

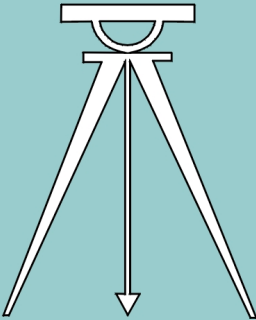
Published Manual Number/ECN: MAI72J2NAE/2007484A

- Publishing System: TPAS
- Access date: 12/3/2007
- Document ECN's: Exact



Installation—

72058 and 72075 J2N Washer-Extractor



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

Please Read

About the Manual Identifying Information on the Cover—The front cover displays pertinent identifying information for this manual. Most important, are the published manual number (part number) /ECN (date code). Generally, when a replacement manual is furnished, it will have the same published manual number, but the latest available ECN. This provides the user with the latest information applicable to his machine. Similarly all documents comprising the manual will be the latest available as of the date the manual was printed, even though older ECN dates for those documents may be listed in the table of contents.

When communicating with the Milnor factory regarding this manual, please also provide the other identifying information shown on the cover, including the publishing system, access date, and whether the document ECN's are the latest available or exact.

Best Available Information—This manual contains the most accurate and complete information available when Milnor shipped your machine/software. Products are occasionally released with the best available documentation, even though the device identification (model numbers, etc.) on the documentation does not explicitly include the delivered model. In such cases, use the documentation provided.

Although unlikely, incorrect manuals may have been shipped with your machine. If you believe you received the wrong manuals, or if you need specific information about any aspect of your machine not addressed in the provided documentation, contact the Milnor Customer Service group.

References to Yellow Troubleshooting Pages—This manual may contain references to “yellow pages.” Although the pages containing trouble-shooting procedures are no longer printed on yellow paper, troubleshooting instructions, if any, will be contained in the easily located “Troubleshooting” section. See the table of contents.

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Table of Contents

for MAI72J2NAE/2007484A

72058 and 72075 J2N Washer-Extractor

Page	Description	Document/ECN
1	Warranty	BMP720097/92732A
2	How to Order Parts	BMP720097R/72332A
3	Section 1: Safety Information	
4	Safety—Suspended, Open Pocket, Non-tilting Washer-Extractors	BIUUUS27/20051111
10	About the Forces Transmitted by Milnor Washer-Extractors	BIWUUI02/20001108
12	Glossary of Tag Illustrations - Suspended Washer-Extractors	MSIUPUTGAE/2003026V
18	Avoiding Damage from Allied Remote Chemical Delivery Systems	BIWUUI03/20030306
23	Section 2: Installation	
24	Handling and Setting Procedures for ExN and JxN Washer-Extractors	BIIEUI01/20011011
30	Service connections	MSINA404AE/2002372V
32	Important Instructions for Pumped Chemical Inlets	BIWUUI01/20020910
35	Section 3: Dimensional Drawings	
37	Dimensional Drawing - 72058J2N Slim	BD7258J2DE/2007463D
39	Dimensional Drawing - 72075J2N	BD7275J2AE/2000334D

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 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, FOB our factory. 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 repaired or altered in any way without MILNOR's written consent.

Parts which require routine replacement due to normal wear – such as gaskets, contact points, brake and clutch linings and similar parts – are not covered by this warranty, nor are parts damaged by exposure to weather or to chemicals.

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. 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, MISUSE, NEGLIGENCE, 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.

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.

How to order repair parts

Repair parts may be ordered either from the authorized dealer who sold you this machine, or directly from the MILNOR factory. In most cases, your dealer will have these parts in stock.

When ordering parts, please be sure to give us the following information:

1. Model and serial number of the machine for which the parts are required
2. Part number
3. Name of the part
4. Quantity needed
5. Method of shipment desired
6. In correspondence regarding motors or electrical controls, please include all nameplate data, including wiring diagram number and the make or manufacturer of the motor or controls.

All parts will be shipped C.O.D. transportation charges collect only.

Please read this manual

It is strongly recommended that you read the installation and operating manual before attempting to install or operate your machine. We suggest that this manual be kept in your business office so that it will not become lost.

PELLERIN MILNOR CORPORATION

P.O. BOX 400, KENNER, LA., 70063-0400, U.S.A.

FAX: Administration 504/468-9307, Engineering 504/469-1849, Service 504/469-9777

BMP720097R
72332A

Section

Safety Information

1

Safety—Suspended, Open Pocket, Non-tilting Washer-Extractors

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.

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 [3]: 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.

4. Safety Alert Messages—Cylinder and Processing Hazards

[Document BIUUUS13]

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



DANGER [4]: Entangle and Sever Hazards—Contact with goods being processed can cause the goods to wrap around your body or limbs and dismember you. The goods are normally isolated by the locked cylinder door.

- 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.
- Do not operate the machine with a malfunctioning door interlock.
- Open pocket machines only—Do not jog the cylinder and pull the goods at the same time.
- Open pocket machines only—Keep yourself and others clear of cylinder and goods during jogging operation.
- Do not operate the machine with malfunctioning two-hand manual controls.
- 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 [5]: 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. The turning cylinder is normally isolated by the locked cylinder door.

- Do not attempt to open the door or reach into the cylinder until the cylinder is stopped.
- Do not place any object in the turning cylinder.
- Do not operate the machine with a malfunctioning door interlock.
- Open pocket machines only—Keep yourself and others clear of cylinder and goods during jogging operation.

- Do not operate the machine with malfunctioning two-hand manual controls.



WARNING [6]: 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 [7]: 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.
- Do not process goods containing flammable substances. Consult with your local fire department/public safety office and all insurance providers.

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

5.1. Damage and Malfunction Hazards

5.1.1. Hazards Resulting from Inoperative Safety Devices



DANGER [8]: Entangle and Sever Hazards—Cylinder door interlock—Operating the machine with a malfunctioning door interlock can permit opening the door when the cylinder is turning and/or starting the cycle with the door open, exposing the turning cylinder.

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



WARNING [9]: 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 [10]: 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 [11]: 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 [12]: 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 [13]: 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.



WARNING 14: Explosion Hazards—Clutch and speed switch (multiple motor machines)—A damaged clutch or speed switch can permit the low speed motor to engage during extract. This will over-speed the motor and pulleys and can cause them to rip apart, discharging metal fragments at high speed.

- Stop the machine immediately if any of these conditions occur: • abnormal whining sound during extract • skidding sound as extract ends • clutches remain engaged or re-engage during extract

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.

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



WARNING 16: 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 17: 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 18: 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.

Safety—Suspended, Open Pocket, Non-tilting Washer-Extractors

— End of BIUUUS27 —

About the Forces Transmitted by Milnor® Washer-extractors

Document BIWUUI02
Specified Date 20001108
As-of Date 20001108
Access Date 20001108
Applicability.....WUU

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 360° 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 360° 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

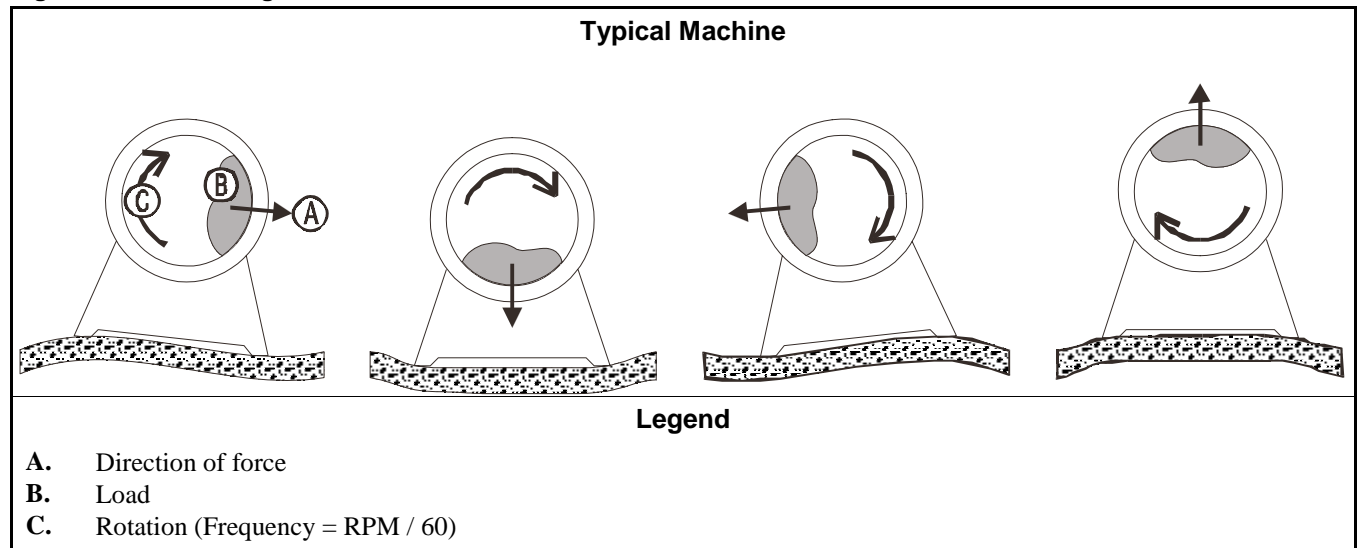
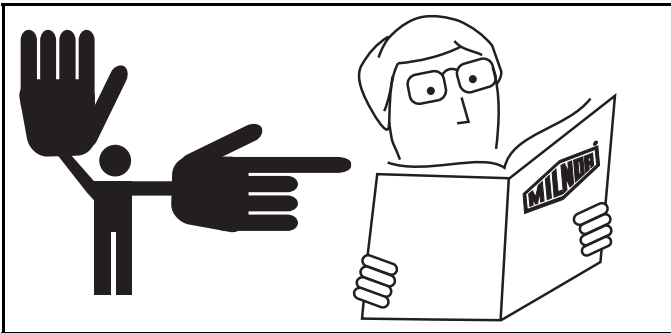
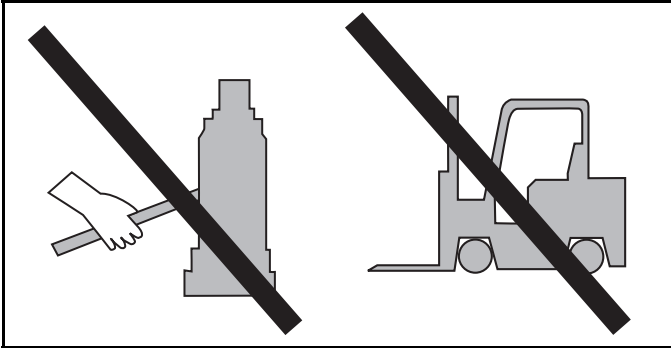
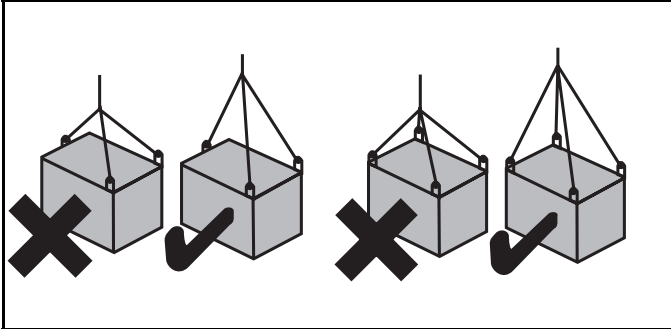
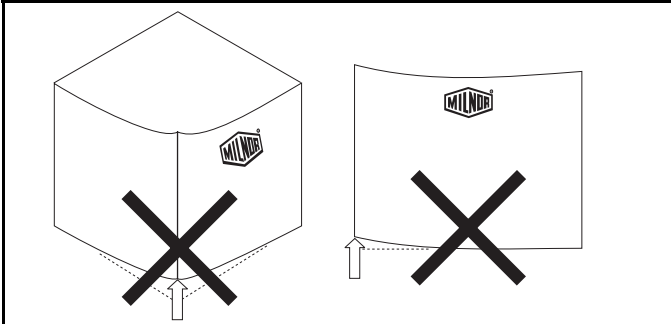


Figure 1 above is intended to depict both on-grade and above-grade installations and is equally applicable to flexibly-mounted washer-extractors, as well as to rigid models installed either directly on a floor slab or on a foundation poured integrally with the slab. Current machine data is available 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.

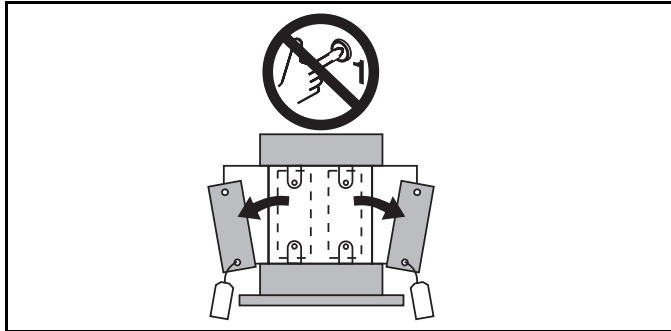
Glossary of Tag Illustrations— Suspended Washer-Extractors

MSIUPUTGAE/2003026V

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

Illustration

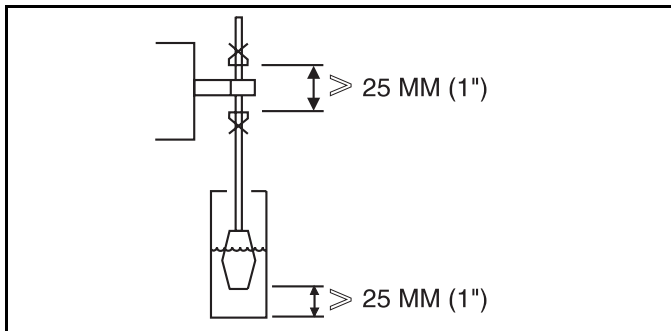
Explanation



Do not start this machine until the packing materials, lifting brackets, etc. with this tag attached or behind this panel are removed. These materials are painted red. Safety stands or brackets (also painted red) may be provided with this machine. Do not discard safety stands or brackets



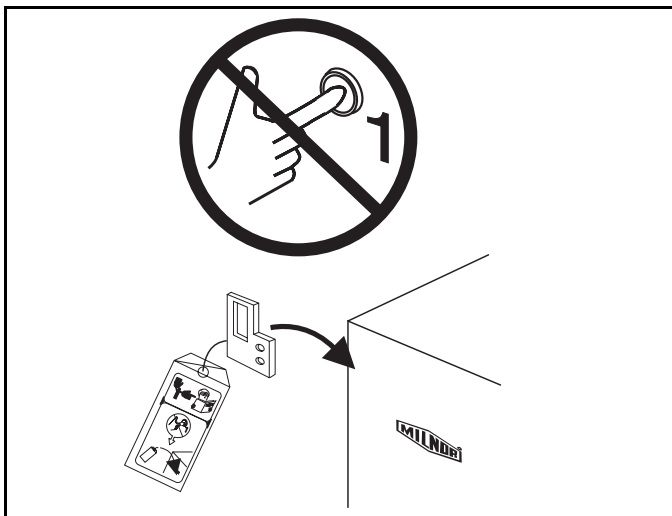
Do not step or stand on this machine part.



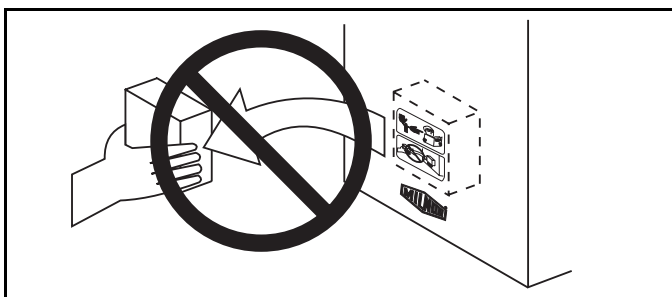
Maintain a 25 mm. (1") minimum clearance between float clips. Set "low level" so that the bottom of the float is always at least 25mm (1") above the bottom of the float tube.



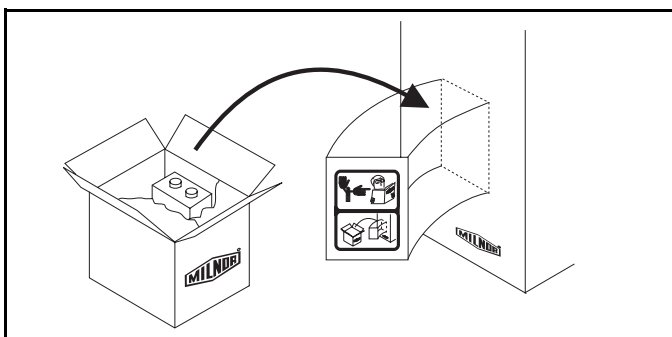
This motor or pump should rotate in the direction of the arrow.



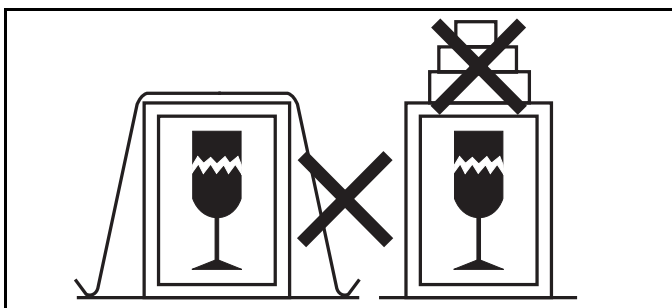
Do not start this machine until the part with this tag is installed on the machine.



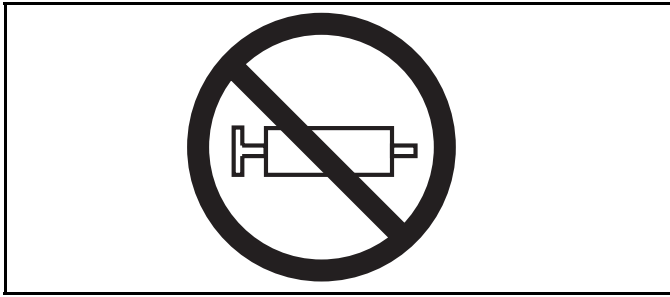
Do not remove this component from the machine.



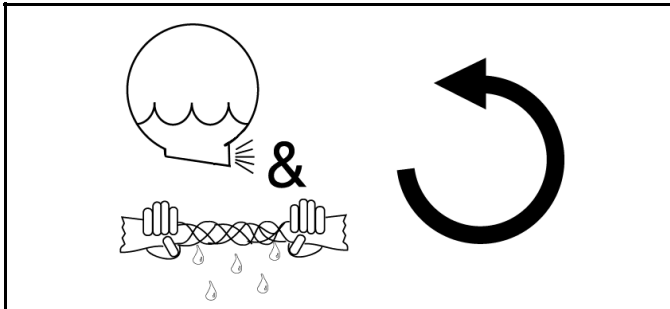
Install the appropriate part here before operating the machine.



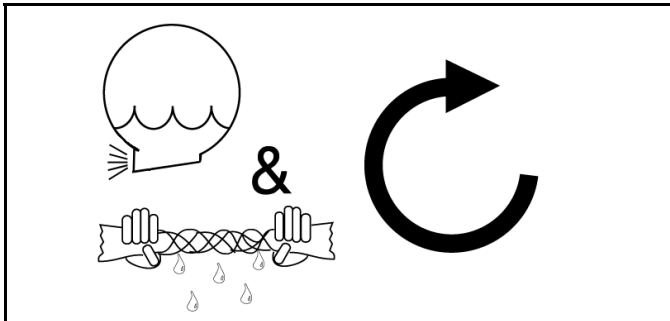
Do not strap or chain over box



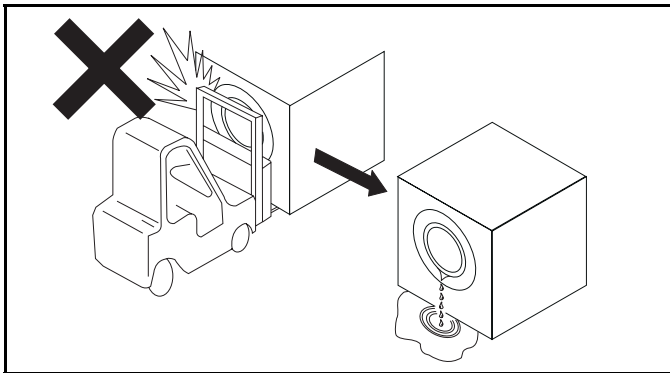
Do not pump grease here.



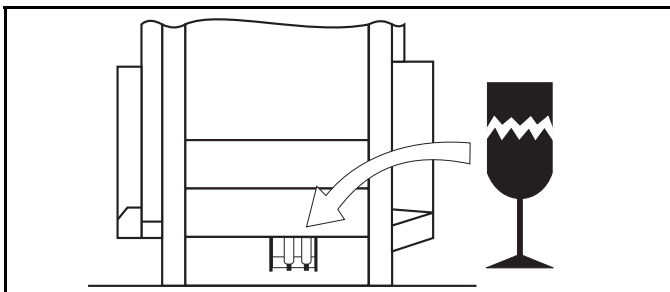
During drain and extract, the cylinder must rotate counterclockwise when viewed from here (rear of machine).



During drain and extract, the cylinder must rotate clockwise when viewed from here (front of machine).

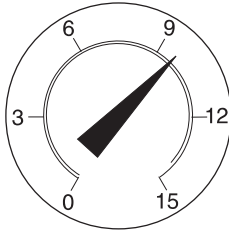


Do not strike shell front of washer-extractors during fork lifting. Striking shell front will cause door to leak.



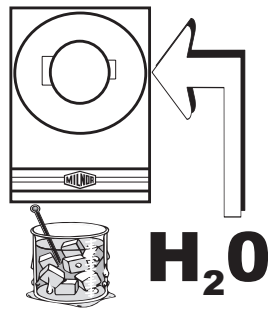
Brake assembly under machine is fragile. Forklift blades should only be placed under main structural beams

10 psi
.70 kg/cm²

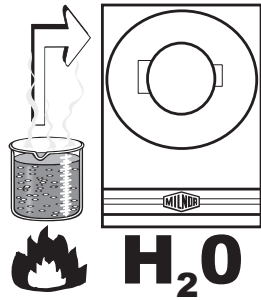


Set main bearing air pad gauge at 10 psi
(.70 kg/cm²), 64" and 72" ExN and JxN
models only.

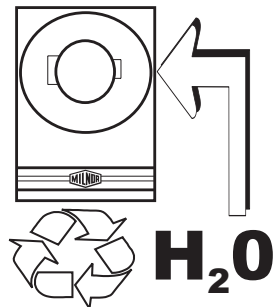
Set disc brake air gauge at 10 psi
(.70 kg/cm²), 64" and 72" ExN and JxN
models only.



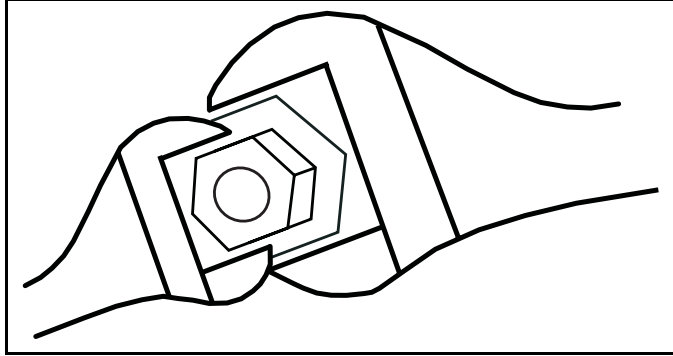
Make cold water connection here.



Make hot water connection here.



Make third (reuse) water connection here.



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

Avoiding Damage From Allied Remote Chemical Delivery Systems

Milnor® does not manufacture or supply remote chemical delivery systems and this document is meant only to illustrate some of the possible problems that can be minimized during installation of such systems by the chemical supply company. Milnor washer-extractors and CBW® batch washers (tunnels) are available with convenient inlets for such systems (see Figure 1). Most common of the types of systems currently used in commercial laundering operations are pumped chemical systems. Other types, such as constant pressure, re-circulating ring main systems have also been, and may continue to be used with Milnor equipment.

This document warns about some of the possible hazards posed by chemical systems and lists certain requirements needed to minimize those hazards. The procedures for interfacing with allied chemical systems and information pertinent to chemical use in general are provided elsewhere in the product manuals (see Note 1).

Figure 1: Pumped Chemical Inlets on CBW Batch Washer



Note 1: Misuse of laundering chemicals (such as injecting excessive concentrations of chlorine bleach or permitting acid sours to react with hypo chlorite) due to incorrect formulation can also be hazardous. Information pertinent to chemical use is provided elsewhere in the product manuals.

1. How a Chemical System Can Damage the Machine It Serves

Milnor has manufactured washer-extractors and tunnel washers with the same stainless steel specification since its founding. Every batch of steel used is certified and documented by the steel mill. Testing of samples damaged by corrosion have, in every case, proven the steel to be well within the AISI 304 specification.

Chemical products commonly found in the laundry industry, when used in **established** dosages and proper operating parameters, under the auspices of an experienced chemical specialist, should produce satisfactory results, with no consequential detrimental effects. The industry has published standards in Riggs and Sherrill, “Textile Laundering Technology”. However, the stainless steel can be damaged and even destroyed by **abnormal** contact with chlorine bleach, hydrofluosilicic acid and other commonly used chemicals, as will occur if chemicals are unintentionally leaked into the machine, particularly when it is no longer in use and especially when machine surfaces are dry.

Some chemical systems have been found to permit chemicals to dribble from the supply lines, or worse, to siphon from the supply tank into the machine, during operation and long after the system is shut down—as after working hours and during weekends. If this occurs, **deterioration (rusting) of the stainless steel and damage to any textiles therein will inevitably result. If this condition goes undetected, machine damage is likely to be catastrophic.** No machine is immune to such damage.



CAUTION [1]: Equipment and Textile Damage Hazards—Chemicals leaked into the machine, particularly when it is idle can destroy machine components and textiles left in the machine. **Pellerin Milnor Corporation accepts absolutely no responsibility for damage to its equipment or to textiles therein from abnormal contact with chemicals.**

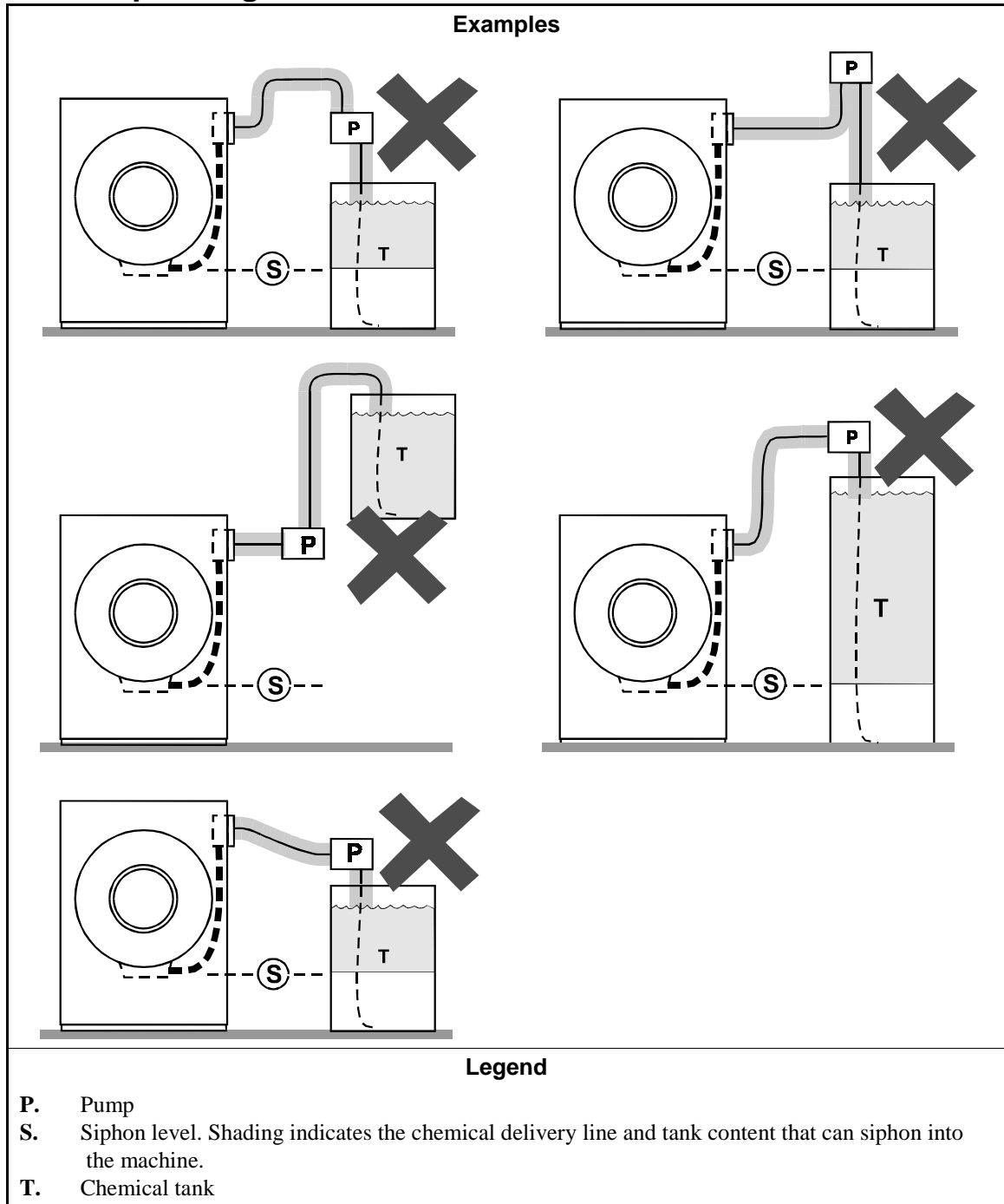
- Ensure that the chemical system prevents unintentional release of chemicals.
- Inspect regularly for proper operation and evidence of damage.

2. Requirements for Chemical Systems Used With Milnor Machines

It is the responsibility of the chemical system manufacturer and supplier to ensure that their system is safe for personnel and equipment. Some important points are described below.

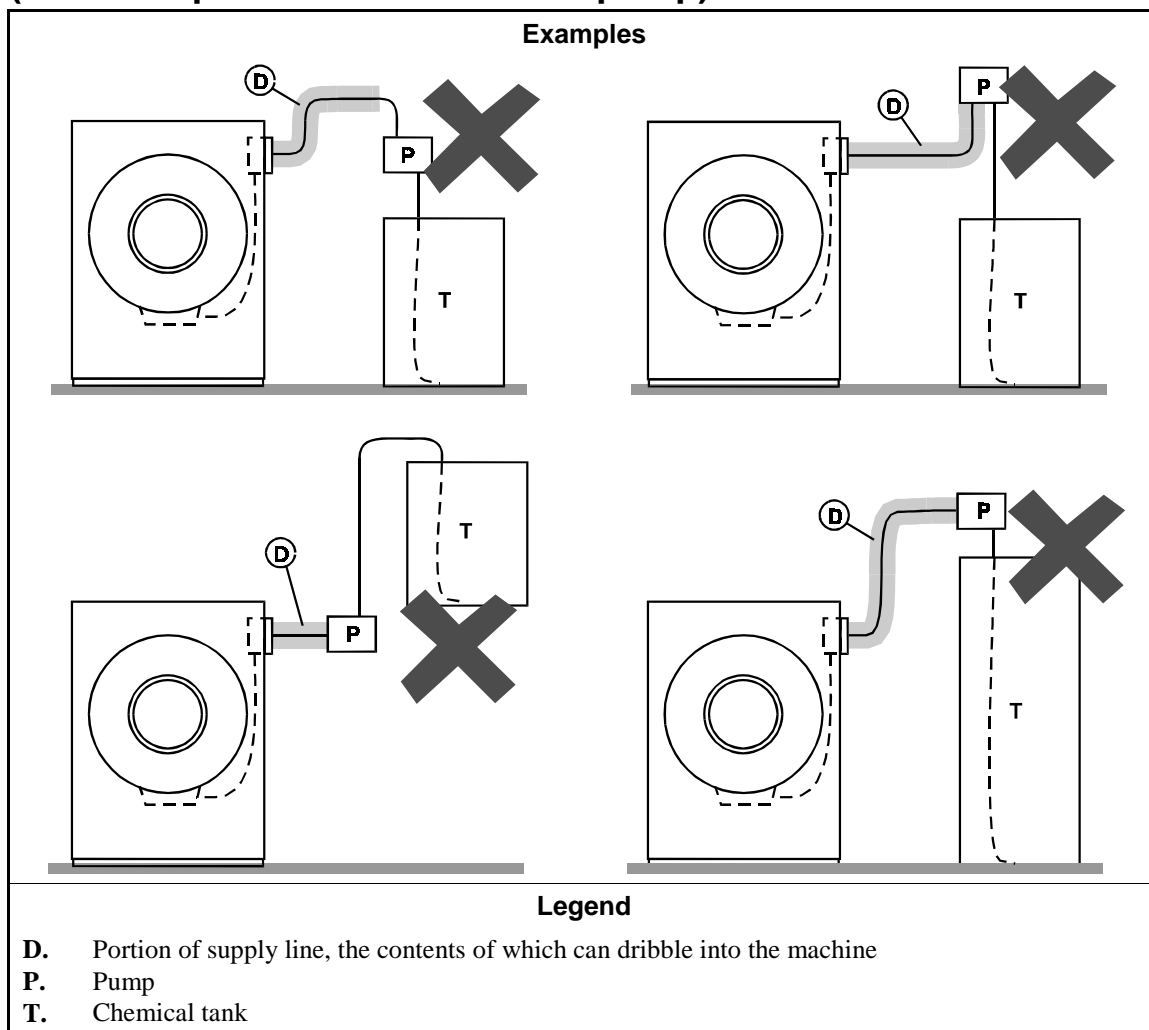
- 2.1. **Ensure the System Cannot Siphon.**—The supply system must be designed to counteract any siphoning that could occur as a result of having a sealed supply line between the bottom of the chemical tank and the internal machine connection at the drain trough. As shown in the Figure 2 examples, if the pump (P) and/or the valving does not provide positive closure and there is no vacuum breaker protection, siphoning is likely to occur. In each of the Figure 2 illustrations, the volume of chemical in the tank above the siphon level (S), and indicated by shading, will flow into the machine.

Figure 2: Siphoning From the Chemical Tank into the Machine



2.2. Ensure the Chemical Lines Cannot Dribble—The pumped chemical system may provide a means of positively closing the chemical line at the pump location, but not at the injection site. Hence, any concentrated chemical that remains in the injection line between the pump and the machine is free to flow into the machine. Some examples of this are shown in Figure 3.

**Figure 3: Dribbling From Chemical Supply Line Into Machine
(assumes positive closure at the pump)**



3. Design and Installation Recommendations

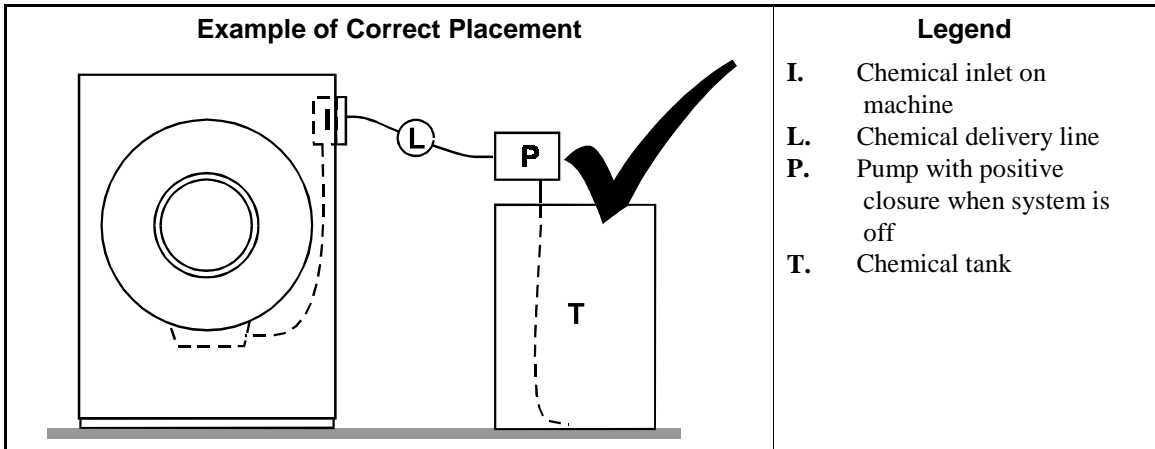
It is the responsibility of the chemical system manufacturer and supplier to use whatever measures are necessary to ensure that their system is safe for personnel and equipment. The following are some of the possible methods the manufacturer or supplier may wish to use, as appropriate.

- 3.1. **Siphoning: Positively close the line.**—If the pump does not provide positive closure when the system is off, employ a shutoff valve in the line to serve this purpose.
- 3.2. **Siphoning: Break the siphon.**—Provide an air gap or vacuum breaker in the chemical delivery line. This must be located above the “full” line of the tank.
- 3.3. **Dribbling: Flush the entire chemical delivery line.**—If any concentrated chemical that remains in the injection line between the pump and the machine is free to flow into the machine, employ a system that flushes the entire line between the pump and the injection point with fresh water after each injection.

3.4. **Dribbling: Locate the entire chemical line below the machine inlet.**—

Assuming the chemical system does not retain any line pressure and that the pump provides positive closure when the system is off, locate the entire chemical delivery line below the level of the chemical inlet. An example of this is shown in Figure 4.

Figure 4: Locating a Pumped Chemical System With Positive Closure To Protect Against Machine Damage



4. **Guarding Against Leaks**

All personnel who may work with the chemical system (e.g., chemical system manufacturer, chemical system supplier, chemical supplier, operator, maintenance personnel) should be vigilant in observing for leaks in the system. When connecting, or reconnecting chemical lines, whether at installation, after taking samples, or when replacing components, at a minimum ensure that:

1. the proper components are used,
2. all connections are the proper fit, and
3. all components are securely connected.



CAUTION [2]: Injury and Damage Hazards—Chemicals leaking from a chemical system may be corrosive or toxic. Such chemicals can injure personnel and damage equipment.

- Use care when connecting chemical lines.
- Inspect regularly for leaks.

— End of BIWUUI03 —

Section Installation

2

Handling and Setting Procedures for ExN and JxN Washer-Extractors

Document..... BII EU01
Specified Date..... 20011011
As-of Date..... 20011011
Access Date..... 20011011

Applicability..... IEU
Language Code..... ENG01

1. Handling

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 1: Once the machine is given to the carrier for delivery, 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. Remove side access panels (if so equipped) and locate the crane lift points (Figure 1).
3. Attach chains as shown in Figure 1.

2. Moving the Machine into Place

1. 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, place forks under the lift areas shown in Figure 1. Do not allow the forks to come in contact with valves, piping, motors, etc., located under or on the side of the machine (Figure 2).
2. 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, valves, drains, vents, tilt frames, etc.).
3. Do not step or climb on piping or valves (Figure 2).

3. Site Requirements

3.1. Space Requirements

Note 2: This machine tilts during operation. Allow clearance when installing and connecting service. See dimensional drawing for general concept.

1. All openings and corridors through which equipment must pass during installation must be large enough to accommodate 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.

3.2. Operational 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 (e.g., electrical power connections, water and steam shutoffs, etc.).

3.3. Laundry Facility—The owner/user must provide necessary additional safety guards, fences, restraints and devices necessary to prevent contact with ancillary equipment such as heat exchangers (for additional information see “INSTALLATION AND SERVICE SAFETY FOR SUSPENDED WASHER-EXTRACTORS AND CENTRIFUGAL EXTRACTORS” in this manual).

3.4. 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.

4. 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, (see the dimensional drawings in this manual).

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 blocking. Shim the blocking 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.

Notice [1]: Machine Damage Hazards—An improperly installed suspension machine can walk out of position during extract, endangering personnel and damaging equipment.

- Roughen floor, install anchor bolts and grout under all base pads to prevent up and down and/or sideways movement.



CAUTION [2]: Machine Damage Hazards—Voids under base pads can magnify vibration and cause unsatisfactory operation.

- Grout must displace total clearance between base pads and existing floor.
- Voids must not exist.

2. Apply grout between the existing foundation floor and the base pads, observing the following considerations:
 - Use only industrial strength non-shrinking grout. Pack or trowel by hand.
 - 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.
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.

5. Before Running Machine

Notice [3]: Machine Damage Hazards—Machine will malfunction and may be damaged if all shipping restraints (Figure 3) are not removed. Restraints may be located behind access covers. These include but are not limited to:

- Shell front and shell back locking bolts, lifting brackets and shipping stands.
- Vibration safety switch restraint.
- **Replace fasteners which are part of machine structure.**

Prior to operation:

1. Remove the red locking bolts from the front and back of the shell.
2. Remove the red lifting brackets and shipping stands.
3. Remove the tie wrap that secures the vibration safety switch.
4. Observing the precautions for entering the cylinder stated in the Safety manual, check the perforated cylinder for smoothness. Pellerin Milnor cannot accept claims involving cylinder surface flaws after machine is in service.

Figure 1: Using Cranes and Forklifts to Move Machine in Place




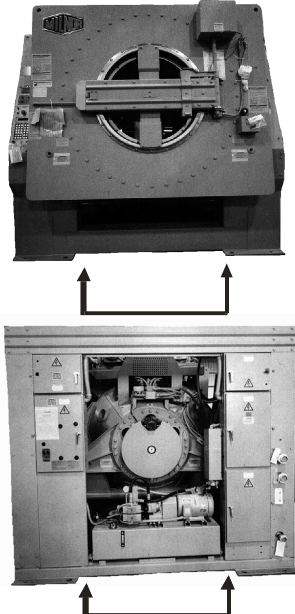
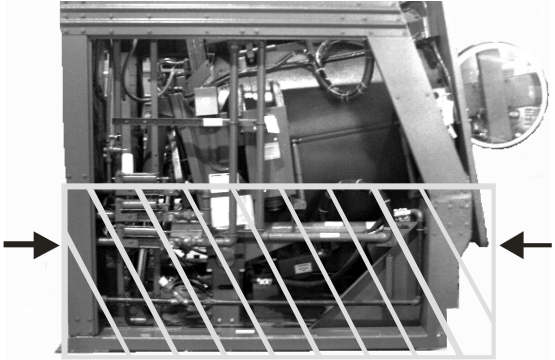
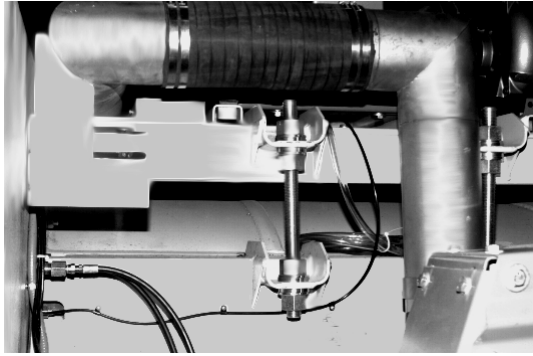
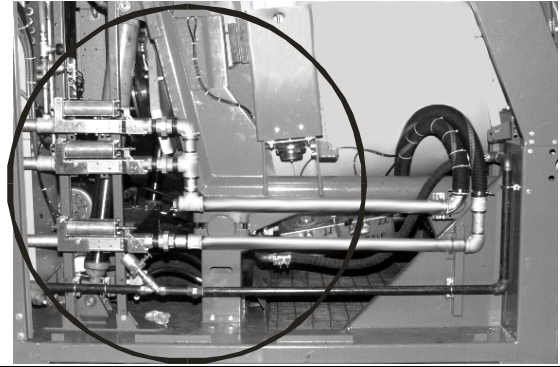
Proper use of chains	Front crane lift point	Rear crane lift point
		
<p>Where to use fork lifts and/or jacks at front and rear (E6N shown)</p> 	<p>Do not use forklifts and/or jack in shaded areas (ExN model shown)</p> 	

Figure 2: Additional Installation Cautions

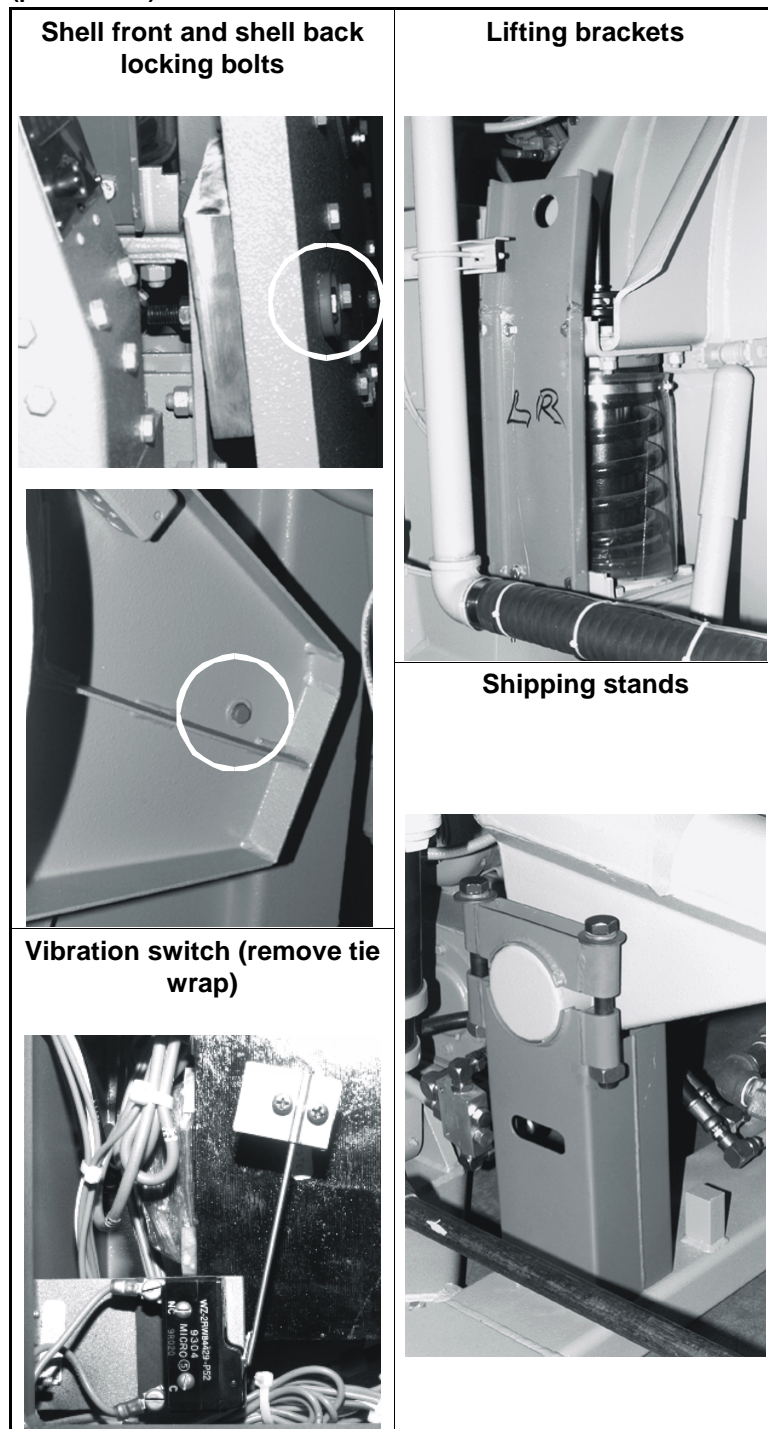
Do not move or lift machine by vents (ExN shown)



Do not step or climb on piping



**Figure 3: Shipping Restraints to Remove Before Operation
(painted red)**



SERVICE CONNECTIONS

General

These service connections are required:

1.

Piped inlets and outlets (cold water, hot water, “third” water, reuse water, direct steam, peristaltic pump inlets, compressed air inlet, vent, reuse, and/or drain). The sizes and locations of piped inlets and outlets are shown on the dimensional drawings for the machine.
2.

Electric power connections (See “EXTERNAL FUSE AND WIRE SIZES FOR MILNOR MACHINES,” MAEFUSE1AE).
- NOTICE

IT IS NORMAL FOR THE VEGETABLE FIBER GASKET ON THIS SHELLFRONT TO LEAK SLIGHTLY WHEN THE MACHINE IS FIRST COMMISSIONED. IT SHOULD STOP LEAKING AFTER THE FIRST FEW LOADS ARE PROCESSED.
- FIGURE 1 (MSINA404AE)


Shell front Notice

Requirements for Piped Connections

1.

Inlet pressures must be within the range specified. Pressure outside of the specified range may cause the machine to operate inefficiently or malfunction, causing damage to 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.

2.

When connecting water and steam inlets, always install unions and shut off valves at the point of connection to permit removal of the machine components for servicing, if necessary.

▲ CAUTION ▲



Machine Damage Hazards—Pumped chemical systems, if not properly installed, can cause corrosion damage.

See the reference manual for precautions and additional information before making any chemical connections.

▲ CAUTION ▲

IF MACHINE HAS BEEN IN STORAGE OR TRANSIT FOR SEVERAL MONTHS, THE TIME DELAY RELAY(S) MAY NOT TIME OUT CORRECTLY THE FIRST TIME. AFTER A FEW OPERATIONS THEY WILL CORRECT THEMSELVES. DO NOT CONDEMN THEM UNTIL THEY ARE ALLOWED TO OPERATE SEVERAL TIMES.

FIGURE 2 (MSINA404AE)
Time Relay Caution

▲ 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 3 (MSINA404AE)
Keyboard Caution

Piped Inlet Specifications—Piped inlet requirements are as follows (see dimensional drawings for sizes and locations of connection points):

Piped Inlets

Description of Connection	Source Requirements	Piping Specifications, Comments
Cold water inlet	2" NPT 30-65 PSI (2.10-4.57 kilogram/centimeter ²)	Pipe material per plumbing code
Hot water inlet		
Third water inlet		
Reuse water inlet		
Steam inlet	1 1/4" NPT 30-115 PSI (2.10-8.08 kilogram/centimeter ²)	
Peristaltic pump inlets (if so equipped)	1/2" NPT	Flexible tubing as specified by chemical supplier
Compressed air inlet	1/4" NPT 85-115 PSI (5.97-8.08 kilogram/centimeter ²)	Pipe material per plumbing code

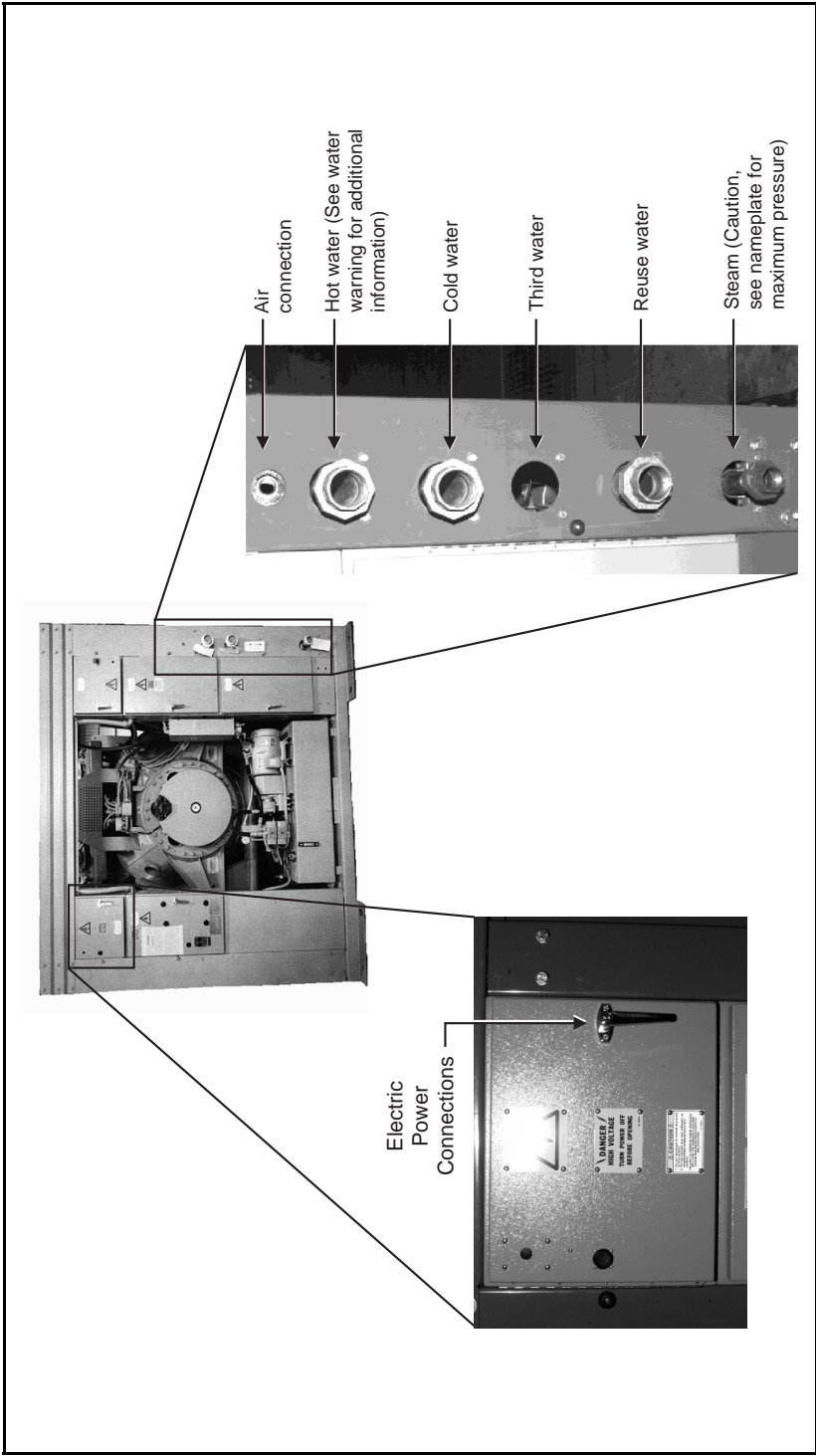


FIGURE 4 (MSINA404AE)
Piped Inlets

! WARNING !

Some of the water inlet and/or steam valves on this machine may be of the "ball valve" construction. The flow rate of a ball type valve is far greater than that of an equal size globe valve.

DO NOT USE GLOBE TYPE SHUT OFF VALVES IN FRONT OF BALL VALVES UNLESS THE GLOBE VALVE IS SELECTED IN ACCORDANCE WITH THE FOLLOWING TABLE:

BALL VALVE SIZE	EQUIVALENT BALL VALVE SIZE
1-1/4" NORMAL FLOW	2-1/2"
1-1/2" NORMAL FLOW	2-1/2"
2" NORMAL FLOW	3"
*2" FULL PORT FAST FLOW	4"

* USED AS WATER INLET VALVES ON MILNOR 72044 MACHINES

NOTICE: IF VALVE IS ACCIDENTLY PIPED TO THE WRONG WATER LINE, MERELY INTERCHANGE THE AIR TUBE (IF VALVE IS AIR-OPERATED). NEVER INTERCHANGE ANY ELECTRICAL CONNECTIONS.

FIGURE 5 (MSINA404AE) Water Warning

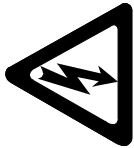
The outlet requirement is as follows. See dimensional drawings for connection sizes and locations of connection points.

Outlets

Description of Connection	Destination Requirements or Description	Piping Specifications
Drain to Reuse (If so equipped)	Provide a centrally located open trench, with a minimum slope of 1/8" per foot (10 mm per meter) (See dimensional drawings)	<i>Do not</i> connect dump valves to drain. Attach short pieces of hose to dump valves to control splashing. <i>Do not</i> immerse ends of hoses.
Vent	6" (152)	Flexible tubing supplied by others

Precautions for Electrical Connections

! DANGER !



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

👉 All electrical connections must be made by a competent electrician.

When Making Electrical Power Connections

1. “Stinger leg,” if any, must be connected to terminal L3 only.
2. Use only Bussman Fusetron FRN (up to 250V), FRS (up to 600V) or similar lag fuses. The nameplate fuse sizes must not be applied to standard fuses.

AIR CONNECTION

MINIMUM 85PSI (Generally)

MAXIMUM 110PSI (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 85PSI, THE GAUGE IS PROBABLY FAULTY. SOME AIR COMPRESSORS ARE SET WITH TOO GREAT A PRESSURE DIFFERENTIAL BETWEEN THE LOWEST PRESSURE OBTAINABLE, AND THE HIGHEST PRESSURE OBTAINABLE. THE AIR COMPRESSOR IS SET TO GO ON AT 60PSI AND OFF AT 110PSI. THE MACHINE WILL EXTRACT QUITE SATISFACTORILY WHENEVER THE AIR PRESSURE IS ABOVE 85PSI, BUT WILL NOT ENTER EXTRACTION AT ALL WHEN THE PRESSURE IS BELOW 85PSI.

FIGURE 6 (MSINA404AE)
Air Compressor Warning

Outlet Specifications

Electric Power 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 conditions prior to commissioning the machine.**

WARNING

This control is "universal" and will probably contain extra, unused circuits for features or options not originally furnished on this machine. Only the circuits actually used in this machine has been tested in our factory. DO NOT USE THE EXTRA CIRCUITS UNTIL THEY HAVE BEEN THOROUGHLY AND COMPLETELY TESTED FOR BOTH SAFETY AND FUNCTION. IN ANY CASE, WE WILL ACCEPT ABSOLUTELY NO RESPONSIBILITY WHATSOEVER FOR ANY INJURY OR DAMAGE ARISING OUT OF THE USE OF ANY CIRCUITS NOT ORIGINALLY TESTED IN OUR FACTORY.

FIGURE 8 (MSINA404AE) Control Warning

BIWUUI01 (Published) Book specs- Dates: 20020911 / 20020911 / 20020911 Lang: ENG01 Applic: IEU

Important Instructions for Pumped Chemical Inlets

1. How Pumped Chemical Systems can Internally Damage the Washer-extractor

Many pumped liquid chemical systems dribble concentrated chemicals out of the injection tubes when the system is not used for relatively long periods of time—as after working hours and during weekends. This puts highly concentrated corrosive chemicals in direct contact with dry stainless steel surfaces, and often directly on any textiles left in the machine. **Chemical deterioration (rusting) of the stainless steel and damage to the textiles is the inevitable result.**

Pellerin Milnor Corporation accepts absolutely no responsibility whatsoever for damage to its equipment or to any textiles therein when concentrated chemicals dribble out of the injection tubes onto any part of the machine or its contents.

Supplement 1

Preventing Dribbling by Purging Chemical Lines

Although the injection site is flushed by washer agitation on some models and after each injection on other models to aid the injection process, this flushing provides absolutely no protection against harmful dribble which occurs later—when the machine is no longer in use.

One foolproof solution for “dribbling” is to completely purge the appropriate chemical injection tube with fresh water after every injection, so that only fresh water (which cannot cause a problem) can dribble out.

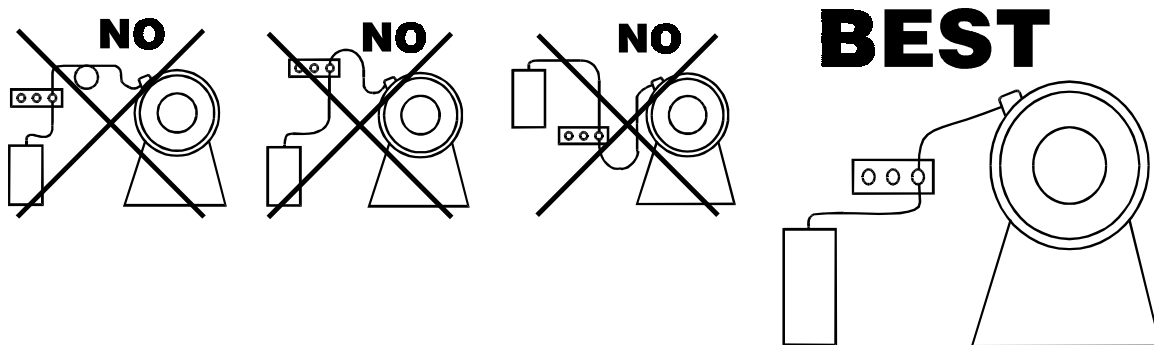
Obviously, it is the sole responsibility of the pump and/or chemical supplier (not the machine manufacturer) to furnish such a flushing device. (We understand that such flushing type chemical injection systems—both for retrofit to existing systems and for new installations—are now offered by others.)

2. Locating Chemical System Components to Reduce the Risk of Internal Damage

If the tubes, pumps, and chemical tanks are kept well below the injection point, the likelihood of “after-hours dribbling” is reduced, but not totally eliminated.

We therefore urge that tubes from any non-flushing pumped chemical system be connected as shown in Figure 1. Although fresh-water flushing the just-used tubes after each injection would be better, we believe routing the tubes as indicated will probably minimize the dribbling effect about as much as possible without flushing. Never permit tanks, pumps, or any portion of the tubes to be higher than the injection point. If loops in the injection tubes are employed, make sure the entire loop is well below the injection point.

Figure 1: Proper Routing of Chemical Tubing



Note 1: As shown in Figure 1, all tanks, pumps, and tubing must be lower than the injection point on the machine and must not dribble chemicals into the machine, nor leak chemicals externally onto any portion of the machine or its surroundings.

3. Preventing Leaks Which Can Injure Personnel and Cause External Damage

All ports on the inlet are plugged at the Milnor® factory. When replacing plugs with fittings or when reinstalling plugs, always use the sealant furnished (LocTite® RTV Silicone Adhesive or equivalent). Use properly sized hose barbs, always use clamps, and check for leaks. Use the hose barbs furnished with your machine only if they provide the proper fit for the tubes employed. Ensure that excessive pressures cannot build up that might burst or disconnect tubing. Instruct the operator to monitor for leaks and report any occurrences.

When calibrating injections, it is permissible to remove tubes from barbed fittings to take samples. However, always check for leaks after installing tubes and clamps. A preferable method for sampling is to install a three-way valve, or two two-way valves and a tee fitting, onto each injection tube.



WARNING [1]: Avoid chemical burns and corrosion—Concentrated liquid chemicals leaking from a chemical system can burn skin and eyes, cause other types of injury or illness, and corrode machine components.

- Ensure that excessive pressures cannot build up which might burst or disconnect a chemical delivery tube.
- Ensure that there are no external chemical leaks when the system is installed or calibrated.
- Periodically check the system for leaks during operation.



CAUTION [2]: Avoid corrosion and textile damage—Chemicals dribbling into the machine when it is idle will corrode machine components and damage any textiles left in the machine.

- If possible, use a system that flushes the entire chemical delivery tube after each injection.
- If a non-flushing system is used, install tanks, pumps, and tubing below the injection point on the machine, such that chemicals travel to the machine at an upward angle.



CAUTION [3]: Avoid explosions—Certain chemicals will react chemically when combined. Consult with your chemical supplier representative about the safe use of chemicals.

Notice [4]: Pellerin Milnor Corporation accepts absolutely no responsibility for damage to its equipment or to any textiles therein when concentrated chemicals dribble out of the

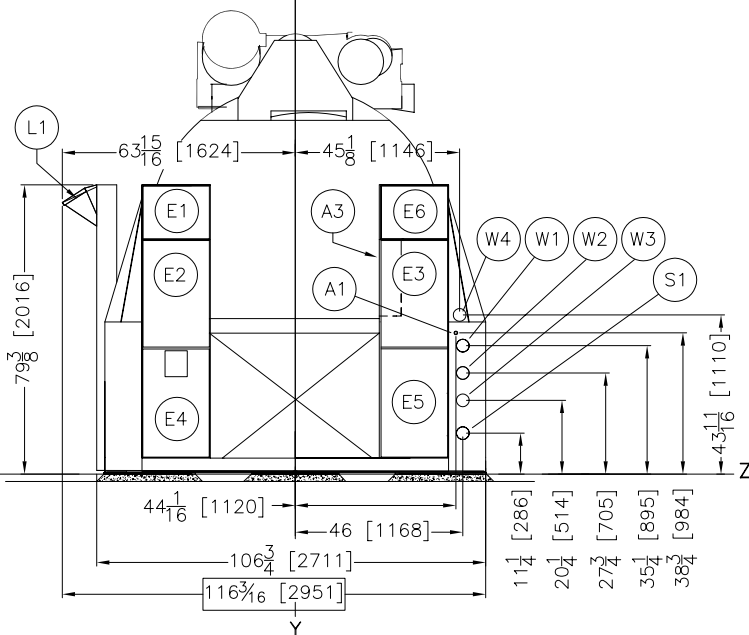
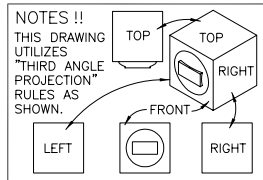
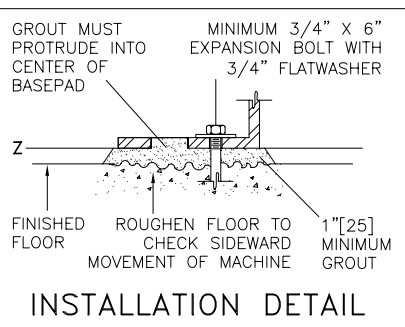
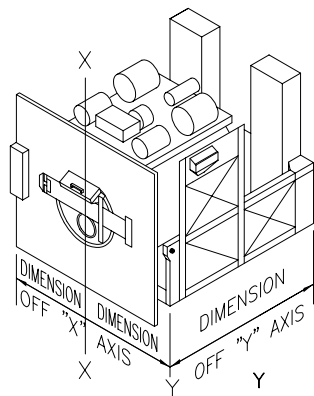
injection tubes onto any part of the machine or its contents.

— End of BIWUUI01 —

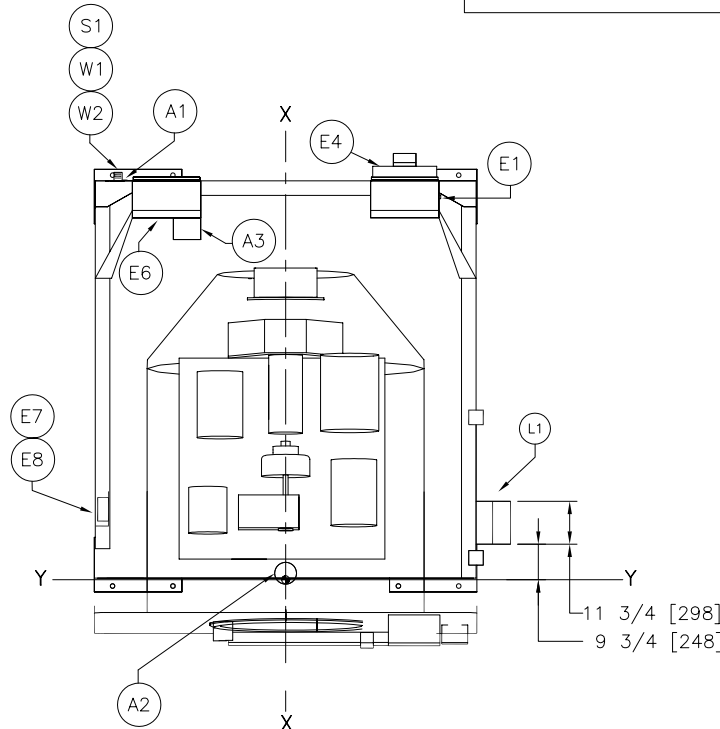
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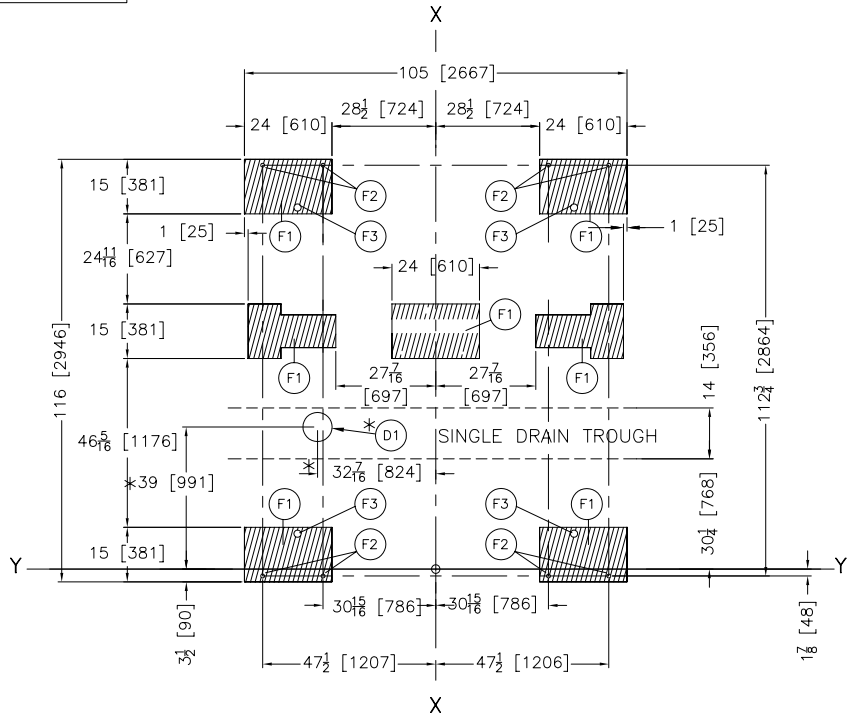
Dimensional Drawings



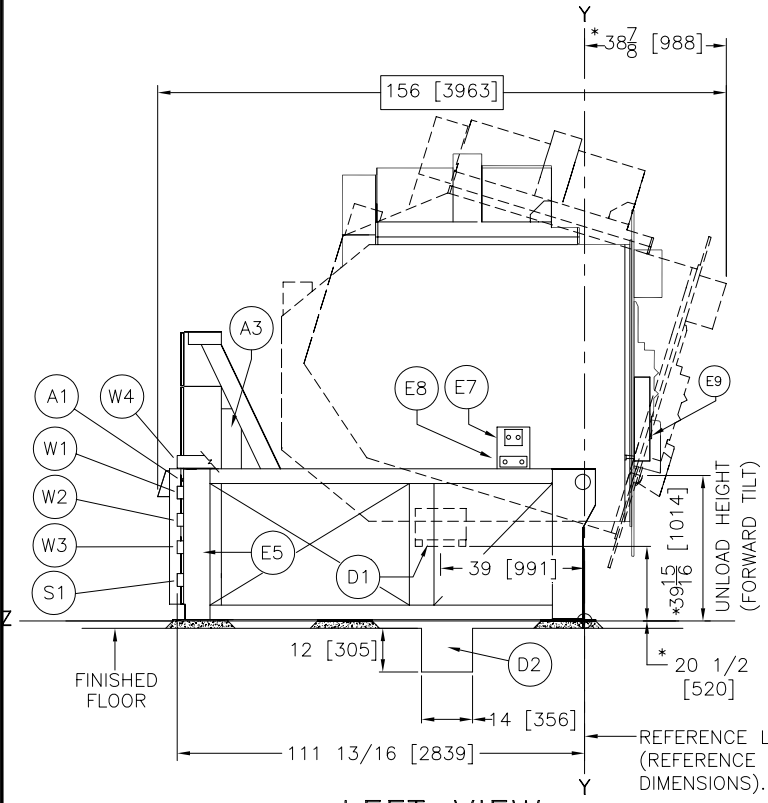
REAR VIEW



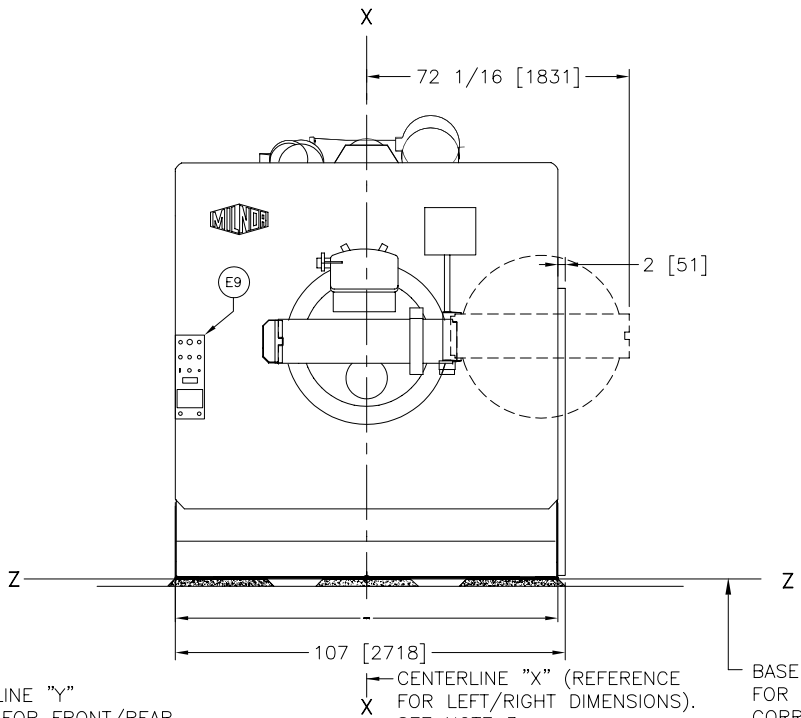
PLAN VIEW



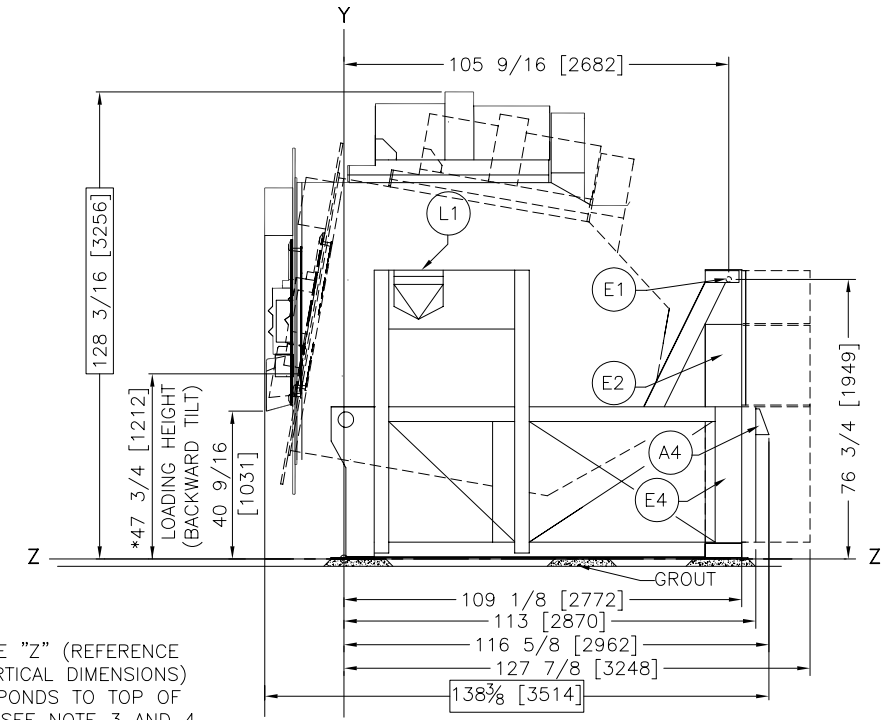
FOUNDATION PLAN



LEFT VIEW



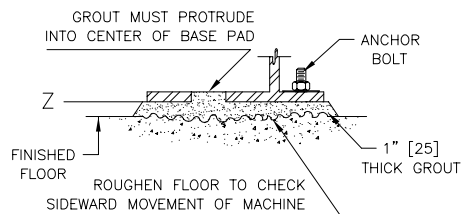
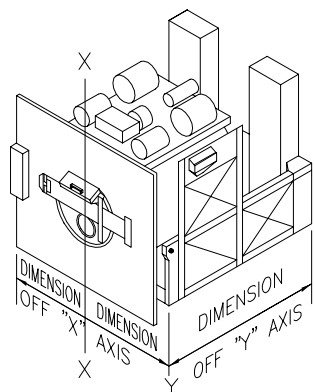
FRONT VIEW



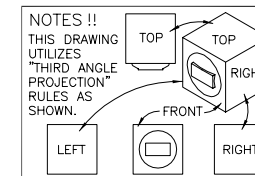
RIGHT VIEW

W4	REUSE WATER INLET, IF NO THIRD, 2" NPT.
W3	THIRD OR REUSE WATER INLET, 2" NPT.
W2	COLD WATER INLET, 2" NPT.
W1	HOT WATER INLET, 2" NPT.
T2	FRONT TILT, 22 1/2 DEGREES MAXIMUM, FOR UNLOADING.
T1	BACK TILT, 18 1/2 DEGREES MAXIMUM, FOR LOADING.
S1	STEAM INLET, 1 1/4" NPT.
L1	5 COMPARTMENT SUPPLY INJECTOR
F3	GROUT HOLES
F2	(8) 1 1/16" DIAMETER ANCHOR BOLT HOLES, USE 3/4" X 6" BOLTS MINIMUM. (1) BOLT PER PAD MINIMUM. (FOR PADS WITH BOLT HOLES)
F1	FOUNDATION BASE PADS
E9	CONTROL PANEL.
E8	SAMPLE DESIRE SWITCH AND RESET.
E7	SHUTTLE CALL SWITCH.
E6	PROCESS CONTROL BOX.
E5	TEN CHEMICAL CONTROL BOX.
E4	VARIABLE SPEED CONTROLLER BOX.
E3	LOW VOLTAGE CONTROL BOX.
E2	HIGH VOLTAGE CONTROL BOX.
E1	FUZE BOX AND MAIN ELECTRICAL CONNECTION.
D2	SINGLE DRAIN TROUGH
D1	DRAIN VALVE IN WASH POSITION, 8" [203] DIAMETER.
	SEE NOTES 11 & 13.
A4	VENT FROM VARIABLE SPEED CONTROLLER BOX.
A3	AIR VALVE BOX
A2	VENT TO ATMOSPHERE 6" [152] OUTSIDE DIAMETER.
A1	COMPRESSED AIR INLET, 1/4" NPT.
ITEM	LEGEND

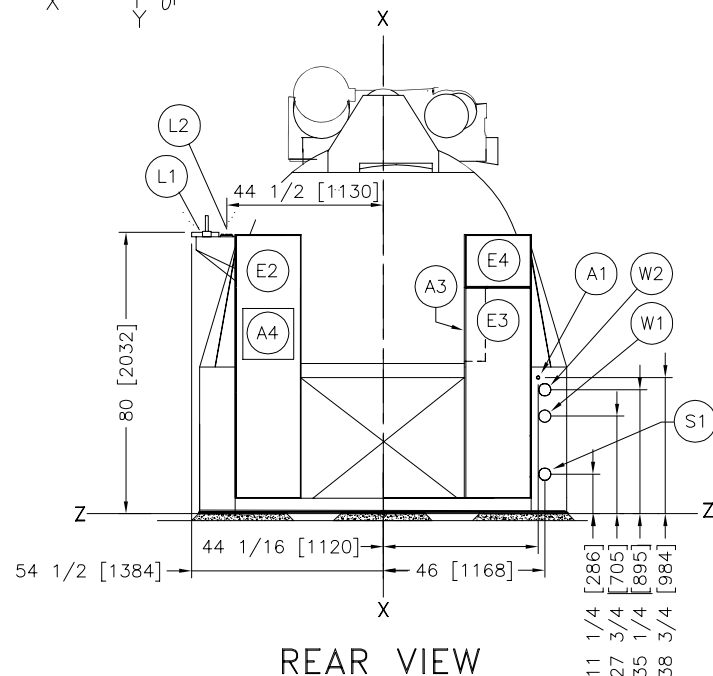
NOTES	
14	72058J2N LOADS IN THE 10° DEGREE TILT REARWARD POSITION AND DISCHARGES AT 17° DEGREE TILT FORWARD POSITION.
13	DRAIN TROUGH LOCATION IS DESIGNED TO BE CENTERED BETWEEN WASH AND EXTRACT POSITIONS OF THE DRAIN. DRAIN IS SHOWN AND DIMENSIONED IN WASH POSITION ONLY.
12	DUE TO VARYING WEIGHT OF MACHINE ON SPRINGS TOLERANCE IS ± 1" [25]. SEE DIMENSIONS WITH ASTERISK [*] ATTACHED.
11	COMES WITH 18" LONG CHEMICAL RESISTANT RUBBER DRAIN EXTENSION WHICH AIDS IN DIRECTING WATER INTO DRAIN TROUGH DURING VARIOUS POSITIONS.
10	DO NOT PRE-PIPE ANY CLOSER THAN 60 [1524].
9	DRAIN VALVE MAY MOVE ± 3 [76] IN ANY DIRECTION DURING OPERATION AND MUST NOT BE RIGIDLY CONNECTED TO DRAIN.
8	SHIM TO LEVEL THE MACHINE AND ALLOW FOR 1" [25] MINIMUM GROUT. ANCHOR WITH ONE ANCHOR BOLT PER PAD, MINIMUM. USE 3/4" X 6" BOLTS, MINIMUM. SEE INSTALLATION MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS.
7	SHADED AREAS ARE BASE PLATES WHICH MUST BE CONTINUOUSLY SUPPORTED ON 1" [25] THICK GROUT.
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	BASLINE "Z" IS THE SAME FOR ALL MILNOR MACHINES AND IS SHOWN ON ALL DIMENSIONAL DRAWINGS. THE DISTANCE BETWEEN BASLINE "Z" AND THE FINISHED FLOOR MAY VARY (WITH CHANGES IN FLOOR HEIGHT) AS REQUIRED TO INSURE THAT BASLINE "Z" IS HORIZONTAL AND ALL COMPONENTS REQUIRING GROUT ARE SET ON A MINIMUM 1" [25] THICK GROUT BED.
3	USE REFERENCE LINES "X", "Y", AND "Z" TO LOCATE ALL SERVICE CONNECTIONS.
2	NUMBERS IN BRACKETS [] DENOTE DIMENSIONS IN MILLIMETERS.
1	ALL DIMENSIONS SHOWN ARE APPROXIMATE, SUBJECT TO NORMAL MANUFACTURING TOLERANCES, AND TO OCCASIONAL CHANGES WITHOUT NOTICE THROUGH REDESIGN AND/OR RELOCATION OF COMPONENTS, ETC. DO NOT USE FOR CONSTRUCTION UNLESS CERTIFIED, AND IN NO EVENT PRE-PIPE CLOSER THAN FIVE FEET FROM MACHINE. FACTORY MUST BE CONSULTED FOR DIMENSIONS IF MACHINE IS TO BE MOVED THROUGH NARROW OR LOW CORRIDORS OR OPENINGS.
ATTENTION	
MOST REGULATORY AUTHORITIES (INCLUDING OSHA IN THE USA) HOLD THE OWNER/USER ULTIMATELY RESPONSIBLE TO MAINTAIN A SAFE WORKING ENVIRONMENT. ACCORDINGLY, THE OWNER/USER MUST RECOGNIZE ALL FORESEEABLE SAFETY HAZARDS, FURNISH SAFETY INSTRUCTIONS AND GUIDANCE TO ALL PERSONNEL WHO MAY COME IN CONTACT WITH THE INSTALLATION, AND PROVIDE ALL NECESSARY ADDITIONAL SAFETY GUARDS, FENCES, RESTRAINTS, DEVICES, ETC., NOT FURNISHED BY THE EQUIPMENT MANUFACTURER OR VENDOR.	
ATTENTION	
THE FLOOR AND/OR OTHER SUPPORT COMPONENTS MUST HAVE SUFFICIENT STRENGTH (AND RIGIDITY WITH DUE CONSIDERATION FOR NATURAL OR RESONANT FREQUENCY THEREOF) TO WITHSTAND THE FULLY LOADED WEIGHT OF THE MACHINE INCLUDING THE GOODS, THE WATER, AND ANY REPEATED SINUSOIDAL (ROTATING) FORCES GENERATED DURING ITS OPERATION. WRITE THE FACTORY FOR ADDITIONAL MACHINE DATA FOR USE BY A COMPETENT SOIL AND/OR STRUCTURAL ENGINEER.	



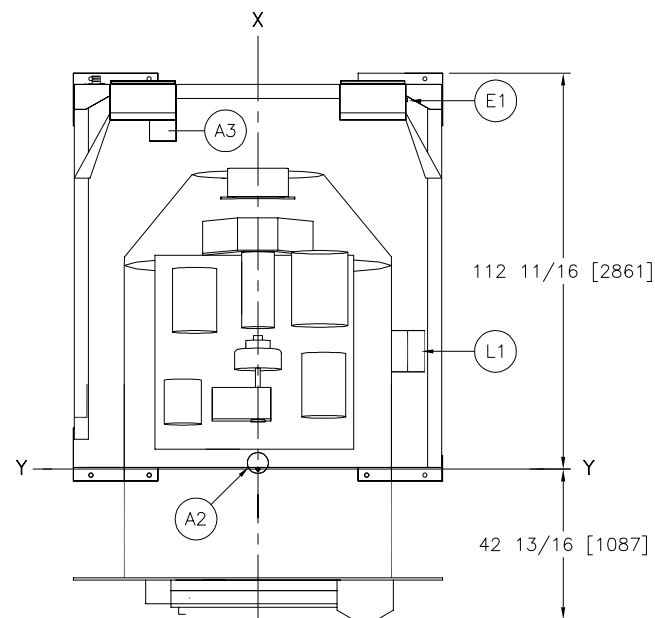
INSTALLATION DETAIL



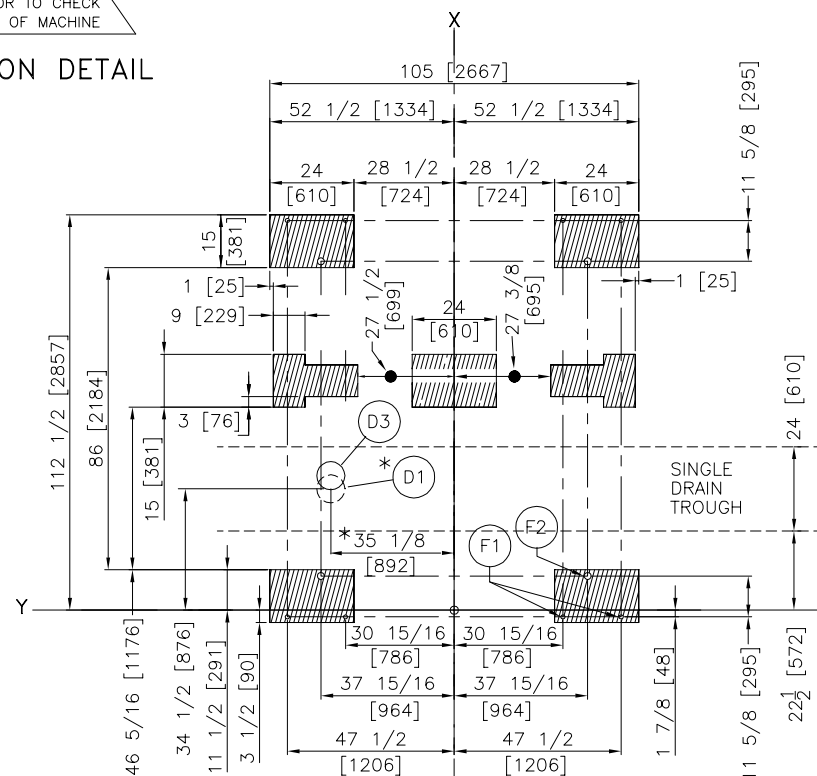
NOTES !!
THIS DRAWING
UTILIZES
"THIRD ANGLE
PROJECTION"
RULES AS
SHOWN.



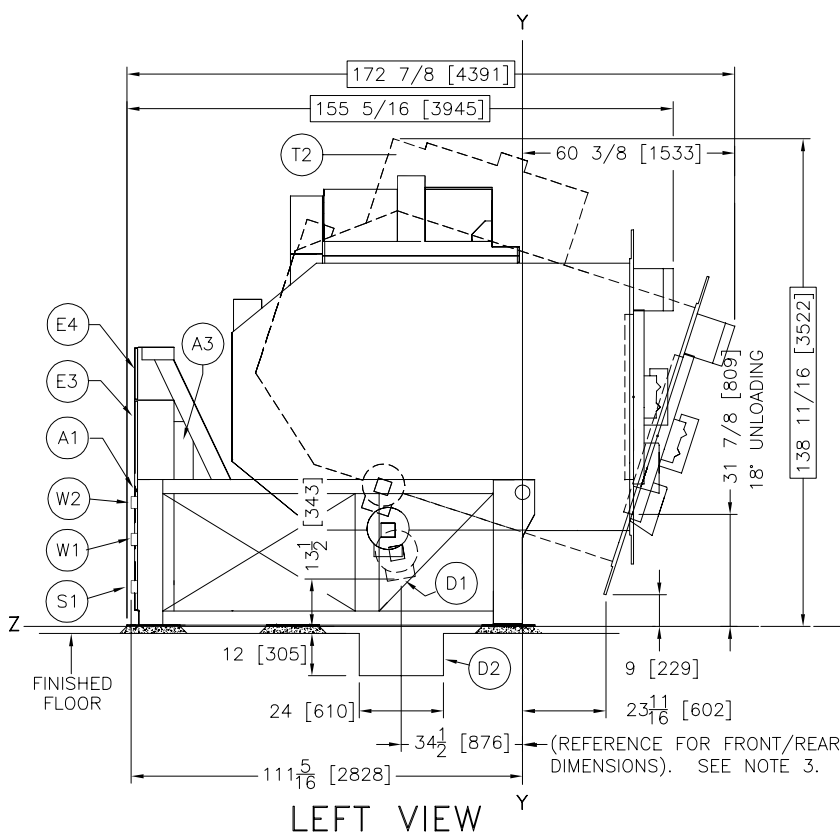
REAR VIEW



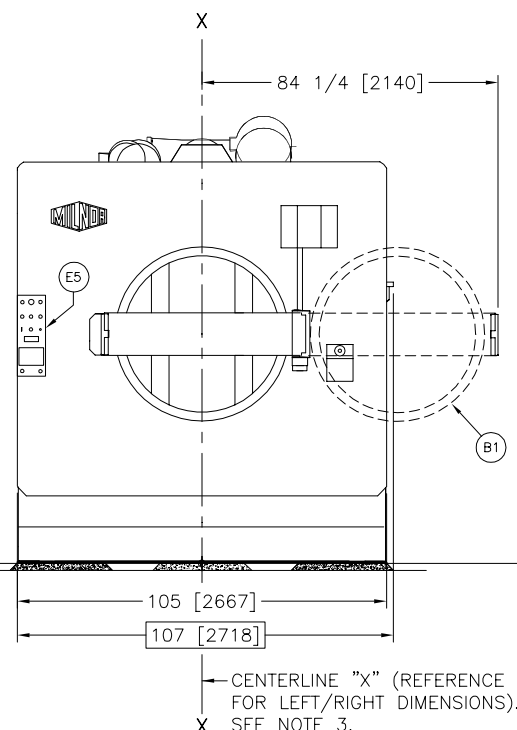
PLAN VIEW



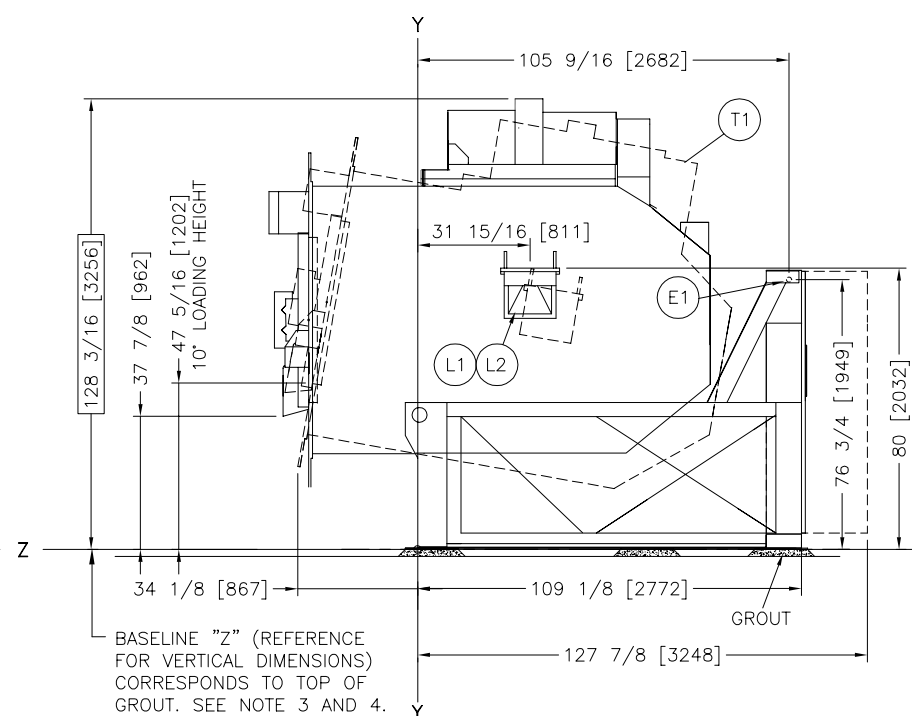
FOUNDATION PLAN



LEFT VIEW



FRONT VIEW



RIGHT VIEW

W2	HOT WATER INLET CONNECTION, 2" NPT.
W1	COLD WATER INLET CONNECTION, 2" NPT.
T2	FRONT TILT, 18 DEGREES MAXIMUM, FOR UNLOADING.
T1	BACK TILT, 10 DEGREES MAXIMUM, FOR LOADING.
S1	STEAM INLET CONNECTION, 1 1/4" NPT.
L2	15 PORT PERISTALTIC CONNECTIONS
L1	5 COMPARTMENT SUPPLY INJECTOR
F2	GROUT HOLES, 2" [51] DIAMETER. SEE INSTALLATION DETAIL.
F1	EIGHT, 1-1/4" [32] DIAMETER ANCHOR BOLT HOLES. USE 1" [25] ANCHOR BOLTS. (HARDWARE NOT SUPPLIED BY PMC). SEE NOTES 7, 8, AND INSTALLATION DETAIL.
E5	CONTROL PANEL
E4	MICROPROCESSOR CONTROL BOX.
E3	LOW VOLTAGE CONTROL BOX.
E2	HIGH VOLTAGE CONTROL BOX.
E1	MAIN ELECTRICAL CONNECTION
D3	DRAIN VALVE IN 0° DEGREE WASH POSITION
D2	SINGLE DRAIN TROUGH
D1	DRAIN VALVE IN EXTRACT POSITION, 8" [203] DIAMETER. SEE NOTES 11 & 13.
B1	48" AUTO DOOR
A4	VENT FROM VARIABLE SPEED CONTROLLER BOX.
A3	AIR VALVE BOX
A2	VENT TO ATMOSPHERE 6" [152] OUTSIDE DIAMETER.
A1	COMPRESSED AIR INLET, 1/4" NPT.

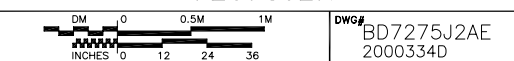
LEGEND

NOTES	
14	MINIMUM CLEARANCE TO ALLOW FOR PROPER MAINTENANCE IS 48"(1219) TO THE REAR OF THE MACHINE (TO FACILITATE REMOVING MAIN BEARING) AND 30"(762) TO 36"(914) ON EACH SIDE.
13	DRAIN TROUGH LOCATION IS DESIGNED TO BE CENTERED UNDER THE DRAIN VALVE IN EXTRACT POSITION. DRAIN IS DIMENSIONED IN EXTRACT POSITION, AND ALSO SHOWN IN 0° DEGREE WASH POSITION.
12	DUE TO VARYING WEIGHT OF MACHINE ON SPRINGS TOLERANCE IS ± 1" [25]. SEE DIMENSIONS WITH ASTERISK [*] ATTACHED.
11	COMES WITH 18" LONG CHEMICAL RESISTANT RUBBER DRAIN EXTENSION WHICH AIDS IN DIRECTING WATER INTO DRAIN TROUGH DURING VARIOUS POSITIONS.
10	DO NOT PRE-PIPE ANY CLOSER THAN 60 [1524].
9	DRAIN VALVE MAY MOVE ± 3 [76] IN ANY DIRECTION DURING OPERATION AND MUST NOT BE RIGIDLY CONNECTED TO DRAIN.
8	ANCHOR BOLTS MUST BE INSTALLED FOR ALL ANCHOR BOLT HOLES. DO NOT PRE-INSTALL ANCHOR BOLTS. SEE INSTALLATION MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS.
7	SHADED AREAS ARE BASE PLATES WHICH MUST BE CONTINUOUSLY SUPPORTED ON 1" [25] THICK GROUT.
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