VAL 3/4"W/S	
all	14	5SB0P0KBEO	NPTHEXBUSH 3/4X1/2 BRASS 125#	
all	15	5SL0KBEC	NPTELB 90DEGSTRT 1/2 BRASS 125	
all	16	27A005B	MUFFLER 1/2"	
all	17	96D0009E	3/4"NPTBRZ N/C STEAMVAL ANGBOD	
all	18	X3 16201T	AIR VAC #80-201 TAPPED ENDS	
all	19	5SR2A1ASF	NPT RED 2X1 SS304 150#	
all	20	27A005C	MUFFLER 1"	

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Parts List—Cylinders and Cotton Mod Piping

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

Used In	Item	Part Number	Description	Comments
all	21	51T020	STRAINER 1/4 AND.BRASS#234S-L	
all	22	5SB0E0CBEO	NPTHEXBUSH 1/4X1/8 BRASS 125#	
all	23	5SCC0EBE	NPT COUP 1/4 BRASS 150#PSI W/HEX	
all	24	51E504EB	ELB HOSESTEM 3/8HX1/4NPT BRASS	
all	25	27A040	HOSECLAMP 7/16-25/32SS W/SCREW	
all	26	6.00E+78	HOSE AIR-WATER 3/8"#7134-381	
all	27	5N0E02ABE2	NPT NIP 1/4X2TBE BRASS 125#	
all	28	5SL0EBEC	NPTELB 90DEG STRT 1/4 BRASS125	
all	29	53A043G	EL90 3/8X1/4COMP.AND#69A-6B	
all	30	60E005B	TUBING NYL.3/8"OD X.275"ID	
all	31	53A043A	BULKHDUNION 3/8"COMP.BODY ONLY	
all	32	5S0EBEA0G	NPT TEE 1/4X1/4X3/8 BRASS 125#	
all	33	51P013	PLUG HXCNTRSUNK 1/4"BRASS	
all	34	5SB0P0EBEO	HEXBUSH 3/4X1/4 BRASS 125#	
all	35	53A031B	BODY-EL90MALE.25X1/8	
all	36	60E004TE	1/4"OD X.170"ID NYL(BLK)TUBING	
all	37	96TBC2BA37	1/4" N/C 2WAY 120V50/60C VALVE	
all	38	12H050D	HANDYBOX 4X2+1/8 X 2+1/8	
all	39	12H095	HANDY BOX COVER 4+2+1/8	
all	40	03 16353	AIR SUCT CONTROL BRKT	
all	41	27A031B	UBOLT 1"PIPE 5/16-18X3 5/8LG	
all	42	15U210	LOKWASHER MEDIUM 5/16 ZINCPL	
all	43	15G185	HXNUT 5/16-18UNC2B SAE ZINC GR	
all	44	02 10539S	SPACER PIPE DAS	
all	45	15K146	HEX CAP SCR 1/2-13 UNC2 X 1 SS	
all	46	15G225H	HEXFLGNUT 1/2-13 SERRATED 18-8	

Inflatable Rib Assembly
MXS4232, M9V4232, M9V4840, M9T4840

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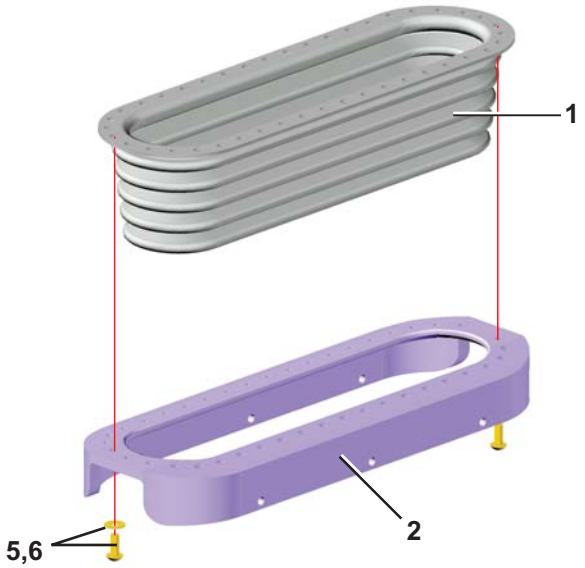
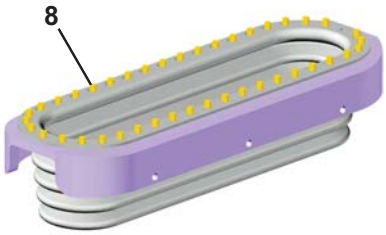
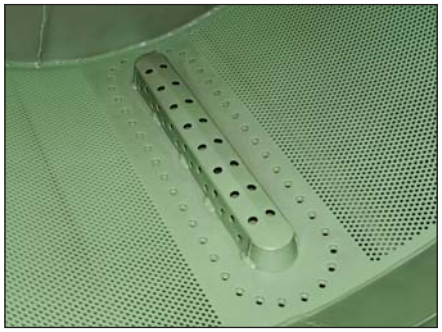


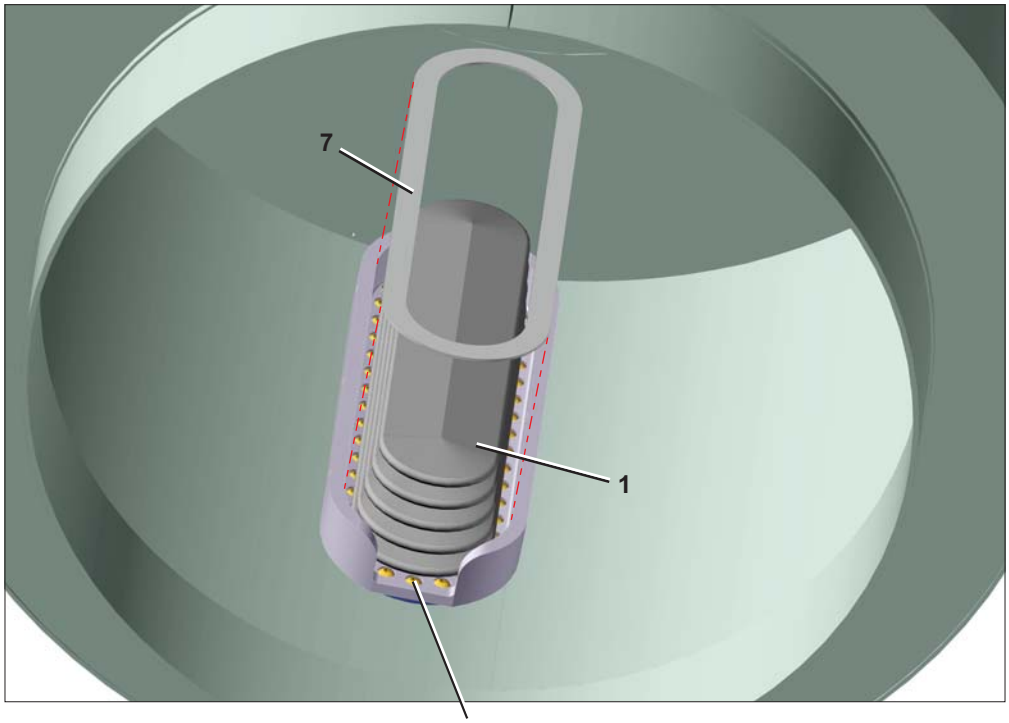
Pre-assemble the inflatable ribs, uhmw trays, and the gaskets (2 assemblies). Insert all 82 bolts (item 5).

Apply thread locker, item 8, to the ends of the bolts.





Cylinder with Cotton Modifications



Install the inflatable rib assemblies to the cylinder. Tighten the bolts to 10 ft-lbs of torque. Cover the bolts with EPDM gasket (item 7) and position it under the inflatable rib (item 1).

Inflatable Rib Assembly

MXS4232, M9V4232, M9V4840, M9T4840

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Litho in U.S.A.

Parts List—Inflatable Rib Assembly

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

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	KQM-E00202	M7E 42EXT=INFLAT RIBS .165THK	AVAILABLE KIT INCLUDES ALL PARTS LISTED BELOW, ALL 4232 & 4840 EXTRACTORS
			----------COMPONENTS----------	
all	1	03 16014E	EXTRACTOR INFLATABLE RIB-.25 FLANGE	
all	2	03 16494B	RIB BOLT DOWN 4"W SLOT-UHMW	
all	5	15K090	BUTSOKCAPSCR 3/8-16UNC2X1" BRASS	
all	6	15U242S	FLATWASH .453IDX.750ODX.032SS0	
all	7	03 16488C	RIB BOLTDOWN EPDM GASKET	
all	8	20C007G	THDLOCKSEAL LCT24231 RMUBL50CC	

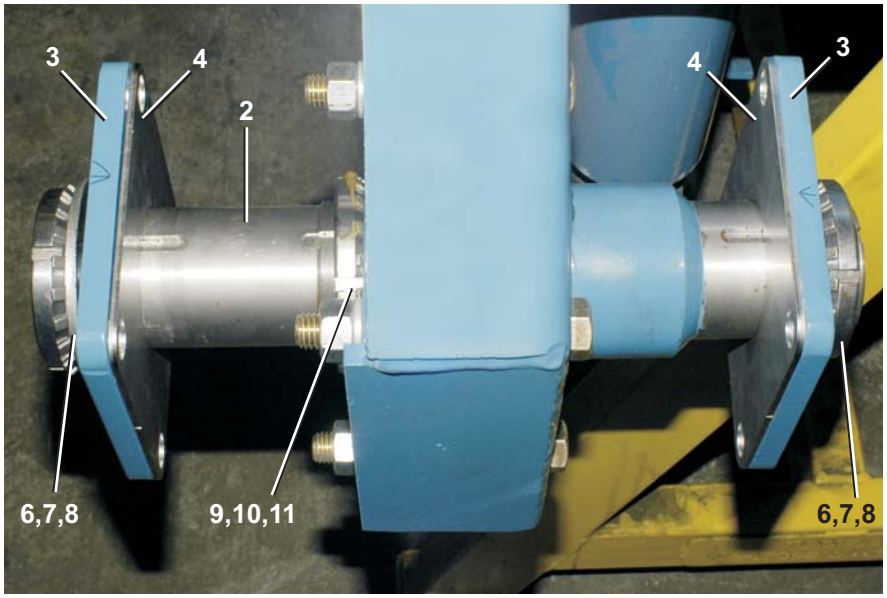
2

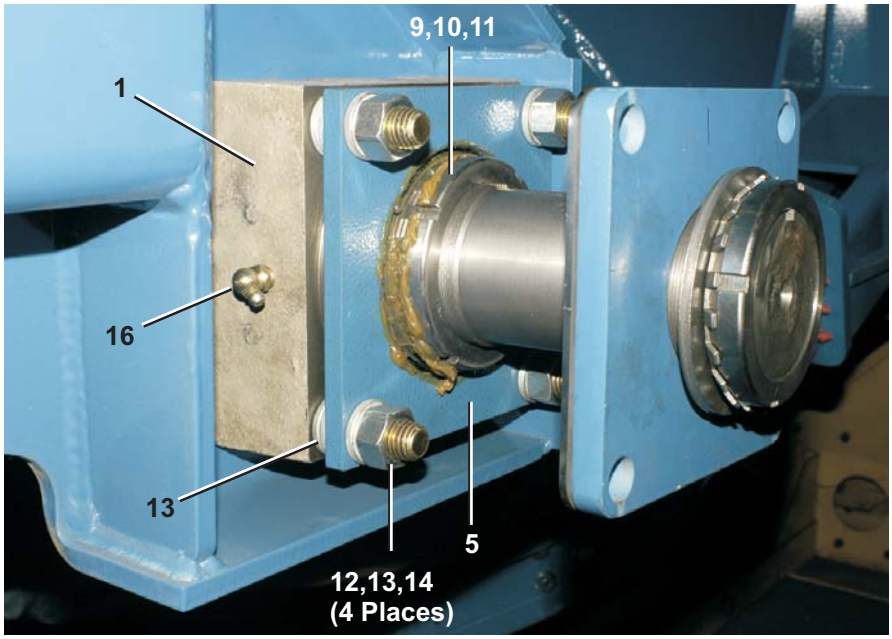
Frame, Pivots and Suspension 2.2

Pivot Shafts & Ball Bushings

MXS4232C,L,R

Figure 1: Pre-assembled Views

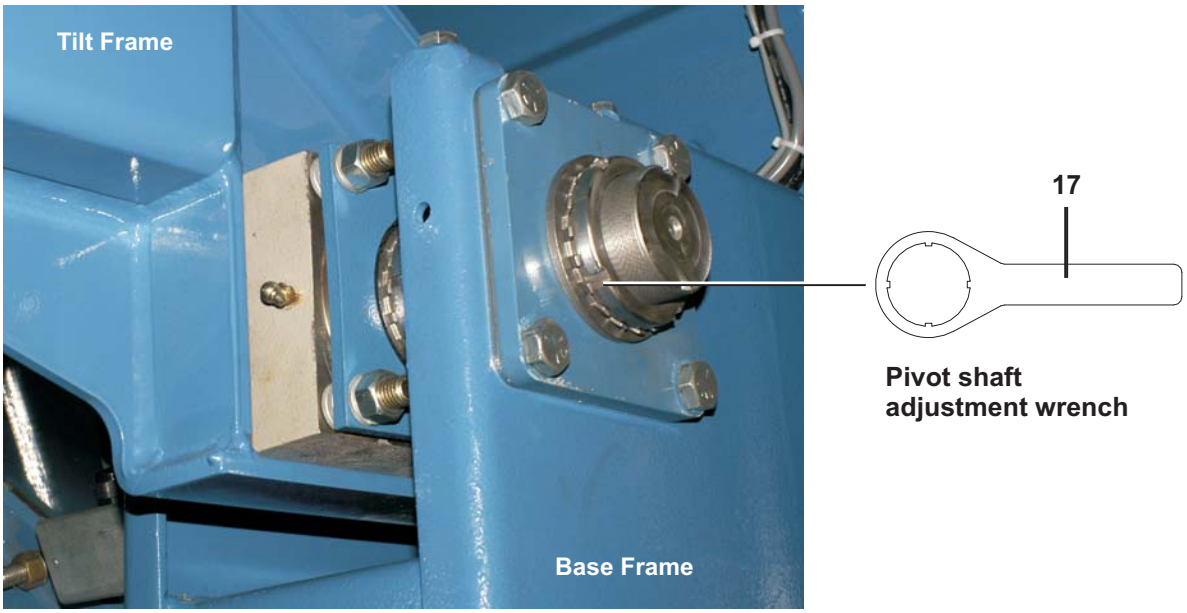




Pivot Shafts & Ball Bushings

MXS4232C,L,R

Figure 2: Installed View



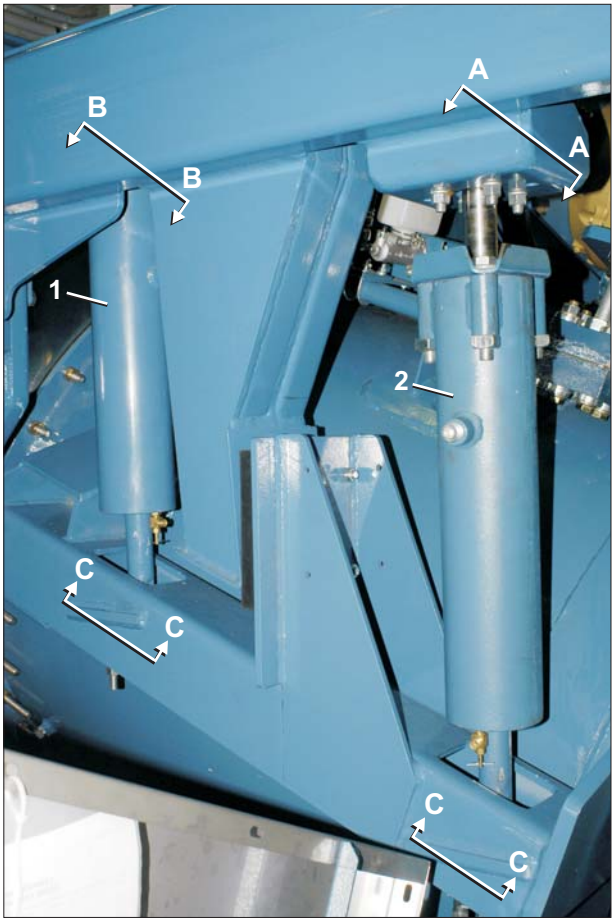
Parts List—Pivot Ball Bushing

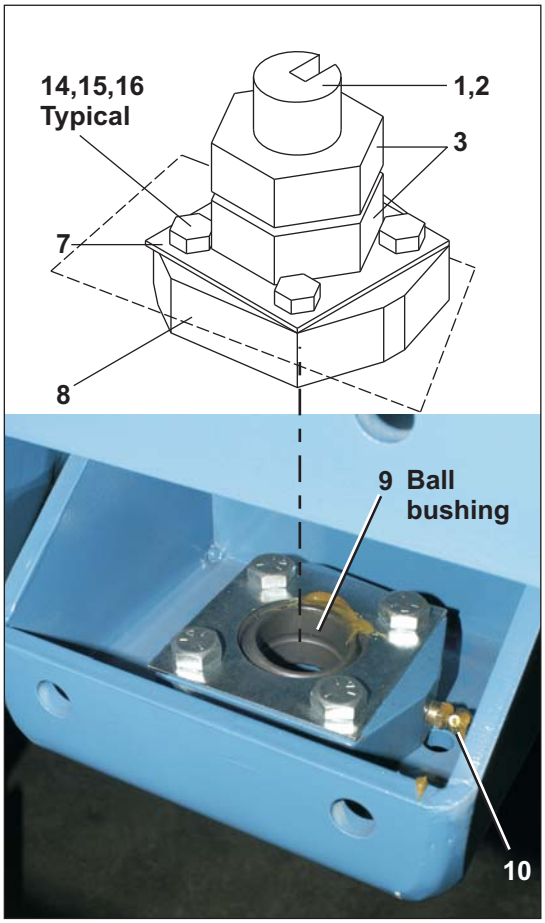
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

Used In	Item	Part Number	Description	Comments
			ASSEMBLIES	
	A	GBM16003	INSTL=BAL BUSH PIVOT M7E/E6N	
			COMPONENTS	
all	1	ABM16003	ASSY=BAL BUSH PIV 42M7E64E6N	
all	2	X3 65150	SHAFT=3" BALL BUSH PIVOT	
all	3	X3 65153	MNT PLT=3" BALL BUSH PIVOT	
all	4	03 65154	PIVOT SHAFT KEY PLATE	
all	5	03 65152	LOCK PLT=3" BALL BUSH PIVOT	
all	6	56ATW13S	TONGUEWASHER SPECIAL FOR N13	
all	7	56AHW113	TW113 BEARING LOCKWASHER	
all	8	56AHN13	N13 BEARING LOCKNUT	
all	9	56ATW14	TONGUE WASH TIM K91514 FOR N14	
all	10	56AHW114	TW114 BEARING LOCWASHER	
all	11	56AHN14	N14 BEARING LOCKNUT	
all	12	15K227A	HXCAPSCR 5/8-11X4.5 GR8 ZINC	
all	13	15U315	LOKWASHER MEDIUM 5/8 ZINCPL	
all	14	15G238B	HEXFINNUT 5/8-11UNC2 GR8 ZINC	
all	15	15K214E	HXCAPSCR 5/8-11UNC2AX1.5 GR5 Z	
all	16	54M023	GRSFIT 45DEG ALEMITE 1688-B	
all	17	03 17280	PIVOT SHAFT ADJ WRENCH	

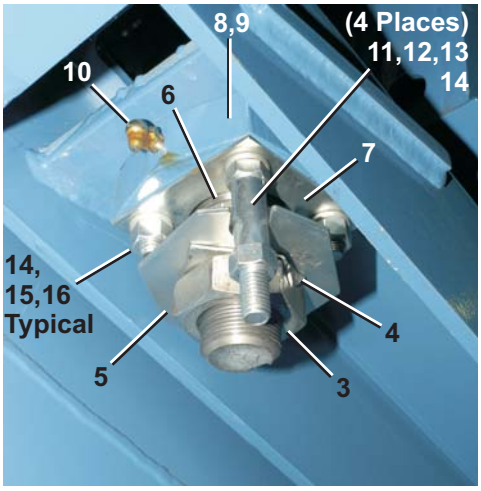
Hydrocushion Cylinder Installation

MXS4232C,L,R

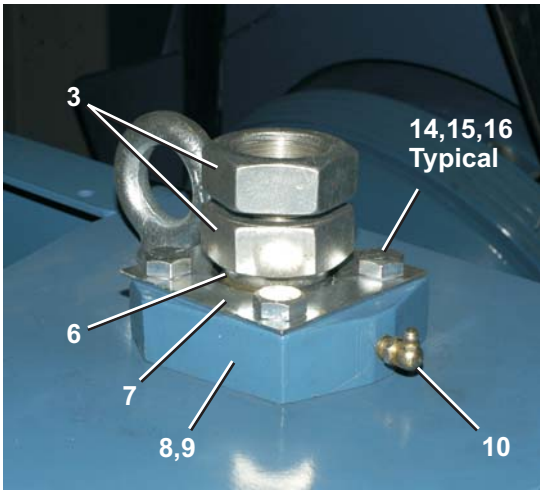




View A-A: (2 Places)



View C-C: (4 Places)



View B-B: (2 Places)

Hydrocushion Cylinder Installation

MXS4232C,L,R

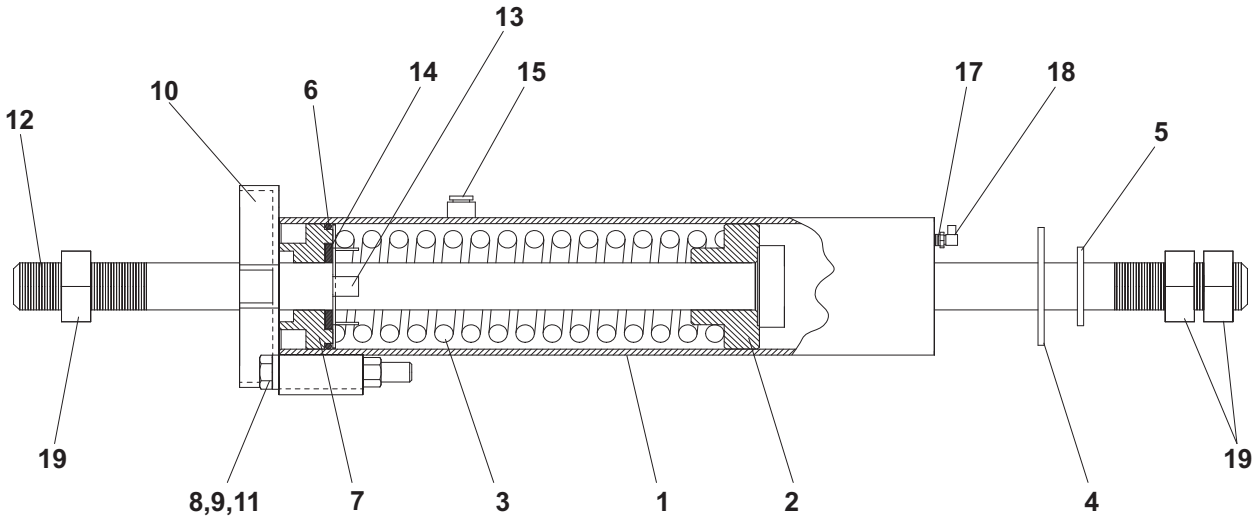
Parts List—Hydrocushion Cylinder Installation

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

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	GHC16000	HYDRCUSH CYL INSTL 42M7E	
			----------COMPONENTS----------	
all	1	AHC16000F	HYDRCUSH CYL ASSY FRNT 42M7E	
all	2	AHC16000B	HYDRCUSH CYL ASSY REAR 42M7E	
all	3	15G268	HXFINJAMNUT 1+1/2-12UNF2B ZINC	
all	4	02 18256	LOKWASH=TONGUE HYDROCUSHION	
all	5	02 18795A	WASH-TIMING=HYDRO CYL 45DEG	
all	6	02 18571A	PISTON ROD WASHER-.25"TK	
all	7	02 18534	HOLDPLATE= BALLBUSH ZNC/CAD	
all	8	X3 06253	RETAINER-BALBUSH 72WE STEEL	
all	9	54A705	SPHPLNBRG 1.5"= ROLLBRG#B24-L	
all	10	54M025	HYDFIT 1/8"-90 ALEMITE 1613-B	
all	11	27B250	SPCRROLL.5ID1.5L.062T STLZNC	
all	12	15D119	HXTAPSCR 1/2-13X4 GR5 ZNC FTL	
all	13	15G231	HXFINJAMNUT 1/2-13UNC2B ZINC G	
all	14	15U300	LOKWASHER REGULAR 1/2 ZINC PLT	
all	15	15G230	HXNUT 1/2-13UNC2B SAE ZINC GR2	
all	16	15K191	HXCAPSCR 1/2-13UNC2AX2.5 GR5 Z	

Hydrocushion Cylinders

M9V4232C,L,R MXS4232C,L,R



Parts List—Hydrocushion Cylinders

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

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	AHC16000B	HYDRCUSH CYL ASSY REAR 42M7E	REAR CYLINDERS
	B	AHC16000F	HYDRCUSH CYL ASSY FRNT 42M7E	FRONT CYLINDERS
			----------COMPONENTS----------	
all	1	W3 48065	*HYDROCUSHION WLMT 4" DIA	
A	2	X3 48069A	PISTON=HYDROCUSHION CYL 4"	
B	2	X3 48069B	PISTON=HYDROCUSHION CYL 4"	
A	3	03 48070B	SPRING=3.485 OD 838 #/IN	
B	3	03 48070C	SPRING=3.25 OD 513 #/IN	
all	4	02 175034	SHIELD-BALLBUSH-4/HYDRO MACH	
all	5	02 02230	6 WATER BARRIER (NEOPRENE)	
all	6	60C145	ORING 3+1/2ID3/16CS BUNA70#341	
all	7	M3 48068	BUSHING PISTON ROD MOLDED	
all	8	15K227	HXCAPSCR 5/8-11UNC2AX4 GR5 ZIN	
all	9	15U315	LOKWASHER MEDIUM 5/8 ZINCPL	
all	10	03 48071	CAP=UPPER CYL END 4"HYDCUSH	
all	11	15G236	SQNUT 5/8-11UNC2B SAE ZINC GR2	

Hydrocushion Cylinders

M9V4232C,L,R MXS4232C,L,R

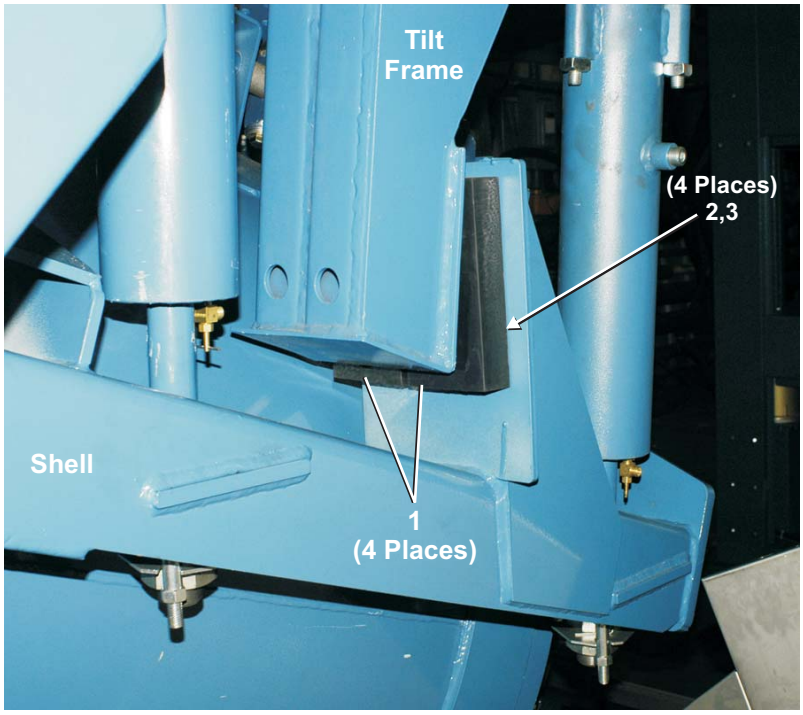
Parts List—Hydrocushion Cylinder

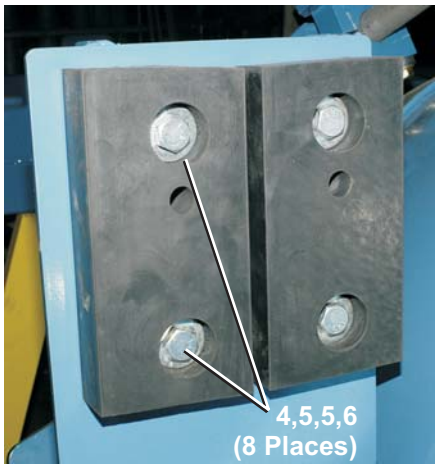
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

Used In	Item	Part Number	Description	Comments
all	12	02 18243	BOLT=HYDCYL 22+1/8LG+KEYWAY	
A	13	03 48072A	RETAINER=4"HYDROCUSHION SEAL	
B	13	03 48072B	RETAINER=4"HYDROCUSHION SEAL	
all	14	24S040	SEAL URETHNE 1-7/16 2.25 13/32	
all	15	5SP0KDEHK	NPT PLUG 1/2 HXCTRSNK GALSTL	
all	17	5SB0E0CBEO	NPTHEXBUSH 1/4X1/8 BRASS 125#	
all	18	96H020	ANGLE NEEDLE VLV 5/16TX1/8MP	
all	19	15G268	HXFINJAMNUT 1+1/2-12UNF2B ZINC	

Tilt Stops

MXS4232C,L,R





Parts List—Tilt Stops

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

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	GHG16004	INSTL=TILT FRAME 42M9S	
			----------COMPONENTS----------	
all	1	03 64681	RESTPAD=SHELL STOP FRONT64TN	
all	2	03 64681A	REST PAD:10GA SPACER	
all	3	03 64681D	REST PAD :3/8"SPACER	
all	4	15K198	HEXCAPSCR 1/2-13UNC2AX3 GR5 ZI	
all	5	15U280	FL+WASHER(USS STD)1/2 ZNC PL+D	
all	6	17N081	1/2"-13 NUT NYLON #76053	

2

Shell and Door Assemblies 2.3

Load Chute

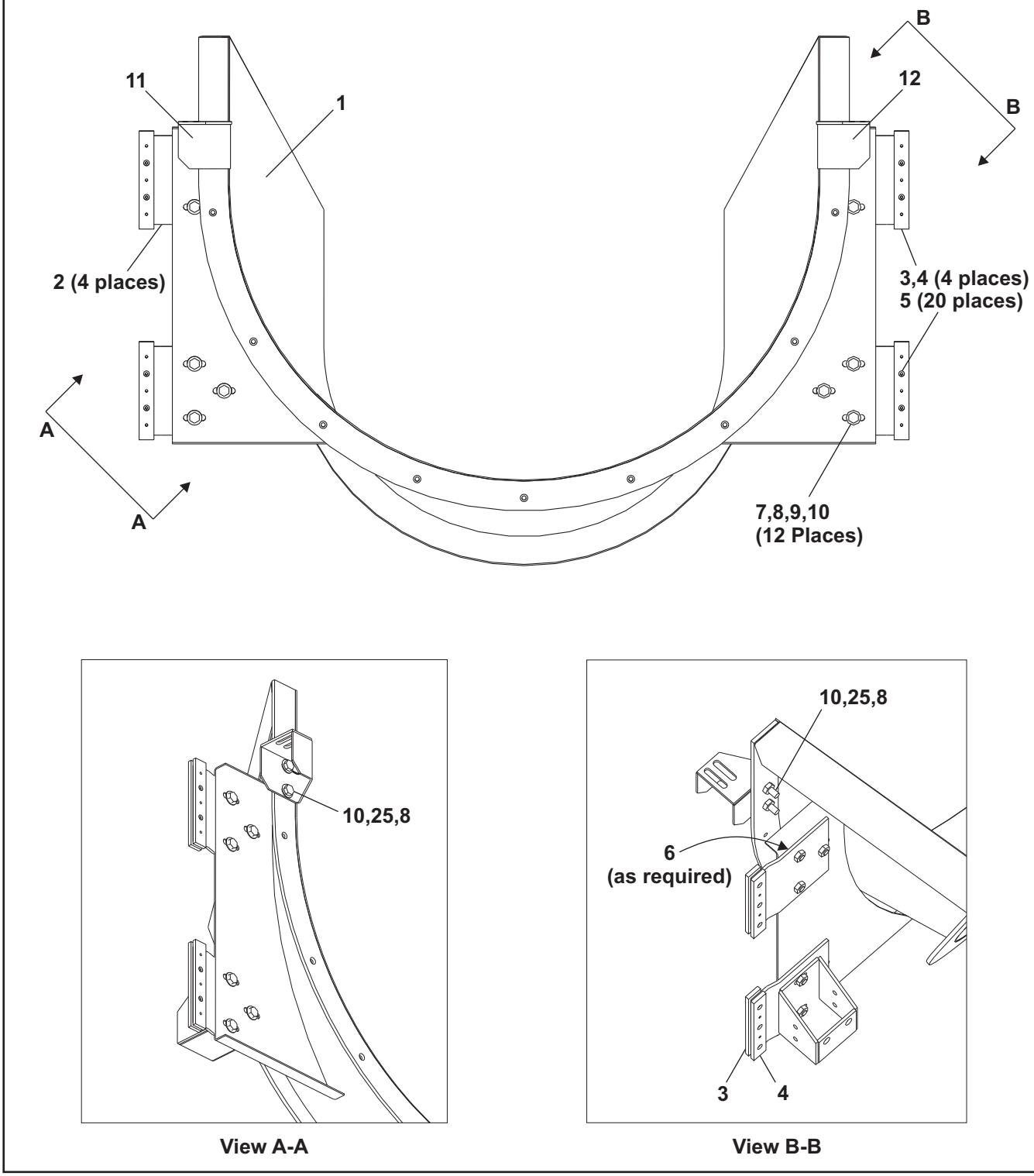
M9V4232C,L,R MXS4232C,L,R

Figure 1: Load Chute Installed

Load Chute

M9V4232C,L,R MXS4232C,L,R

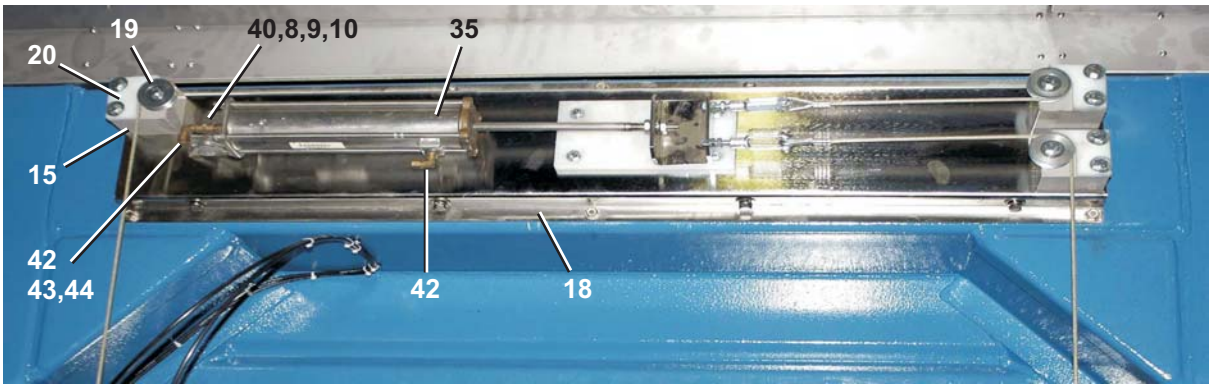
Figure 2: Load Chute Assembly

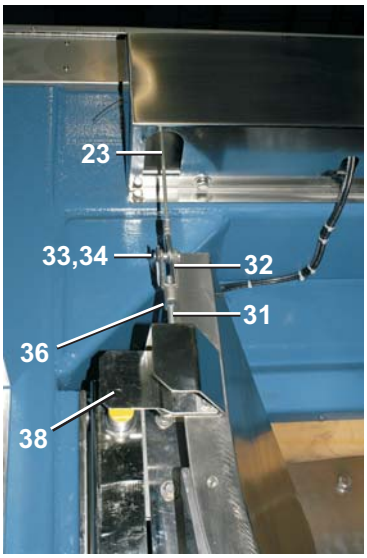


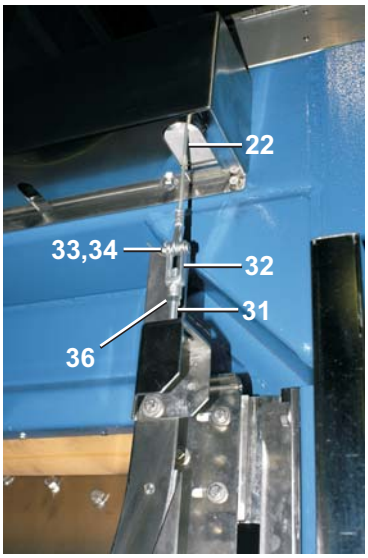
Load Chute

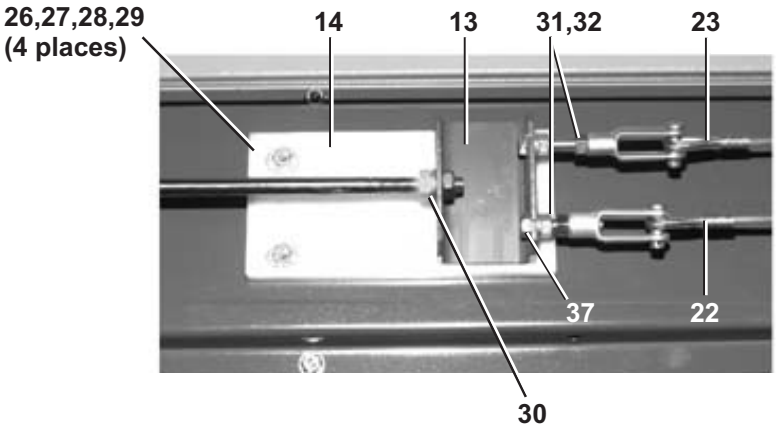
M9V4232C,L,R MXS4232C,L,R

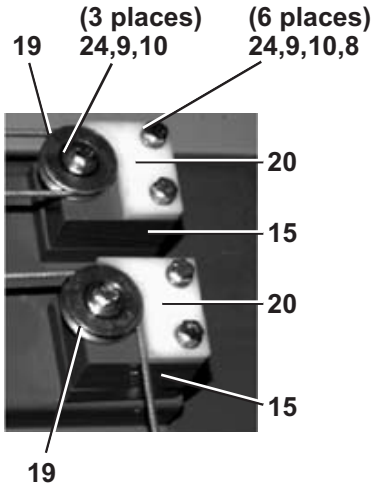
Figure 3: Load Chute Lifting







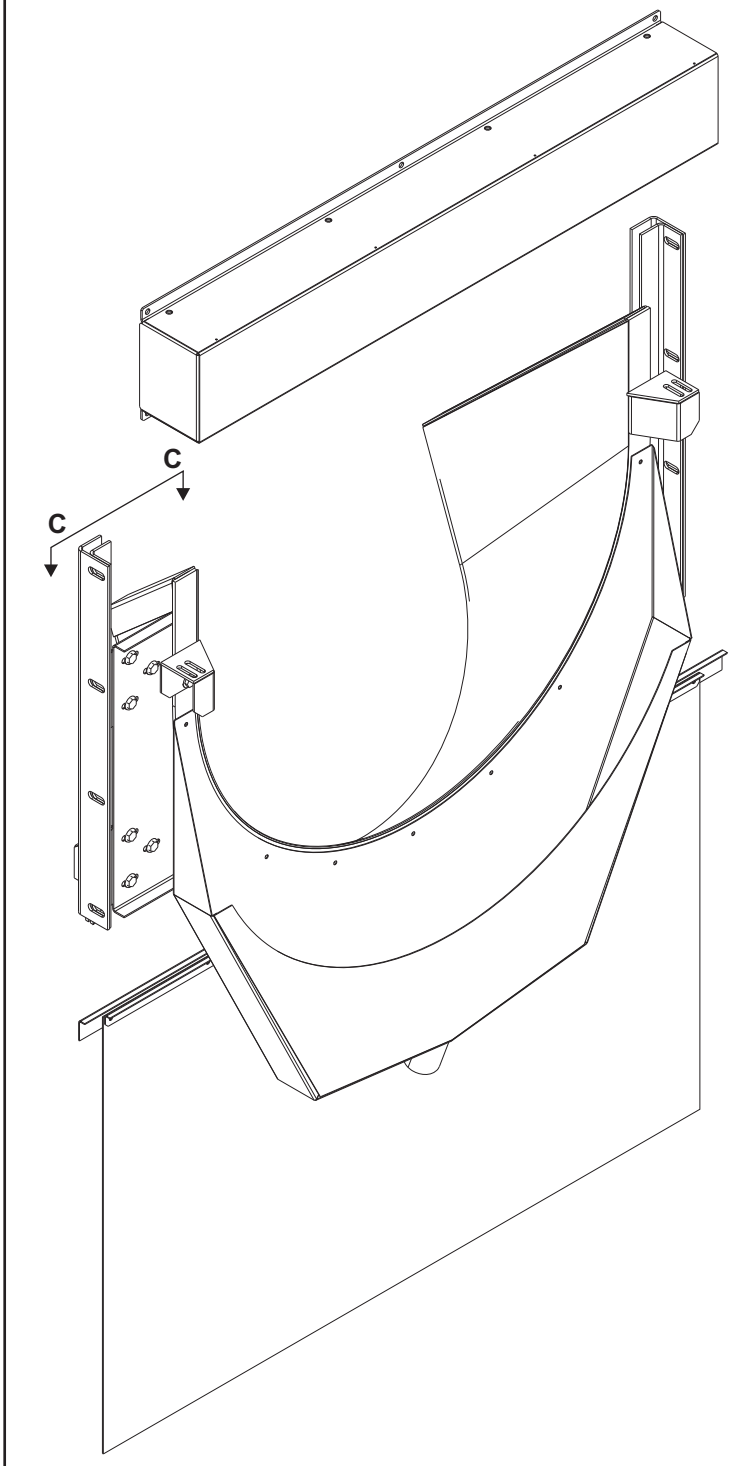


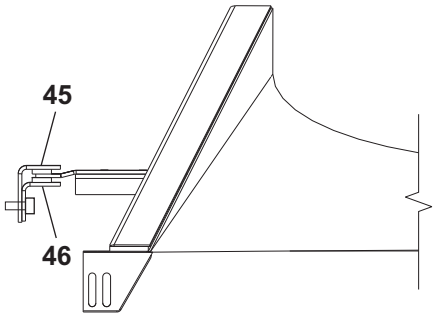


Load Chute

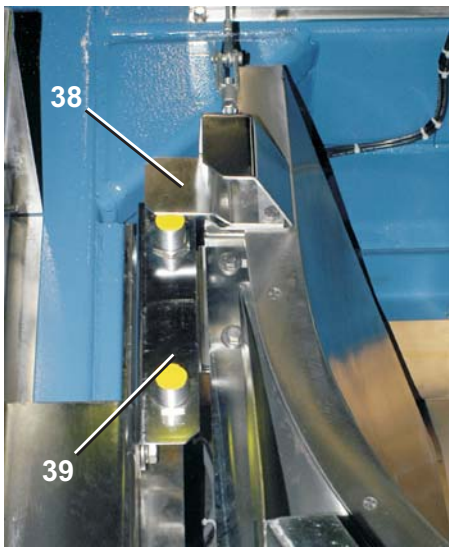
M9V4232C,L,R MXS4232C,L,R

Figure 4: Load Chute Installation





View C-C



Load Chute

M9V4232C,L,R MXS4232C,L,R

Parts List—Load Chute

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

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	GCL16002S	INST=LD CHUTE(CABLE)S/S 42M7	
	B	ACL16001	ASSY=LOAD CHUTE 42M7E	
			----------COMPONENTS----------	
all	1	W3 16201	*WLMT=LOAD CHUTE SCOOP 42M7E	
all	2	03 16211	RAIL ADJUST PLATE 42M7E	
all	3	03 16212	NYLON SLIDE STRIP FRONT 42M7E	
all	4	03 16213	NYLON SLIDE STRIP BACK 42M7E	
all	5	15J051AL	POPRIVET 1/8DIAX.765L	
all	6	03 16332	SCOOP= MTG BRKT SHIMS	
all	7	15K083S	HXCAPSCR 3/8-16NCX1/2 SS18-8	
all	8	15U245	FLTWASH 3/8 STD COMM 18-8 SS	
all	9	15U260	LOCKWASHER MEDIUM 3/8 SS18-8	
all	10	15G206	HEXNUT 3/8-16 UNC2 SS 18-8	
all	11	W3 16533	*WLMT=LD CHT LIFT BKT-L	
all	12	W3 16533A	*WLMT=LD CHT LIFT BKT-R	
all	13	03 16535	AIR CYL TO CABLE BRKT	
all	14	03 16536	UHMW AIR CYL BRKT GUIDE	
all	15	03 16537	LOAD CHUTE LIFT PULLEY SPACER	
all	16	03 16538	LOAD CHUTE LIFT COVER-TOP	
all	17	15P003	TRDCUT-F FLATHD 6-32UNC2X3/8 Z	
all	18	W3 16539	*WLMT=LD CHUTE LIFT MTG PLATE	
all	19	27A965	PULLEY ZINC PLATE #CPS6150	
all	20	07 40935A	UHMW PULLEY CABLE GUIDE PRES	
all	21	W3 16542	*WLMT=LD CHT LIFT COVER	
all	22	ASC16001	ASSY= SCOOP SS LIFT CBLE SHT	
all	23	ASC16001A	ASSY= SCOOP SS LIFT CABLE LG	
all	24	15K140S	HEXCAPSCR 3/8-16 X 4 SS 18-8	
all	25	15K100	HEXCAPSCR 3/8-16X1+1/4 SS18-8	
all	26	15K041S	HEXCAPSCR 1/4-20UNC2AX1 SS18-8	
all	27	15G170	HEXNUT 1/4-20UNC2 SS18-8	
all	28	15U310	LOKWASHER REGULAR 1/2 SS18-8	
all	29	15U188	FLTWASH 1/4 STD COMM SS18-8	
all	30	15G231S	HXFINJAMNUT 1/2-13UNC2B SS18-8	
all	31	15B107	HEXTAPBOLT 3/8-16UNC2X3+1/2 ZN	
all	32	17A010	ADJ YOKE 3/8-16 EMPIGARD COAT	

Load Chute

M9V4232C,L,R MXS4232C,L,R

Parts List—Load Chute

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

Used In	Item	Part Number	Description	Comments
all	33	15H040S	STDCOTTERPIN 1/8X3/4 SS	
all	34	17A030	CLEVIS PIN 3/8"X1+3/32"DRIL SS	
all	35	AAC03001	AIRCYL DBL ACT=S/S HWD	
all	36	15G215S	HEXFINTHIN JAM NUT 3/8-24UNF S	
all	37	15G214	HXJAMNUT 3/8-16UNC2B SAE ZINC	
all	38	03 16195	TARGET=LOAD CHUTE 42M7	
all	39	03 16196	PROX MNT=LOAD CHUTE 42M7	
all	40	15K096	HEXCAPSCR 3/8-16UNC2X1SS18-8	
all	41	15K119	HXCAPSCR 3/8-16X1+3/4 SS18-8	
all	42	53A031XB	BODY-EL90MALE.25X25 #269C-4-4B	
all	43	5N0ECLSBE2	NPT NIP 1/4XCLS TBE BRASS 125#	
all	44	5SCC0EBE	NPT COUP 1/4 BRASS 125# W/HEX	
all	45	03 16218	OUTER RAIL BRKT=LOAD CHUTE	
all	46	03 16217	INNER RAIL BRKT=LOAD CHUTE	
all	47	03 16327	SCOOP=FRNT PLASTIC GRD 42M7E	

Air Cylinder 2-Way

BMP050058/2008105B
(Sheet 1 of 2)

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Litho in U.S.A.

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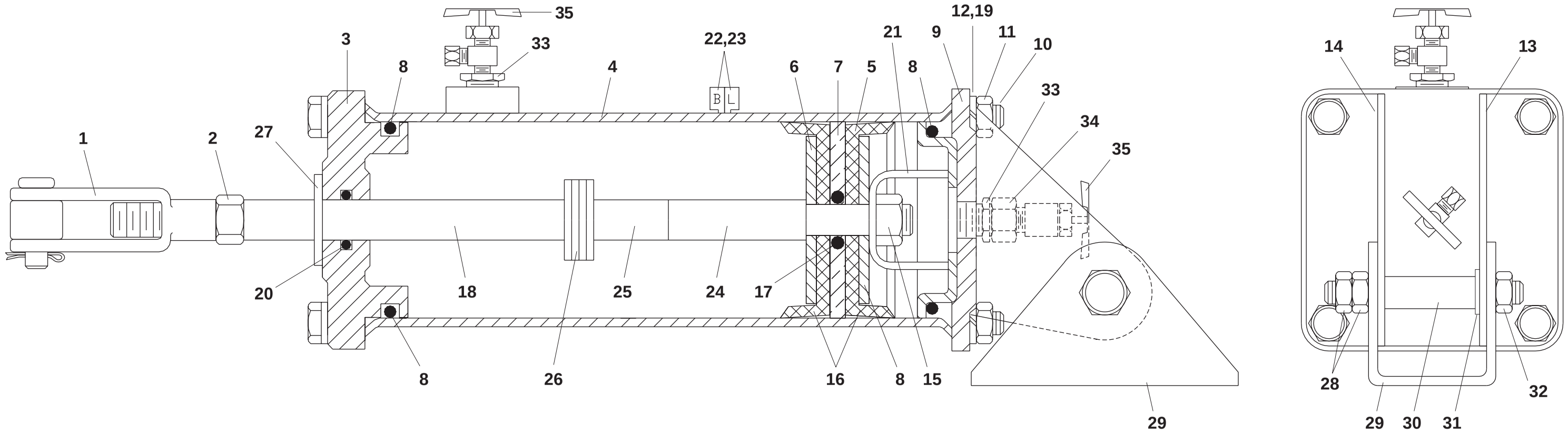
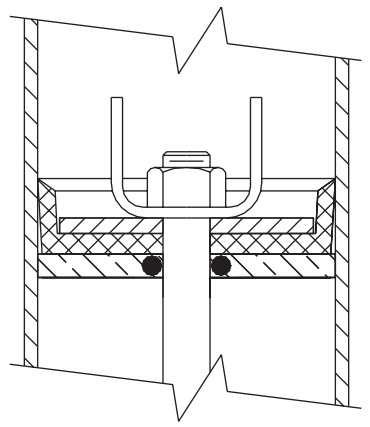
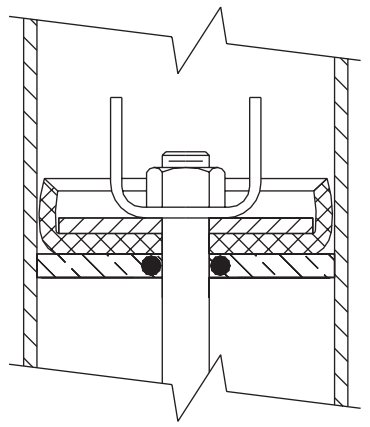


PISTON CUP WASHER INSTALLATION:

WHEN INSTALLING PISTON CUPS TIGHTEN NUT UNTIL IT IS JUST BARELY POSSIBLE TO TURN THE PISTON CUP AND WASHER ASSEMBLY, AFTER TIGHTENNG PISTON CUP SHOULD APPEAR AS SHOWN IN DETAIL “A”.



DETAIL “A”



DETAIL “B”

TIGHTENING THE NUT TOO TIGHT CAUSES THE PISTON CUP TO EXTRUDE TO THE SHAPE SHOWN IN DETAIL “B” AND MAY CAUSE PISTON TO BIND IN CYLINDER.

NOTE: NUT IS SELF-LOCKING AND DOES NOT NEED TO BE DRAWN TIGHT TO LOCK ON AIR CYLINDER.

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Litho in U.S.A.

Parts List—Air Cylinder 2-Way

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

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	A40 01800	* AIRCYL,2-WAY =52DRYELL	
	B	AAC03001	AIRCYL DBL ACT=S/S HWD	
			----------COMPONENTS----------	
all	1	17A020	ADJ CLEVIS MACHINED 1/2-13 ZIN	
A	2	15G231	HXFINJAMNUT 1/2-13UNC2B ZINC G	
B	2	15G231S	HXFINJAMNUT 1/2-13UNC2B SS18-8	
all	3	02 18660	CYLHEAD BRASS-DRILL AND TAP	
all	4	W3 06315A	* AIRCYL=52 DRYELL	
all	5	02 02194	PISTON CUP=DUMPVALVE 2+3/8"	
all	6	02 02085	UP WASHER=2"OD=PISTON CUP	
all	7	02 02105B	2.38"ACYL BRASS PISTONCUP WSHR	
all	8	60C132	ORING 2"IDX3/16CS BUNA70 #329	
A	9	02 02101	CYLHEAD W/TAPPED HOLE	
B	9	02 02101S	CYLINDER HEAD TAP.HOLE (SS)	
A	10	03 06314	TIEROD=AIR-CYL ACTUATOR-ZINC	
B	10	03 06314S	TIE ROD-AIR-CYL ACTUATOR=S/S	
A	11	15G185	HXNUT 5/16-18UNC2B SAE ZINC GR	
B	11	15G188	HEXLOKNUT 5/16-18 BRASS	
A	12	15U210	LOKWASHER MEDIUM 5/16 ZINCPL	
B	12	15G235G	HXFNJAMNUT 9/16-12UNC2B SS	
A	13	02 02550	BRKT=AIRCYL-RIGHT ZINC/CAD	
B	13	02 02550S	BRKT=AIRCYL RIGHT S/S	
A	14	02 02547	BRKT=AIRCYL-LFT ZINC/CAD	
B	14	02 02547S	BRKT=AIRCYL LEFT S/S	
all	15	15G220	NUTLOK THINHX 3/8-24 SS/NYL	
all	16	02 02185	WASHER=PISTON CUP COMP LIMIT	
all	17	60C106	ORING 5/16ID 1/16CSBUNA70#011	
all	18	03 06313	STEM=AIR CYL 304SS	
all	19	15U185	FLATWASHER(USS STD) 1/4" ZNC P	
all	20	60C110	ORING 1/2IDX3/32CS BUNA70 #112	
all	21	03 01313	STOP=AIR CYL W/2+11/16STROKE	
all	22	20L601B	ID TAG NAT'L#1614 ALUM EMB "B"	
all	23	20L601U	ID TAG NAT'L#1614 ALUM EMB "U"	
all	24	27B250	SPCRROLL.5ID1.5L.062T STLZNC	
all	25	27B240	SPCRROLL.5ID.813L.062T STLZNC	
all	26	15U243	FLTWASHER 7/8ODX33/64IDX16GA Z	
A	27	17B012	EXTRETRING IND#1000-50-ST-ZD Z	
B	27	17B012B	EXTRETRING IND#1000-50 304SS	
A	28	15G235F	HXFNJAMNUT 9/16-12UNC2B ZINC G	
Bl	28	15G235G	HXFNJAMNUT 9/16-12UNC2B SS	
A	29	02 02556	SUPPORT=AIRCYL 12GA ZINC PLT	
B	29	02 02556S	SUPPORT=AIRCYL 12GA S/S	
A	30	27B2750L0T	SPC RROLL.562ID.937L.048T ZNK	
B	30	27B2750LOU	SPCRROLL.562IDX.937LX.048T SS	
A	31	15U311A	FLTWASHER9/16 ASME/B18.22.1TYP	
B	31	15U311C	FLATWASHER .578X.1062X.063	
all	32	15K206	HEXCAPSCR 9/16-12X2.5 ZC GR5	
all	33	5SB0E0CBEO	NPTHEXBUSH 1/4X1/8 BRASS 125#	
all	34	51A001	ADAPTER 1/8 PT BRASS	
all	35	96H018	ANGLE NEEDLE VLV 1/4"T X 1/8MP	

Extractor Auto Load Door

M7E4232C,L,R M9E4232C,L,R M7V4232C,L,R M9V4232C,L,R **MXS4232C,L,R**

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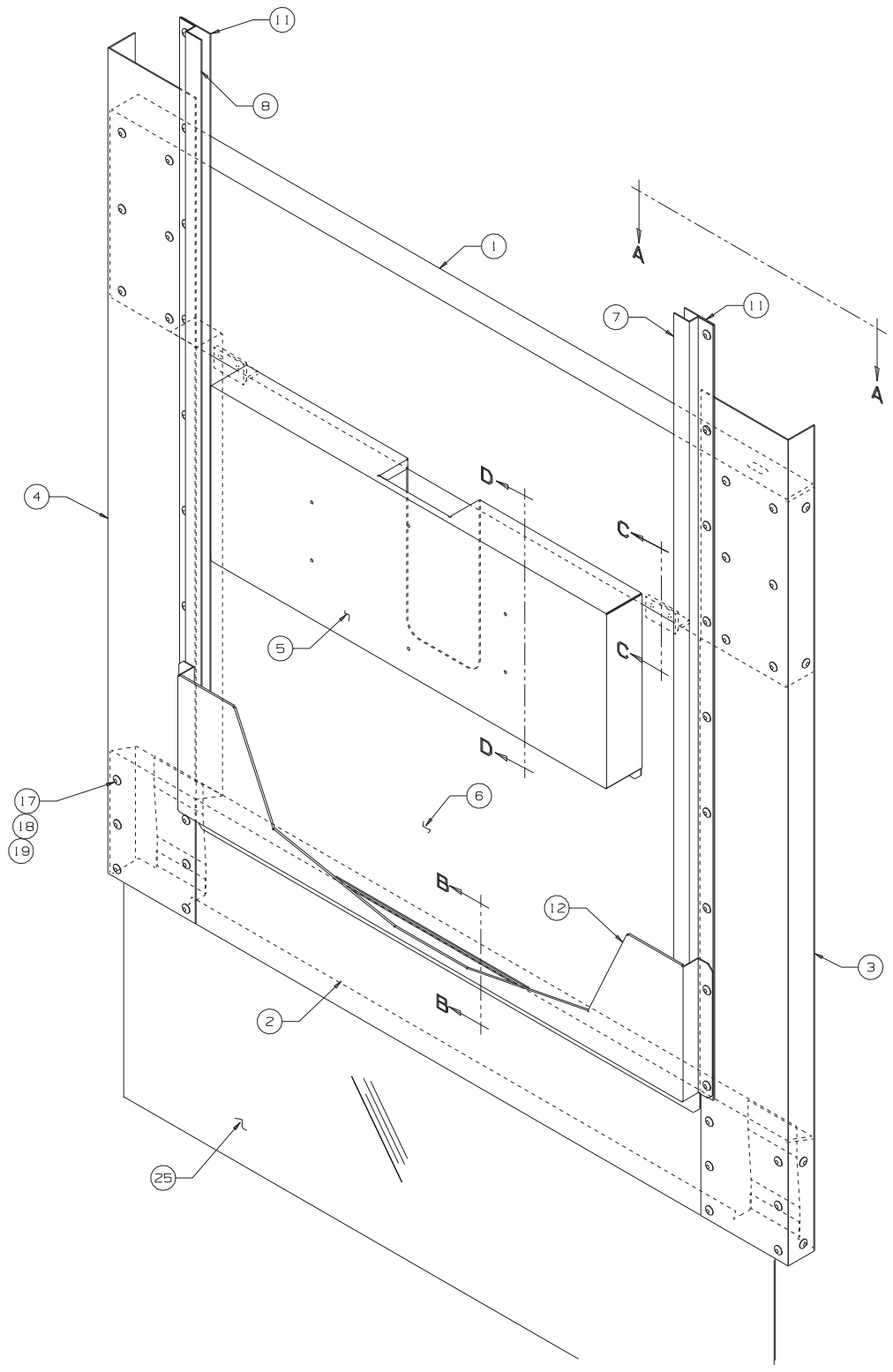
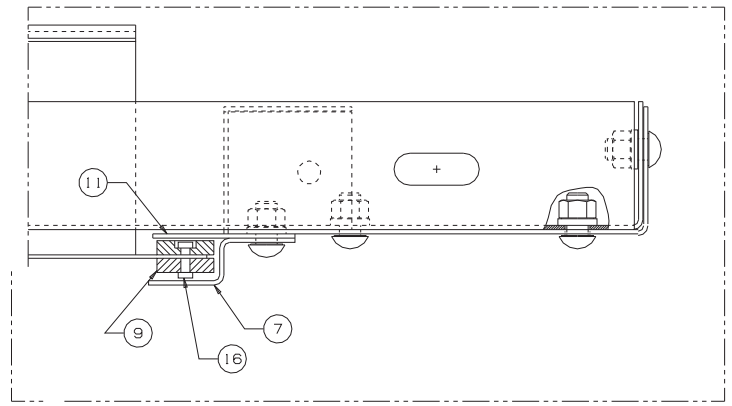
P. O. Box 400, Kenner, LA 70063-0400

Litho in U.S.A.





VIEW A-A
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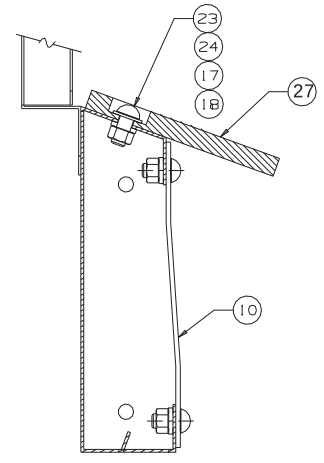

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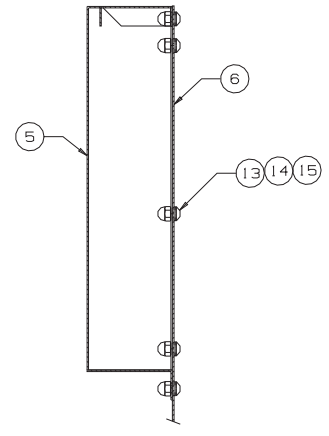

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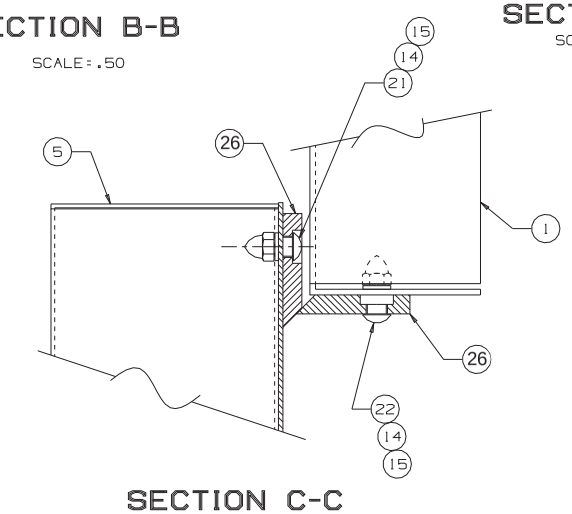

SECTION C-C
SCALE = FULL

Pellerin Milnor Corporation
P. O. Box 400, Kenner, LA 70063-0400
Litho in U.S.A.

Parts List—Auto Load Door

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

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	ASD16000	EXTRACTOR DOOR ASSY 42M7E	
			----------COMPONENTS----------	
all	1	03 16289	EXTR DOOR TOP PLATE 42M7E	
all	2	03 16290	EXTR DOOR BOTT CHNL 42M7E	
all	3	03 16291	EXTR DOOR RT SIDE CHNL 42M7E	
all	4	03 16291A	EXTR DOOR LF SIDE CHNL 42M7E	
all	5	03 16292	EXTR DOOR COVER 42M7E	
all	6	03 16293	EXTR DOOR 42M7E	
all	7	03 16294	EXTR DOOR GUIDE CHNL RT 42M7	
all	8	03 16294A	EXTR DOOR GUIDE CHNL LFT 42M	
all	9	03 16297	EXTR DOOR PLASTIC STRIPS	
all	10	03 16310	DOOR=BOTTOM SILL STFNR 42M7E	
all	11	03 16311	DOOR= GUIDE CHNL REAR 42M7E	
all	12	03 16316	DOOR=FRONT SCUPPER	
all	13	15K032	BUTSOKCAPSCR 1/4-20X3/8 SS18-8	
all	14	15G140S	HEXCAPNUT(ACORN) 1/4-20 SS 18-	
all	15	15U181	LOCKWASHER MEDIUM 1/4 SS18-8	
all	16	15J051	POPRIVET 1/8DIAX.265 LONG S/S	
all	17	15U260	LOCKWASHER MEDIUM 3/8 SS18-8	
all	18	15G206	HEXNUT 3/8-16 UNC2 SS 18-8	
all	19	15K083V	BUTSOKCAPSCR 3/8-16X3/4 SS18-8	
all	20	15K086	HXCAPSCR 3/8-16NCX3/4 SS18-8	
all	21	15K031	BUTSOKCAPSCR 1/4-20X1/2 SS18-8	
all	22	15K180S	HXCAPSCR 1/2-13UNCAX2 18-8SS	
all	23	15K091F	BUTSOKCAPSCR 3/8-16X1 BRASS E=	
all	24	15U245	FLTWASH 3/8 STD COMM 18-8 SS	
all	25	03 16287A	PLASTIC FRNT GUARD 24X55.25	
all	26	03 16338	DOOR = UHMW WEDGE	
all	27	03 16290A	DOOR TRANSFER UHMW	
all	28	27C215	AIR CYL 1.5"BORE X 34" STROKE	
all	29	15G239	HXNUT 3/4-16UNF2B SAE ZINC GR2	
all	30	15G214	HXJAMNUT 3/8-16UNC2B SAE ZINC	
all	31	15U238	LOKWAS INTOOTH 3/8" (US STD) 4	
All	32	96N0013HU	SHUTLVLV 1/4” 4WAY CENTER-OFF	

2

Hydraulic Devices 2.4

Hydraulic Schematic

M**XS**4232**,** M**9**V4232, M**9**V4840, M**7**V4836

Pellerin Milnor Corporation
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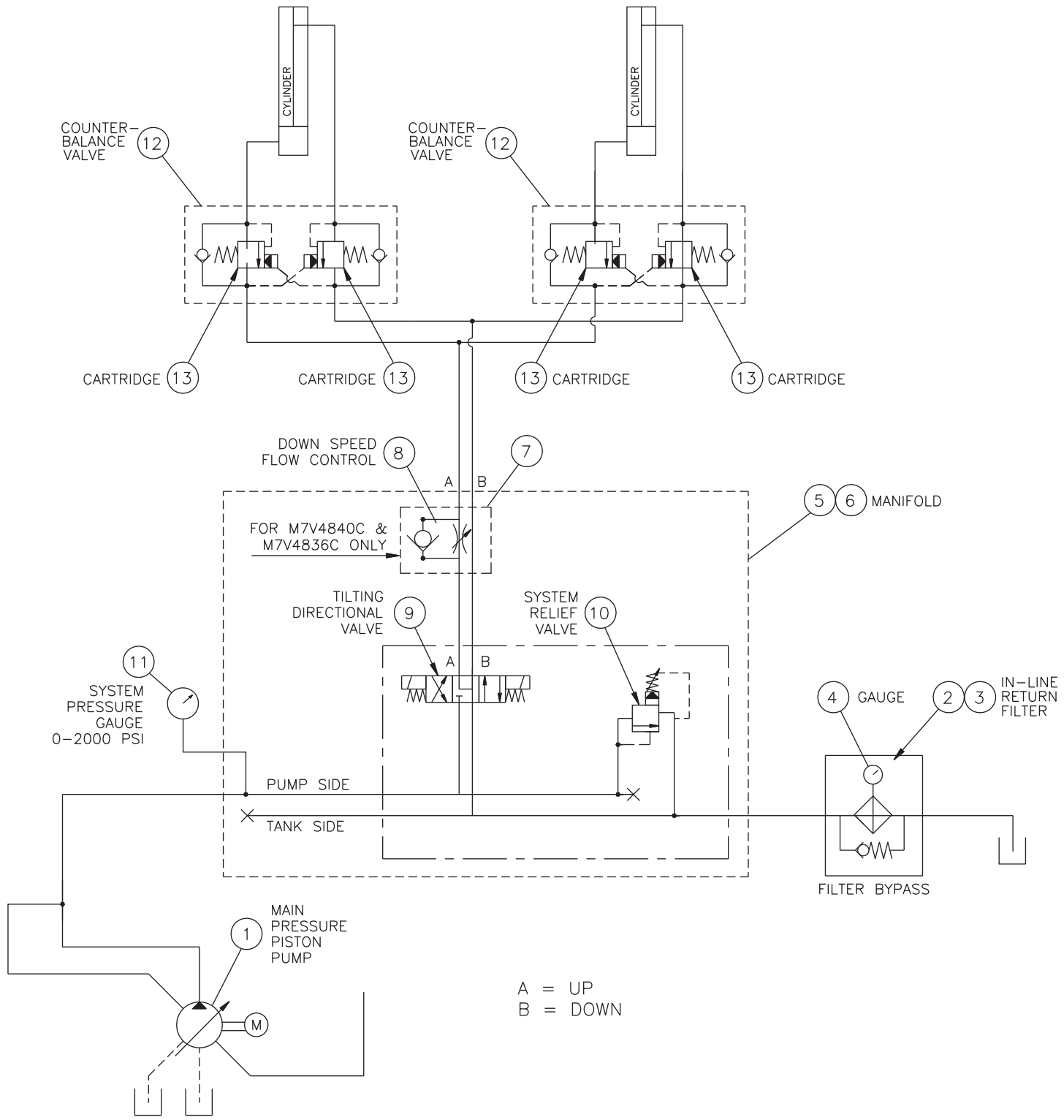
Litho in U.S.A.



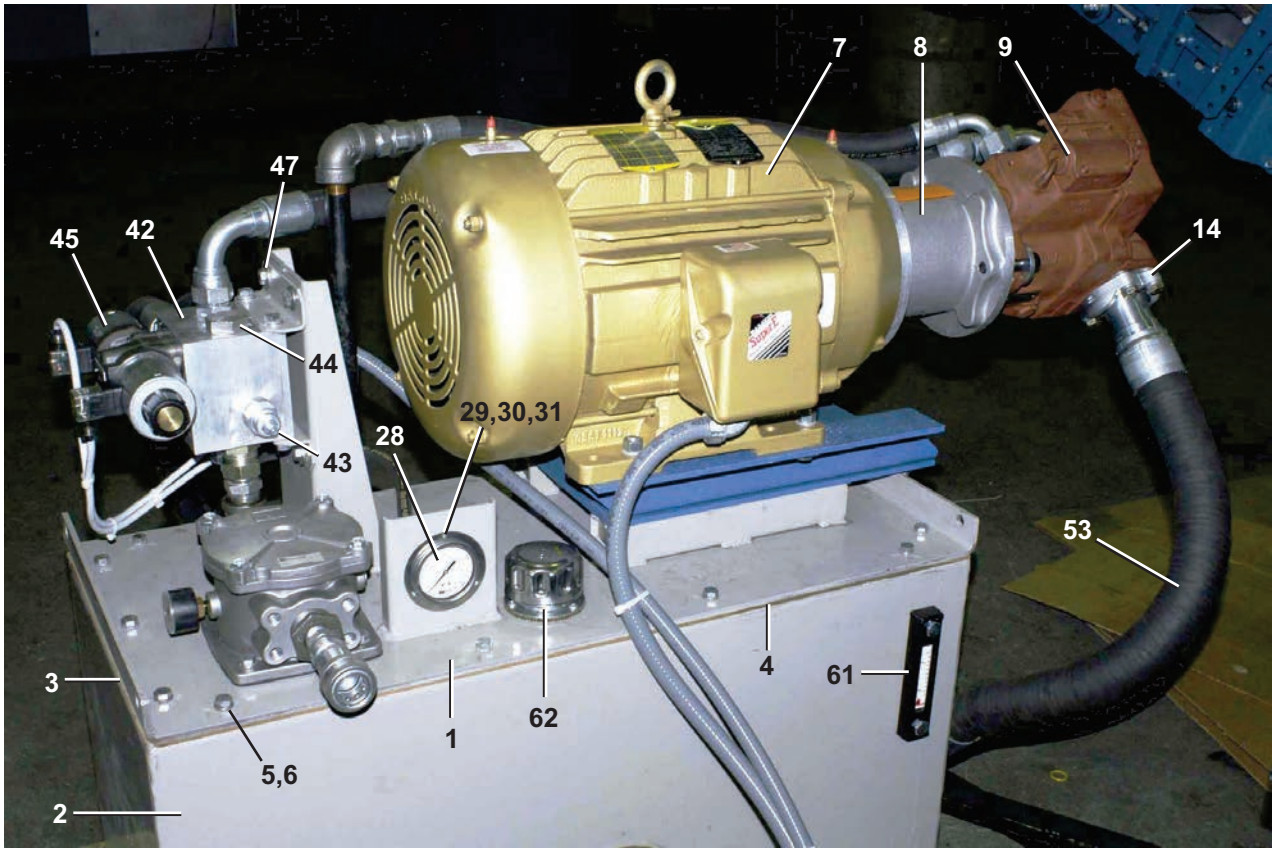
Parts List—Hydraulic Schematic

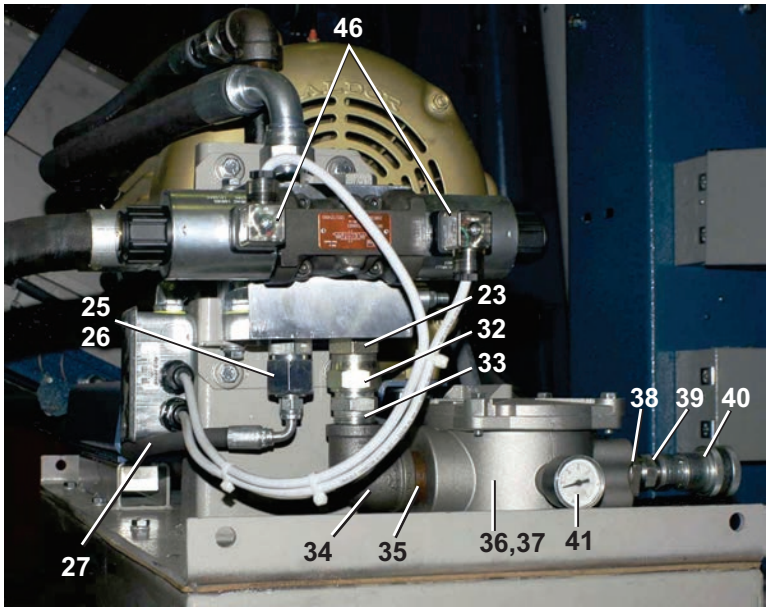
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

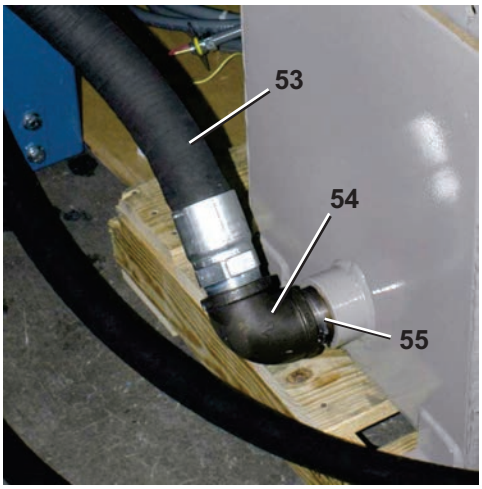
Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	AHT16004A	MXV=HYDR POWER UNIT UNIVOLT	MXS4232, M9V4232
	B	AHT17000A	4840M7=HYDR POWER UNIT UNIVOLT	M9V4840, M7V4836
			----------COMPONENTS----------	
A	1	27E550566	PISTON PUMP-KAWASAKI(50BAR) K3VL 80/B	
B	1	27E550466	PISTON PUMP-KAWASAKI=35-BAR	
all	2	27E7106	IN-LINE RETURN FILTER	
all	3	27E7106A	FILTER ELEMENT-REPLACEMENT	
all	4	27E7103A	GAUGE=WIKA 1/8NPT(ON 27E7103)	
all	5	27E5506E	DAMAN MANIFOLD #AD05HP013S/S	
B	6	96DH490D	RETAINER/SEAL,SUN#990120009	
B	7	96DH490B	BODY, SUN #DJD	
B	8	96DH490C	CARTRIDGE, SUN #NCFB-LCN	
all	9	96RH711E37	DIRECTIONAL CONT. VLV.D05-NG10	
all	10	27E5506F	SUN HYD. CARTRIDGE #RDFA-LAN	
all	11	30N125G	GAUGE 0-2000PSI\BAR 1\4 BACK	
all	12	96DH472	C0UNTERBALANCE VALVE-SUN BODY	
All	13	96DH472A	CARTRIDGE, COUNTERBALANCE VLV.	

Hydraulic Tank

M9V4232C,L,R MXS4232C,L,R

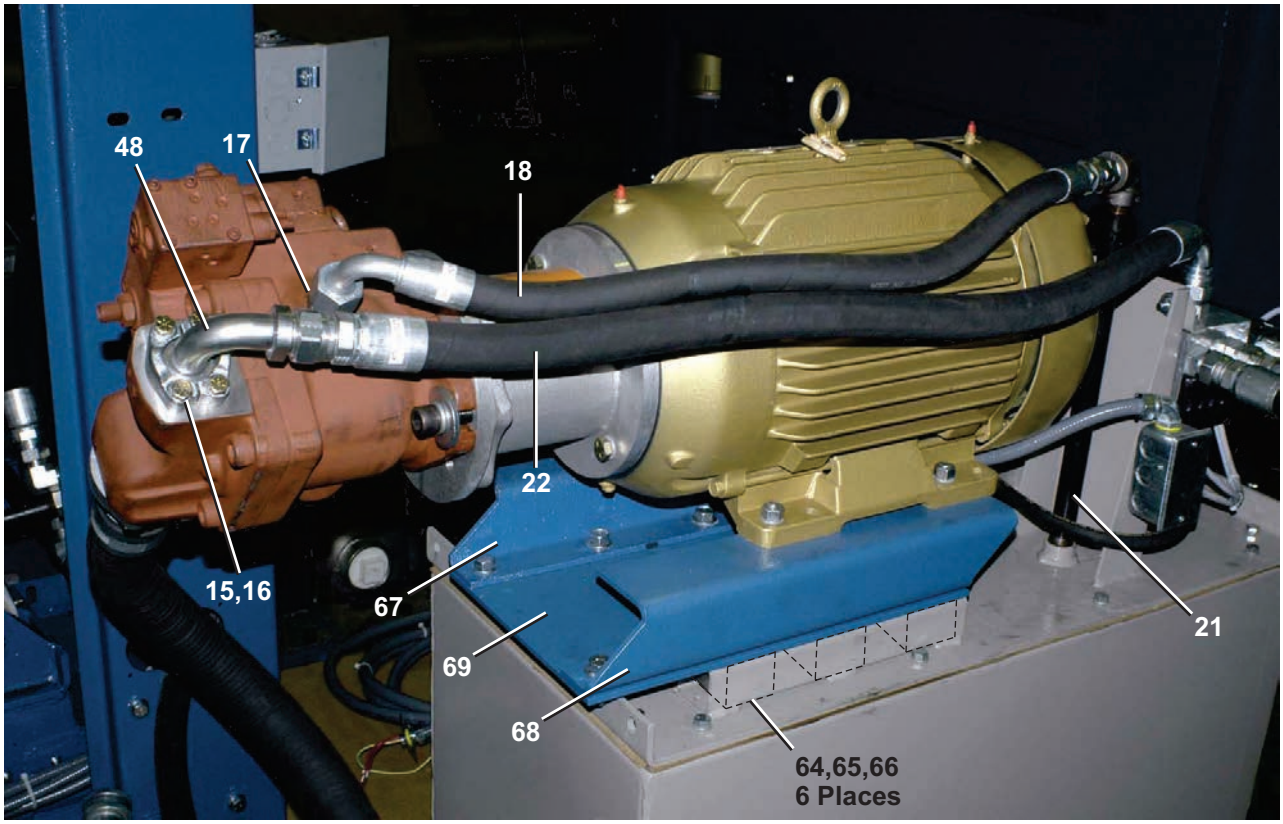


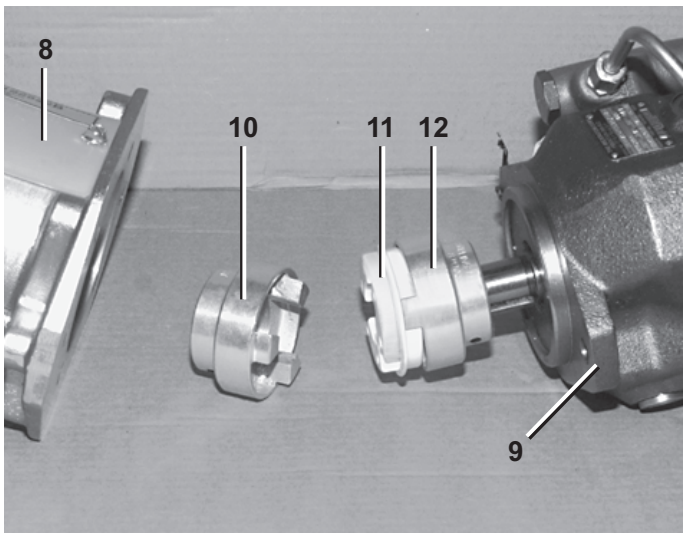


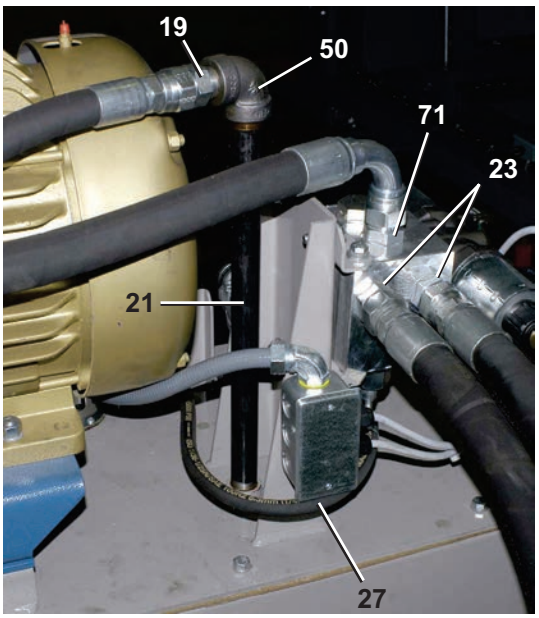


Hydraulic Tank

M9V4232C,L,R MXS4232C,L,R

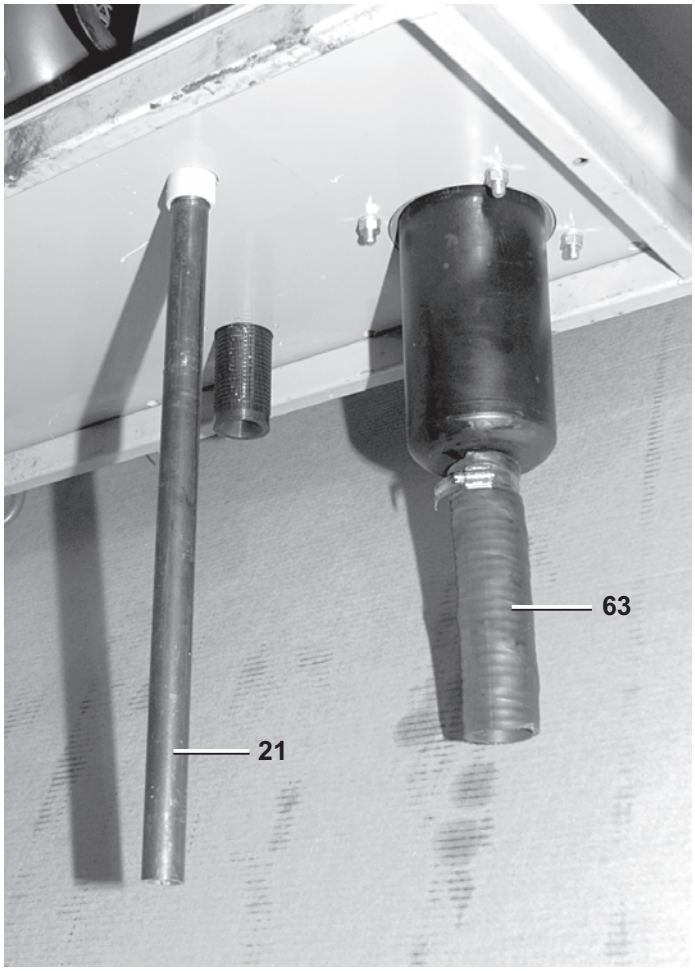


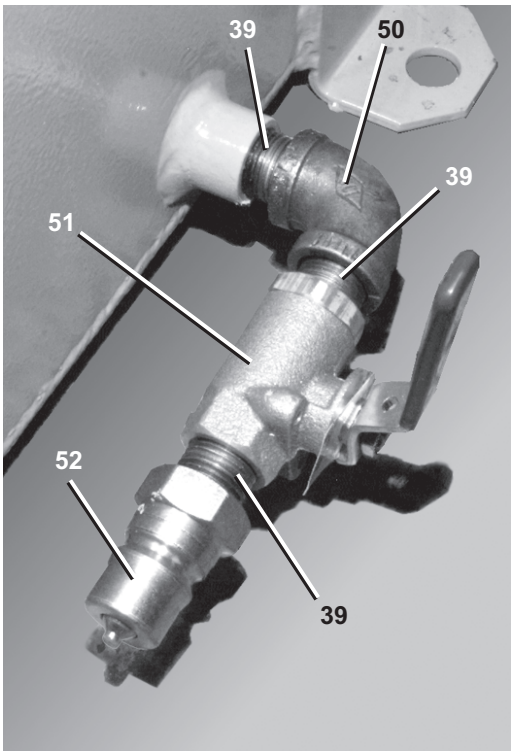


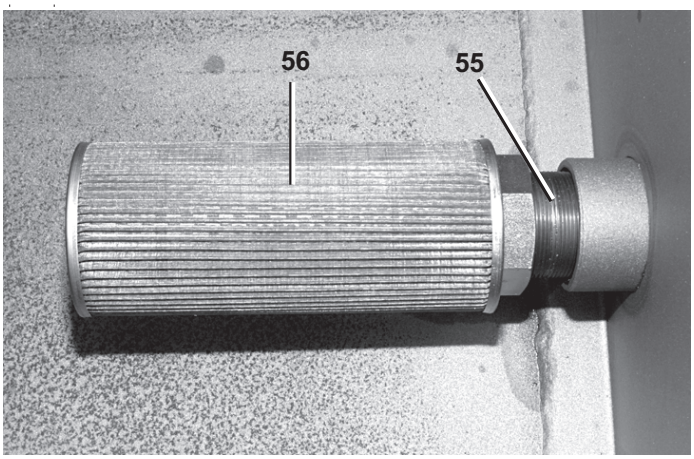


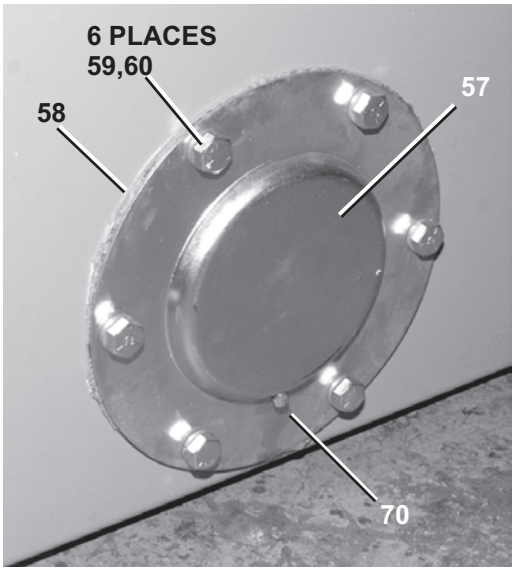
Hydraulic Tank

M9V4232C,L,R MXS4232C,L,R









Hydraulic Tank

M9V4232C,L,R MXS4232C,L,R

Parts List—Hydraulic Tank

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

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	AHT16004A	MXV=HYDR POWER UNIT UNIVOLT	
			----------COMPONENTS----------	
all	1	W7 10225	WLMT=OIL RESEVOIR TOP	
all	2	W3 16523A	WLMT=HYDR TANK	
all	3	03 16532	HYDR TANK SM TOP GASKET	
all	4	03 16531	HYDR TANK LG TOP GASKET	
all	5	15K095	HXCPSCR 3/8-16UNC2AX1 GR5 ZINC	
all	6	15K255	HEXCAPSCR 3/4-10X6 GR8/2C	
all	7	39T150ACU	15HP 4P TEFC UNIVOLT	
all	8	27E5510C	PUMP-TO-MOTOR MOUNT 6.00"LG.	
all	9	27E550566	PISTON PUMP-KAWASAKI(50BAR) K3VL 80/B	
all	10	27E5510	COUP.ASSY.=1+5/8"BOREX3/8KW	
all	11	27E5510B	HYTREL INSERT-MAGNA#M370H5	
all	12	27E5510A	COUP.ASSY.=1+1/4"BOREX5/16KW	
all	14	27E5505C	SPLIT FLANGE-2"	
all	15	27E5504BA	O-RING FOR (27E5504B)	
all	16	27E5504B	PRESS.SPLITFLANGE FOR VAR.PUMP	
all	17	52ZCF50L0S	TUBEFITSTR3/4X1/2"#12-8F50LOS	
all	18	60EH50C28A	ASSY=HYD HOSE 3/4"X28"LG	
all	19	52ZC0PS001	TUBEFITSTR3/4"#12-FLO-S	
all	21	5N0P16AF42	NPT NIP 3/4X16 TBE BLKSTL SK40	
all	22	60EH80C36K	ASSY=HYDRAULIC HOSE 1"X36"LG	
all	23	52XY0KR050	STRDPT 3/4MX1"MJ#6400-16-12-0	
all	24	07 10241	PRESSURE MANIFOLD MTG ANGLE	
all	25	52ZC00S003	TUBEFIT STRTHDCN3/4"#12F5OLO-S	
all	26	52ZL00S006	TUBEFITENDRED3/4TX1/4T FACESL	
all	27	60EH21C18A	ASSY=HYDRALIC HOSE 1/4X18 LG	
all	28	30N125G	GAUGE 0-2000PSI\BAR 1\4 BACK	
all	29	15U102	LOCKWASHER MEDIUM #6 SS18-8	
all	30	15G075	HEX MACH SCREW NUT 6-32UNC2 S	
all	31	15N050	RDMACSCR 6-32UNC2X1/2 SS18-8	
all	32	52XY1AP012	STRADAPT1"MORXFJS#6402-16-16-0	
all	33	52XY1AP010	STRADPT 1"MXMJIC #2404-16-16	
all	34	5SL1EMFA1A	NPT ELBOW 90DEG 1.25X1" BLKMAL	
all	35	5N1ECLSF42	NPT NIP 1.25XCLS TBE BLKSTLS40	

Hydraulic Tank

M9V4232C,L,R MXS4232C,L,R

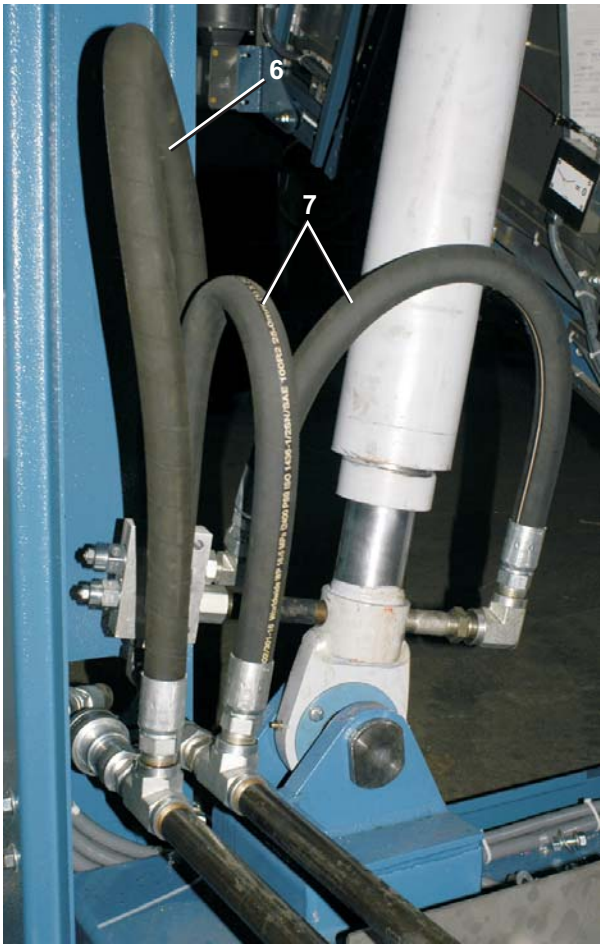
Parts List—Hydraulic Tank

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

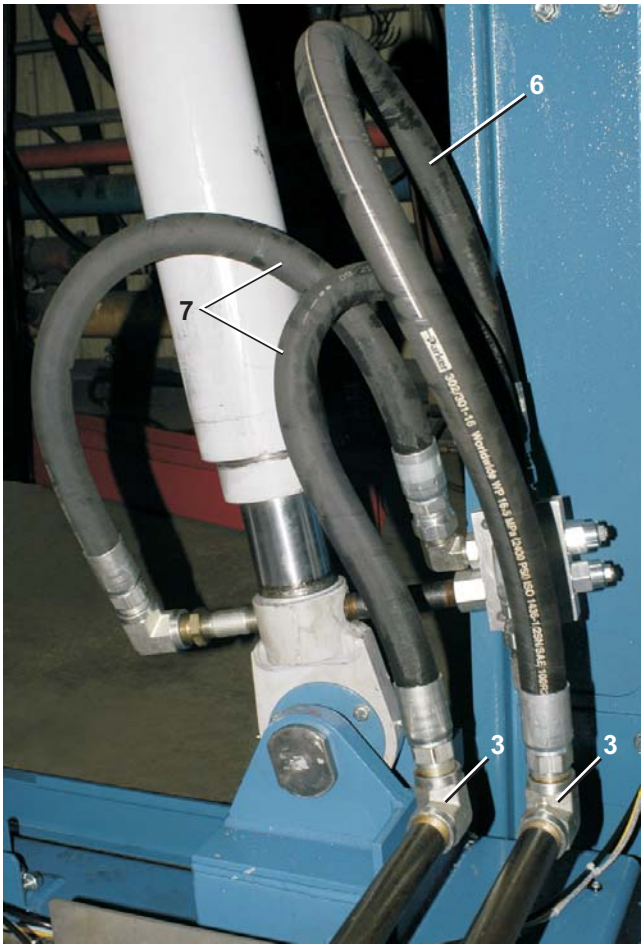
Used In	Item	Part Number	Description	Comments
all	36	27E7106A	FILTER ELEMENT-REPLACEMENT	
all	37	27E7106	IN-LINE RETURN FILTER	
all	38	5SB1E0KMFO	NPTHEXBUSH 1.25X1/2BLKMAL 150#	
all	39	5N0KCLSF42	NPT NIP 1/2XCLS TBE BLKSTL S40	
all	40	52XY0KP00X	1/2"QUICK DISCONN.FEM#H4-62	
all	41	27E7103A	GAUGE=WIKA 1/8NPT(ON 27E7103)	
all	42	27E5506E	DAMAN MANIFOLD #AD05HP013S/S	
all	43	27E5506F	SUN HYD. CARTRIDGE #RDFA-LAN	
all	44	52PY1AR001	HEX PLUG 1"OR #6408-16-0	
all	45	96RH711E37	DIRECTIONAL CONT. VLV.D05-NG10	
all	46	12M3240V3F	SOLE.CONN.100-240VAC 3FT	
all	47	15G198	HXFLGNUT 3/8-16 ZINC	
all	48	52JY1AR013	EL90COD61 1"MJXFLG.#1704-16-16	
all	50	5SL0KNFA	NPTELB 90DEG 1/2 GALMAL 150#	
all	51	96D034	BALLVALVE 1/2" WATTS #6400-SS	
all	52	52XY0KP00Y	1/2"QUICK DISCONN.MALE #H4-63	
all	53	60EH95C30A	ASSY=HYDRAULIC HOSE 2"X30LG	
all	54	5SL2AMFA1K	NPT ELB 90DEG 2X1.5 BLKMAL150#	
all	55	5N2ACLSB42	NPT NIP 2XCLS TBE BLKSTL Sk40	
all	56	27E7108	SUCTION STRAINER 2" PORT	
all	57	02 18618	COVER=BEARHOUSE	
all	58	02 18105A	HYD TANK COVER GASKET	
all	59	15U300	LOKWASHER REGULAR 1/2 ZINC PLT	
all	60	15K145	HXCAPSCR 1/2-13UNC2AX3/4 GR5 P	
all	61	27E7301	SIGHTGAUGE-FLUID:STAUFF#SNA-2T	
all	62	27E7201	FILLER-BREATH-FILT.LHA#ABB-40N	
all	63	5N1K07AF42	NPT NIP 1.5X7 TBE BLKSTL SK40	
all	64	02 19283	NUT=1/2-13UNCX1+1/2SQ SPEC	
all	65	15K171B	HEXCAPSCR 1/2-13X1+3/4 GR8 ZIN	
all	67	07 10275	MOTOR MTN BRKT-RT 47BAR	
all	68	07 10275A	MOTOR MTN BRKT-LF 47BAR	
all	69	07 10276	MOTOR MOUNT PLATE-47BAR	
all	70	5SP0CGFSS	NPT PLUG 1/8 SQ SOLID GALSTL	
all	71	52ZC1AS006	TUBEFITSTR1X3/4#16-12 F5OLO-S	

Hydraulic Hoses & Piping

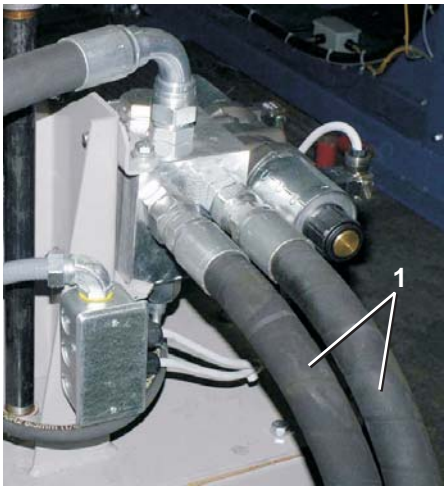
M9V4232C,L,R M9S4232C,L,R MXS4232C,L,R



Right Cylinder



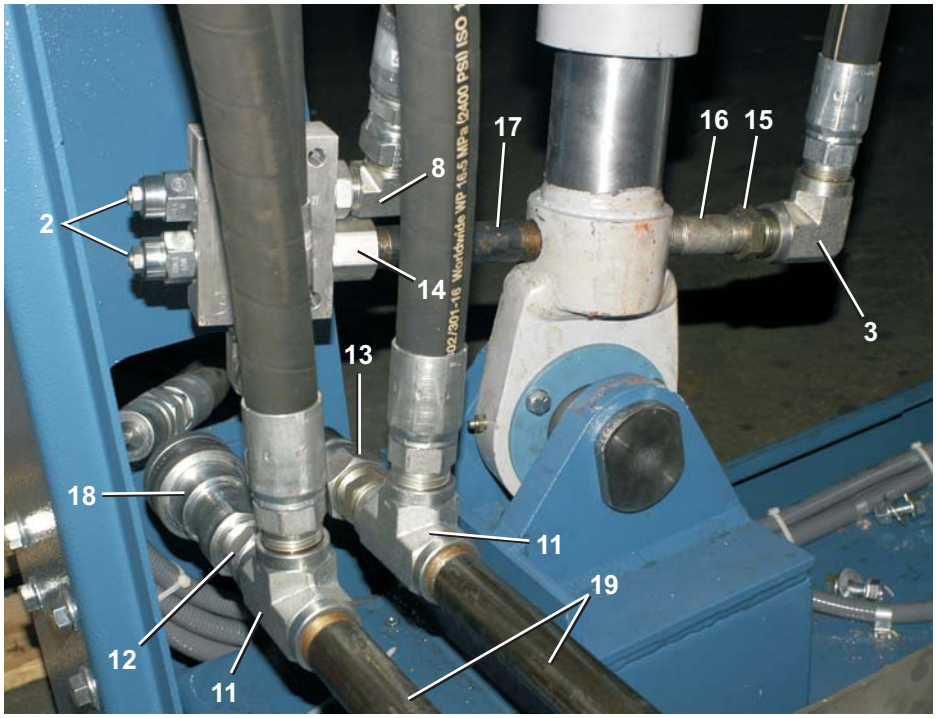
Left Cylinder



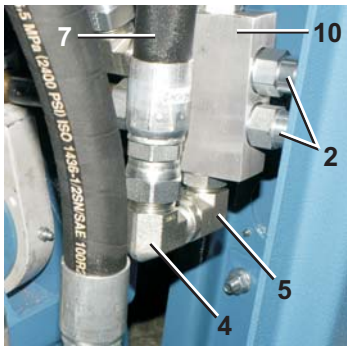
Manifold

Hydraulic Hoses & Piping

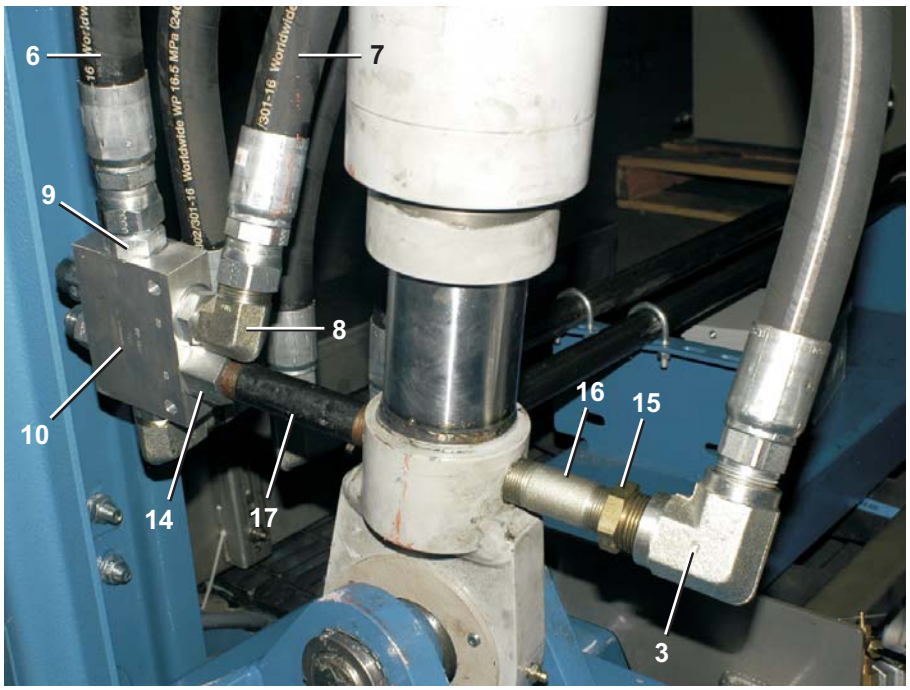
M9V4232C,L,R M9S4232C,L,R MXS4232C,L,R



Right Cylinder



Typical (2 places)



Left Cylinder

Hydraulic Hoses & Piping

M9V4232C,L,R M9S4232C,L,R MXS4232C,L,R

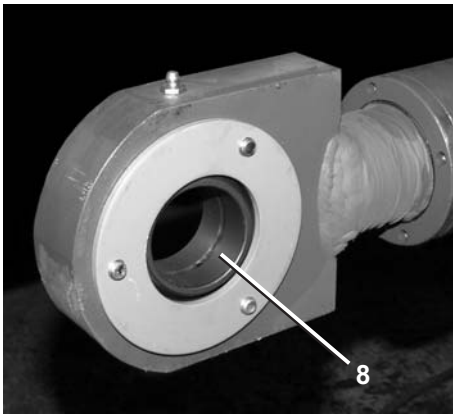
Parts List—Hydraulic Hoses & Piping

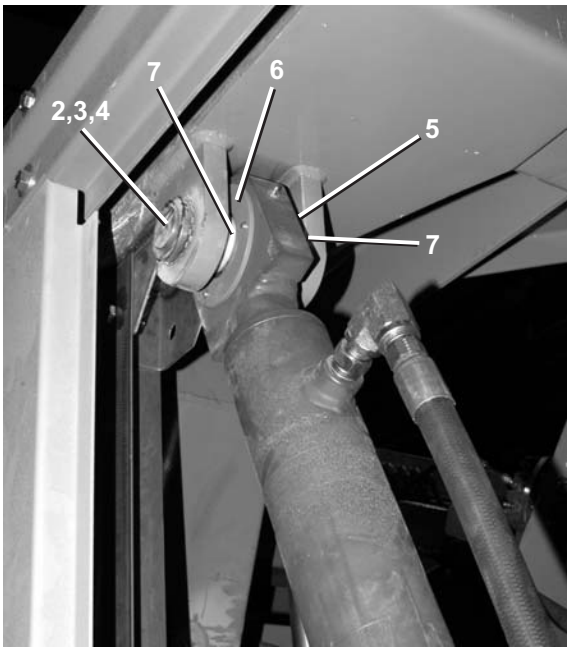
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	AHT16000	HYDRAULIC HOSES&PIPING ASSY.	
			----------COMPONENTS----------	
all	1	60EH80C96A	ASSY=HYDRAULIC HOSE 1"X96"LG	
all	2	96DH472A	CARTRIDGE, COUNTERBALANCE VLV.	
all	3	52JY1AR006	ELBOW 90DEG 1" FEM #5504-16	
all	4	52JY0PR010	ELB 3/4M X1"MJIC #2501-16-12	
all	5	52JY0PR008	ELB.3/4MORXF #6805-12-12NWO	
all	6	60EH80C44A	ASSY=HYDRAULIC HOSE 1"X44"LG	
all	7	60EH80C34A	ASSY=HYDRAULIC HOSE 1"X34"LG	
all	8	52JY0PR011	ELB-3/4MORX1MJIC#6801-16-12NW0	
all	9	52XY0KR050	STRDPT 3/4MX1"MJ#6400-16-12-0	
all	10	96DH472	C0UNTERBALANCE VALVE-SUN BODY #YAL	
all	11	52VY1AR006	TEE 1"FP #5605-16-16-16	
all	12	52LY1AR003	HEXPIPNIP 1"=#5404-16-16	
all	13	52XY1AP001	1"QUICKDISCONNECT#H8-62COUPLER	
all	14	52XY0KR045	STRDPT 3/4M0RXF #6405-12-12-0	
all	15	52AY01R005	HEXPTPEBUSH 1"MX3/4F5406-16-12	
all	16	52LY0PR003	HEXPIPNIP 3/4X3"HEXBODY	
all	17	5N0P06AF82	NPT NIP 3/4X6 TBE BLKSTL SK80	
all	18	52XY1AP002	1"QUICKDISCONNECT #H8-63NIPPLE	
all	19	5N1A52AF82	NPT NIP 1X52 TBE BLKSTL SK80	

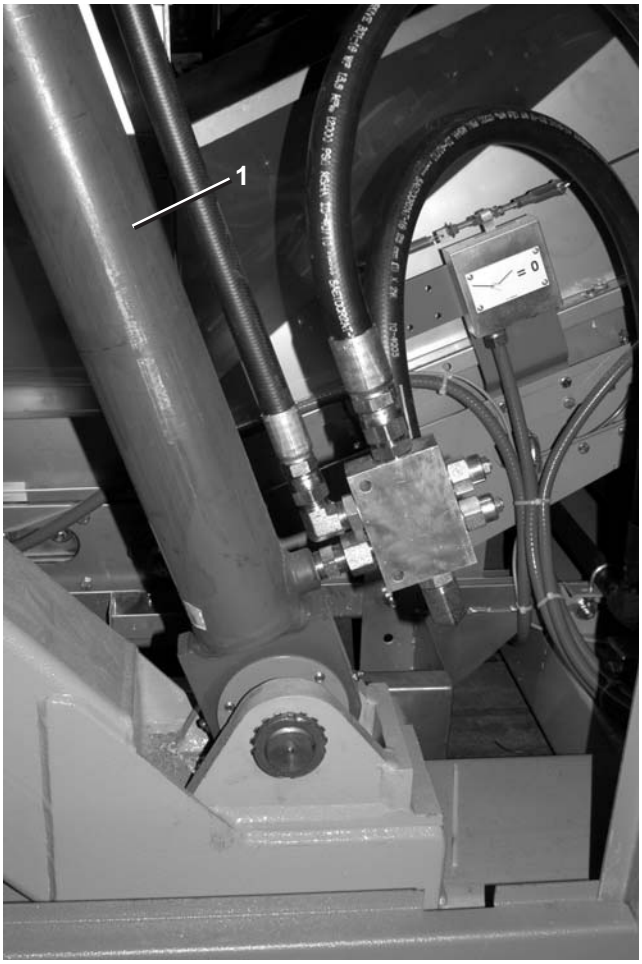
Hydraulic Tilt Cylinders

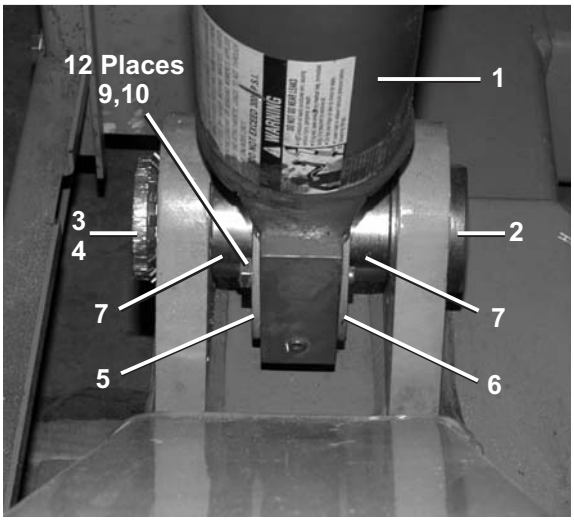
M9V4232, MXS4232, M7V4836, M9V4840





Typical Hydraulic Tilt Cylinder





Hydraulic Tilt Cylinders

M9V4232, MXS4232, M7V4836, M9V4840

Parts List—Hydraulic Tilt Cylinders

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

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	GHT17010	ASSY=4840M HYDRAULICS	M7V4836_, M7V4840_, M9S4840_
	B	GHT16000	HYD.MOTOR&PUMP ASSY 4232 M7E	M9V4232_, MXS4232_
			----------COMPONENTS----------	
A	1	27E163A56A	HYD.CYL.3.25"X2.5"X56"STK.	
B	1	27E1647A64	HYD.CYL.2-STAGE 64"STROKE	
all	2	X3 65141	BOLT=2.00 SFTDIA X 5.25L HYD	
all	3	56AHN09	N09 BEARING LOCKNUT	
all	4	56AHW09	W09 BEARING LOCKWASHER	
all	5	03 65142	WASH=HYD4.75ODX2.62IDW/HOLES	
all	6	X3 65142A	WASH=HYD4.75ODX2.62IDW/TAP	
all	7	X3 65145	SPCR=HYDCYL MNT2"BALBUSH SM	
all	8	54A705A	SPHERICAL PLAIN BEARING=2"ROLLBRG#B32-L	
all	9	15K120	HXCAPSCR 3/8-16UNC2AX2 GR5 ZIN	
all	10	15U255	LOCKWASHER MEDIUM 3/8 ZINCPL	

Assuring Proper Counterbalance Valve Operation-Hydraulic Tilting Washer-Extractors and Centrifugal Extractors

Various conditions, such as a non-functioning or misadjusted limit switch, a seized pivot ball bushing or, a counterbalance valve failure, can cause erratic or uneven up/down movement of the hydraulic tilt cylinders. This document addresses normal counterbalance valve operation and adjustment.

In most cases, it is not possible to perform counterbalance valve adjustments without entering the housing and/or reaching under the raised cylinder.

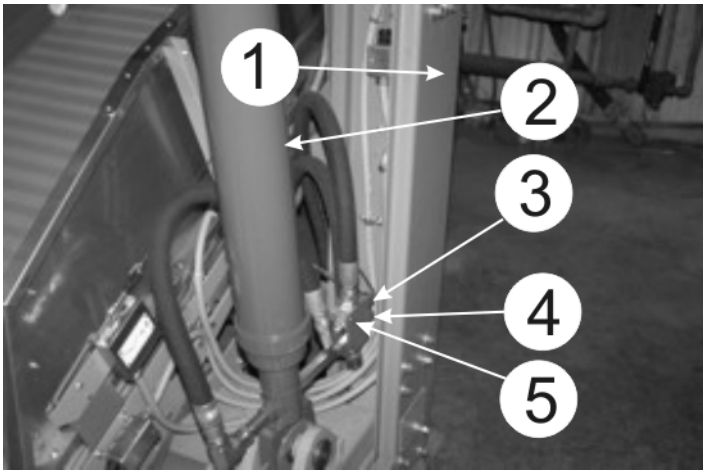
WARNING 1: Entangle and Crush Hazard—The machine shell will crush your body or limbs if it descends or falls while you are under it. The housing can descend with power off or on. Manual operation of tilting valves overrides safety interlocks. Improper operation of manual tilting valves may cause the shell to descend.

- Never operate the manual tilting with anyone under the machine.
- Use the safety stands as appropriate. If used, follow instructions in the manual.
- Read the SAFETY ALERT on use of the *access panel interlock safety bypass* switch in the service manual before setting the maintenance key switch to "Maintenance Only "
- After adjustments, return the key switch to "Safe Operation" and remove the key to a secure area before resuming normal operation.

1. Observing Tilt Cylinder Operation

Figure 1: Right Cylinder and associated Counterbalance Valves

Components of Hydraulic Manifold



Legend

1. Right rear corner of machine
2. Tilt cylinder
3. Upper counterbalance screw-in cartridge valve (controls the ascending speed of a tilt cylinder)
4. Lower counterbalance screw-in valve cartridge (controls the descending speed of a tilt cylinder)
5. Counterbalance valve manifold body

1.1. Setup

1. Remove the left and right door side panels and identify the components shown in Figure 1.
2. Set the *access panel interlock safety bypass key* switch to the "Maintenance Only" position.

1.2. Observations

Use the key pad controls, as explained in the manuals, to manually raise and lower the shell several times as described below, and verify the following proper operation.

1. Carefully move the shell from full down to full up. Verify that the cylinders move in unison and reach the top at approximately the same time.
2. Raise the shell fully and release the controls. Observe the machine for at least 3 minutes to assure that the shell does not drift down.
3. Manually lower the shell completely. Verify that the tilt cylinders move in unison and reach the bottom at approximately the same time.
4. If the cylinders exhibit any erratic movement that can be attributed to the counterbalance valves, perform the service explained below.

2. Tilt Cylinder Hydraulic Components and Functions

The hydraulic schematic provided in the service manual titled "Hydraulic Schematic " shows the counterbalance circuitry.

2.1. Components—Figure 1, item 5 shows one of the two counterbalance manifolds. Each manifold has two screw-in counterbalance valve cartridges (items, 3 and 4). Referring to Figure 2, each counterbalance valve cartridge has the following:

- A base nut (item 5) used to screw the valve into the manifold.
- A lock nut which must be turned slightly using an open-end wrench (item 1).
- An adjustment screw, (item 3) which must be turned with a hex key wrench.

2.2. Functions of Components

Manifold (Milnor P/N 96DH472)—Provides feedback between the two counterbalance valves

Counterbalance valve (Milnor P/N 96DH472A)—Provides the following:

- Permits unrestricted flow into a cylinder, while controlling exhaust flow from the cylinder.
- Protects against cylinder drifting down
- Reduces flow when lowering to limit speed
- Provides speed adjustment so cylinders can be made to travel in unison
- Pilot action locks machine shell from coming down if pressure is lost due to leaks

Tip: For an in-depth explanation of these components, see www.sunhydraulics.com or download Sun´s virtual counterbalance valve simulation (www.e4training.com/hyd03/sitemap.htm).

3. Counterbalance Valve Adjustments

Use this procedure on all four counterbalance valves if you observes any erratic movements listed above.

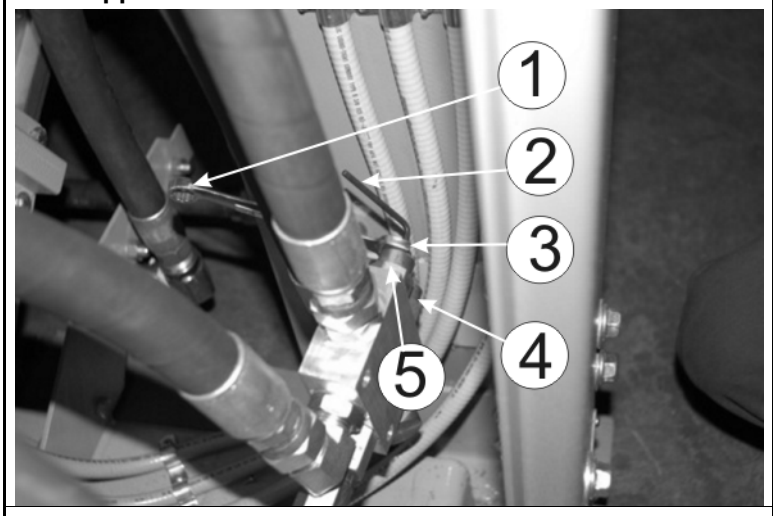
3.1. Coarse Adjustments—Referring to Figure 2,

1. Loosen the lock nut with a 9/16" open end wrench (item 1) .
2. Using a 5/32" hex key wrench (Allen wrench, Unbrako key), screw the adjustment nut (Figure 2, item 2) in fully.

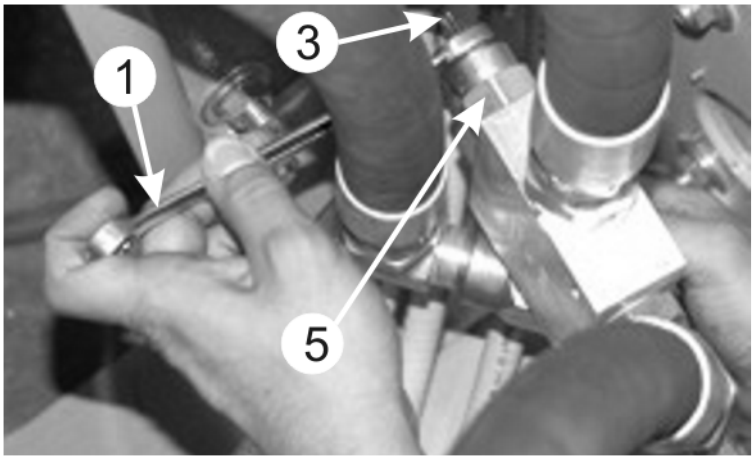
3. Back off the adjustment screws
   a. upper valve -- one full turn (360 degrees)
   b. lower valve -- 3/4 turn (270 degrees)
4. While holding the adjustment nut stationary, tighten the lock nut.

Figure 2: Right Side Hydraulic Manifold

Upper and lower counterbalance valve locations



Adjusting the Upper Counterbalance Valve



Legend

1. 9/16" open end wrench connected to lock nut on upper counterbalance valve
2. 5/32" hex key wrench (Allen wrench, Unbrako key) in adjustment screw
3. Adjustment screw (recessed socket for hex key wrench)
4. Lower counterbalance valve
5. Base nut screwed into hydraulic manifold

3.2. Fine Adjustments—By making small adjustments of about a 1/4 of a turn to either counterbalance valve, you should be able to get the two cylinders to move up and down in unison so that both sides reach end of travel at approximately the same time. Be careful to hold the adjustment screw (Figure 2, item 3) stationary, while tightening the lock nut (Figure 2, item 1). Screw out the adjustment (Figure 2, item 3) to slow downward movement. Screw in the adjustment (Figure 2, item 3) to increase speed.

4. Return Machine to Normal Operation

Remove the tilt safety stands if they were used.

1. Manually tilt the shell down.

2. Replace the door side panels. Return the key switch to "safe operations" and move the key to a secure area.

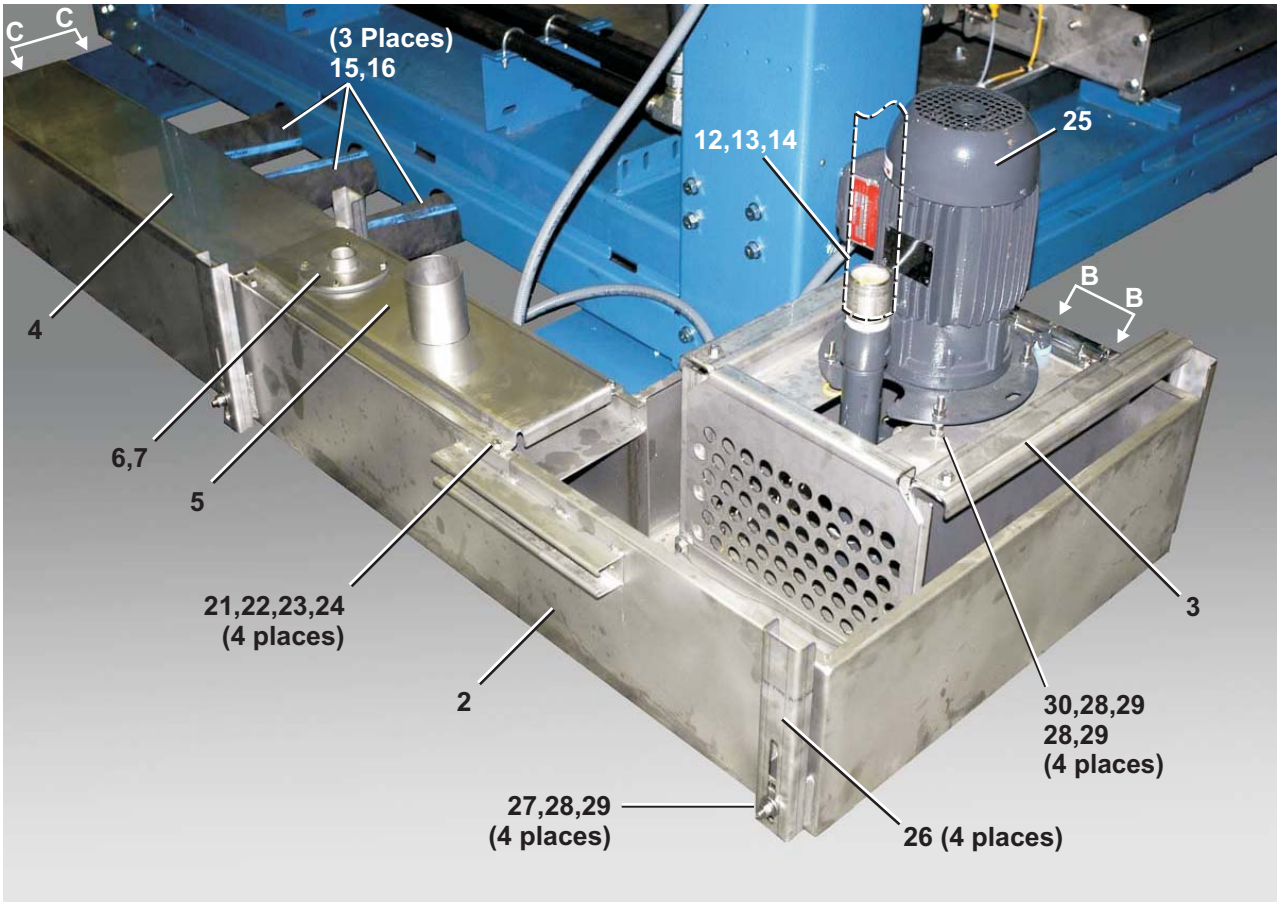
— End of BIPEUM01 —

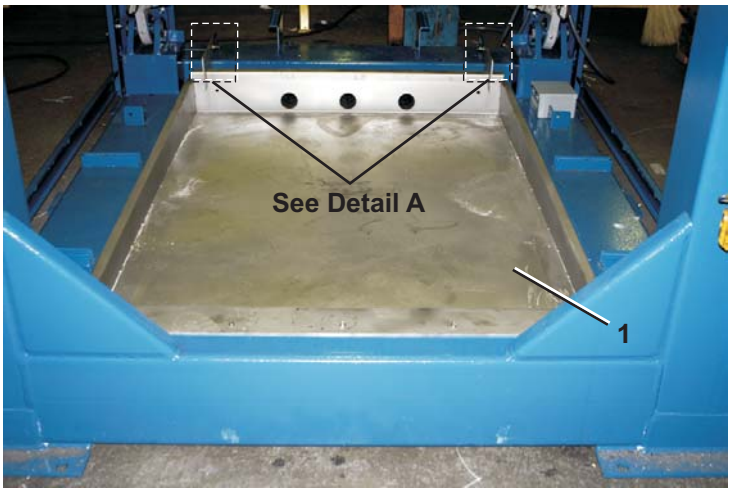
2

Conveyor & Reuse Tank 2.5

Reuse Tank

MXS4232C,L,R

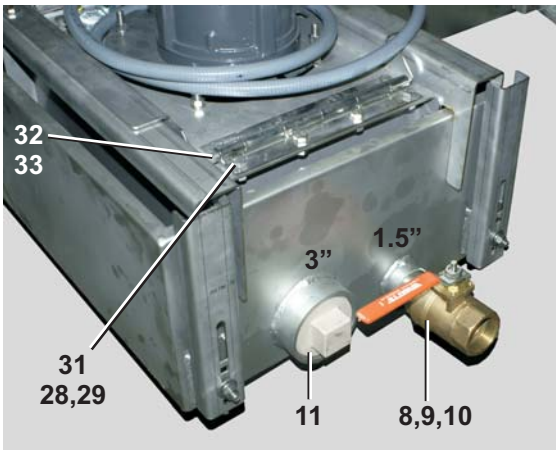




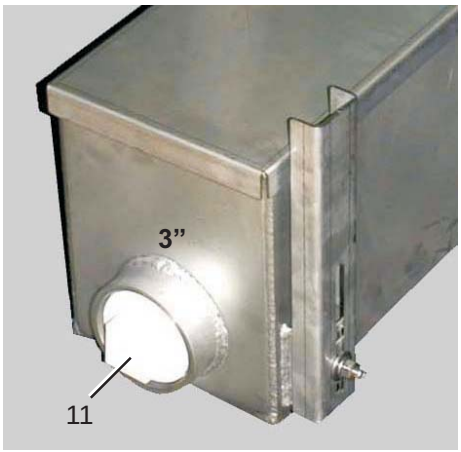
Detail A: Tank Mounting

Reuse Tank

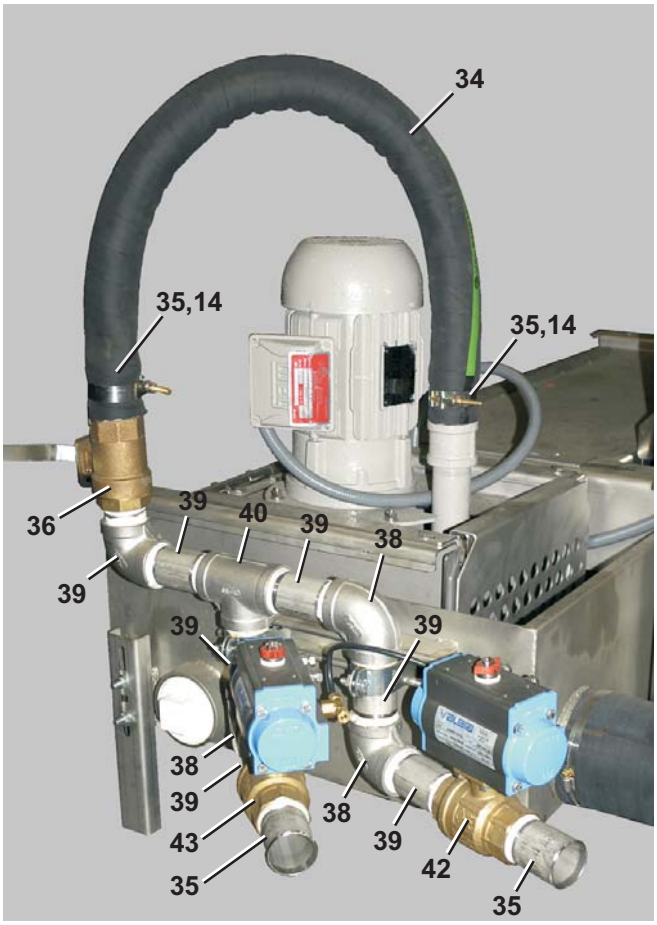
MXS4232C,L,R



View B-B



View C-C



Optional LDI Valves: (MP1656 reuse tank shown)

Reuse Tank

MXS4232C,L,R

Parts List—Reuse Tank

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

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	ARF16010	ASSY=REUSE TANK CTR 4232M9S	
			----------COMPONENTS----------	
all	1	W4 24159	REUSE TANK WLMT-4232M	
all	2	W4 24170	WLMT=REUSE PUMP TANK-4232M	
all	3	ALC420219	REUSE PUMP STAND ASSEMBLY	
all	4	04 24241	EXTRACTOR REUSE TANK CVR-FLOAT/METER	
all	5	W4 24250	WLMT=FLOAT/METER MNT 4232M9	
all	6	W6 70286	WLMT=CONDUCT METER FLANGE	
all	7	06 40069G	N/C DBL ACT DYE DMP VLV GSKT	
all	8	5N1K03AG42	NPT NIP 1.5X3 TBE GALSTL SK40	
all	9	96D087WEXS	BALVAL 1.5BRZ #B6400SSZ1070SP	
all	10	96D087BH	HANDLE KIT SS 1.25+1.5 WATTS 1	
all	11	5SP3AP4SC	NPT PLUG 3" SQ SK40 PVC	
all	12	51LQ1KS03A	NIP=1.5X3TOE 30DEG FLARED SS	
all	13	60E099	HOSE1.5"WIREINSERT#7216-TRANS	
all	14	27A072	T-BOLT HOSECLAMP2.16-2.47CADSC	
all	15	60E303A30A	HOSE=3"ID X 30"LG	
all	16	27A082	HOSECLAMP 2.5625-3.5CADSC#HS48	
all	17	15K153	HXCAPSCR 1/2 -13 X 1 +1/4 SS	
all	18	15U310	LOKWASHER REGULAR 1/2 SS18-8	
all	19	15U310S	FLATWASH-SS .53 X 1.37 .187T	
all	20	15G225	HEXNUT 1/2-13UNC2 SS18-8	
all	21	15K033	BUTSOKCAPSCR 1/4-20X5/8 SS18-8	
all	22	15U181	LOCKWASHER MEDIUM 1/4 SS18-8	
all	23	15U188	FLTWASH 1/4 STD COMM SS18-8	
all	24	15G170	HEXNUT 1/4-20UNC2 SS18-8	
all	25	27E940A96	2X1-6.35PUMP W/3HP TEFC MOTOR	
all	26	04 23474	PRESS REUSE TANK LEG	
all	27	15K096	HEXCAPSCR 3/8-16UNC2X1SS18-8	
all	28	15U260	LOCKWASHER MEDIUM 3/8 SS18-8	
all	29	15G206	HEXNUT 3/8-16 UNC2 SS 18-8	
all	30	15K122A	HEXCAPSCREW 3/8-16X2.25 SS FT	
all	31	15K086	HXCAPSCR 3/8-16NCX3/4 SS18-8	
all	32	W4 23539	WLMT=HINGE PRESS TANK	
all	33	04 23540B	PIN=HINGEPUMP MOUNT	

Reuse Tank

MXS4232C,L,R

Parts List—Reuse Tank

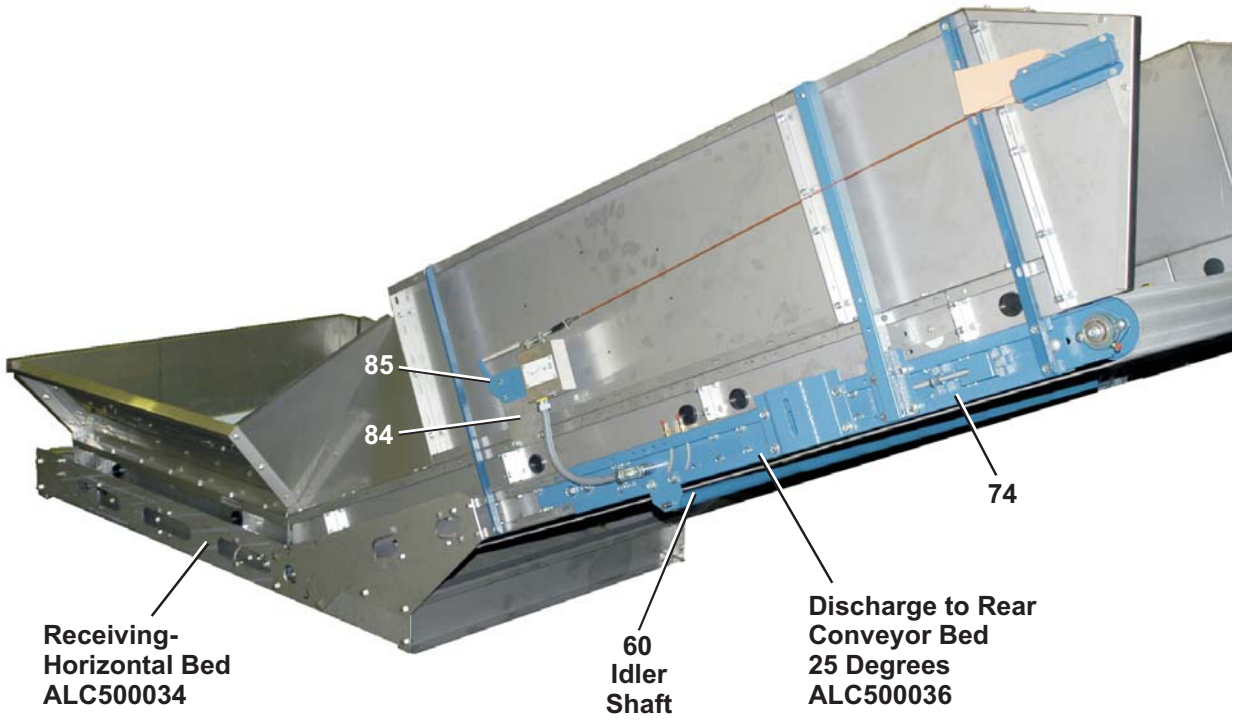
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

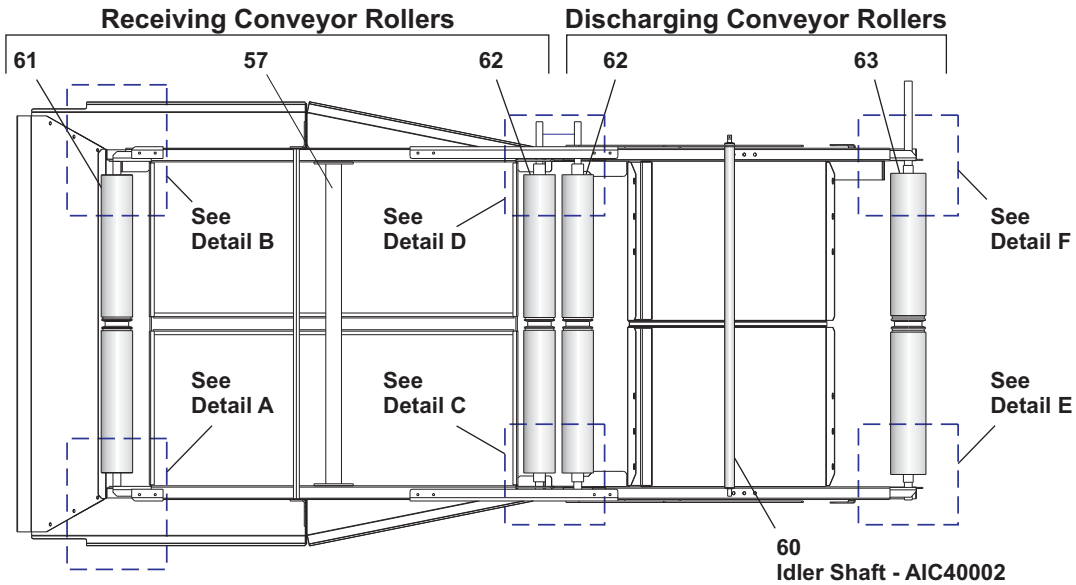
Used In	Item	Part Number	Description	Comments
all	34	60E255	HOSE 2" WATER CORRUGATED(V50)50' LENGTHS	
all	35	5N1K03AS41	NPT NIP 1.5X3 TOE 304SS SK40	
all	36	96D087WEXA	BALVAL 1.50"WATTS W/THROTTLE L	
all	37	5N1ACLSS42	NPT NIP 1XCLS TBE 304SS SK 40	
all	38	5SL1KSFA	NPT ELB 90DEG 1.5 304SS 150#	
all	39	5N1K04AS42	NPT NIP 1.5X4 TBE 304SS SK40	
all	40	5S1KSFA	NPT TEE 1.5" 304SS 150#	
all	41	5N1K03AS42	NPT NIP 1.5X3 TBE 304SS SK40	
all	42	96D087FBA	1.5"BALVAL+ACT BRS N/C BONOMI	
all	43	96D087FBAO	1.5"BALVAL+ACT BRS N/O BONOMI	

Extractor Conveyor - Rear Discharge

MXS4232C

Figure 1: Rear Discharge Conveyor





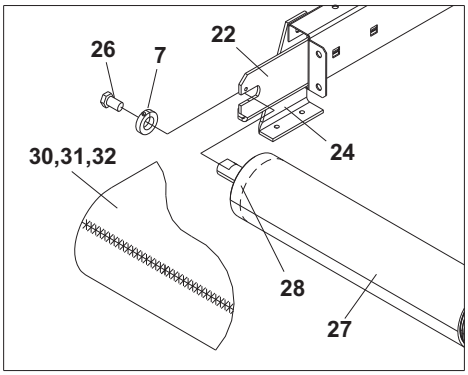
Bottom View: Extractor Conveyor

Extractor Conveyor - Rear Discharge

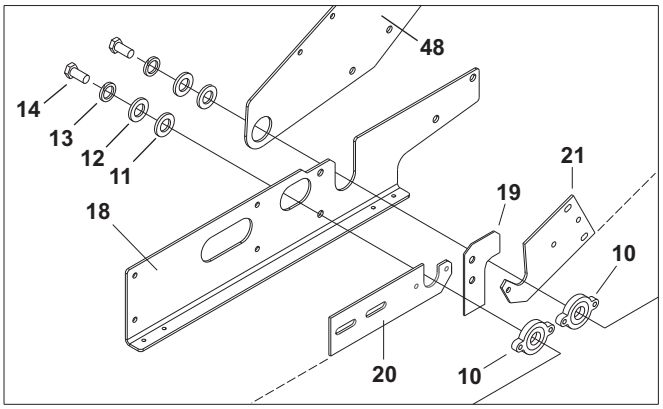
MXS4232C

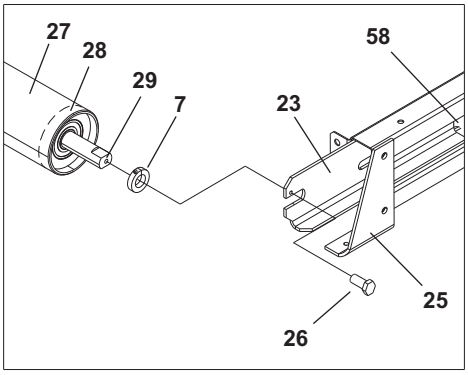
Figure 2: Rollers and Bearings

DETAIL A

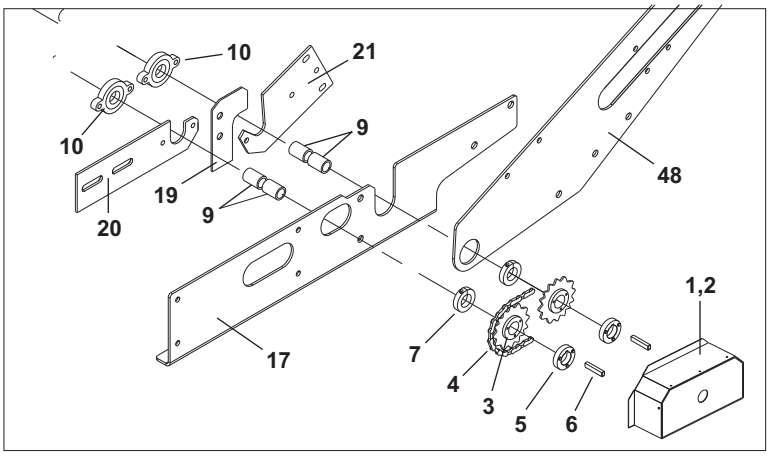


DETAIL C

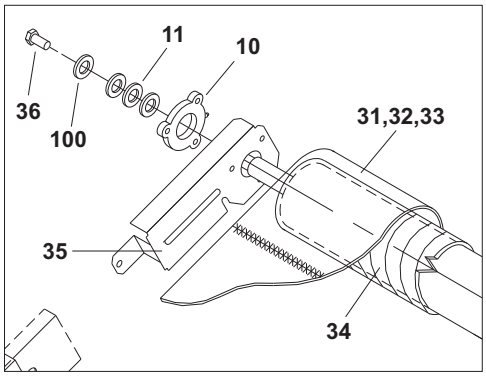




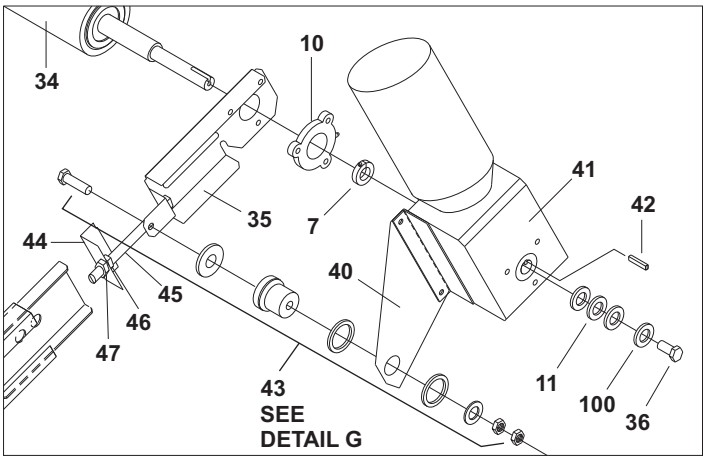
DETAIL B



DETAIL D



DETAIL E

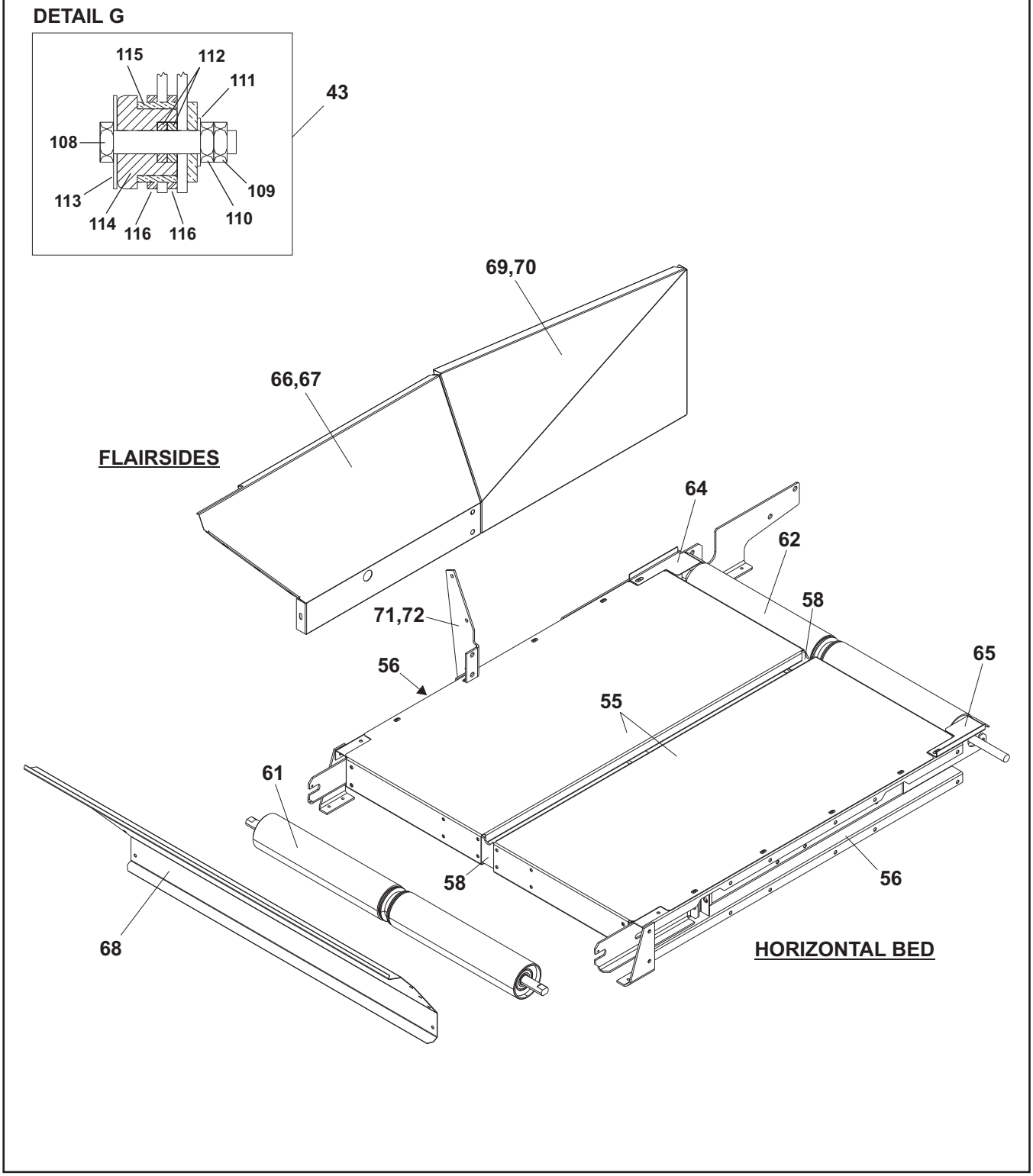


DETAIL F

Extractor Conveyor - Rear Discharge

MXS4232C

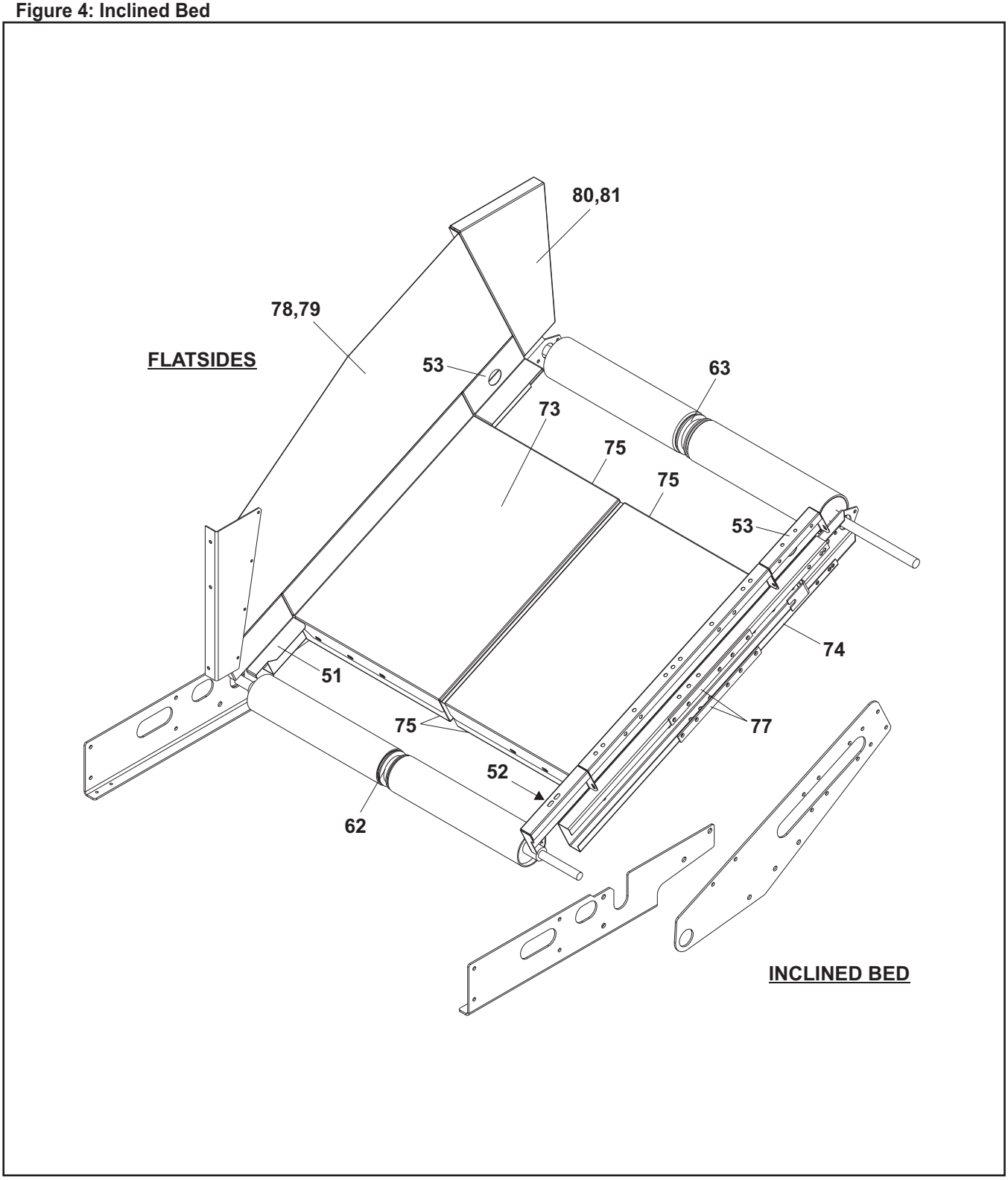
Figure 3: Horizontal Bed



Extractor Conveyor - Rear Discharge

MXS4232C

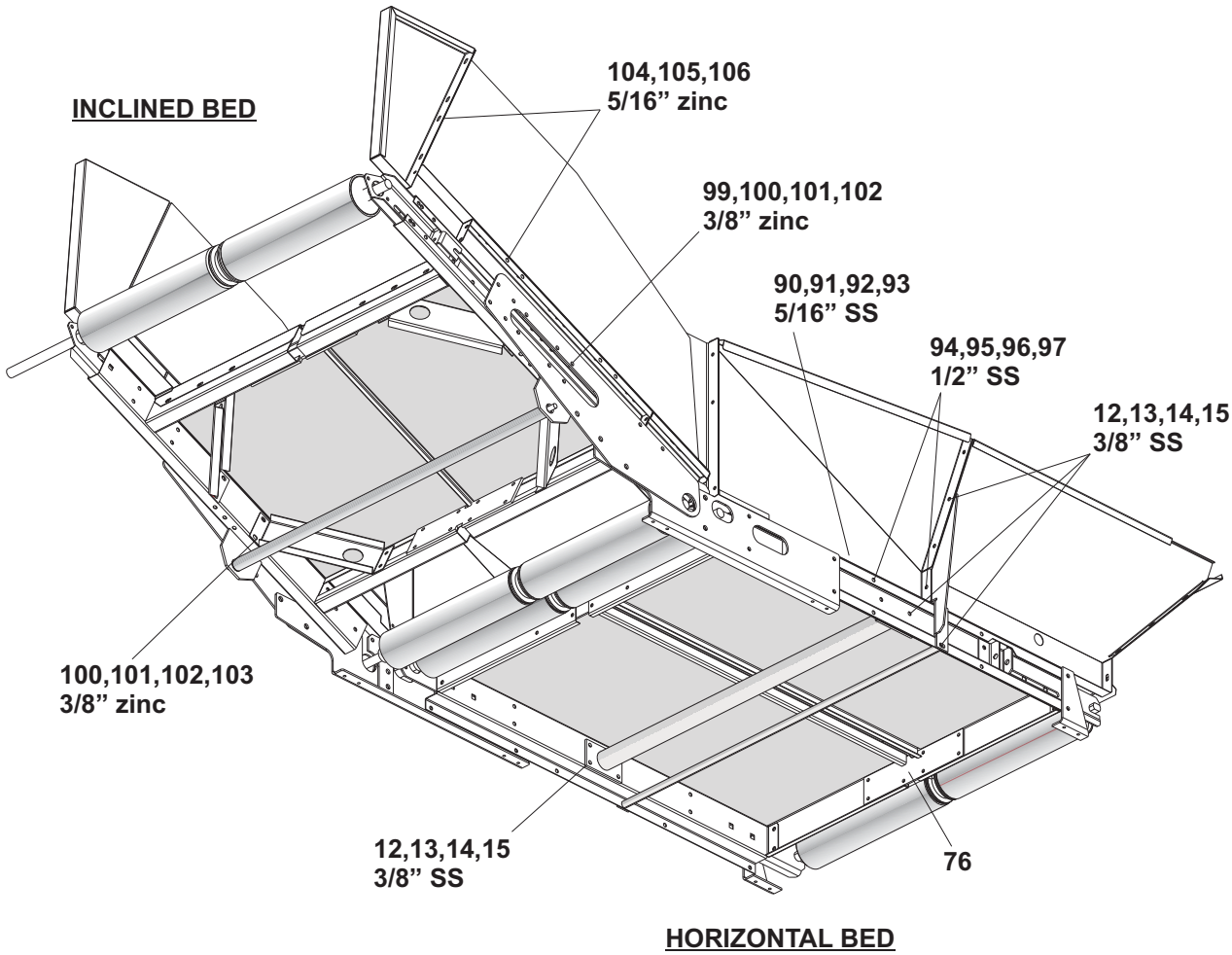
Figure 4: Inclined Bed



Extractor Conveyor - Rear Discharge

MXS4232C

Figure 5: Standard Hardware



Bottom View: Extractor Conveyor

Extractor Conveyor - Rear Discharge

MXS4232C

Parts List—xx

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

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	ALC50161	REAR DISC CONV-M9S4232	
	B	ALC500034	REAR DISC HORZ BED-M9S4232	
	C	ALC500036	CONVEY BED-DISC REAR-25DEG	
			----------COMPONENTS----------	
all	1	04 21845	EXTCONV SPROCKETS COVER	
all	2	04 21844	EXTCONV SPROCKETS GREASE TRAY	
all	3	54N050JA13	SPRKT M#50JA13SS MTO-NO BUSH	
all	4	54G050SS28	ROLCHN 5/8P 50SS1R EXTR=28PTCH	
all	5	56Q1AJA	1.0" BUSHING M#JA-1-304SS MTO	
all	6	15E197	1/4X1/4X1SQMACHKEY N0 TAPR/HD	
all	7	54JH11000S	SHAFTCOLLAR SPLIT 1" STAINLESS	
all	8	15Q067	SOKSETSCR 10-24X1/4 SS	
all	9	02 02921H	SPACER=BUSHING LOCKING	
all	10	54AF10001	FLG BRG 1" BROWN#VF2S-116M (2BOLT FLG)	
all	11	15U241MB	FLAT WASHER-1.50D 1+1/32ID 10G	
all	12	15U245	FLTWASH 3/8 STD COMM 18-8 SS	
all	13	15U260	LOCKWASHER MEDIUM 3/8 SS18-8	
all	14	15K096	HEXCAPSCR 3/8-16UNC2X1SS18-8	
all	15	15G206	HEXNUT 3/8-16 UNC2 SS 18-8	
all	17	04 24185	BED COUPLER REARDISC M9S4232-RT	
all	18	04 24185A	BED COUPLER REARDISC M9S4232-LF	
all	19	04 23175	BED SUPT DOUBLER PLATE-25DEG	
all	20	04 24191	BRNGCARR HORZBED COUPLER-M9S	
all	21	04 22907	BRG SUPPORT PLATE-9.63 LG	
all	22	04 21824	BRG CARR HORIZ BED LOAD END-LF	
all	23	04 21824A	BRG CARR HORIZ BED LOAD END-RT	
all	24	04 21826	CONV SUPPORT BRKT REAR-LF	
all	25	04 21826A	CONV SUPPORT BRKT REAR-RT	
all	26	15N176	FLATMACSCR 1/4-20NCX3/4SS18-8	
all	27	Y4 20833C	SS IDLER ROLLER 4"DIA MACH	
all	28	54AB30001	BALBRG 30X62X16MM-#SS62062RS	
all	29	X4 22313	IDLER ROLLER SHAFT-SS BRNG	
all	30	54C400GC	BELT 40"GREEN PVC CLEAT W/VEE	
all	31	54G201D	CLIPPER LACE #UX-1-36S	
all	32	54G302C	CONNECTING PIN # NYS065C EA=1FT	

Extractor Conveyor - Rear Discharge

MXS4232C

Parts List—xx

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

Used In	Item	Part Number	Description	Comments
all	35	04 22131	BRNG SUPPORT UNLOAD END	
all	36	15K091H	HEXFLGSCR 3/8-16X3/4 ZN GRD.5	
all	40	04 22132	TORQARM 25DEG EXTCONV-RT	
all	41	54STB3183R	REDCR30 B#SF718-30T-B5-G +OIL	
all	42	15E227	MACHINE KEY .250X.219X4.50LG	
all	43	ALC420063	TORQUE ARM BUSHING ASSEMBLY	
all	44	04 20808	BRNG ADJ BRKT CONV	
all	45	15K205	HXCAPSCR 1/2-13UNC2AX8.5GR5 ZI	
all	46	15G230	HXNUT 1/2-13UNC2B SAE ZINC GR2	
all	47	15G222B	HEXFLGNUT 1/2-13 ZINC SERRATED	
all	48	W4 24184	INCLBED SUPPORT WLMT M9S4232-RT	
all	49	W4 24184A	INCLBED SUPPORT WLMT M9S4232-LF	
all	50	04 20988	ANGLE=TARGET ASSY MT TRACK	
all	51	04 22032A	SPACER BLOCK 9"LG-LF	
all	52	04 22032B	SPACER BLOCK 9"LG-RT	
all	53	04 22137	SPACER BLOCK 4"X7.94LG	
all	54	04 24289	UNDERBELT COVER 50W X 12LG	
all	55	04 24180	BED HALF REAR DISC-M9S4232	
all	56	04 24181	EXTCONV SIDE FRAME-M9S4232	
all	57	W4 21823	EXTCONV X-MEMBER WLMT	
all	58	04 20808A	BEARING ADJ BRKT CONV (S/S)	
all	59	04 22217	BED CONNECTING PLATE	
all	60	AIC40002	COINC 40W IDLER ASSY	
all	61	ALC50114	SS IDLER ROLLER ASSY-EXTCONV	
all	62	Y4 20832C	EXT-CONV COUPLER ROLLER-MACH	
all	63	Y4 20832E	DRVROLLER 4.50D X 53" OAL	
all	64	04 21828	BRNG COVER RT-COUPLER END	
all	65	04 21828A	BRNG COVER LF-COUPLER END	
all	66	04 24182	ENDGATE SIDE REAR DISC-RT	
all	67	04 24182A	ENDGATE SIDE REAR DISC-LF	
all	68	04 24183	ENDGATE-EXTCONV M9S4232	
all	69	04 24188	FLAIRSIDE REAR DISC HORZBED-RT	
all	70	04 24188A	FLAIRSIDE REAR DISC HORZBED-LF	
all	71	04 24190	FLAIRSIDE SUPPORT-RT	
all	72	04 24190A	FLAIRSIDE SUPPORT-LF	

Extractor Conveyor - Rear Discharge

MXS4232C

Parts List—xx

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

Used In	Item	Part Number	Description	Comments
all	73	04 20804G	CONV BED 40WX28L GROOVE	
all	74	04 20802K	CONV SIDE FRAME 4"X40"LG	
all	75	04 20803A	CROSS MBR SECTION CONV (S/S)	
all	76	04 20809	JOINER PLATE CONV	
all	77	04 22072	BED FRAME SUPPORT SHIM	
all	78	04 22133	SIDE EXT REAR UNLOAD-RT	
all	79	04 22133A	SIDE EXT REAR UNLOAD-LF	
all	80	04 22134	SIDE EXT DISC END-RT	
all	81	04 22134A	SIDE EXT DISC END-LF	
all	82	04 22135	SIDE EXT INCLINE ADP-RT	
all	83	04 22135A	SIDE EXT INCLINE ADP-LF	
all	84	04 24128	SAFETY SW MTG PLATE-4232M	
all	85	04 22165	SAFETY WIRE-PULL BRKT-EXTRCONV	
all	90	15K052	HXCAPSCR 5/16-18UNC2AX3/4 SS18	
all	91	15U189	FLTWASH 9/32IDX3/40DX.063THK S	
all	92	15U205	LOCKWASHER MEDIUM 5/16" 18-8SS	
all	93	15G186	HEXNUT 5/16-18UNC2 SS18-8	
all	94	15K145D	HXCAPSCR 1/2-13UNC2AX3/4 SS18-	
all	95	15U285	FLATWASHER 1/2 STD COMM SS18-8	
all	96	15U310	LOKWASHER REGULAR 1/2 SS18-8	
all	97	15G225	HEXNUT 1/2-13UNC2 SS18-8	
all	99	15K095	HXCPSCR 3/8-16UNC2AX1 GR5 ZINC	
all	100	15U240	FLATWASHER(USS STD) 3/8" ZNC P	
all	101	15U255	LOCKWASHER MEDIUM 3/8 ZINCPL	
all	102	15G205	HXNUT 3/8-16UNC2B ZINC GR2	
all	103	15K085	HEXCAPSCR 3/8-16UNC2AX3/4 GR5	
all	104	15K063	HXCPSC 5/16 18X1 GR8 ZC	
all	105	15U210	LOKWASHER MEDIUM 5/16 ZINCPL	
all	106	15G185	HXNUT 5/16-18UNC2B SAE ZINC GR	
all	108	15K144C	HEXCAPSCR 7/16-14UNC X 2.5 GR	
all	109	15G222	HXFINJAMNUT 7/16-14UNC2B ZINC	
all	110	15G222C	HEXNUT 7/16-14UNC2B ZINC GR2	
all	111	15U271	LOKWASH INTOOTH 7/16ZN	
all	112	15U312	HARD FWASH 3/4ODX33/64IDX.115	
all	113	15U202	FLATWSHR.50ID1.75OD11GA ZNC	
all	114	60B065	RUBBER MNT CTR BONDED 40 DURO	

Extractor Conveyor

MXS4232C

Parts List—xx

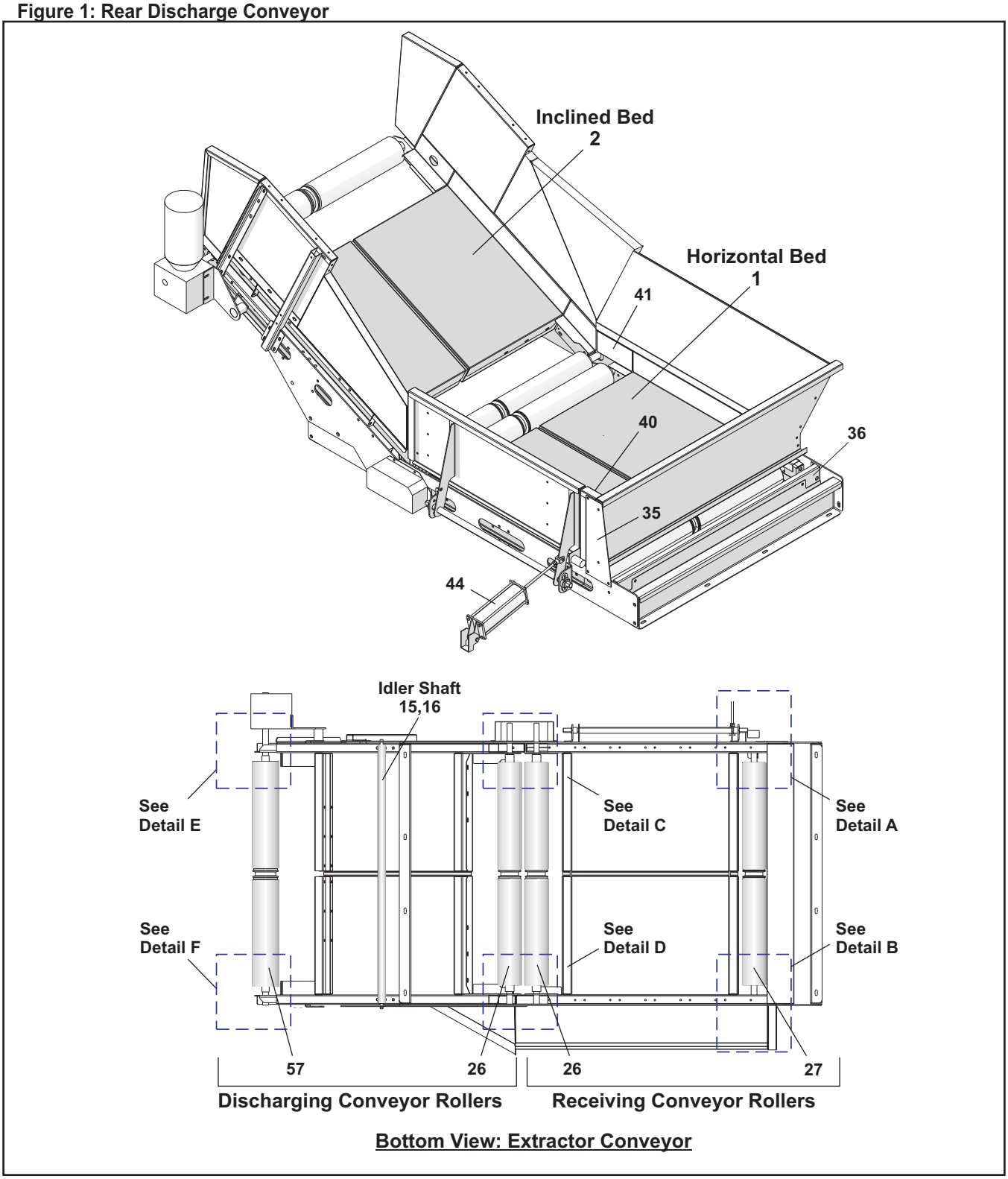
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

Used In	Item	Part Number	Description	Comments
all	115	04 20796	SLEEVE=TORQUE ARM BUSHING	
all	116	02 18571A	PISTON ROD WASHER-.25"TK	

Extractor Conveyor - Discharge Left/Right

MXS4232L,R

Figure 1: Rear Discharge Conveyor



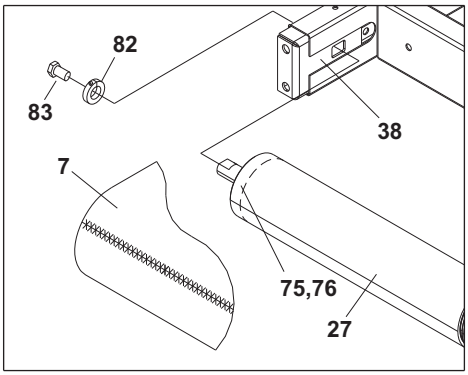
Bottom View: Extractor Conveyor

Extractor Conveyor - Discharge Left/Right

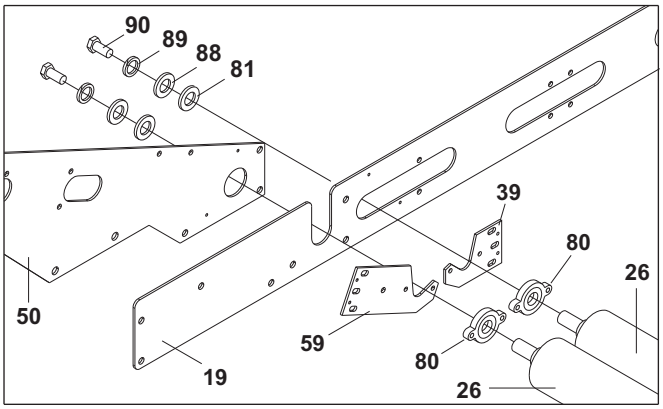
MXS4232L,R

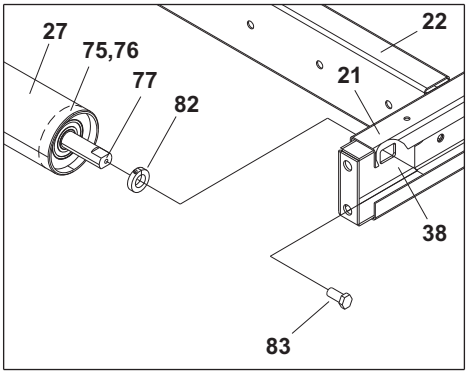
Figure 2: Rollers and Bearings

DETAIL A

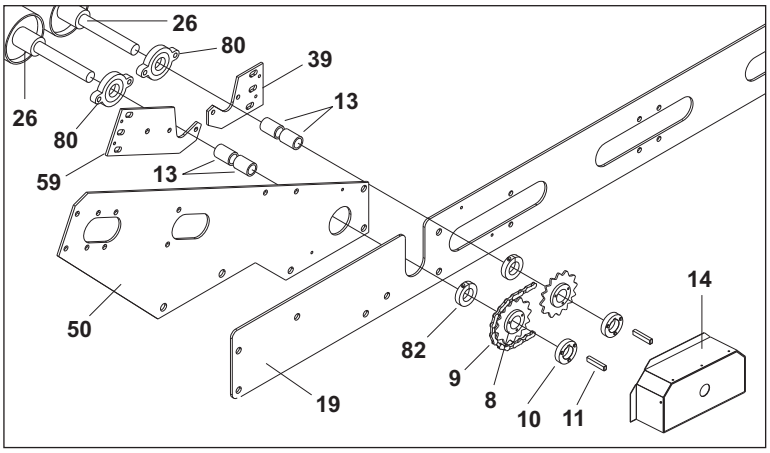


DETAIL C

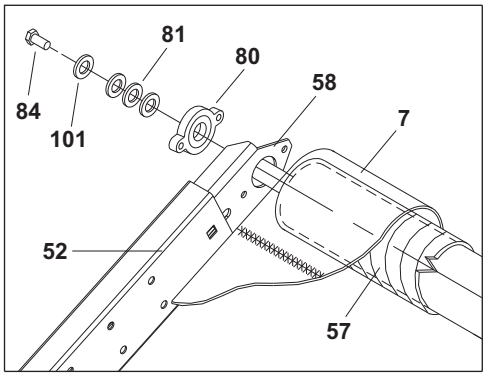




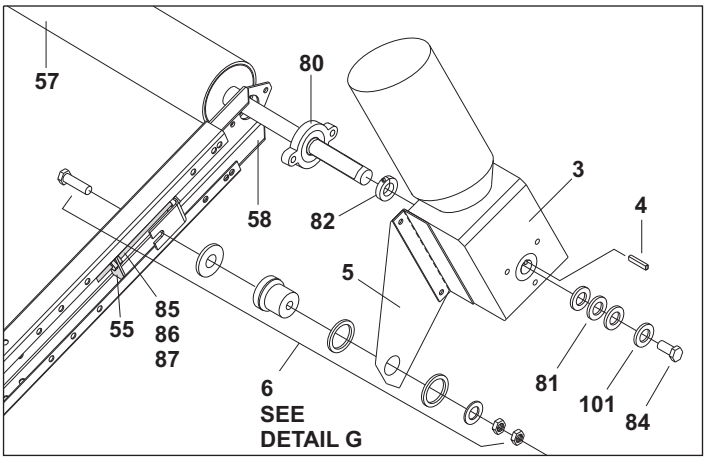
DETAIL B



DETAIL D



DETAIL E

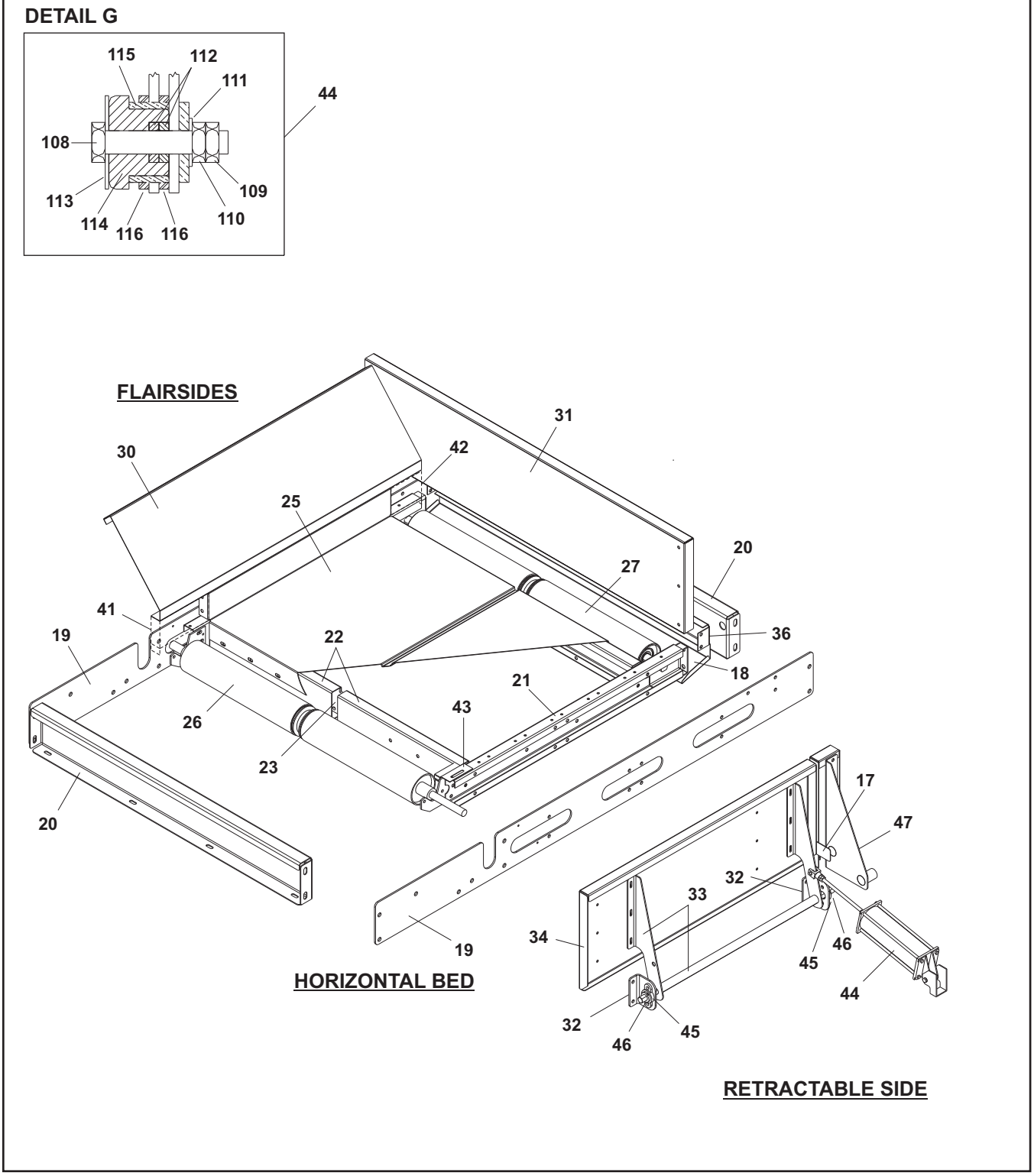


DETAIL F

Extractor Conveyor - Discharge Left/Right

MXS4232L,R

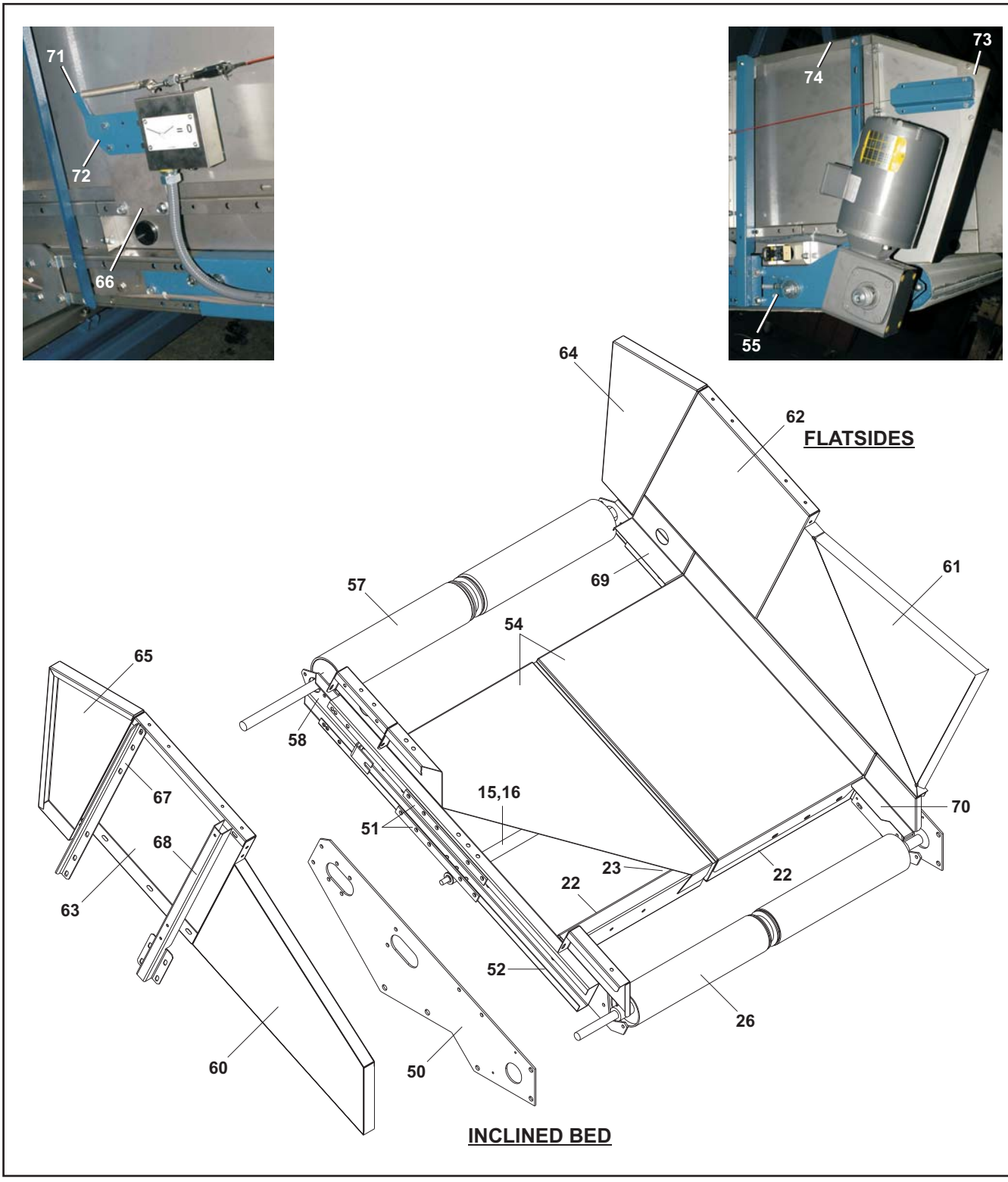
Figure 3: Horizontal Bed



Extractor Conveyor - Discharge Left/Right

MXS4232L,R

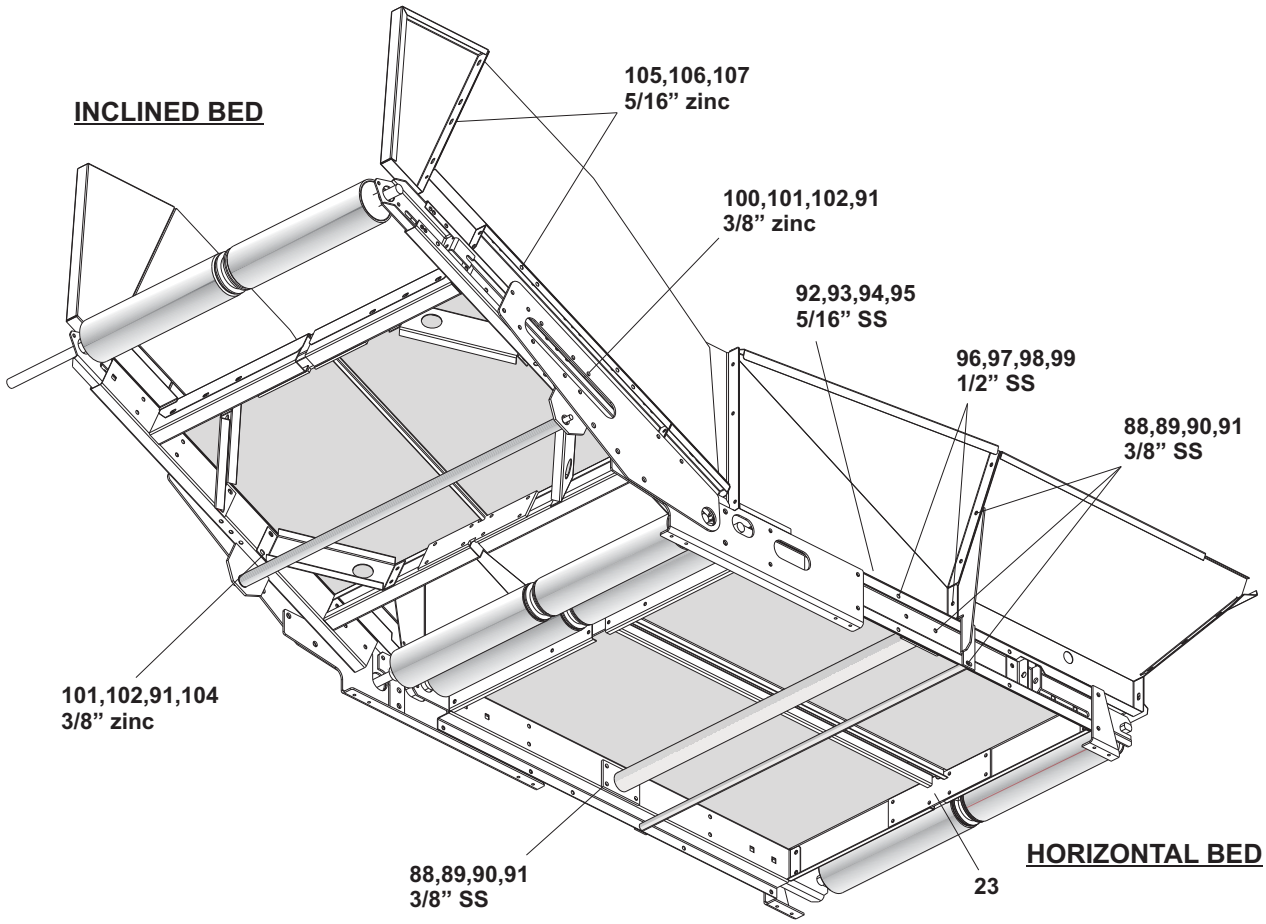
Figure 4: Inclined Bed



Extractor Conveyor - Discharge Left/Right

MXS4232L,R

Figure 5: Standard Hardware



Bottom View: Extractor Conveyor
(rear discharge conveyor shown)

Extractor Conveyor - Discharge Left/Right

MXS4232L,R

Parts List—Extractor Conveyor Left/Right

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

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	ALC50162	RIGHT DISC CONV-M9S4232	MXS4232R
	B	ALC50163	LEFT DISC CONV-M9S4232	MXS4232L
			----------COMPONENTS----------	
B	1	ALC500032	LEFT DISC HORZ BED-M9S4232	
A	1	ALC500033	RIGHT DISC HORZ BED-M9S4232	
B	2	ALC500051B	EXTCONV LF UNLOAD-25DEG BED	
A	2	ALC500037B	EXTCONV RT UNLOAD-25DEG BED	
all	3	54STB31830	REDUCER 30:1 SF718-30T-B5-G	
all	4	15E227	MACHINE KEY .250X.219X4.50LG	
all	5	04 22132	TORQARM 25DEG EXTCONV-RT	
all	5	04 22132A	TORQARM 25DEG EXTCONV-LF	
all	6	ALC420063	TORQUE ARM BUSHING ASSEMBLY	
all	7	54C401000K	BELT 40W GREEN V-GUIDE W/CLEAT 88"LG	
all	8	54N050JA13	SPRKT M#50JA13SS MTO-NO BUSH	
all	9	54G050SS28	ROLCHN 5/8P 50SS1R EXTR=28PTCH	
all	10	56Q1AJA	1.0" BUSHING M#JA-1-304SS MTO	
all	11	15E197	1/4X1/4X1SQMACHKEY N0 TAPR/HD	
all	12	15Q067	SOKSETSCR 10-24X1/4 SS	
all	13	02 02921H	SPACER=BUSHING LOCKING	
all	14	ALC500040	CHAIN GUARD ASSEMBLY	
all	15	AIC40002	COINC 40W IDLER ASSY	
all	16	54JH11000A	SHAFTCOLLAR 1" CLPTYPE CFG#16A	
all	17	04 24193	RETRACTABLE DOOR TARGET	
all	18	04 24189	LOADEND SPLASH GUARD	
all	19	04 24186	SIDE DISC HORZ BED MTG PLATE	
all	20	04 24187	SIDEDISC CONV SUPPORT X-BRACE	
all	21	04 22402	CONV SIDE FRAME 4"X37.5 S/S	
all	22	04 20803A	CROSS MBR SECTION CONV (S/S)	
all	23	04 20809	JOINER PLATE CONV (COLOR=AZURE BLUE)	
all	24	04 20808A	BEARING ADJ BRKT CONV (S/S)	
all	25	04 20804D	CONV BED/SIDE UNLOAD W/NOTCH	
all	26	Y4 20832C	EXT-CONV COUPLER ROLLER-MACH	
all	27	ALC50114	SS IDLER ROLLER ASSY-EXTCONV	
A	30	04 22411	RT UNLOAD FLAIRSIDE-HORZ BED	
B	30	04 22411A	LF UNLOAD FLAIRSIDE-HORZ BED	

Extractor Conveyor - Discharge Left/Right

MXS4232L,R

Parts List—Extractor Conveyor Left/Right

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

Used In	Item	Part Number	Description	Comments
A	31	04 22412	SIDE UNLOAD ENDGATE	
B	31	04 22412A	LEFT UNLOAD-SIDE UNLD ENDGATE	
all	32	04 24204	RETRACT SIDE PIVOT BRKT	
all	33	W4 24203	RETRACT SIDE SHAFT WLMT	
all	34	04 24205	RETRACTABLE SIDE-LF/RT UNLOAD	
all	35	04 22422A	LF UNLOAD-ENDGATE SUPT	
all	36	04 22400	CROSS BRACE REAR	
all	37	04 22421	UNDER BED COVER-SIDE UNLOAD	
all	38	04 20801H	BRNG SUPT REAR/SIDE UNL(S/S)	
all	39	04 22908	BRG SUPPORT PLATE-5.63 LG	
A	40	04 22030P	ENDGATE SIDE EXT-RT UNLOAD	
B	40	04 22030Q	ENDGATE SIDE EXT-LF UNLOAD	
A	41	04 22030C	SPACER BLK-RT UNL-REAR RT	
B	41	04 22030H	SPACER BLK-LF UNL-REAR LF	
A	42	04 22030D	SPACER BLK-RT UNL-HORZMIDRT	
B	42	04 22030K	SPACER BLK-LF UNL-HORZMIDLF	
A	43	04 22030E	SPACER BLK-RT UNL-HORZMIDLF	
B	43	04 22030L	SPACER BLK-LF UNL-HORZMIDRT	
all	44	ALC500039A	AIRCYL EXTCONV-RETRACT SIDE	
all	45	54E015BM	FLMTBRG 3/4"ALL BRZ T#FL7190.	
all	46	54JH10750S	SHFTCOL 3/4X1+1/2X.5 SS C-T	
A	47	04 24220A	DOOR PROX.SW BRKT-RT UNLOAD	
B	47	04 24220	DOOR PROX.SW BRKT-LF UNLOAD	
all	50	04 22404	BED SUPT INCL SIDE DISCHARGE	
all	51	04 22072	BED FRAME SUPPORT SHIM	
all	52	04 20802K	CONV SIDE FRAME 4"X40"LG	
all	54	04 20804G	CONV BED 40WX28L GROOVE	
all	55	04 20808	BRNG ADJ BRKT CONV	
all	56	04 20810A	CORNER BRACE CONV 4" (S/S)	
all	57	Y4 20832E	DRVROLLER 4.50D X 53" OAL	
all	58	04 22131	BRNG SUPPORT UNLOAD END	
all	59	04 22907	BRG SUPPORT PLATE-9.63 LG	
all	60	04 22417	SIDE TRANSITION LEFT	
all	60	04 22417A	LF UNLOAD-SIDE TRANSITION RT	
A	61	04 22418	SIDE TRANSITION RT	
B	61	04 22418A	LF UNLOAD-SIDE TRANSITION LF	
all	62	04 22164	SIDE 18"X17.32"LG CEXR0025-RT	
all	63	04 22164A	SIDE 18"X17.32"LG CEXR0025-LF	

Extractor Conveyor - Discharge Left/Right

MXS4232L,R

Parts List—Extractor Conveyor Left/Right

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

Used In	Item	Part Number	Description	Comments
all	64	04 22134	SIDE EXT DISC END-RT	
all	65	04 22134A	SIDE EXT DISC END-LF	
all	66	04 22426	SIDE SUPT/SWITCH MOUNT	
all	67	04 22416	SIDE SUPT BRKT	
all	68	04 21988	SIDE EXTENSION SUPPORT BRKT	
all	69	04 22137	SPACER BLOCK 4"X7.94LG	
B	70	04 22162	BED SPACER CEXL0025 INCLBED-LF	
A	70	04 22162A	BED SPACER CEXR0025 INCLBED-RT	
all	71	04 24128	SAFETY SW MTG PLATE-4232M	
all	73	04 22165	SAFETY WIRE-PULL BRKT-EXTRCONV	
all	74	04 21987	SIDE EXTENSION STIFFENER	
all	75	Y4 20833C	SS IDLER ROLLER 4"DIA MACH	
all	76	54AB30001	BALBRG 30X62X16MM-#SS62062RS	
all	77	X4 22313	IDLER ROLLER SHAFT-SS BRNG	
all	80	54AF10001	FLG BRG 1" BROWN#VF2S-116M (2BOLT FLG)	
all	81	15U241MB	FLAT WASHER-1.50D 1+1/32ID 10G	
all	82	54JH11000S	SHAFTCOLLAR SPLIT 1" STAINLESS	
all	83	15N176	FLATMACSCR 1/4-20NCX3/4SS18-8	
all	84	15K091H	HEXFLGSCR 3/8-16X3/4 ZN GRD.5	
all	85	15K205	HXCAPSCR 1/2-13UNC2AX8.5GR5 ZI	
all	86	15G230	HXNUT 1/2-13UNC2B SAE ZINC GR2	
all	87	15G222B	HEXFLGNUT 1/2-13 ZINC SERRATED	
all	88	15U245	FLTWASH 3/8 STD COMM 18-8 SS	
all	89	15U260	LOCKWASHER MEDIUM 3/8 SS18-8	
all	90	15K096	HEXCAPSCR 3/8-16UNC2X1SS18-8	
all	91	15G205	HXNUT 3/8-16UNC2B ZINC GR2	
all	92	15K052	HXCAPSCR 5/16-18UNC2AX3/4 SS18	
all	93	15U189	FLTWASH 9/32IDX3/40DX.063THK S	
all	94	15U205	LOCKWASHER MEDIUM 5/16" 18-8SS	
all	95	15G186	HEXNUT 5/16-18UNC2 SS18-8	
all	96	15K145D	HXCAPSCR 1/2-13UNC2AX3/4 SS18-	
all	97	15U285	FLATWASHER 1/2 STD COMM SS18-8	
all	98	15U310	LOKWASHER REGULAR 1/2 SS18-8	
all	99	15G225	HEXNUT 1/2-13UNC2 SS18-8	
all	100	15K095	HXCPSCR 3/8-16UNC2AX1 GR5 ZINC	
all	101	15U240	FLATWASHER(USS STD) 3/8" ZNC P	

Extractor Conveyor - Discharge Left/Right

MXS4232L,R

Parts List— Extractor Conveyor Left/Right

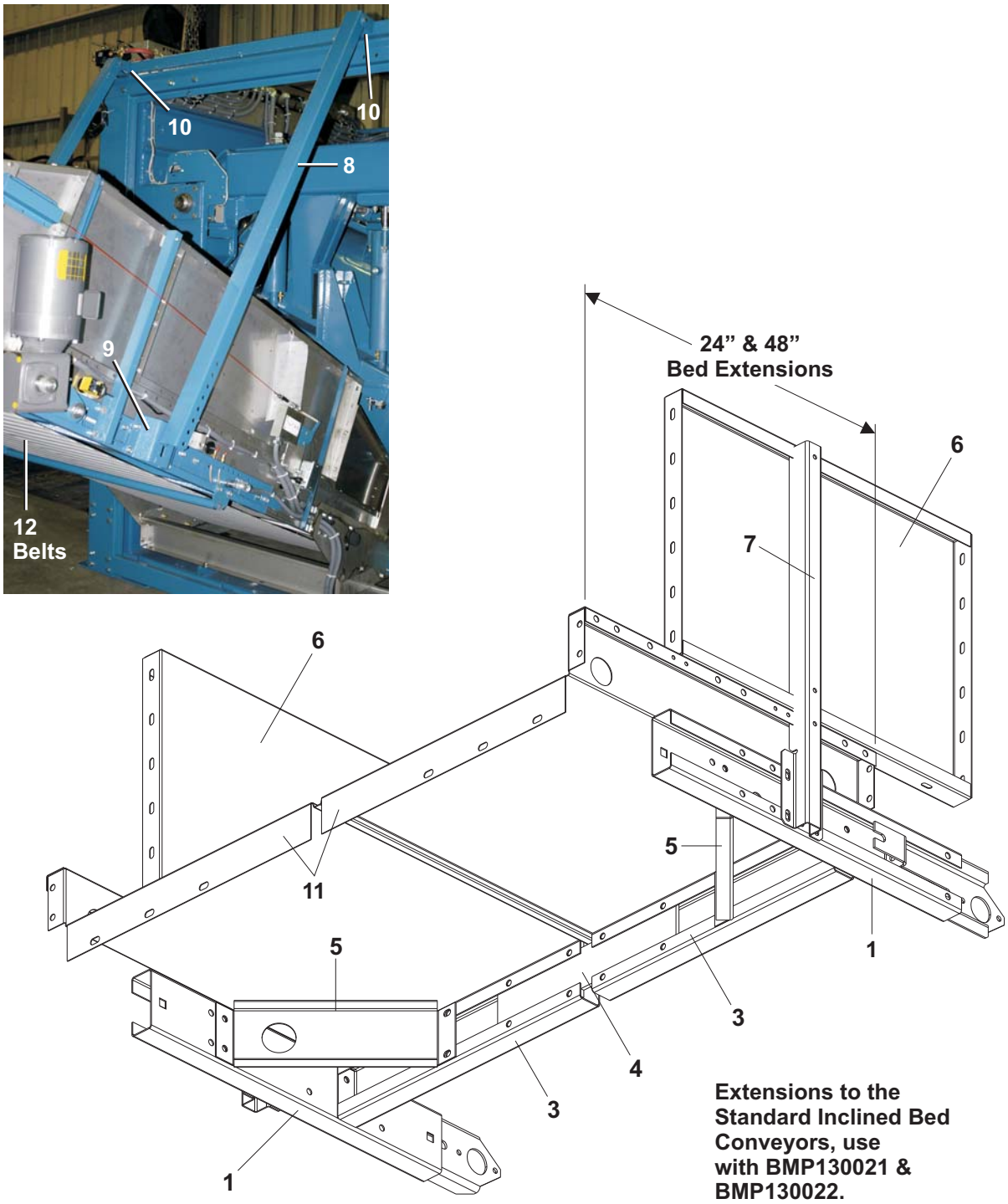
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

Used In	Item	Part Number	Description	Comments
all	102	15U255	LOCKWASHER MEDIUM 3/8 ZINCPL	
all	104	15K085	HEXCAPSCR 3/8-16UNC2AX3/4 GR5	
all	105	15K063	HXCPSC 5/16 18X1 GR8 ZC	
all	106	15U210	LOKWASHER MEDIUM 5/16 ZINCPL	
all	107	15G185	HXNUT 5/16-18UNC2B SAE ZINC GR	
all	108	15K144C	HEXCAPSCR 7/16-14UNC X 2.5 GR	
all	109	15G222	HXFINJAMNUT 7/16-14UNC2B ZINC	
all	110	15G222C	HEXNUT 7/16-14UNC2B ZINC GR2	
all	111	15U271	LOKWASH INTOOTH 7/16ZN	
all	112	15U312	HARD FWASH 3/4ODX33/64IDX.115	
all	113	15U202	FLATWSHR.50ID1.75OD11GA ZNC	
all	114	60B065	RUBBER MNT CTR BONDED 40 DURO	
all	115	04 20796	SLEEVE=TORQUE ARM BUSHING	
all	116	02 18571A	PISTON ROD WASHER-.25"TK	

Extractor Conveyor: 24” & 48” Extensions

MXS4232C,L,R

Figure 1: Conveyor Extensions



Extractor Conveyor: 24” & 48” Extensions

MXS4232C,L,R

Parts List—Extractor Conveyor Extensions

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

Used In	Item	Part Number	Description	Comments
			ASSEMBLIES	
	A	ALC50063	25 DEG REAR DISC 24" EXT	24” extension
	B	ALC50064	25 DEG REAR DISC 48" EXT	48” extension
			COMPONENTS	
all	1	04 22145	BED FRAME 4"X24"LG	
all	2	04 22146	BED FRAME CONNECTING CHANNEL	
all	3	04 20803	COSHA BED CROSS MEMBER	
all	4	04 20809	JOINER PLATE CONV	
all	5	04 20810	CORNER BRACE CONV	
all	6	04 20014C	+CONVEYOR 18X24 SIDE EXT.	
all	6	04 20646	CONLO. SIDE EXTENSION=18X48	
all	7	04 21988	SIDE EXTENSION SUPPORT BRKT	
all	8	04 22339	INCL BED SUPPORT CHANNEL	
all	9	04 22340	INCL BED FRAME MTG BRKT	
all	10	04 22341	INCL BED EXTRACTOR MTG BRKT	
all	11	04 20804E	CONV BED 40X24 W/NOTCH	
all	12	54C401000C	BELT 40W V-ROUGH TOP-152"LG	
all	12	54C401000D	BELT 40W V-ROUGH TOP-200"LG	

2

Pneumatic Piping and Assemblies 2.6

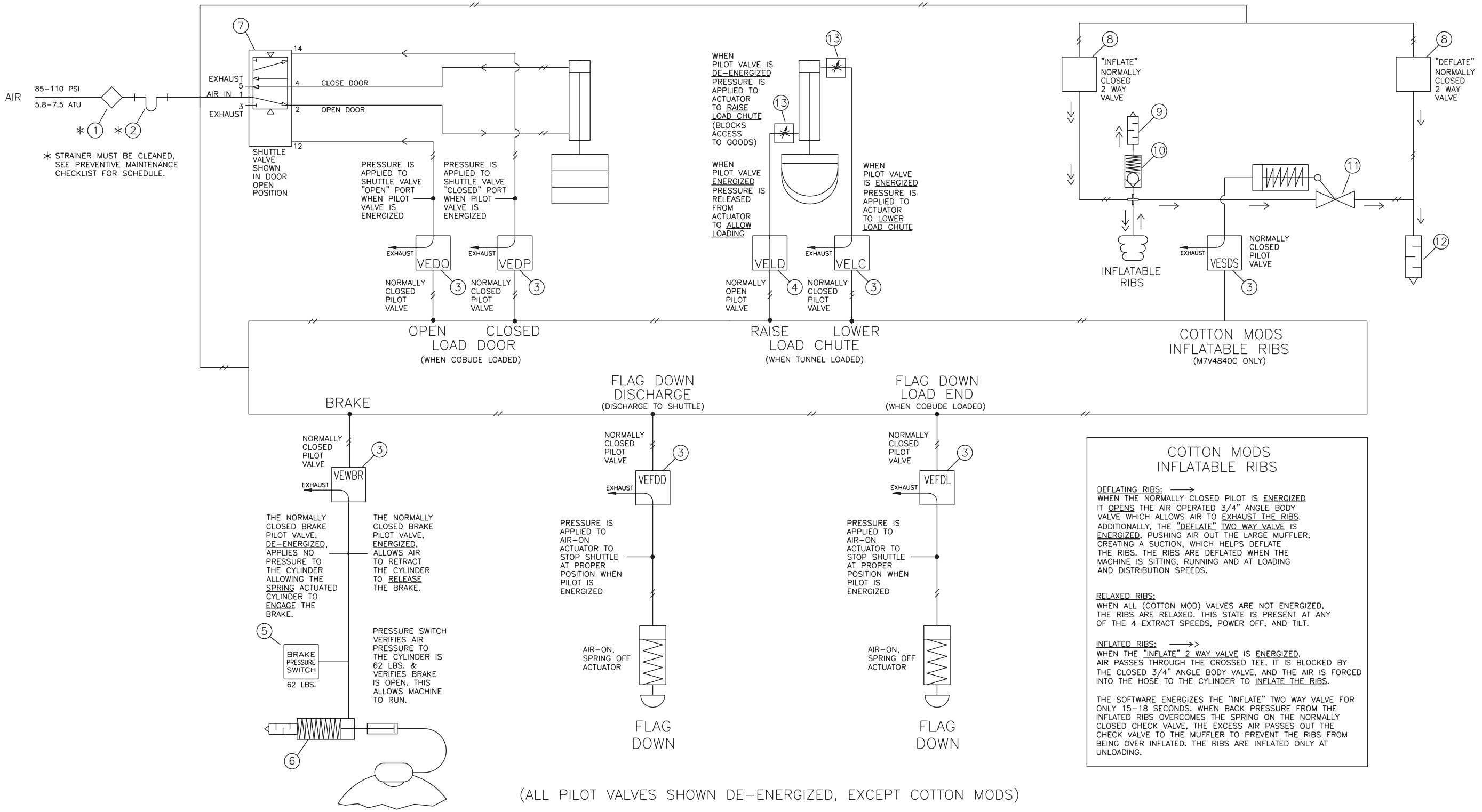
Pneumatic Schematic

M7V4840C

BMP050061/2008094B
(Sheet 1 of 2)

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

Litho in U.S.A.



COTTON MODS INFLATABLE RIBS

DEFLATING RIBS: ⟶
WHEN THE NORMALLY CLOSED PILOT IS ENERGIZED IT OPENS THE AIR OPERATED 3/4" ANGLE BODY VALVE WHICH ALLOWS AIR TO EXHAUST THE RIBS. ADDITIONALLY, THE "DEFLATE" TWO WAY VALVE IS ENERGIZED, PUSHING AIR OUT THE LARGE MUFFLER, CREATING A SUCTION, WHICH HELPS DEFLATE THE RIBS. THE RIBS ARE DEFLATED WHEN THE MACHINE IS SITTING, RUNNING AND AT LOADING AND DISTRIBUTION SPEEDS.

RELAXED RIBS:
WHEN ALL (COTTON MOD) VALVES ARE NOT ENERGIZED, THE RIBS ARE RELAXED. THIS STATE IS PRESENT AT ANY OF THE 4 EXTRACT SPEEDS, POWER OFF, AND TILT.

INFLATED RIBS: ⟶⟶
WHEN THE "INFLATE" 2 WAY VALVE IS ENERGIZED, AIR PASSES THROUGH THE CROSSED TEE, IT IS BLOCKED BY THE CLOSED 3/4" ANGLE BODY VALVE, AND THE AIR IS FORCED INTO THE HOSE TO THE CYLINDER TO INFLATE THE RIBS.

THE SOFTWARE ENERGIZES THE "INFLATE" TWO WAY VALVE FOR ONLY 15–18 SECONDS. WHEN BACK PRESSURE FROM THE INFLATED RIBS OVERCOMES THE SPRING ON THE NORMALLY CLOSED CHECK VALVE, THE EXCESS AIR PASSES OUT THE CHECK VALVE TO THE MUFFLER TO PREVENT THE RIBS FROM BEING OVER INFLATED. THE RIBS ARE INFLATED ONLY AT UNLOADING.

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

Litho in U.S.A.

Parts List—Pneumatic Schematic

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

Used In	Item	Part Number	Description	Comments
----------ASSEMBLIES----------				
			none	
----------COMPONENTS----------				
all	1	51T020	STRAINER 1/4 AND.BRASS#234S-L	
all	2	30N601	1/2"AIRLINE FILTER PH#07F35AC	
all	3	96R301B37	1/8"AIRPILOT 3W NC 120V50/60	
all	4	96R302B37	1/8"AIRPILOT 3W NO 120V50/60	
all	5	09N082A	PRESSW NASON CLOSE @ 62 LB.	
all	6	27A005A	MUFF 1/4" ALLIED B-28 BANTAM	
all	7	96N0010H	SHUTLVLV 1/4" 4WAY AIROPERATED	
all	8	96TBC2BA37	1/4" N/C 2WAY 120V50/60C VALVE	
all	9	27A005B	MUFFLER 1/2" BANTAM B48	
all	10	96D046	CK VAL 3/4" #600-Z3 W/S/S DISH	
all	11	96D0009E	3/4"NPTBRZ N/C STEAMVAL ANGBOD	
all	12	27A005C	MUFFLER 2" BANTAM B168	
all	13	96H018	ANGLE NEEDLE VLV 1/4"T X 1/8MP	

Used In	Item	Part Number	Description	Comments

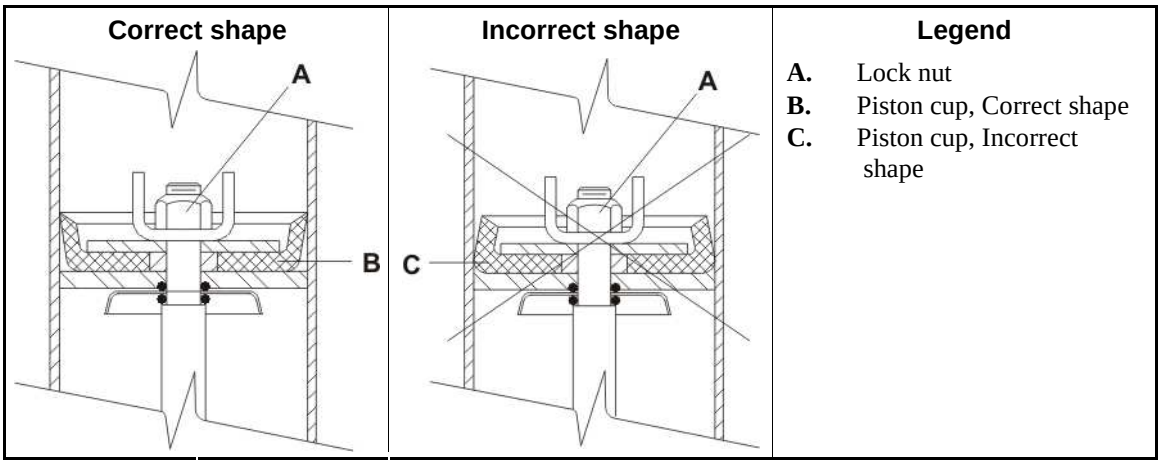
BIIFLM11 (Published) Book specs- Dates: 20150424 / 20150424 / 20150424 Lang: ENG01 Applic: IFL IH4

Air Cylinder Components and Installation

1. How To Get the Correct Piston Cup Shape

The figure that follows shows the correct shape and the incorrect shape of the piston cup. Tighten the locknut only until you can turn the piston cup and the washer on the stem with some resistance. If you tighten the locknut too much, this will cause the incorrect shape. This can stop air cylinder movement.

Figure 1: Compare Piston Cup Shapes



2. Air Cylinder Components

Figure 2: Air cylinder

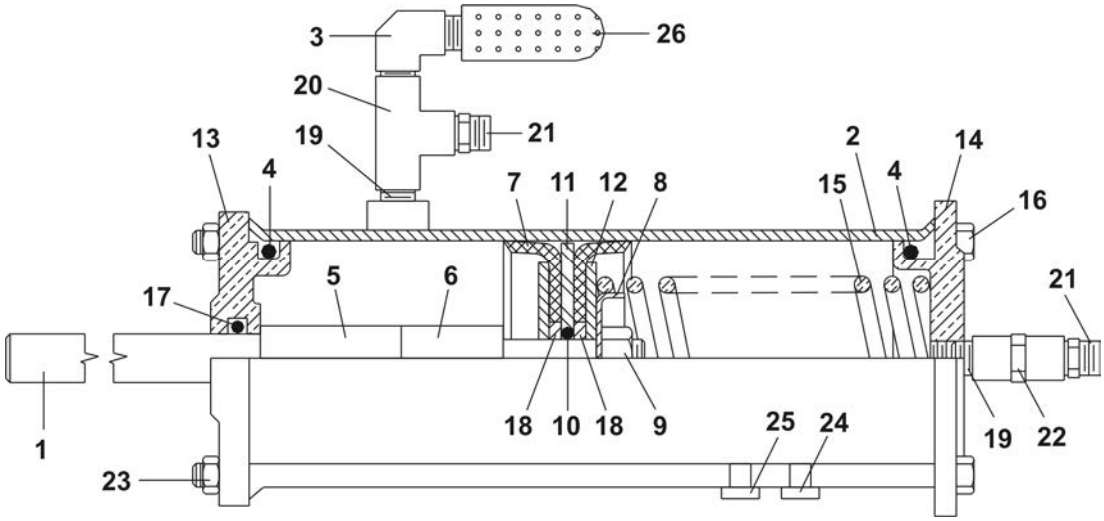


Table 1: Parts List—Air Cylinder Components

Find the assembly for your machine and the letter shown in the "Item" column. The components for your machine will show this letter or the word "all" in the "Used In" column. The numbers shown in the "Item" column are those shown in the illustrations.				
Used In	**Item**	**Part Number**	**Description/Nomenclature**	**Comments**
Assemblies				
	A	AAC4840F	Assembly; Air cylinder; Two direction operation; Brake;	4840F_, 4840H_ 68036H_
	B	AAC68002	Spring; Air cylinder; Two direction operation; Brake	6836M5K, 7246M5K
Components				
all	1	02 18650B	Stem; Air cylinder; Two direction operation; Brake; 7.88L	
all	2	W2 18646	Air cylinder; Two direction operation; Brake	
all	3	53A031XB	Hydraulic fitting; Elbow 90 degrees; 1/4	
all	4	60C132	O-Ring; #329; 2"; 3/16"; Buna-N; 70	
all	5	27B250	Spacer; Rolled; 0.5; .521; 0.636 X 1.5	
all	6	27B34010SS	Spacer; Rolled; 0.5; 0.51; 0.625; 0.062	
all	7	02 02194	Piston cup; Air cylinder; 2+3/8"	
all	8	02 18651	Washer; Flat; 3/8; 1.63 X 0.14	
all	9	15G220	Nut; Nylon insert lock; 8; 24	
all	10	60C106	O-Ring; #011;5/16"; 1/16"; Buna-N; 70	
all	11	02 02105B	Washer; Piston cup; Brass; 2.38"	
all	12	02 02085	Washer; Back-up; Piston cup; 2"OD	
all	13	06 20702E	Cylinder head; Stem side	
all	14	02 02101	Cylinder head; Spring side	
A	15	02 21865	Spring; Air cylinder; Two direction operation; Brake	
B	15	02 17024	Spring; Air cylinder; Two direction operation; Brake	
all	16	W6 20702F	Rod; Air cylinder; Two direction operation; Brake	
all	17	60C110	O-Ring; #011; 1/2"; 3/32"; Buna-N; 70	
all	18	02 02185	Washer; Flat; 3/8; 0.75 X 0.12	
all	19	5N0ECLSBE2	Pipe; 1/4; Close (threads only); Brass	
all	20	51V015	Pipe Fitting; Tee; 1/4	
all	21	53A008B	Hydraulic fitting; Hose end straight connector; 1/4	
all	22	5SCC0EBE	Pipe FittingCoupling; 1/4;	
all	23	15G185	Nut; Hex; 5/16; 18	
all	24	20L601F	Identification tag; "F"	
all	25	20L601X	Identification tag; "X"	
all	26	27A005A	Muffler; 1/4"	

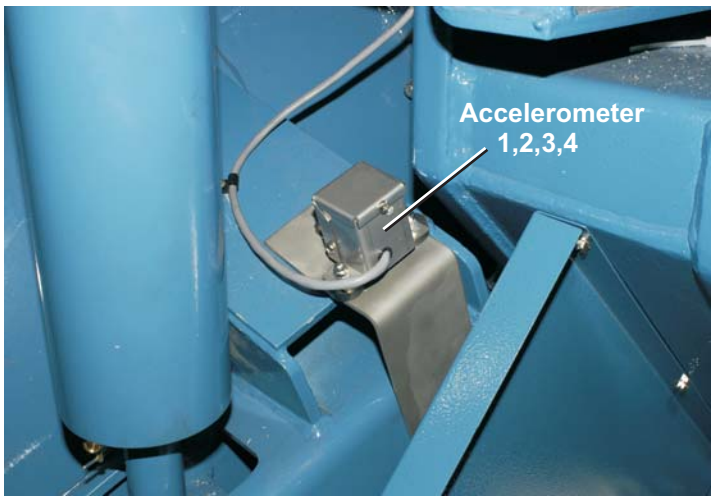
— End of BIIFLM11 —

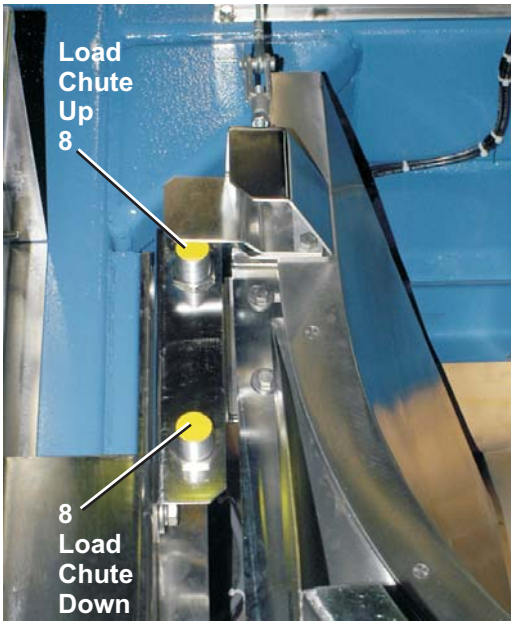
2

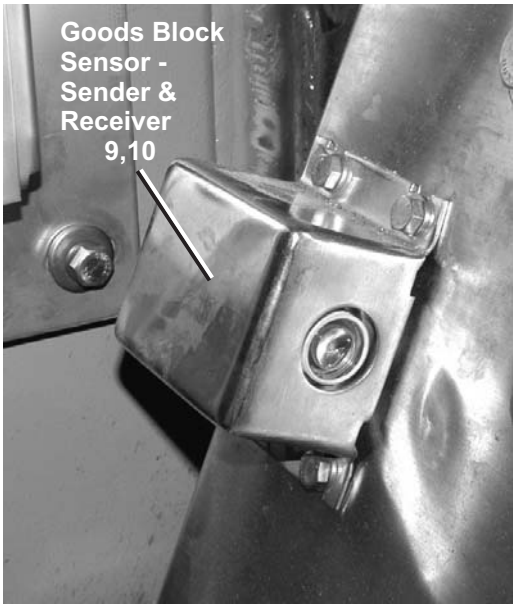
Control and Sensing Assemblies 2.7

Sensors

MXS4232C,L,R

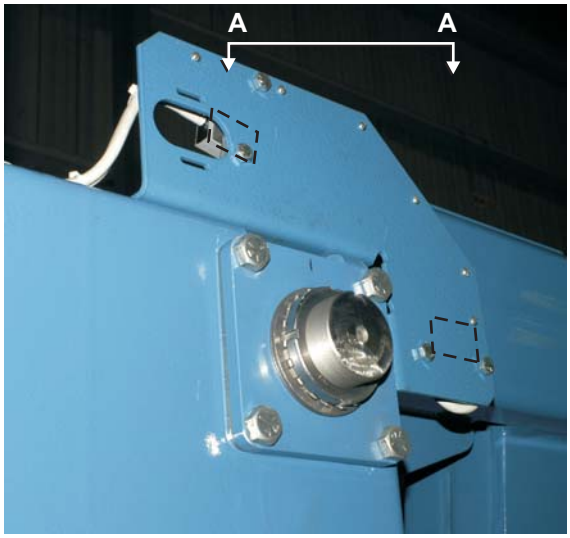


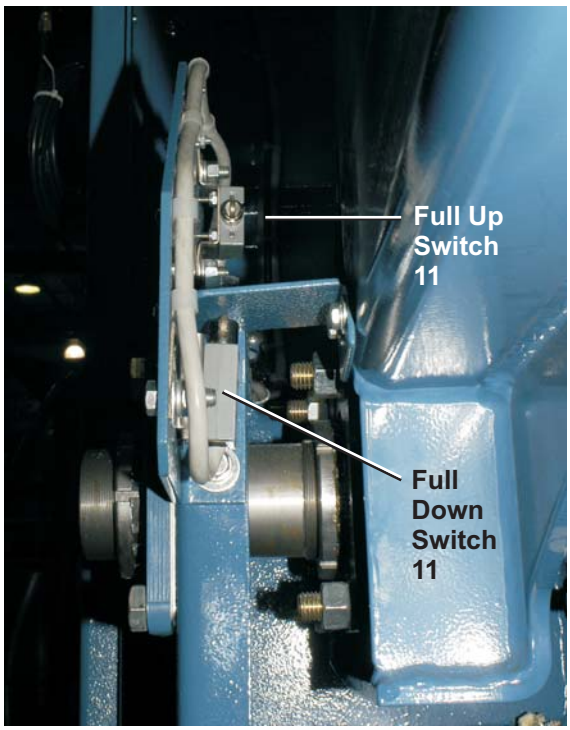




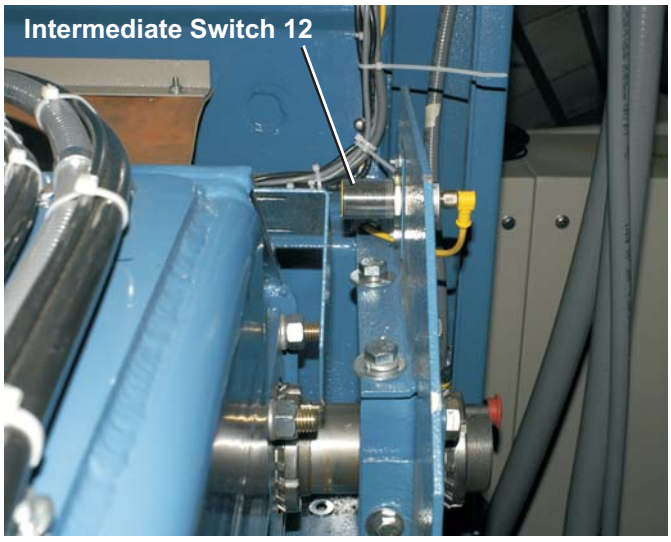
Sensors

MXS4232C,L,R



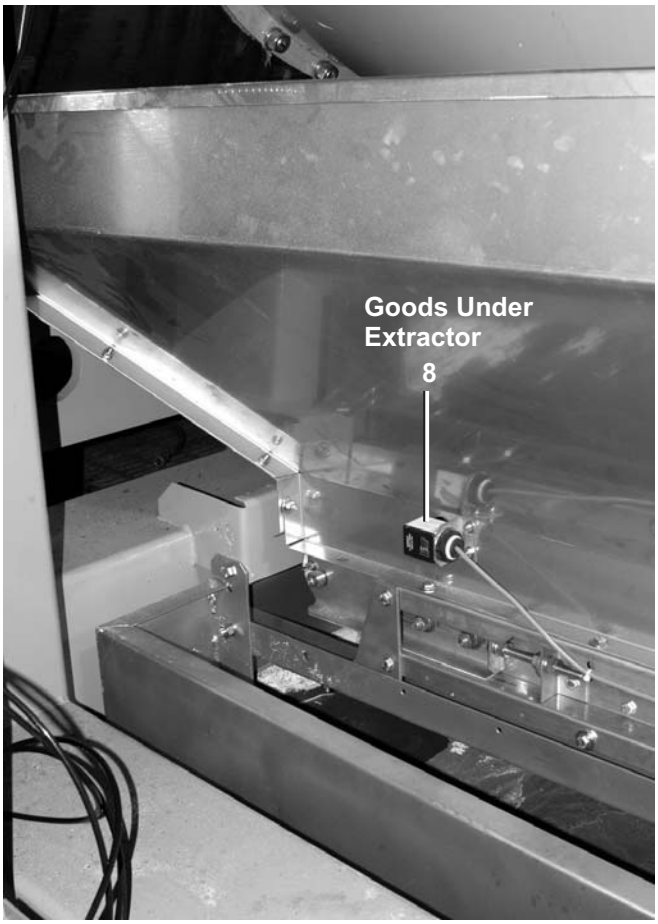


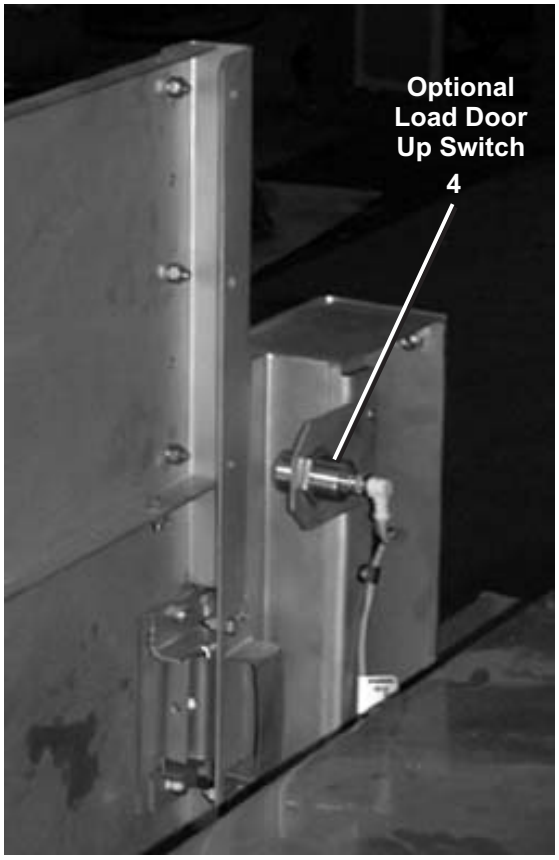
View A-A

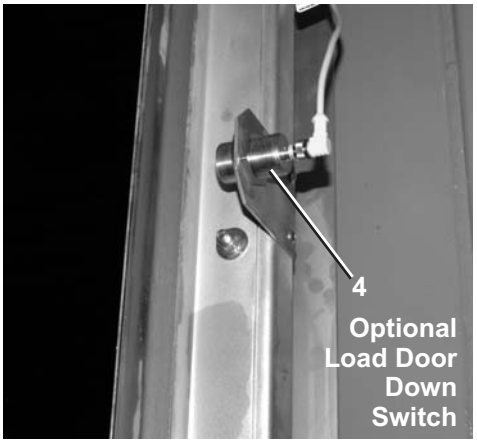


Sensors

MXS4232C,L,R







Sensors

MXS4232C,L,R

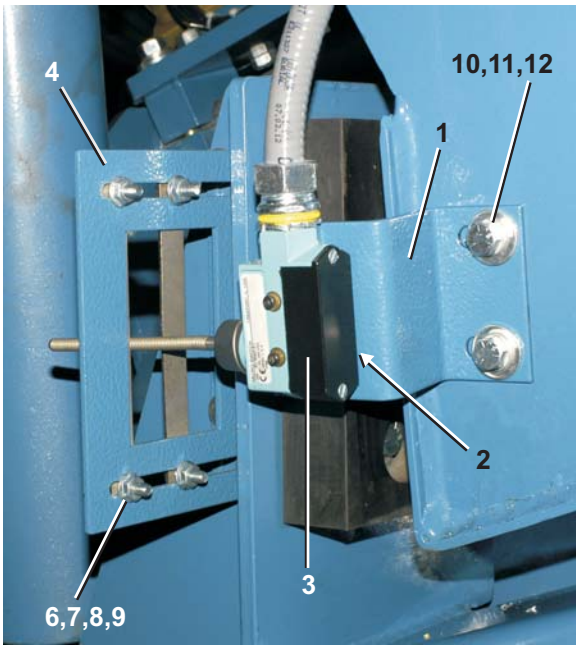
Parts List—Sensors

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

Used In	Item	Part Number	Description	Comments
----------ASSEMBLIES----------				
----------COMPONENTS----------				
all	1	08BNACLS	BOARD-ACCELEROMTR ADXL105>STUF	
all	2	03 BU1X22A	BRKT:ACCL. ADJUSTMENT AND MTG	
all	3	03 BU1X22B	COVER:ACCELEROMETER	
all	4	W3 BL2X3D	*WELDMNT:72 ACCELERAMTR MTG	
all	5	09RPE013Q	SENSOR E-Z BEAM QUICK CONN DC	
all	6	09RPE013CS	SENSOR QC CABLE STR. 15'	
all	7	09RPS12AAS	PROXSW QD CONN 12M NO-AC SHLD	
all	8	09RPS30ADS	PROX SW QK CONN 30M NO-DC SHLD	
all	9	09RPE010E	P.E. EMITTER AC #SM303E W/30'	
all	10	09RPE010R	PHOTOEYE RECEIVER AC	
all	11	09RM02212S	CAPSW 12' 180DEG ROLLER SILVER	
all	12	09RPE004	PE DARK OP AC N/O-OUT 24-240V	

Excursion Switch

MXS4232C,L,R



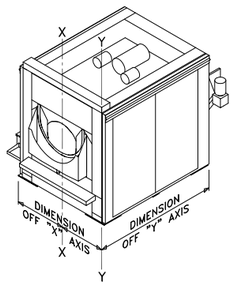
Parts List—Excursion Switch

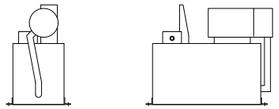
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	GES17001A	INST=M#S EXCURSION SWITCH	
			----------COMPONENTS----------	
all	1	02 15783C	PLATE=EXCURSION SW MTG M#S	
all	2	02 10391	COVER STRIP=MICRO SW #6-8	
all	3	09R008ASTD	* 09R008A+MOUNTING HDWRE+INST	
all	4	03 65234	E-SWITCH WINDOW ANGL T.F.	
all	5	03 65234B	EXCURSION WINDOW PLATES	
all	6	15K039	HXCAPSCR 1/4-20UNC2AX3/4 GR5 Z	
all	7	15G165	HXNUT 1/4-20UNC2BSAE ZC GR2	
all	8	15U185	FLATWASHER(USS STD) 1/4" ZNC P	
all	9	15U180	LOCKWASHER MEDIUM 1/4 ZINCPL	
all	10	15P200	TRDCUT-F HXWASHD 3/8-16X3/4NIK	
all	11	15U240	FLATWASHER(USS STD) 3/8" ZNC P	
all	12	15U255	LOCKWASHER MEDIUM 3/8 ZINCPL	
all	13	15P185	TRDCUT-F HXHD 1/4-20UNC2AX3/4	

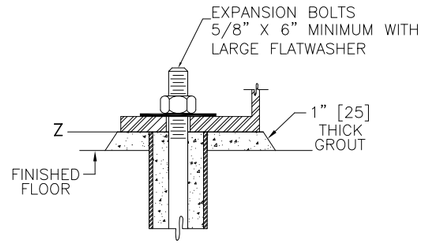
2

Dimensional Drawings 2.8

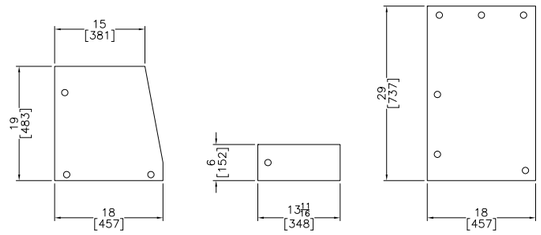




H1 SIDE VIEWS HYDRAULIC TANK



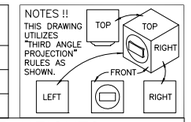
INSTALLATION DETAIL



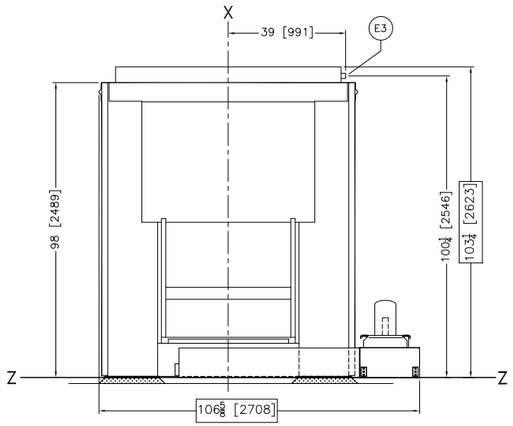
BASE PAD DETAILS

CBW	DIMENSION "C" INCHES	mm
76028	8 3/4	222
76032	4 11/16	119
76039	8 3/4	222

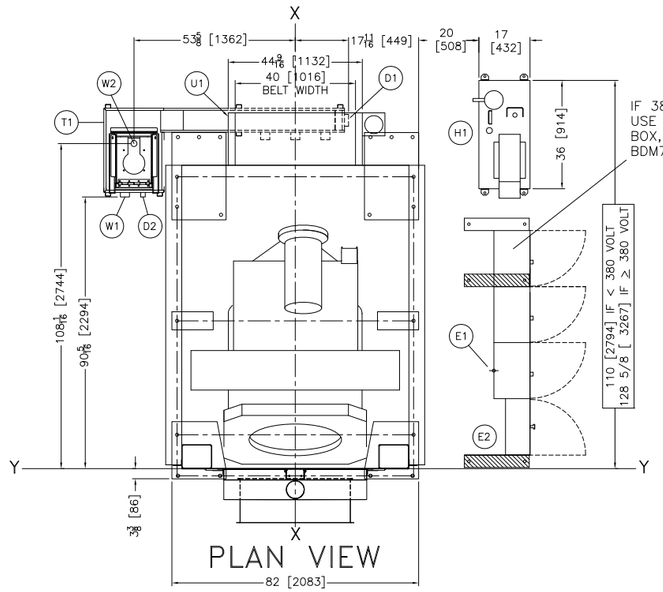
NOTES !!
THIS DRAWING UTILIZES "THIRD ANGLE PROJECTION" RULES AS SHOWN.



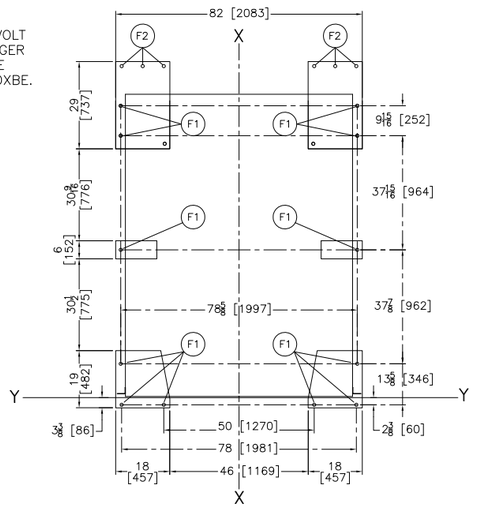
DISCHARGE HEIGHTS	DIMENSION "A" INCHES	mm	DIMENSION "B" INCHES	mm
STANDARD	117 3/4	2991	33	838
24" EXTENSION	139 1/2	3543	43	1092
48" EXTENSION	161 1/2	4102	53	1346



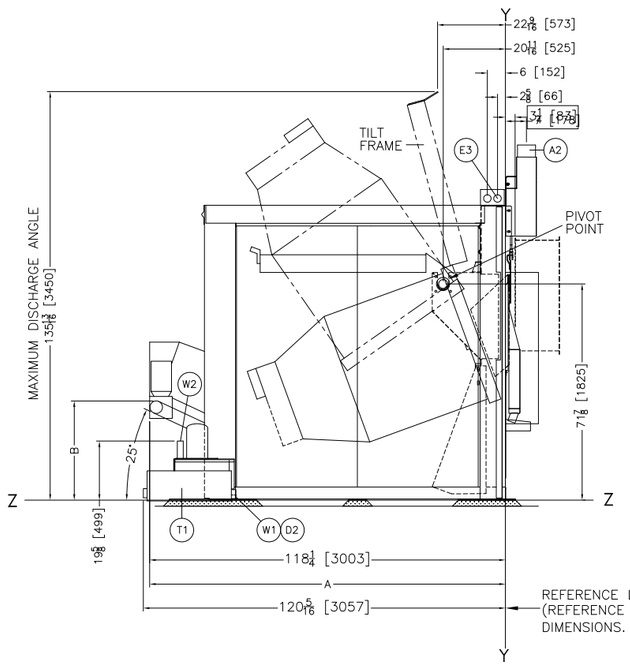
REAR VIEW



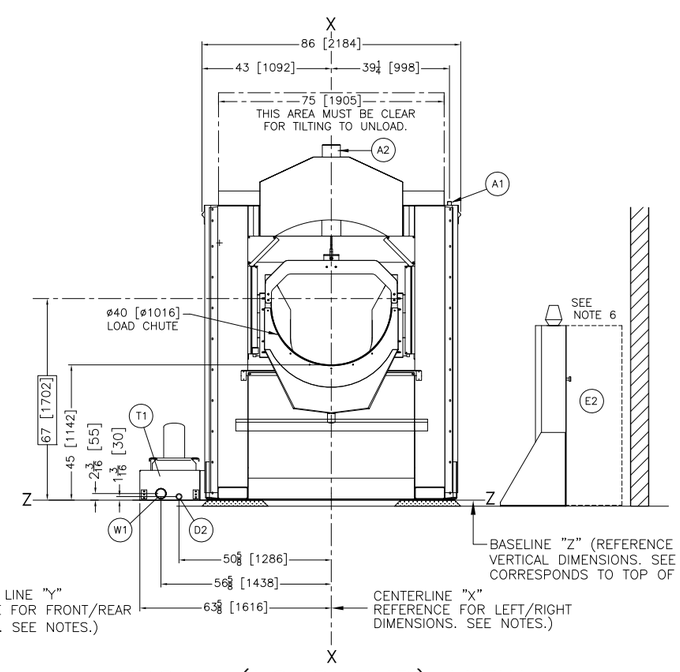
PLAN VIEW



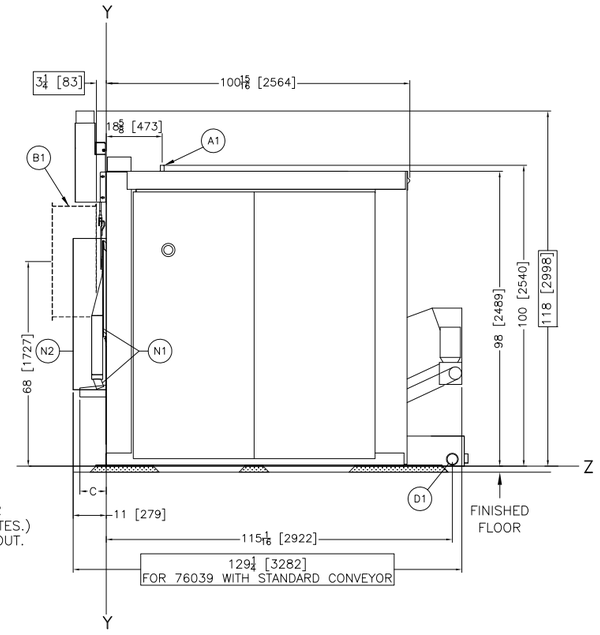
FOUNDATION PLAN VIEW



LEFT VIEW



FRONT (LOAD END) VIEW



RIGHT VIEW

ITEM	LEGEND
W2	REUSE PUMP, WATER TO TUNNEL, 2" HOSE CONNECTION
W1	REUSE WATER FROM LAST MODULE OF TUNNEL, 3" NPT,
	PIPING SUPPLIED BY PMC.
T1	REUSE WATER TANK, MUST KEEP LEVEL AT ALL TIMES.
N2	LOAD CHUTE GUARD (NOT USED 76032)
N1	SCUPPER AND PAN ONLY USED WHEN DIRECTLY LOADED
	BY ANY MILNOR TUNNEL.
F2	SIX, 1–1/16"[27] DIA. HOLES FOR SHIPPING
F1	TWELVE, 1–1/16"[27] DIA. ANCHOR BOLT HOLES. USE 5/8"
	ANCHOR BOLTS MINIMUM.
H1	HYDRAULIC BOX (REQUIRES NO EXTERNAL CONNECTIONS).
E3	MAIN CABLE ENTRANCE COMING FROM CONTROL CONSOLE.
E2	CONTROLS, SEE BDM7EBOXBE.
E1	MAIN ELECTRIC SERVICE CONNECTION. REFER TO FACTORY
	FOR DETAIL OR WIRE SIZE AND FUSING REQUIREMENT.
D2	TANK MANUAL DRAIN 1–1/2" PVC TO SEWER
D1	OVER FLOW TO SEWER, 3" PIPE SOCKET JOINT CONNECTION
B1	TUNNEL DISCHARGE RING
A2	HOOD VENT, 6"[152] DIAMETER, SEE NOTE 14.
A1	COMPRESSED AIR INLET, 1" NPT, FEMALE CONNECTION. RUN
	MINIMUM 1" PIPE. FOR LINES LONGER THAN 75 FEET [23
	METERS], RUN 1 1/4" PIPE. LOCATED ON SIDE OPPOSITE
	OF ELECTRICS.

NOTES

14 THE BEST PRACTICE IS TO PROVIDE TWO SEPARATE, POWERED VENTILATION UNITS THAT MEET THE FOLLOWING CONDITIONS:
A) THE TWO UNITS ARE ISOLATED FROM EACH OTHER TO AVOID HARMFUL CHEMICAL REACTIONS.
B) VENTILATION FANS HAVE SUFFICIENT POWER TO DRAW VAPORS AWAY FROM THE EQUIPMENT. MILNOR RECOMMENDS:
*500 SCFM PER CONNECTION POINT FOR THE OXIDATION ZONE
*750 SCFM PER CONNECTION POINT FOR THE FINISH ZONE AND PRESS ENCLOSURE.
C) FAN MOTORS SHOULD BE EQUIPPED WITH AN ALARM(EXAMPLE: INDICATOR LIGHT) TO ALERT PERSONNEL IF A MOTOR FAILS.

13 SHIM TO LEVEL THE MACHINE AND ALLOW FOR 1" [25] MINIMUM GROUT UNDER BASEPADS. ANCHOR ALL ANCHOR BOLT HOLES, USE 5/8" X 6" BOLTS, MINIMUM. SEE INSTALLATION MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS.

12 WHEN THE CENTRIFUGAL EXTRACTOR MUST BE RAISED ON A PEDESTAL BASE, IT IS ALSO NECESSARY TO RAISE THE REUSE WATER TANK THE SAME HEIGHT AS THE EXTRACTOR WITH PROPER SUPPORT.

11 SEE BDM7E42CAB FOR OPTIONS AND BDM7EDRNAE FOR RECOMMENDED DRAIN TROUGH (FOR JUST EXTRACTOR OR EXTRACTOR AND COBUK COMBINATION).

10 EXTRACTOR WATER TANK AVAILABLE ONLY ON LEFT SIDE IF CENTER DISCHARGE.

9 DO NOT PRE–PIPE ANY CLOSER THAN 60 [1524].

8 ANCHOR BOLTS MUST BE INSTALLED FOR ALL MOUNTING HOLES. 1 [25] THICK GROUT UNDER ALL BASE PADS SHOWN SHADED IN PLAN VIEW.

7 * INDICATES THAT ENTRANCE CAN BE LOCATED ON LEFT OR RIGHT SIDE.

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 CONSTRUCTION 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

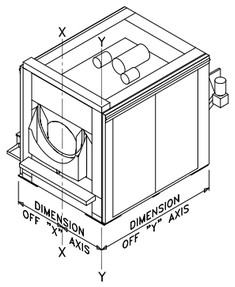
THE FLOOR AND/OR OTHER SUPPORT COMPONENTS MUST HAVE SUFFICIENT STRENGTH (AND RIGIDITY WITH DUE CONSIDERATION FOR NATURAL OR RESONANT FREQUENCY THEREOF) TO WITHSTAND THE FULLY LOADED WEIGHT OF THE MACHINE INCLUDING THE GOODS, THE WATER, AND ANY REPEATED SINUSOIDAL (ROTATING) FORCES GENERATED DURING ITS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

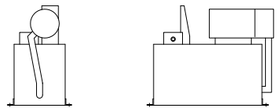
MMS, MXS, M9S42032C

DM 0 0.5M 1M
INCHES 0 12 24 36

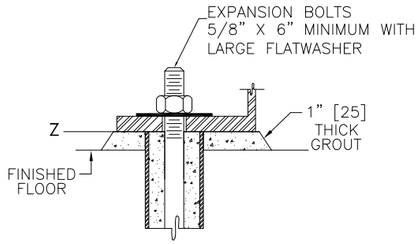
DWG# BDM9S42CAE 2016205

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

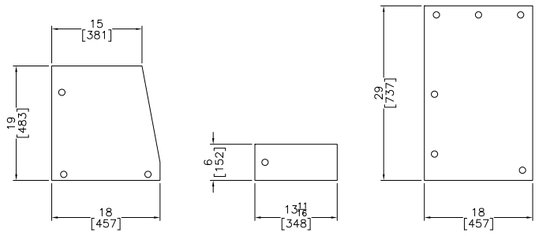




H1 SIDE VIEWS HYDRAULIC TANK

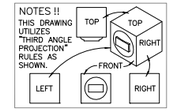


INSTALLATION DETAIL



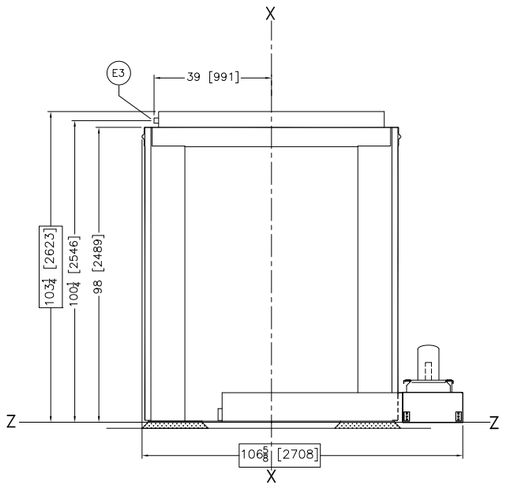
BASE PAD DETAILS

CBW	DIMENSION "C" INCHES	mm
76028	8 3/4	222
76032	4 11/16	119
76039	8 3/4	222

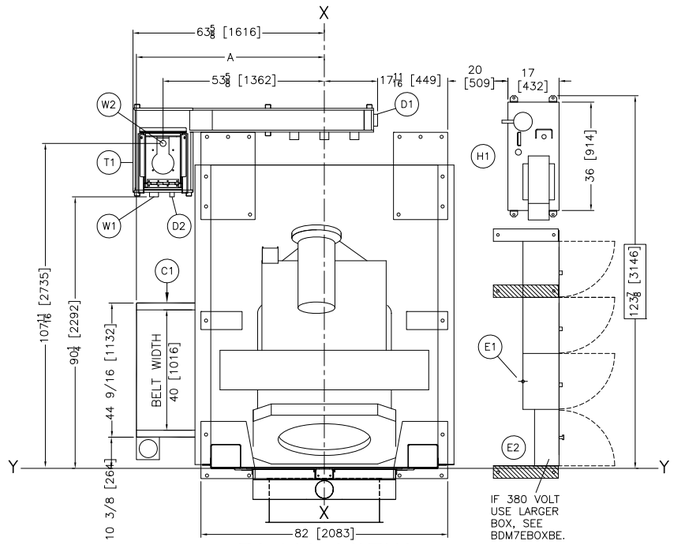


DISCHARGE HEIGHTS

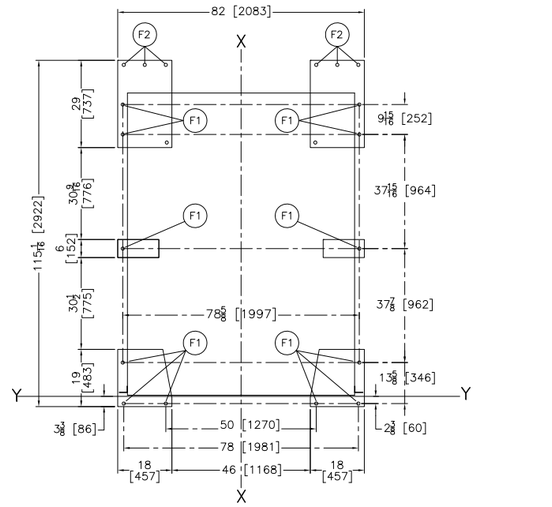
	DIMENSION "A" INCHES	mm	DIMENSION "B" INCHES	mm
STANDARD	62 1/2	1588	33	838
24" EXTENSION	84 1/4	2140	43	1092
48" EXTENSION	106	2692	53	1346



REAR VIEW



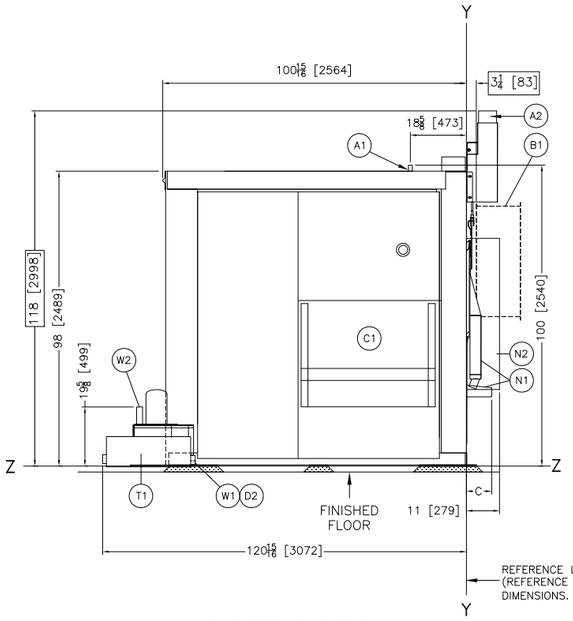
PLAN VIEW



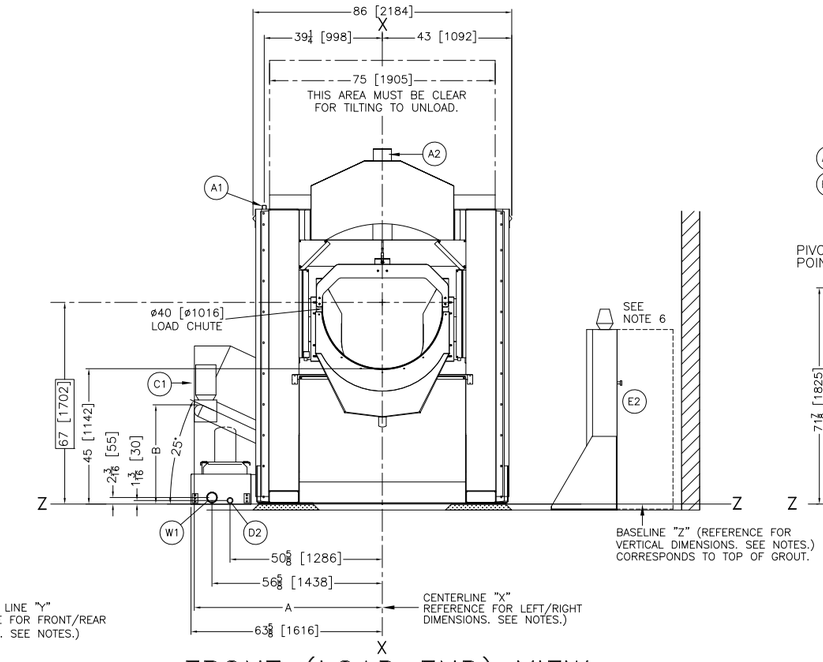
FOUNDATION PLAN VIEW

W2	REUSE PUMP, WATER TO TUNNEL, 2" HOSE CONNECTION
W1	REUSE WATER FROM LAST MODULE OF TUNNEL, 3" NPT,
	PIPING SUPPLIED BY PMC.
T1	REUSE WATER TANK, MUST KEEP LEVEL AT ALL TIMES.
N2	LOAD CHUTE GUARD (NOT USED 76032)
N1	SCUPPER AND PAN ONLY USED WHEN DIRECTLY LOADED
	BY ANY MILNOR TUNNEL.
F2	SIX, 1–1/16"[27] DIA. HOLES FOR SHIPPING BOLTS
F1	TWELVE, 1–1/16"[27] DIA. ANCHOR BOLT HOLES. USE 5/8"
	ANCHOR BOLTS MINIMUM.
H1	HYDRAULIC TANK (REQUIRES NO EXTERNAL CONNECTIONS).
E3	MAIN CABLE ENTRANCE COMING FROM CONTROL CONSOLE.
E2	CONTROLS, SEE BDM7EBOXBE.
E1	MAIN ELECTRIC SERVICE CONNECTION. REFER TO FACTORY
	FOR DETAIL OR WIRE SIZE AND FUSING REQUIREMENT.
D2	TANK MANUAL DRAIN 1–1/2" PVC TO SEWER
D1	OVER FLOW TO SEWER, 3" PIPE SOCKET JOINT CONNECTION
B1	TUNNEL DISCHARGE RING
A2	HOOD VENT, 6[152] DIAMETER, SEE NOTE 11.
A1	COMPRESSED AIR INLET, 1" NPT, FEMALE CONNECTION. RUN
	MINIMUM 1" PIPE. FOR LINES LONGER THAN 75 FEET [23
	METERS], RUN 1 1/4" PIPE. LOCATED ON SIDE OPPOSITE
	OF ELECTRICS.

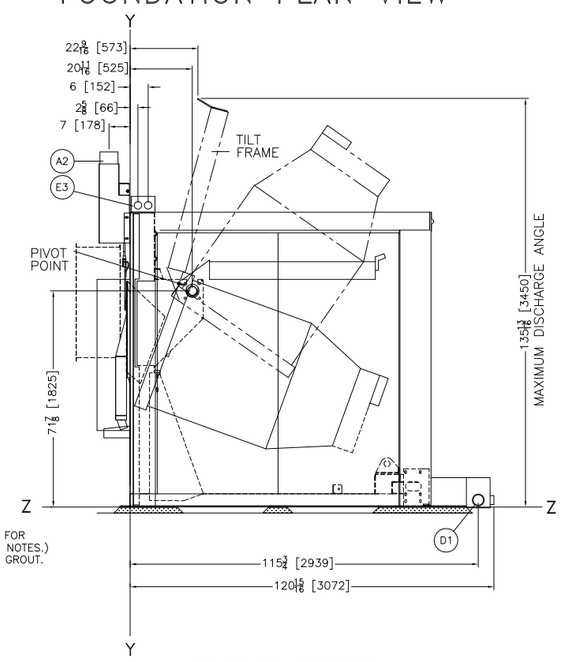
ITEM	LEGEND



LEFT VIEW



FRONT (LOAD END) VIEW



RIGHT VIEW

NOTES

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A) THE TWO UNITS ARE ISOLATED FROM EACH OTHER TO AVOID HARMFUL CHEMICAL REACTIONS.
B) VENTILATION FANS HAVE SUFFICIENT POWER TO DRAW VAPORS AWAY FROM THE EQUIPMENT. MILNOR RECOMMENDS:
*500 SCFM PER CONNECTION POINT FOR THE OXIDATION ZONE
*750 SCFM PER CONNECTION POINT FOR THE FINISH ZONE AND PRESS ENCLOSURE.
C) FAN MOTORS SHOULD BE EQUIPPED WITH AN ALARM(EXAMPLE: INDICATOR LIGHT) TO ALERT PERSONNEL IF A MOTOR FAILS.

10 SHIM TO LEVEL THE MACHINE AND ALLOW FOR 1" [25] MINIMUM GROUT UNDER BASEPADS. ANCHOR ALL ANCHOR BOLT HOLES, USE 5/8" X 6" BOLTS, MINIMUM. SEE INSTALLATION MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS.

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8 DO NOT PRE-PIPE ANY CLOSER THAN 60 [1524].

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

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ATTENTION

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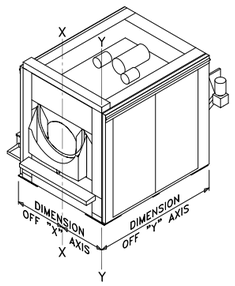
THE FLOOR AND/OR OTHER SUPPORT COMPONENTS MUST HAVE SUFFICIENT STRENGTH (AND RIGIDITY WITH DUE CONSIDERATION FOR NATURAL OR RESONANT FREQUENCY THEREOF) TO WITHSTAND THE FULLY LOADED WEIGHT OF THE MACHINE INCLUDING THE GOODS, THE WATER, AND ANY REPEATED SINUSOIDAL (ROTATING) FORCES GENERATED DURING ITS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

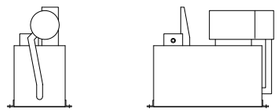
MMS, MXS, M9S42032L

DM 0 0.5M 1M
INCHES 0 12 24 36

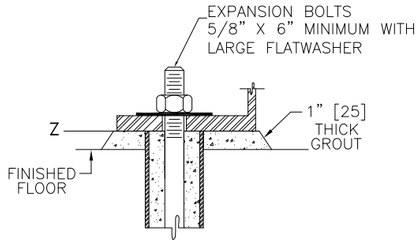
DWG# BDM9S42LAE 2016205D

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

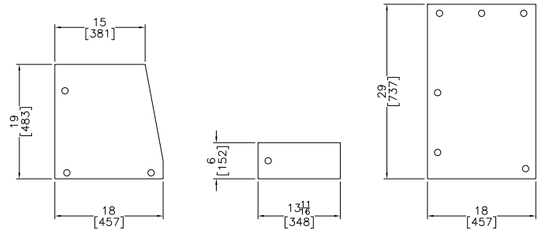




(H1) SIDE VIEWS HYDRAULIC TANK



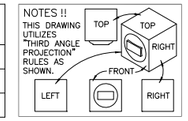
INSTALLATION DETAIL



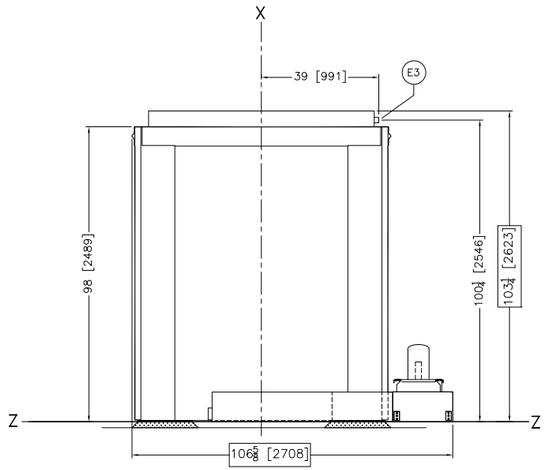
BASE PAD DETAILS

CBW	DIMENSION "C" INCHES	mm
76028	8 3/4	222
76032	4 11/16	119
76039	8 3/4	222

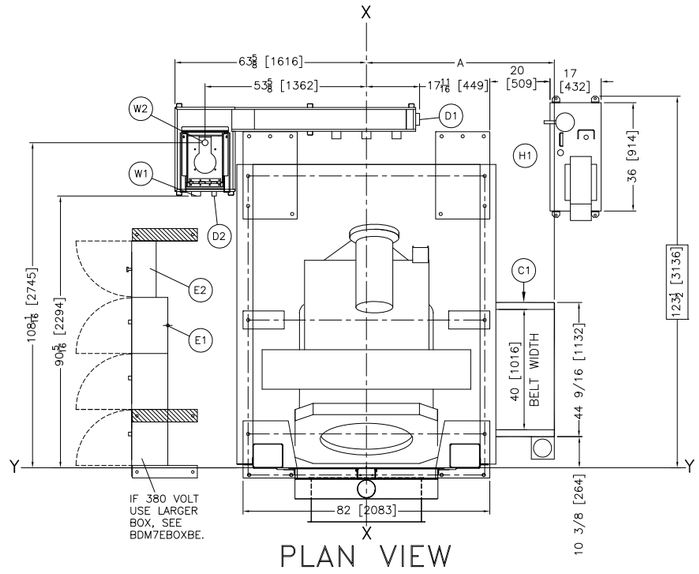
NOTES !!
THIS DRAWING UTILIZES "THIRD ANGLE PROJECTION" RULES AS SHOWN.



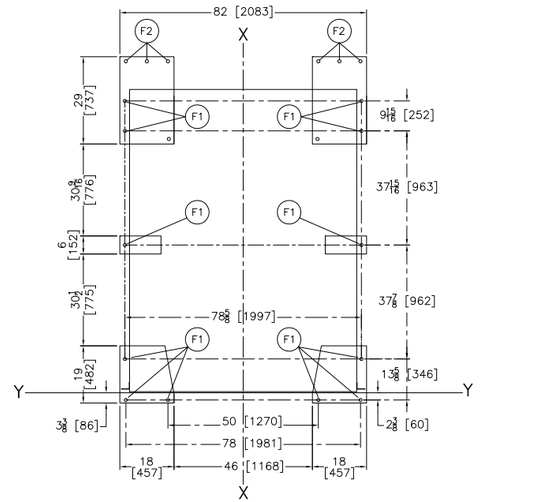
DISCHARGE HEIGHTS	DIMENSION "A" INCHES	mm	DIMENSION "B" INCHES	mm
STANDARD	62 1/2	1588	33	838
24" EXTENSION	84 1/4	2140	43	1092
48" EXTENSION	106	2692	53	1346



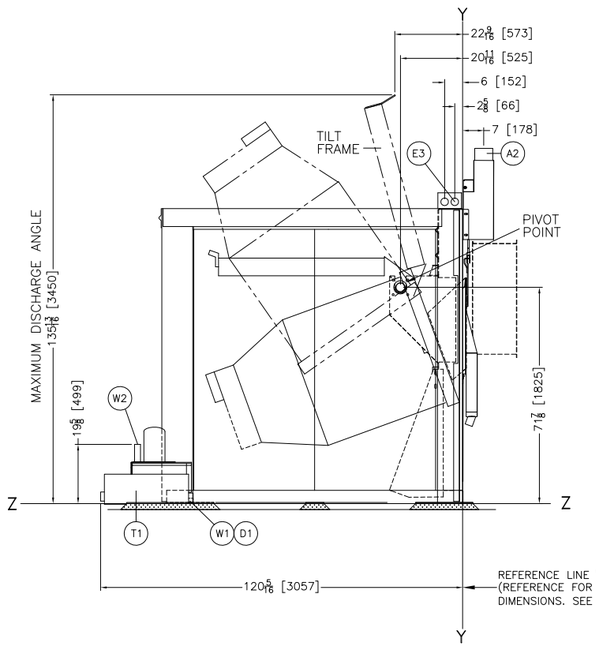
REAR VIEW



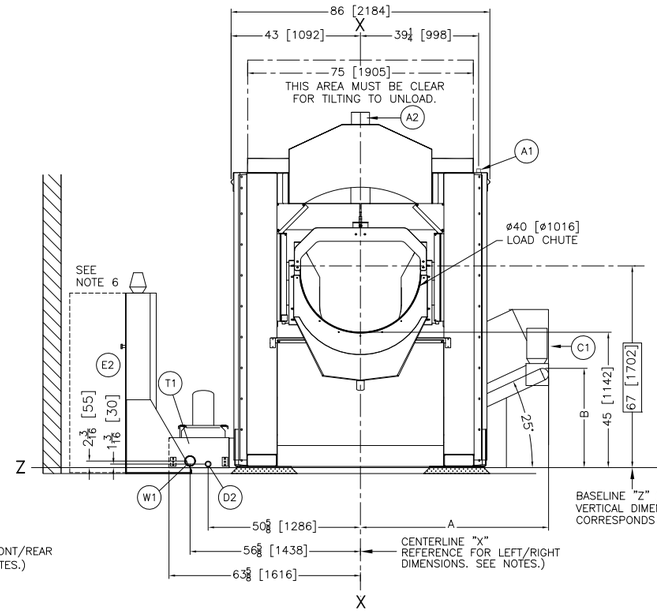
PLAN VIEW



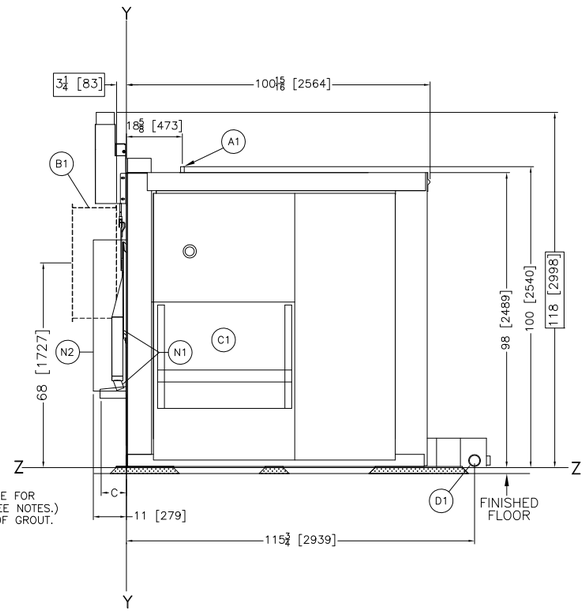
FOUNDATION PLAN VIEW



LEFT VIEW



FRONT (LOAD END) VIEW



RIGHT VIEW

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MMS, MXS, M9S42032R

DM 0 0.5M 1M
INCHES 0 12 24 36

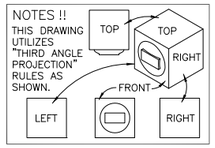
DWG# BDM9S42RAE 2016205D

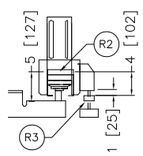
PELLERIN MILNOR CORPORATION
P.O. Box 400 Kenner, LA 70063, USA, Phone 504/467–9591,
FAX 504/468–3094, Email: milnorinfo@milnor.com

CBW MODEL NUMBER	DIMENSION "F" INCHES	mm
76028	52	1321
76032	46	1168
76039	52	1321

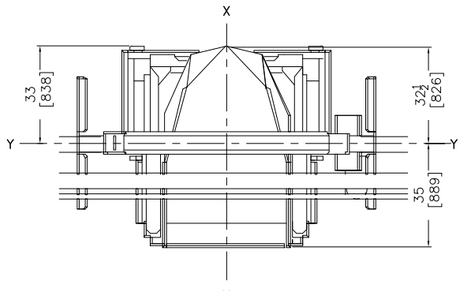
HOW TO USE OTHER SYSTEM MACHINES WITH COBUC								COBUC DIMENSIONS											
M9S42032		M9V42032 ON PEDESTAL		50K PRESS ON PEDESTAL		60K PRESS ON PEDESTAL		COBUC SIDE RAIL EXTENDER		DIMENSION "A"		DIMENSION "B"		DIMENSION "C"		DIMENSION "D"		DIMENSION "E"	
INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm
		0	0	0	0	—	—	10 1/2	267	120	3048	126	3200	14 3/8	365	40 5/8	1032	39	991
0	0							17 1/2	445	127	3226	133	3378	14 3/8	365	47 5/8	1210	46	1168
		9-3/8	238	9-3/8	238	0	0	21	533	130 1/2	3315	136 1/2	3467	23 1/8	587	50	1270	48 7/16	1230
		48	1219	48	1219	38 5/8	981	59 1/2	1511	169	4293	175	4445	14 3/8	365	88 5/8	2251	87	2210

** FOR HEIGHTS NOT SHOWN ON CHART, CONSULT FACTORY.



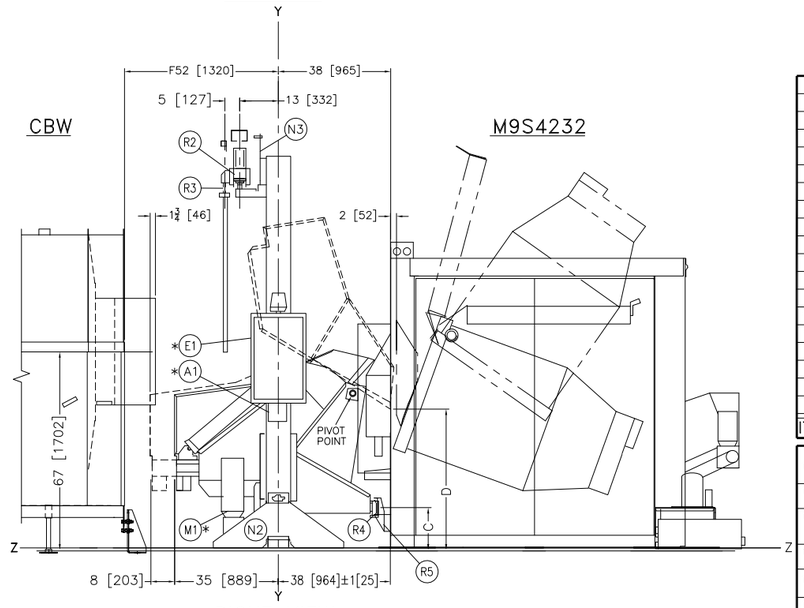


UPPER RAIL DETAIL
SEE NOTE 16.



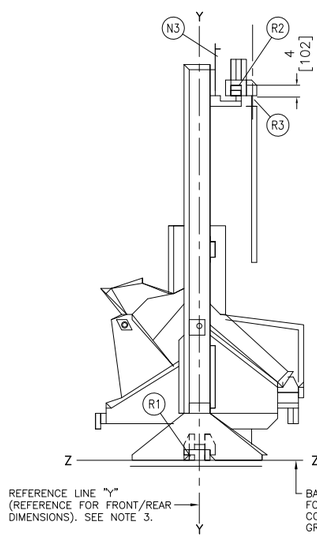
PLAN VIEW

COBUC–T

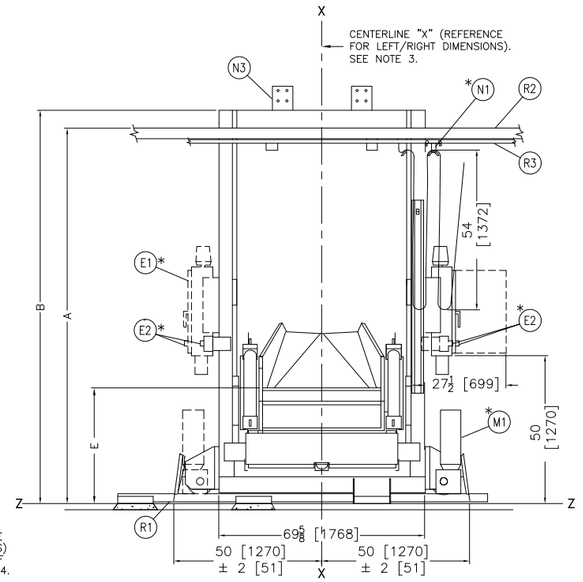


RIGHT VIEW

ITEM	LEGEND
R5	EXTRACTOR OUTRIGGER RAIL BRACKET
R4	OUTRIGGER RAIL COBUC
R3	FESTOON RAIL. RAIL SUPPLIED BY MILNOR AND MAY BE PRICED SEPARATELY. SEE PRICE LIST
R2	UPPER RAIL. RAIL SUPPLIED BY MILNOR AND MAY BE PRICED SEPARATELY. SEE PRICE LIST
R1	BOTTOM DRIVE RAIL. RAIL SUPPLIED BY MILNOR AND MAY BE PRICED SEPARATELY. SEE PRICE LIST.
N3	MOUNTING BRACKET FOR STOP SWITCH
N2	SAFETY KICK PLATE, SPRING LOADED.
N1	FESTOON CABLE SUPPORT CARS. CARS ARE SUPPLIED BY MILNOR AND MAY BE PRICED SEPARATELY. SEE PRICE LIST FOR NUMBER OF CARS.
*M2	BOTTOM DRIVE MOTOR IN LEFT HAND LOCATION.
*M1	BOTTOM DRIVE MOTOR IN RIGHT HAND LOCATION.
E2	EMERGENCY STOP BUTTONS
*E1	COBUC CONTROL BOX
A2	COMPRESSED AIR, 1/2" HOSE CONNECTION, SEE NOTE 13.
*A1	AIR VALVE BOX. ALWAYS UNDER ELECTRIC BOXES.

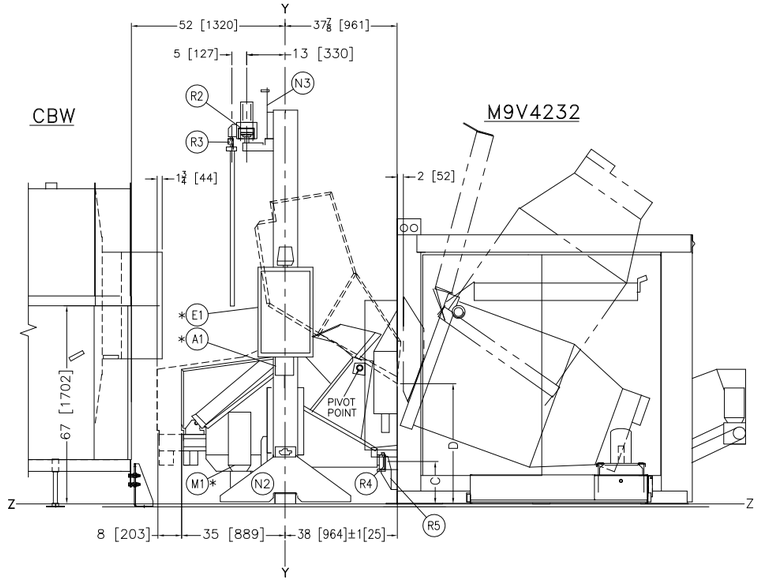


LEFT VIEW



FRONT (LOAD END) VIEW

COBUC–T



RIGHT VIEW

NOTES

17 SEE BDM7EDRNAE AND BDM7EDRNAB FOR INFORMATION ON DRAIN TROUGH RECOMMENDED FOR COBUC AND EXTRACTOR.

16 DIMENSIONS IN UPPER RAIL DETAIL MUST BE HELD ± 1" [25] ALONG THE ENTIRE RAIL LENGTH.

15 LOAD CHUTE OF 60KG PRESS IS 9-3/8" (238) HIGHER THAN LOAD CHUTE OF 50KG PRESS, TP60 PRESS AND M7E42032. SEE CHART FOR HOW TO INTERFACE THESE MACHINES.

14 SAFETY FENCING MUST BE INSTALLED TO PREVENT ACCESS INTO THE PATH OF COBUC WHILE IT IS RUNNING. NOT SUPPLIED BY PMC.

13 COMPRESSED AIR IS NEEDED ON ALL COBUCS, 1/2 [13] BARBED HOSE FITTING. LOCATED AT END OF RAIL, OFF OF FESTOON JUNCTION BOX.

12 SEE BDLTRAILBE FOR DIMENSIONS OF RAILS AND SUPPORTS.

11 DIMENSION VARIES WITH HEIGHT OF EXTENDERS WHEN ADDED.

10 SEE BDLTRCLRBE FOR DIMENSIONS OF SHUTTLE AT LAST STOP PLACE TO END OF RAIL OR WALL.

9 EMERGENCY STOPS ARE REQUIRED ON BOTH LEFT AND RIGHT SIDES OF THE COBUC. 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 CONTROLS.

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

*7 THE COBUC IS AVAILABLE IN VARIOUS HEIGHTS AND COMPONENT PLACEMENT. 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.

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 REVISION 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.

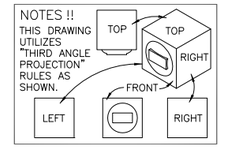
COBUC–T

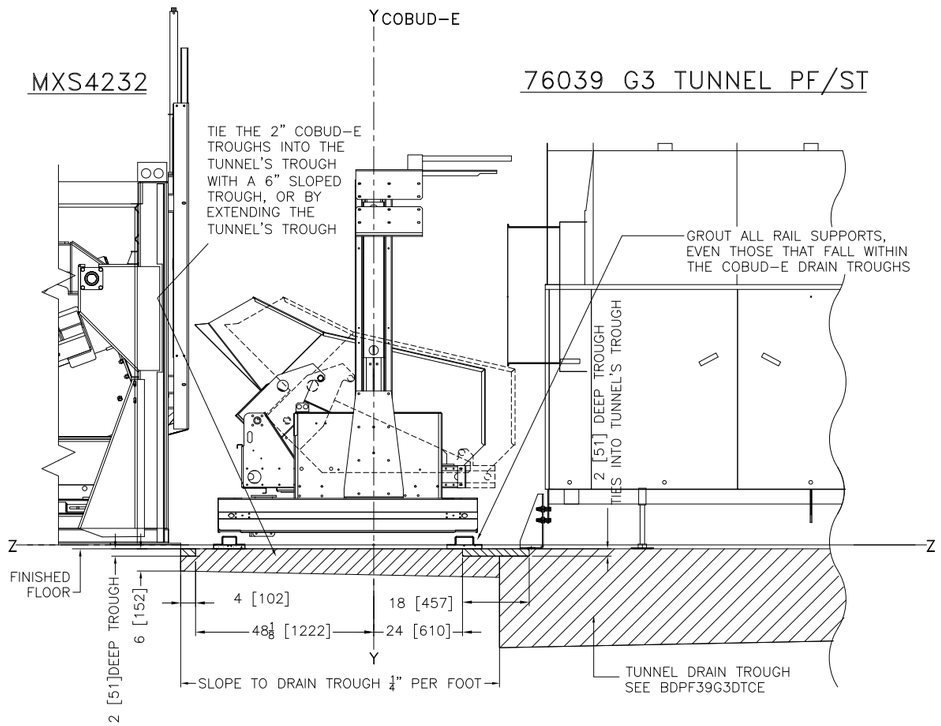
DM 0 0.5M 1M
INCHES 0 12 24 36

DWG# BDCOBUCTAE 2016022D

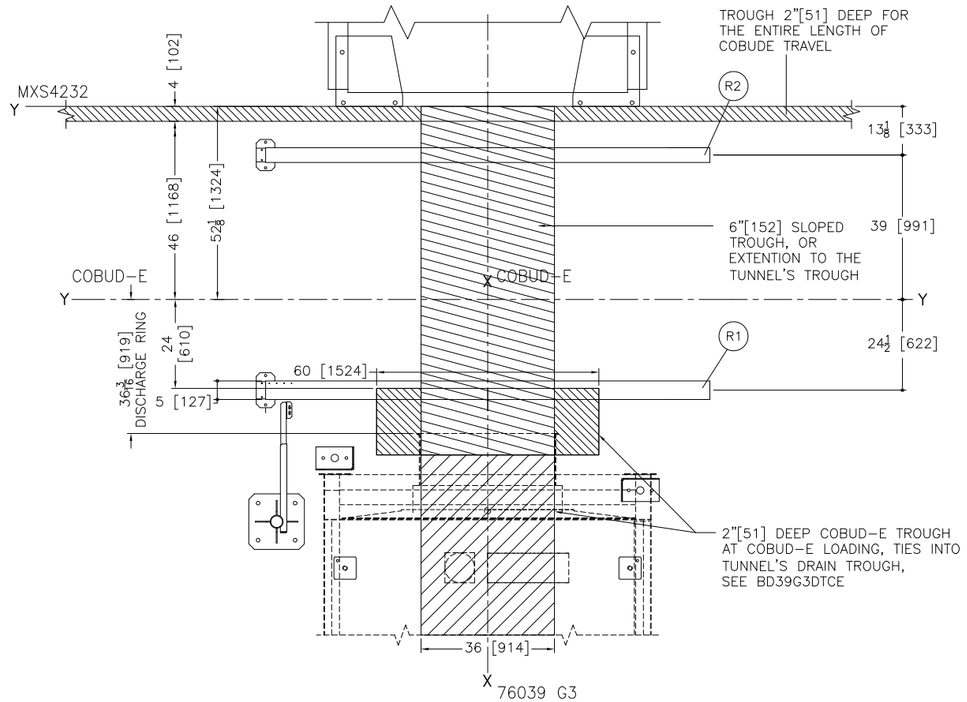
PELLERIN MILNOR CORPORATION
P.O. Box 400 Kenner, LA 70063, USA, Phone 504/467-9591,
FAX 504/468-3094, Email: milnorinfo@milnor.com

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





LEFT VIEW
COBUD-E DRAIN TROUGHS



PLAN VIEW
COBUD-E & 76039 G3
TROUGHS

ITEM	LEGEND
R2	4" FLOOR DRIVE RAIL, DISCHARGE SIDE
R1	5" FLOOR DRIVE RAIL, LOAD SIDE

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4 BASELINE "Z" IS THE REFERENCE FOR ALL VERTICAL DIMENSIONS. ON MACHINES WITH WITH FIXED BASE PADS, BASELINE "Z" CORRESPONDS TO THE BOTTOM OF THE BASE PAD. ON MACHINES WITH ADJUSTABLE FEET, BASELINE "Z" CORRESPONDS TO THE BOTTOM OF THE FEET WHEN ADJUSTED SO THAT THE MACHINE IS AT ITS MINIMUM ACCEPTABLE HEIGHT. ON TRAVERSING SHUTTLES, BASELINE "Z" CORRESPONDS TO THE BOTTOM OF THE BOTTOM RAIL. THE DISTANCE BETWEEN BASELINE "Z" AND THE FINISHED FLOOR WILL VARY AS REQUIRED TO ENSURE BASELINE "Z" IS HORIZONTAL AND ANY INTERFACING MACHINES REQUIRING GROUT ARE SET ON A MINIMUM 1"[25] THICK GROUT BED.

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DRAIN TROUGHS COBUD-E/MXS4232&M9S

DM 0 0.5M 1M
INCHES 0 12 24 36

DWG# BDCOBUDEAD
2013342D

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