

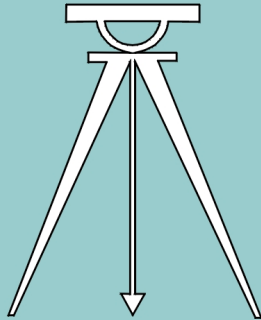
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Installation—

BWP, CPE, and NSP Washer-Extractors



**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.

References to Yellow Troubleshooting Pages

This manual may contain references to "yellow pages." Although the pages containing troubleshooting procedures are no longer printed on yellow paper, troubleshooting instructions, if any, will be contained in the easily located "Troubleshooting" chapter or section. See the table of contents.

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Pellerin Milnor Corporation
Attn: Technical Publications
P. O. Box 400
Kenner, LA 70063-0400

Fax: (504) 469-1849

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for MPI30BWPAE/2006145A
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Section
Foreword

1

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.

BMP720097
92732A

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

Safety—Rigid 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—Cylinder and Processing Hazards

[Document BIUUUS13]

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



DANGER 3: 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.
- 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 4: 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.



WARNING 5: 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 6: 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.

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

4.1. Damage and Malfunction Hazards

4.1.1. Hazards Resulting from Inoperative Safety Devices



DANGER 7: 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 8: 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 9: 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 10: Entangle and Crush Hazards—Guards, covers, and panels—Operating the machine with any guard, cover, or panel removed exposes moving components.

- Do not remove guards, covers, or panels.

4.1.2. Hazards Resulting from Damaged Mechanical Devices



WARNING 11: 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 12: 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 13: 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

4.2. Careless Use Hazards

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



WARNING 14: 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.

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



WARNING 15: Electrocutation and Electrical Burn Hazards—Contact with electric power can kill or seriously injure you. Electric power is present inside the cabinetry unless the main machine power disconnect is off.

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



WARNING 16: Entangle and Crush Hazards—Contact with moving components normally isolated by guards, covers, and panels, can entangle and crush your limbs. These components move automatically.

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



WARNING 17: 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 —

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

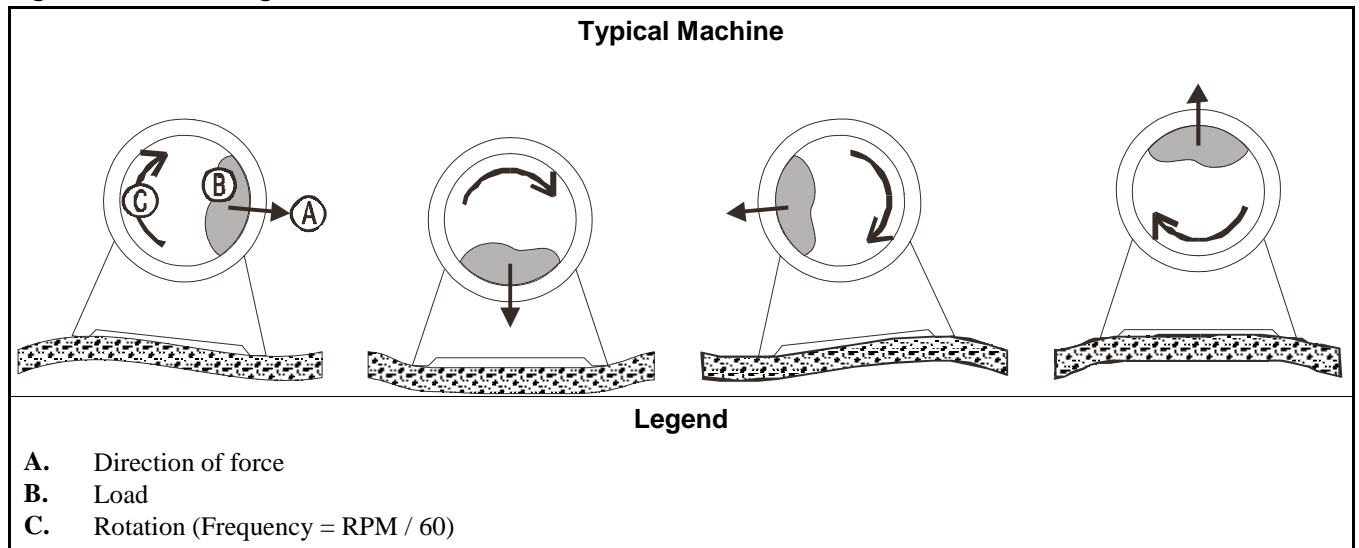
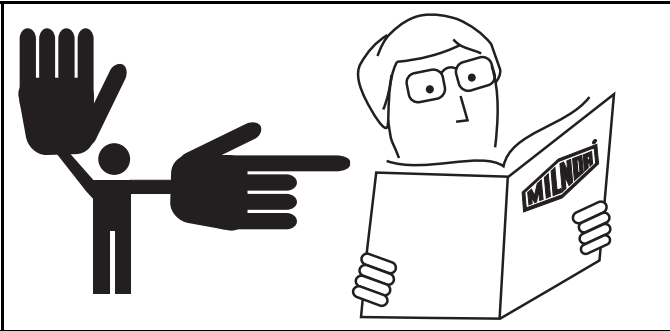
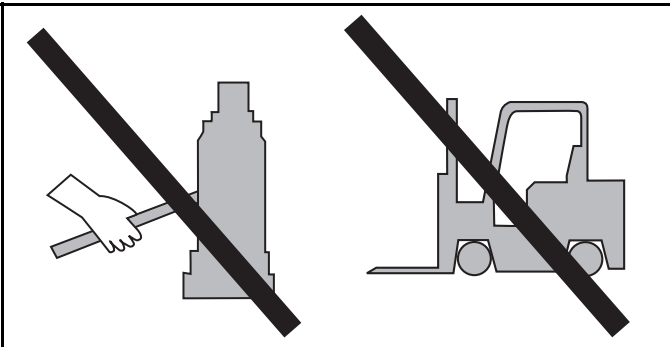
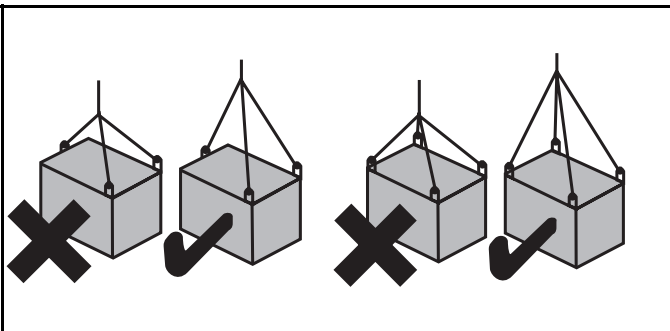
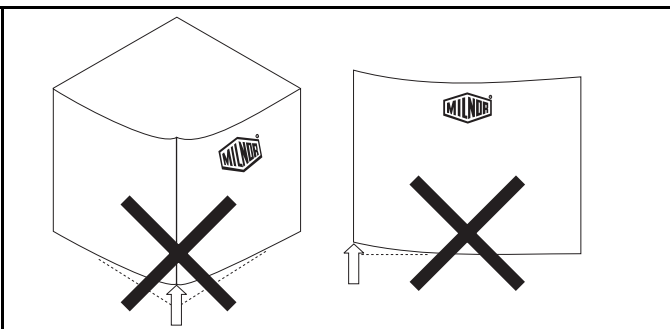


Figure 1 above is intended to depict both on-grade and above-grade installations and is equally applicable to flexibly-mounted washer-extractors, as well as to rigid models installed either directly on a floor slab or on a foundation poured integrally with the slab. Current machine data is available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

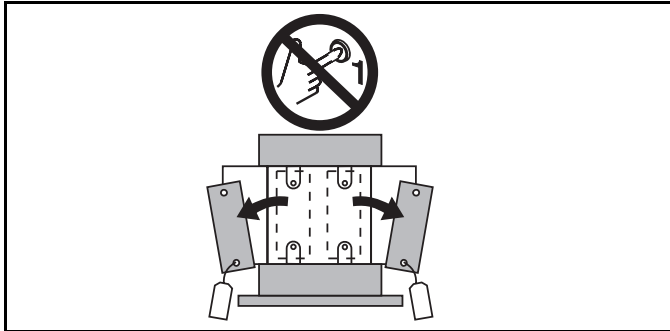
Glossary of Tag Illustrations— F-Style, Q-Style, 36" & 42" V-Style, and X-Style Washer-Extractors

MSIUUQTGAE/2003045V

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

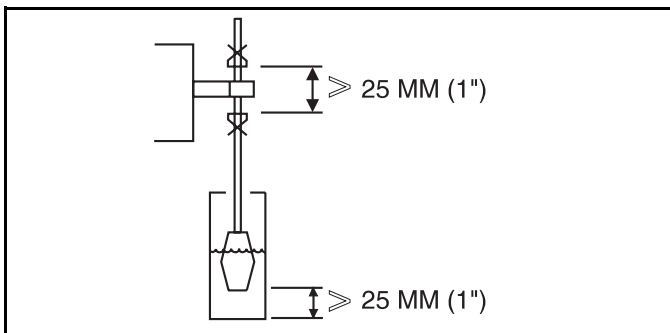
Explanation



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.



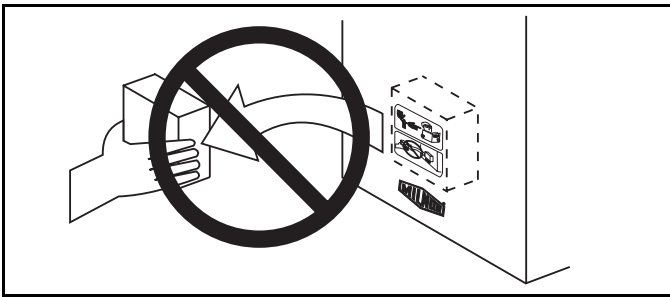
Maintain a 25 mm. (1") minimum clearance between float clips. Set "low level" so that the bottom of the float is always at least 25mm (1") above the bottom of the float tube.



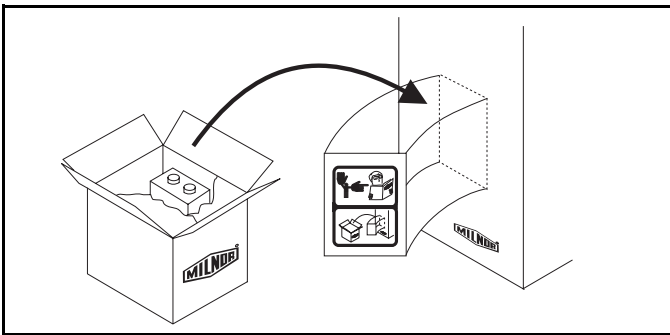
This motor or pump should rotate in the direction of the arrow.



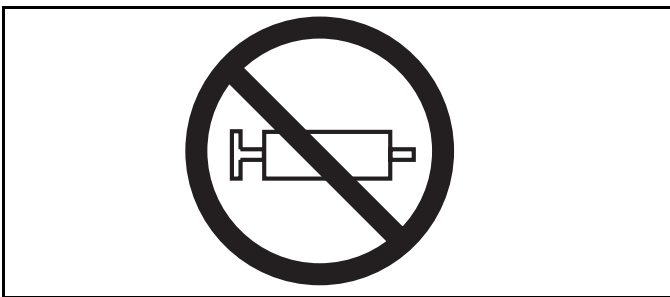
Do not start this machine until the part with this tag is installed on the machine.



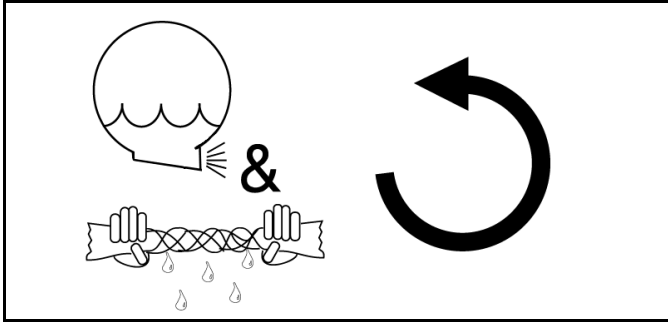
Do not remove this component from the machine.



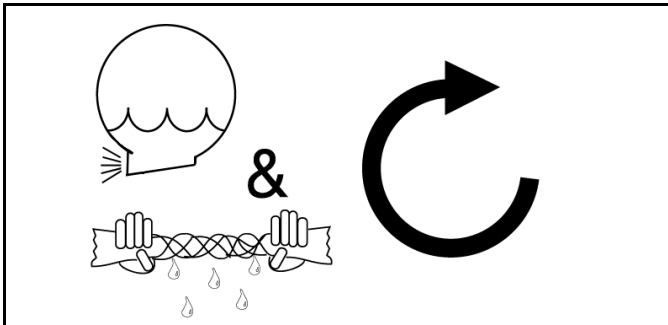
Install the appropriate part here before operating the machine.



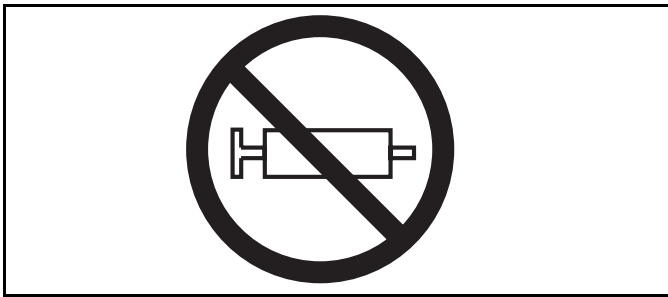
Do not pump grease here.



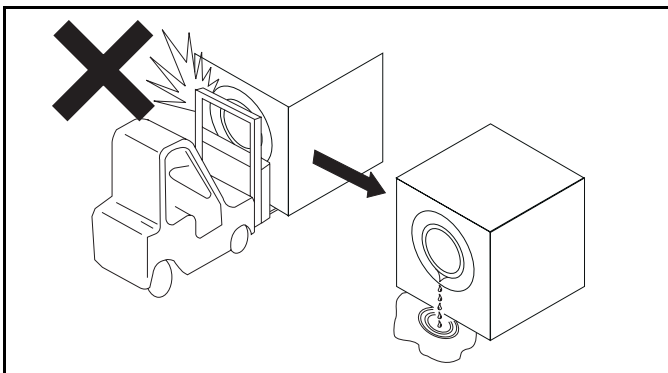
During drain and extract, the cylinder must rotate counterclockwise when viewed from here (rear of machine).



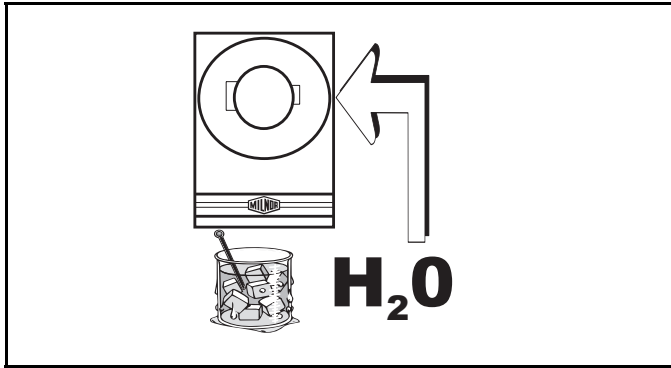
During drain and extract, the cylinder must rotate clockwise when viewed from here (front of machine).



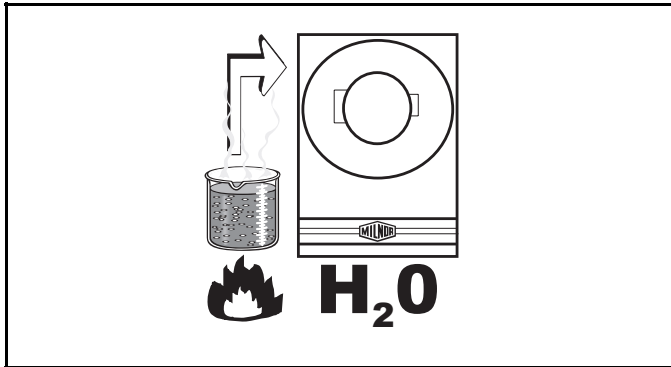
Do not pump grease here.



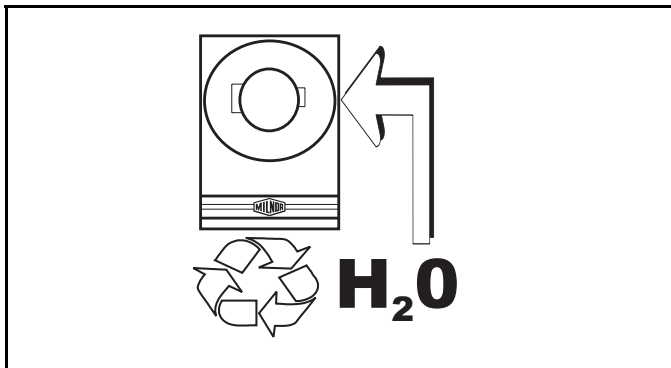
Do not strike shell front of washer-extractors during fork lifting. Striking shell front will cause door to leak.



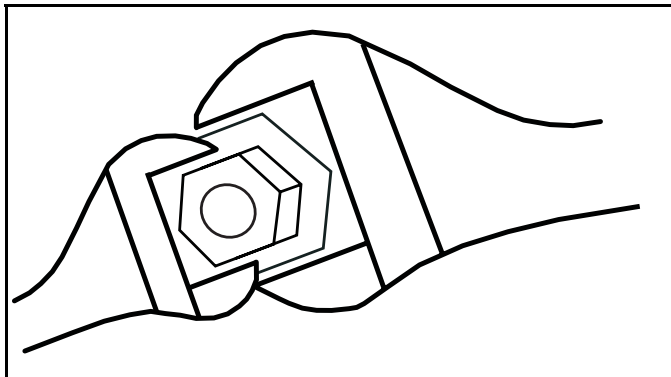
Make cold water connection here.



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.**

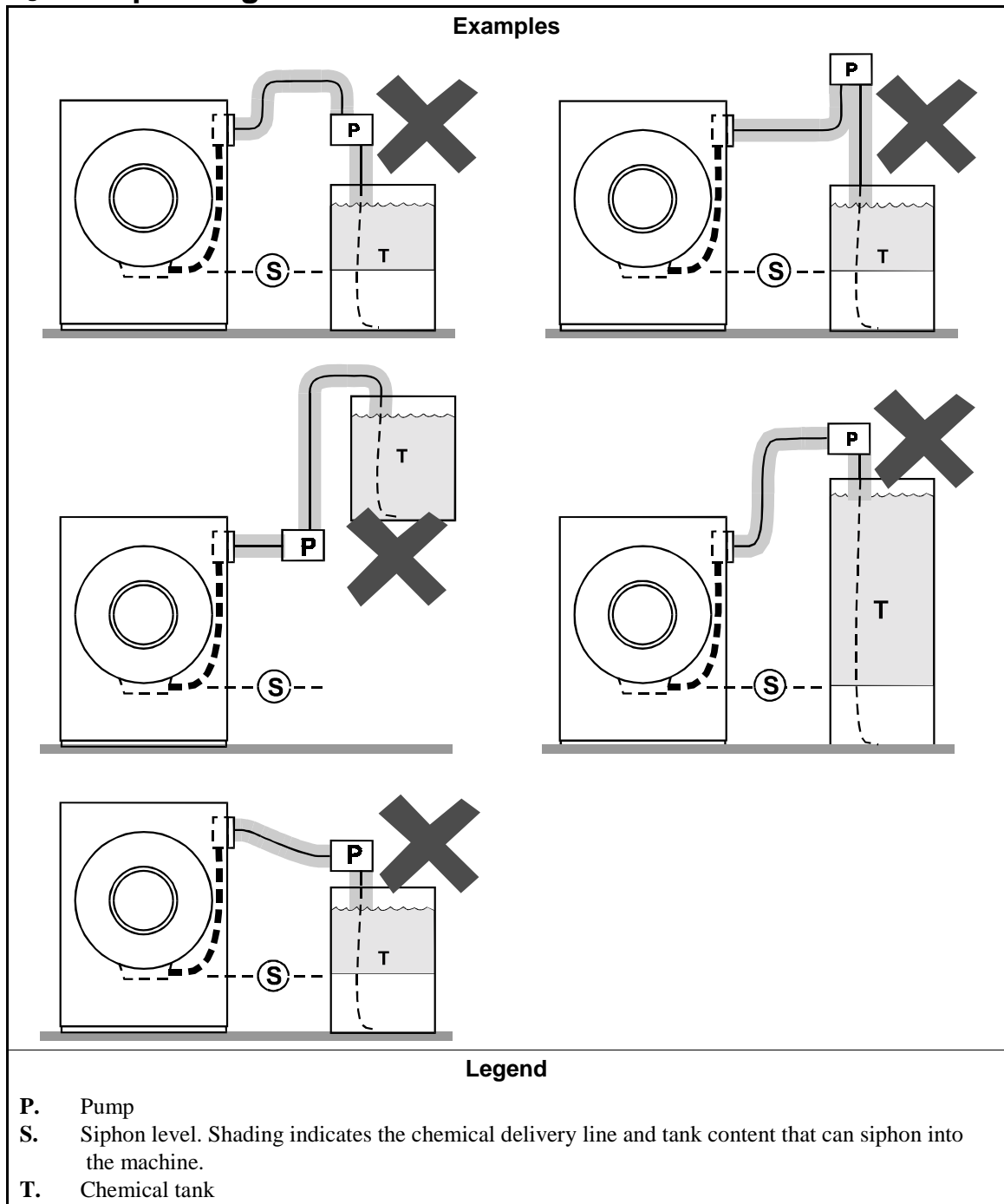
- Ensure that the chemical system prevents unintentional release of chemicals.
- Inspect regularly for proper operation and evidence of damage.

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.

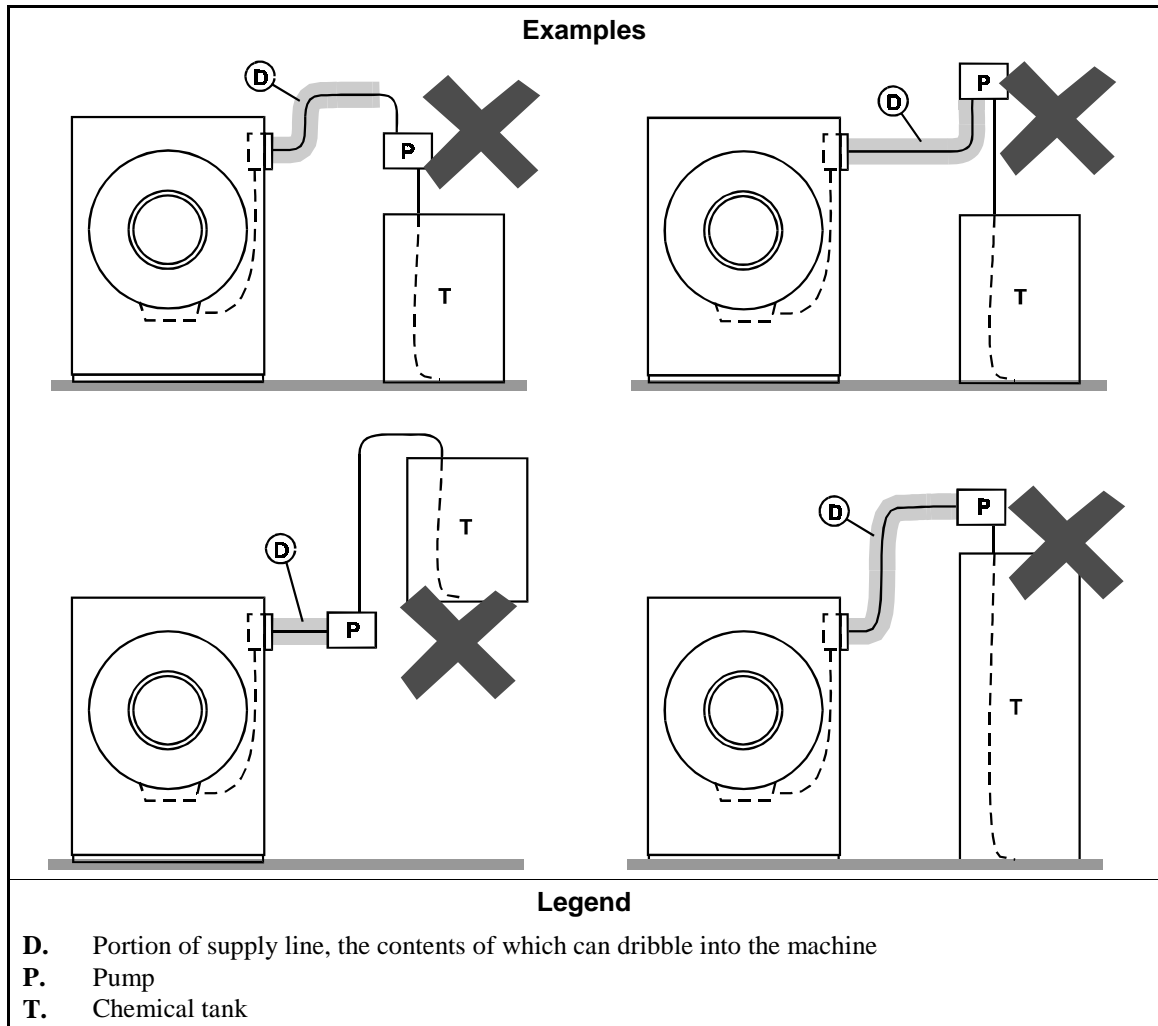
- 2.1. **Ensure the System Cannot Siphon.**—The supply system must be designed to counteract any siphoning that could occur as a result of having a sealed supply line between the bottom of the chemical tank and the internal machine connection at the drain trough. As shown in the Figure 2 examples, if 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)**



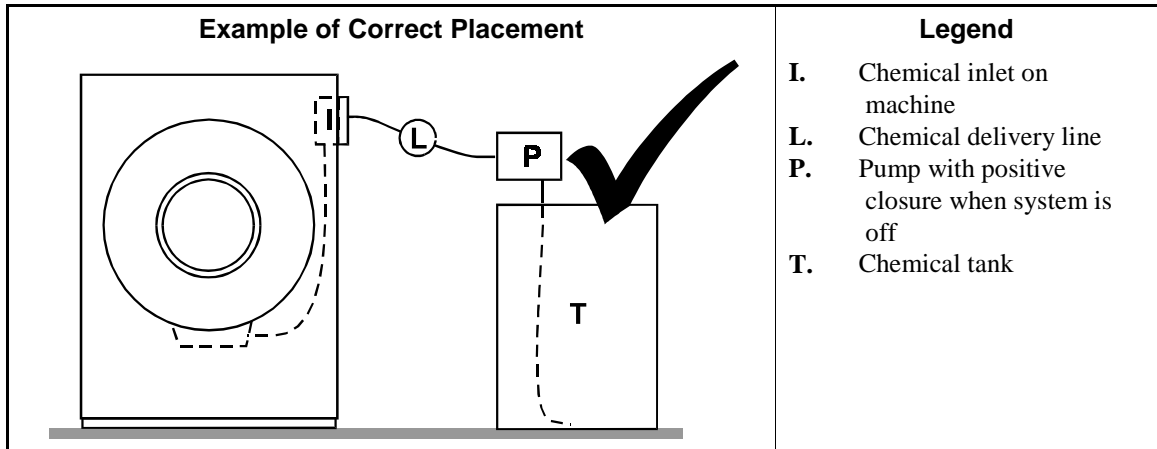
3. Design and Installation Recommendations

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

FACILITY REQUIREMENTS FOR RIGID MOUNT WASHER EXTRACTORS

This section applies to 30016, 36021, 36026 and 42026 rigid mount washer-extractor models. Refer also to the dimensional drawing for the specific machine.

Foundation and Floor Loading

To obtain vibration-free operation of rigid mount washer extractors, the machine must be securely mounted to a foundation. The foundation must be of adequate mass to counteract the largest possible out-of-balance force that may be generated. The recommended foundation construction and the anchoring system is shown on the dimensional drawing for your machine. Any variation from the foundation and/or anchoring details shown on the dimensional drawing must be approved by a structural engineer licensed to practice in your locality.

Space Requirements

The space required to accommodate each machine model, including clearances around the machine, is shown on the dimensional drawing for that model. Overall space requirements for systems installations can usually be determined only by preparing detailed floor plans. Consult your MILNOR dealer or the MILNOR factory.

All openings and corridors through which equipment must pass during installation must accommodate the width and height of the basic machine, as shown on the dimensional drawing. It is sometimes possible to reduce the overall dimensions by removing inlet piping and performing other special modifications. Consult your MILNOR dealer or the MILNOR factory.

Utility Requirements

All piped utilities (ie, water, compressed air, steam, etc.) must provide the pressures, flow rates, etc. stipulated on the machine nameplate and explained in "SERVICE CONNECTIONS AND ADJUSTMENTS..." (see Table of Contents) within reasonable tolerances. Excessive fluctuation of the utilities will seriously reduce machine performance and may result in malfunctions.

To accommodate typical plant power conditions worldwide, these machines are available in a variety of voltages, and frequencies of 60 Hz and 50 Hz. Voltage fluctuations more than 10% above or below the specified voltage for your machine are extremely detrimental to electrical components, especially motors. Any such conditions should be rectified prior to commissioning your machine.

HANDLING AND SETTING PROCEDURES FOR CPE, NPE, Qxx and Vxx WASHER-EXTRACTORS

Handling Precautions

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

NOTE: Once the machine is given to the carrier for delivery, it is the sole responsibility of the carrier to ensure that no damage occurs in 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. Permanent lifting rings are provided on some rigid mount machines. Always use these rings for crane lifting. For machines without permanent lifting rings, consult Milnor[®] for instructions if crane lifting is required.
3. Use skids with the forklift. If possible, leave the machine on the shipping skids until it is about to be placed in 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, or exert pressure on any components which protrude from the machine frame (shell front, door, supply injector, electric boxes, controls, belt guards, conduits, inlet piping, etc.).
5. Ensure that the shell door is closed and secured.
6. After installation and before operation, remove the tie wrap that secures the *vibration safety switch* (located in the electric control box).

Site Requirements

Space Requirements

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 drawing). 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.

Operational Requirements

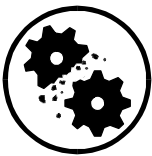
1. Allow sufficient ventilation for heat and vapors of normal operation to dissipate.
2. Provide easy access to controls. Operators must be able to reach and view all status lights, machine controls, and any additional controls associated with the machine (e.g., electrical power connections, water and steam shut-offs, etc.).

Foundation Requirements—The machine must be anchored in accordance with the dimensional drawing. 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. See “ABOUT THE FORCES TRANSMITTED BY MILNOR[®] WASHER-EXTRACTORS” (see Table of Contents) for more information.

Anchoring Requirements

Machines must be securely anchored to an adequate foundation. Anchor bolt locations and foundation specifications are provided on the dimensional drawing (see Table of Contents). **However, never install anchor bolts firmly in the foundation using only the dimensional drawing or template.** Approximate anchor bolt locations may be determined from a foundation template (standard equipment on some machines, optional on others). Recommended anchor bolt installation (see dimensional drawing) calls for each anchor bolt to be set in a pipe sleeve. The foundation template or dimensional drawing will only locate the foundation bolts accurately enough that the play of the bolt within the pipe sleeve permits the machine to fit anchor bolts. **If another bolt installation procedure is used, do not install the anchor bolts until the machine is on site and bolt locations can be determined.** Consult Milnor[®] if any obstruction prevents the installation of any anchor bolt. **Anchor bolts cannot be indiscriminately omitted.**

▲ CAUTION ▲



ranty.

STRIKE AND MACHINE DAMAGE HAZARDS—A machine can “rip” away from position on foundation if the machine is not anchored and grouted in strict accordance with the dimensional drawing and setting instructions provided in this manual. Damage resulting from improper installation is not covered by war-

- ☞ **Strictly follow setting instructions and dimensional drawing guidelines when anchoring and setting this machine.**
- ☞ **Properly install anchor bolts at ALL anchor bolt holes on the machine.**

Setting Procedures

See FIGURE 1 during the following procedures:

1. With the machine near the final location, unbolt the shipping skids. Observing all precautions, lift the machine off its skids and apply a light coat of grease to the underside of the right and left side base plates (so machine can be lifted off of the grout to remove temporary blocking). Lower machine onto temporary blocking as shown in FIGURE 1. Install anchor bolts, taking care to align the bolts with the base plates to avoid bolt thread damage.
2. **Determine that the minimum clearance between each base plate and floor is as specified (see dimensional drawing).** Use a carpenter's level to determine if the machine is level. If necessary, level the machine from right to left and front to back by shimming at temporary blocking.

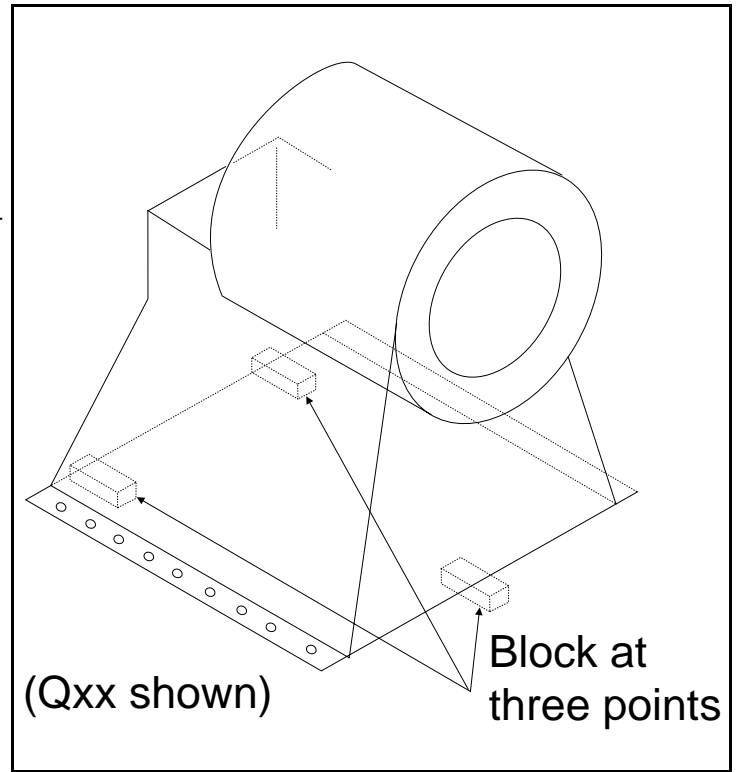


FIGURE 1 (MSIN0206AE)
Blocking Up Rigid Mount Washer-Extractors

▲ CAUTION ▲

MACHINE DAMAGE AND MALFUNCTION HAZARDS—Never tighten anchor bolt fasteners before grouting.

- ☞ Place temporary blocking at the three locations shown in FIGURE 1, not at four locations to avoid a “teeter-totter” condition.
- ☞ Tightening anchor bolt fasteners onto spacers (without grout) twists the machine frame and causes cylinder misalignment.

Preparing to Grout

All machines are designed to be grouted under the full length of the right and left side base plates (except the portion that falls over the drain sump). Grout prevents the anchor bolts from distorting the frame when the fasteners are tightened. Total area under each base plate must be completely filled with grout. Voids under base plates can magnify vibration, causing unsatisfactory operation. Use only industrial strength non-shrinking grout. Permanently install the foundation template (if supplied) under the machine as a vapor barrier if the machine is installed over a drain trough (see the dimensional drawing for additional information). After determining the final position of the machine, apply grout between the existing foundation floor and base plates, (if utilizing template, see dimensional drawing for details) while observing the following considerations:

▲ CAUTION ▲

Grout must displace total clearance between base plates and existing foundation floor.

☞ **VOIDS must not exist!**

☞ **If the grout (after mixing) is too thin (causing it to flow from under the base plates) install temporary cardboard framing around the plates to retain the grout until it cures.**

☞ **If the grout (after mixing) is of proper consistency, pack or trowel it in by hand.**

- 1.** After the grout has cured completely, raise the machine sufficiently to remove all temporary blocking and shims. **Be careful to avoid disturbing or damaging grout.**
- 2.** Tighten all fasteners until they contact the top of the base plate.
- 3.** Tighten all fasteners evenly, using only one-quarter turn on each fastener 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 fasteners, check each fastener at least twice.

Service Connections

1. General

Required service connections, (depending on machine model and optional features) are as follows:

1. Piped inlets and outlets (cold water, hot water, flush water, third water, direct steam, compressed air, liquid supply, and drain to sewer). The sizes and locations of piped inlets and outlets are shown on the dimensional drawing for your machine.
2. Electrical power connections.

2. Requirements for Piped Connections

Notice 1: Machine Damage—Valve bodies will be ruined if twisted and distorted.

- Hold the connection side of the valve with a wrench when connecting plumbing.
1. 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.
 2. Thoroughly flush all water lines before making connections.
 3. We recommend installing 40 mesh strainers or filters in front of the cold, hot and third water valves.
 4. 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, when necessary.
 5. If steam trap is required, install appropriate size steam trap if it is not furnished with machine. Do not install the trap on line from steam pop-off valve to covered drain.
 6. If available, use hot water for supply injector connection. Hot water supply must be 10 PSI (1.4 kilogram/centimeter sq.) minimum and must not contain steam. After making the connection, set the pressure regulator for a maximum of 28 PSI (1.96 kilogram/centimeter sq.) when there is no water flow.
 7. If your jurisdiction requires a vacuum breaker, be sure not to plug it during or after installation.



CAUTION 2: 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.

3. Piped Inlet Specifications

Table 1: Piped Inlets

Connection Description	Source Requirements	Piping Specifications, Comments
Water valves	1-1/4" NPT @ 10 - 75 psi	Pipe material per plumbing code
Compressed air	1/4" NPT @ 80 -110 psi	Pipe material per plumbing code
Steam inlet	1-1/4" NPT @ 30 - 115 psi	Pipe material per plumbing code
Liquid supply inlets	3/8" - 1/2" @ 10 - 75 psi	Flexible tubing as specified by the chemical supplier

4. Piped Outlet Specifications

Piped outlet requirements are as follows (see dimensional drawing for connection sizes and locations):

Table 2: Outlets

Connection Description	Destination	Piping Specifications
BWP, CPE and NSP	4" NPT drain to sewer	Rubber hose, PVC or other approved material per plumbing code

5. Power Connections and Precautions



WARNING 3: Electrocutation and Electrical Burn Hazards—Contact with high voltage will electrocute or burn you. Power switches on the machine and the control box do not eliminate these hazards. High voltage is present at the machine unless the main machine power disconnect is off.

- Do not service machine unless qualified and authorized.

Notice 4: Machine Damage—Voltage fluctuations of more than 10% above or below the specified voltage for your machine can damage electrical components, especially motors.

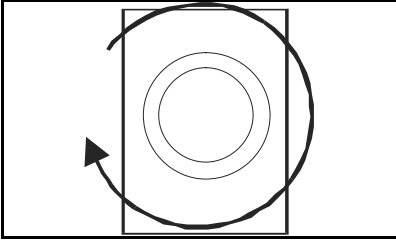
- Any such conditions should be corrected prior to commissioning your machine.

The customer must furnish a remotely mounted disconnect switch with lag type fuses or 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 the fuse and wire sizing information in the External Fuse and Wire Size manual and on the machine nameplate. See dimensional drawings in this manual for electrical connection locations.

1. Electrical connections must be made by a competent electrician.
2. See fuse and wire sizing information in the External Fuse and Wire Size manual and on the machine nameplate. If the wire runs more than 50 feet, increase by one wire size for each additional 50 feet.
3. Only use Bussman Fusatron FRN (up to 250V), FRS (up to 600V) or similar lag fuses, the nameplate fuse sizes must not be applied to standard fuses.
4. Stinger leg, if any, must be connected to terminal L3, never to terminals L1 or L2.
5. Make power and liquid supply electrical connections within junction boxes on the rear of the machine.

- Verify motor rotation (Figure 1). See the operating and trouble shooting 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. All motors are phased for proper rotation. Never attempt to reconnect motors or the motor control devices.

Figure 1: Correct Rotation During Drain and Extract (when viewing front of machine)



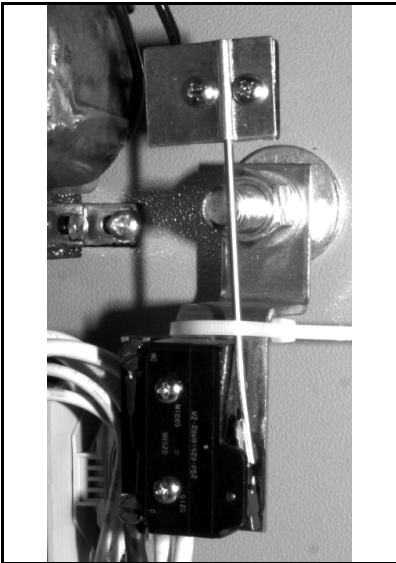
6. Remove Shipping Restraints

Remove all shipping restraints (usually marked in red). Restraints may be located behind access panels. Restraints may include the vibration switch restraint and the brake band shipping block.

Remove the brake band shipping block only after electricity and air connections are made (CPE and NSP). Remove as follows:

- Energize machine.
- Turn brake on using manual operating procedures (see reference manual).
- Ensure no one can inadvertently operate the machine controls. Then, using tools, not bare hands, remove block when brake is released.
- Manually turn brake off. De-energize the machine until ready for operation.

Figure 2: Typical Vibration Switch showing restraint in place



7. Check Cylinder Surface

Check the perforated cylinder for smoothness. Milnor will not accept responsibility for the cylinder finish after the machine is placed in service.

8. **Sensing Device**

(BWP, CPE and NSP machines only) After machine installation, ensure the sensing device fine tuning adjusting screw (under the hinged cover secured by three top screws) is set in accordance with the instructions in the balancing system details in this manual. This will ensure better balancing and the least vibration in the machine during extraction.

— End of BIRQVI01 —

Section

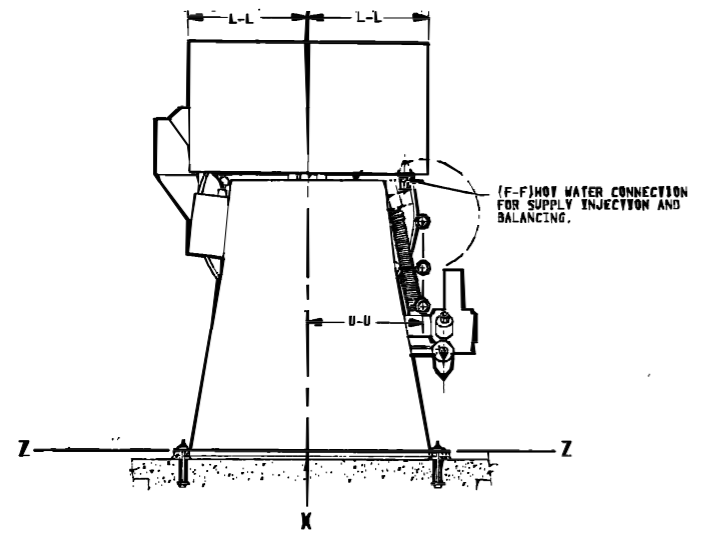
3

Dimensional Drawings

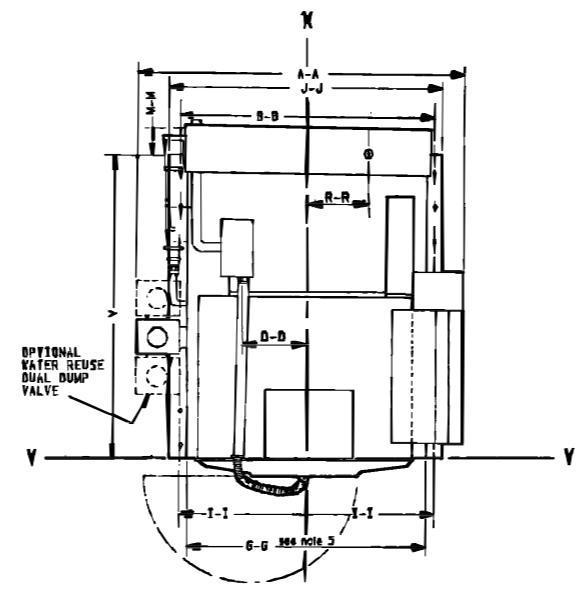
3621BWP DIMENSIONS STANDARD ELECTRIC WATER VALVE SPECIFICATIONS:		
	ENGLISH	METRIC
CYLINDER SIZE	36" X 21"	91CM X 53CM
WEIGHT FULLY LOADED	2789 LBS	1269 KG
PROJECTED AREA FLOOR LOADING	195 LB/FT ²	757 KG/M ²
FLOOR LOADING UNDER EACH FOOT	1214 LB/FT ²	5927 KG/M ²
A	43 1/2"	1105 MM
B	35"	889 MM
C	54 1/8"	1375 MM
D	46 3/4"	1180 MM
E	19 3/4"	501 MM
F	0	0
G	6"	152 MM
H	48"	1219 MM
I	12"	305 MM
J	23"	584 MM
K	17"	432 MM
L	15 5/8"	397 MM
M	82 3/4"	2101 MM
N	73 7/8"	1878 MM
O	60 3/4"	1543 MM
P	60"	1524 MM
Q	24"	610 MM
R	4"	102 MM
S	11 5/8"	295 MM
T	1-1/4" NPT	
U	1/4" NPT	
V	54"	1372 MM
W	4"	102 MM
A-A	58 1/2"	1486 MM
B-B	44"	1118 MM
L-C	69 1/2"	1762 MM
D-D	11"	279 MM
E-E	3"	76 MM
F-F	1/2" NPT	
G-G	42"	1067 MM
H-H	25 3/4"	654 MM
I-I	22"	559 MM
J-J	47 1/2"	1207 MM
K-K	29"	735 MM
L-L	21"	533 MM
M-M	3-1/2"	89 MM
N-N	21-3/4"	552 MM
O-O	21"	533 MM
P-P	97 1/2"	2480 MM
Q-Q	60"	1524 MM
R-R	10 1/2"	267 MM
S-S	81 3/8"	2067 MM
T-T	73"	1854 MM
U-U	19"	483 MM
V-V	59 3/8"	1500 MM
W-W	28 3/8"	748 MM
X-X	8"	192 MM

NOTES:

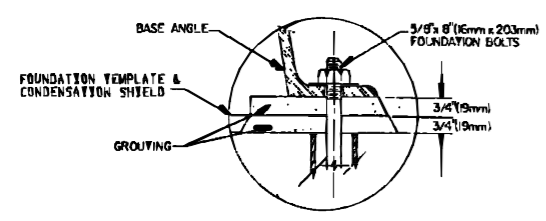
- ALL DIMENSIONS SHOWN ARE APPROXIMATE, SUBJECT TO NORMAL MANUFACTURING TOLERANCES AND TO OCCASIONAL CHANGES WITHOUT NOTICE, THROUGH REDESIGN AND/OR RELOCATION OF COMPONENTS, ETC. DO NOT USE FOR CONSTRUCTION UNLESS CERTIFIED AND IN NO EVENT, PREPIPE CLOSER THAN FIVE FEET FROM MACHINE. FACTORY MUST BE CONSULTED FOR DIMENSIONS IF MACHINE IS TO BE MOVED THROUGH NARROW OR LOW CORRIDORS OR OPENINGS.
- AS OF THIS WRITING, THE MINIMUM CLEARANCE REQUIRED BY U.S. NATIONAL ELECTRIC CODE, FROM ELECTRIC BOX TO ANY OBJECT IS:
 *36" (914) IF OBJECT IS AN UNGROUNDED (INSULATED) WALL.
 *42" (1067) IF OBJECT IS A GROUNDED WALL. (IE: BARE CONCRETE, BRICK, ETC.)
 *48" (1209) IF OBJECT IS ANY LIVE PART.
 CHECK LOCAL ELECTRIC CODES FOR FURTHER RESTRICTIONS.
- WHENEVER PREPARING DRAWINGS ON WHICH THIS MACHINE APPEARS AND WHEN PREPARING THE SITE FOR INSTALLATION OF THIS MACHINE, IT IS RECOMMENDED TO FIRST LOCATE REFERENCE LINES "X", "Y" AND "Z", THEN TO LOCATE ALL SERVICE CONNECTIONS OFF OF THESE LINES.
- "STEAM HAMMER", CAUSED BY WET STEAM OR CONDENSATION, MAY BE PREVENTED BY INSTALLING A TRAP IMMEDIATELY BEFORE THE STEAM VALVE.
- OVERALL BASE DIMENSIONS IS WITH BOLT-ON BASE ANGLE OPTION, WHEN ANGLES ARE REMOVED.
- CUSTOMER TO SUPPLY FUSED BRANCH CIRCUIT DISCONNECT (SAFETY) SWITCHES WITH LAG TYPE FUSES, FROM POWER SOURCE TO EQUIPMENT. A SEPARATE GROUND WIRE MUST BE CONNECTED FROM DISCONNECT TO EQUIPMENT.



REAR VIEW



PLAN VIEW

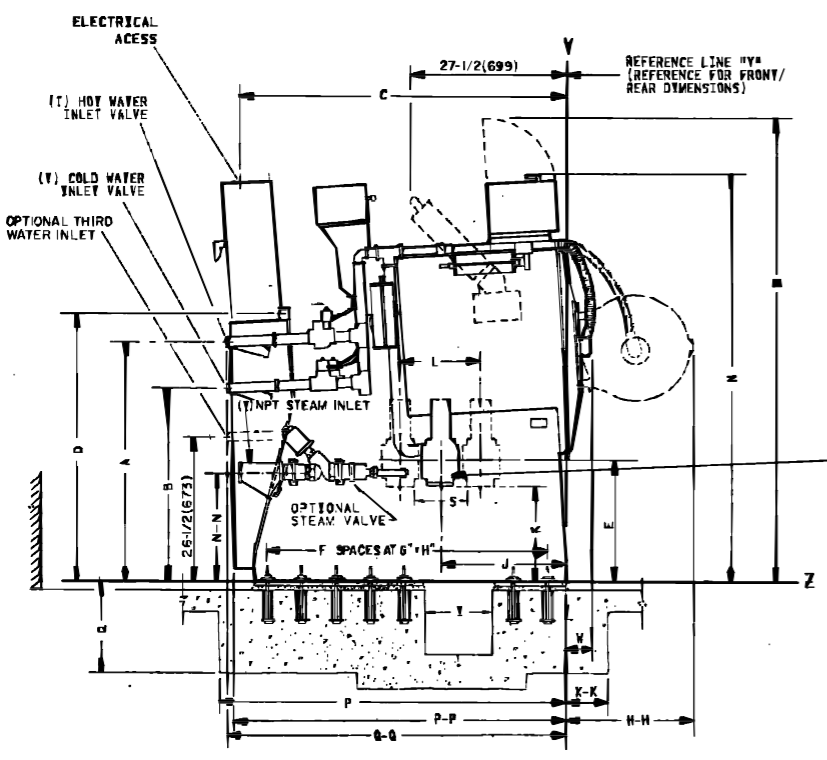


FASTENING DETAIL

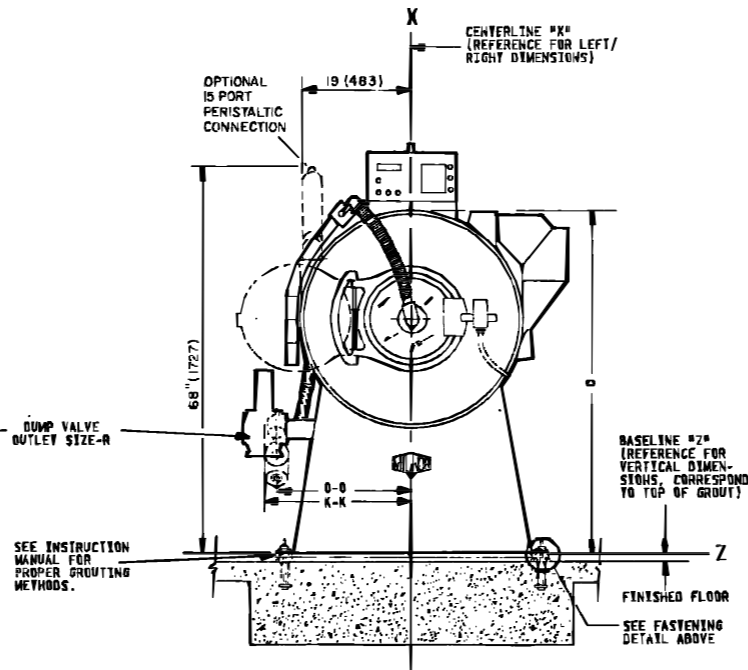
DIMENSIONS FOR OPTIONAL AIR OPERATED WATER VALVES		
	ENGLISH	METRIC
A	43"	1092 MM
B	34 1/2"	878 MM
O-O	60 3/8"	1540 MM
U-U	18 3/8"	467 MM

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.

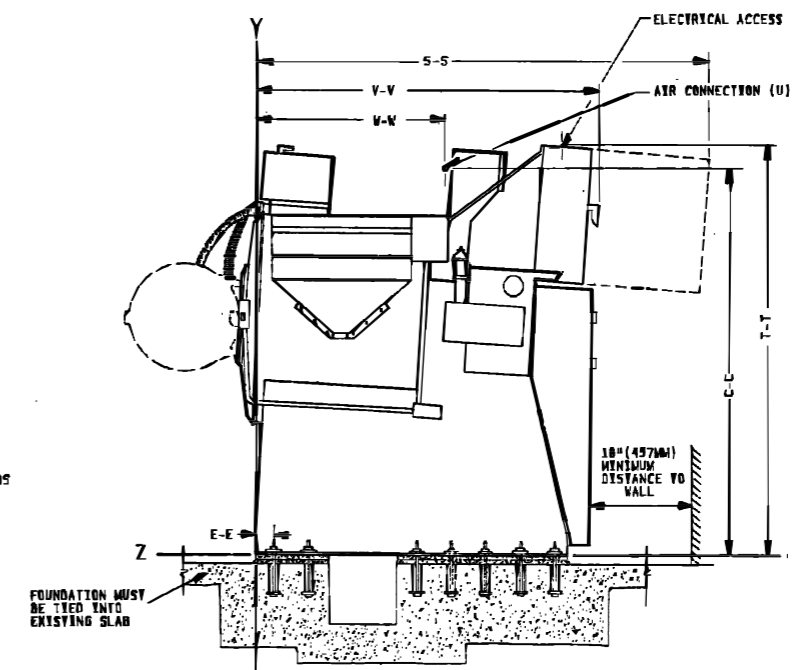
ATTENTION
 THE FLOOR AND/OR ALL OTHER SUPPORT COMPONENTS MUST HAVE SUFFICIENT STRENGTH (AND RIGIDITY WITH DUE CONSIDERATION FOR THE NATURAL OR RESONANT FREQUENCY THEREOF) TO WITHSTAND THE FULLY LOADED WEIGHT OF THE MACHINE INCLUDING THE GOODS, THE WATER, AND THE REPEATED SINUSOIDAL (ROTATING) FORCES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



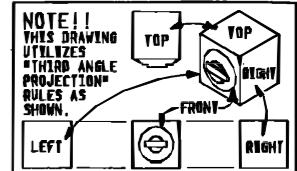
LEFT SIDE VIEW



FRONT VIEW

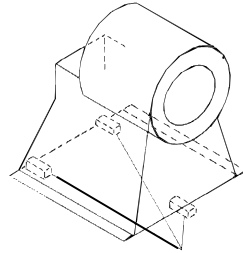


RIGHT SIDE VIEW



RECOMMENDED INSTALLATION PROCEDURE

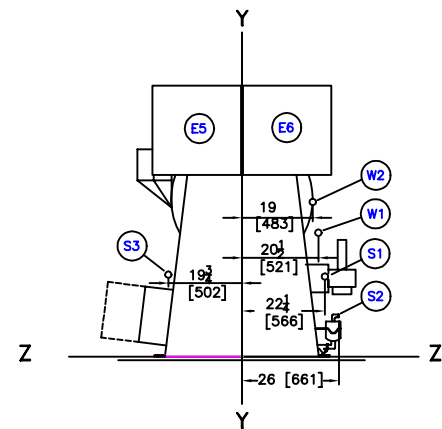
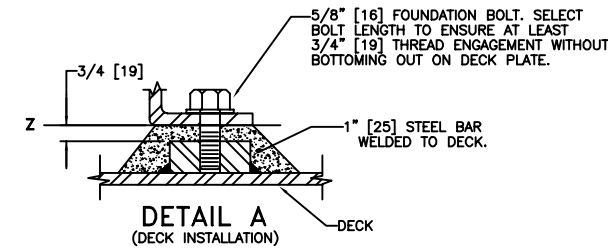
NOTE: FOUNDATION AND/OR DECK DESIGNS ARE NOT SPECIFIED BY PELLERIN MILNOR AND ARE THE RESPONSIBILITY OF THE CUSTOMER.



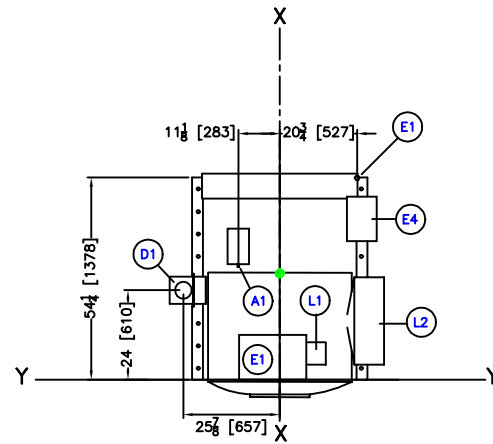
BASE ANGLES ON MACHINE ARE SELDOM IN THE SAME PLANE. TO COMPENSATE FOR THIS, THE MACHINE MUST BE SHIMMED WHERE NECESSARY. THE FOLLOWING INSTALLATION PROCEDURE IS RECOMMENDED.

- 1A. (FOR DECK INSTALLATION) POUR GROUT OVER 1" [32] THICK BAR. GROUT MUST STAND APPROX. 1-1/4" [32] ABOVE THE TOP OF THE BAR. WHEN THE MACHINE IS PUT IN PLACE, GROUT WILL SPREAD EVENLY UNDER MOUNTING ANGLES. TAMP GROUT FIRMLY UNDER ANGLES.
- 1B. (FOR FOUNDATION INSTALLATION) POUR GROUT 1-1/4" [32] ABOVE FOUNDATION, PLACE FOUNDATION TEMPLATE/CONDENSATION SHIELD. APPLY ANOTHER LAYER OF GROUT 1-1/4" [32] ABOVE CONDENSATION SHIELD SO WHEN THE MACHINE IS PUT IN PLACE, GROUT WILL SPREAD EVENLY UNDER MOUNTING ANGLES.
2. SET MACHINE DOWN ON (3) BLOCKS AS SHOWN IN SKETCH (ABOVE.) DO NOT TWIST OR RACK MACHINE WHEN INSTALLING. IF MACHINE IS RACKED THE SENSING DEVICE AND CLUTCH MUST BE READJUSTED.
3. REMOVE BLOCKS AFTER GROUT HAS HARDENED AND CHECK SENSING DEVICE AND CLUTCH ADJUSTMENT.
4. TIGHTEN FOUNDATION BOLTS OCCASIONALLY TO INSURE STABILITY OF MACHINE.

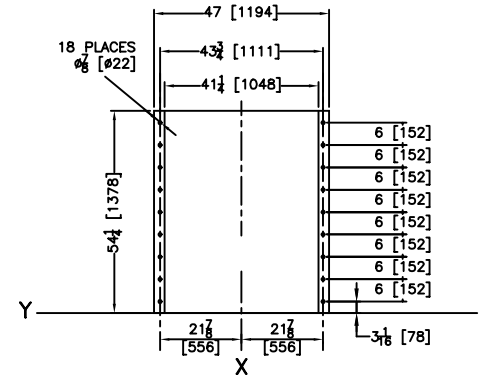
WEIGHTS (MAXIMUM ESTIMATED)	LBS.	KG.
UNIT WEIGHT DRY	2595	1168
OPERATING WEIGHTS OF FLUIDS	552	248
TOTAL OPERATING UNIT WEIGHT	3147	1416



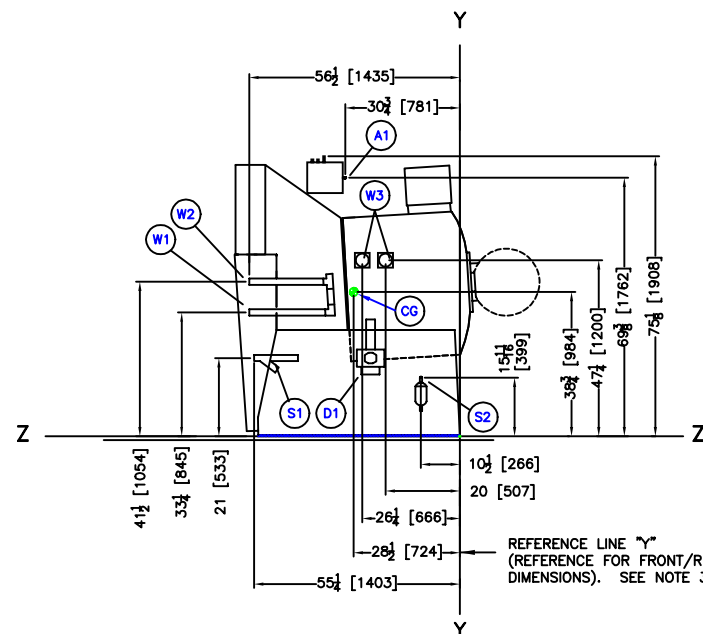
REAR VIEW



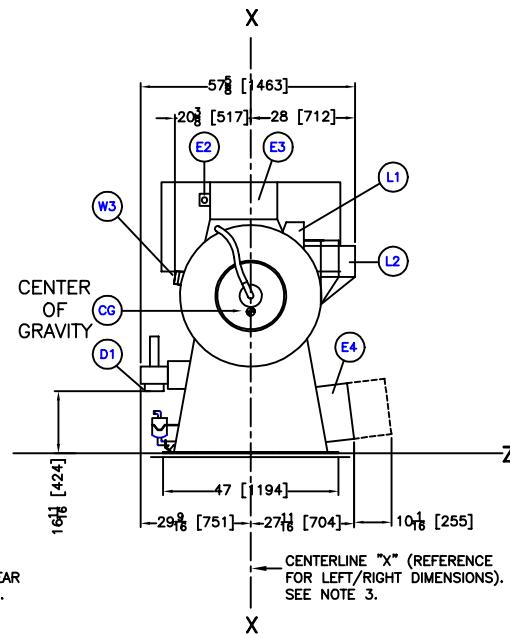
PLAN VIEW



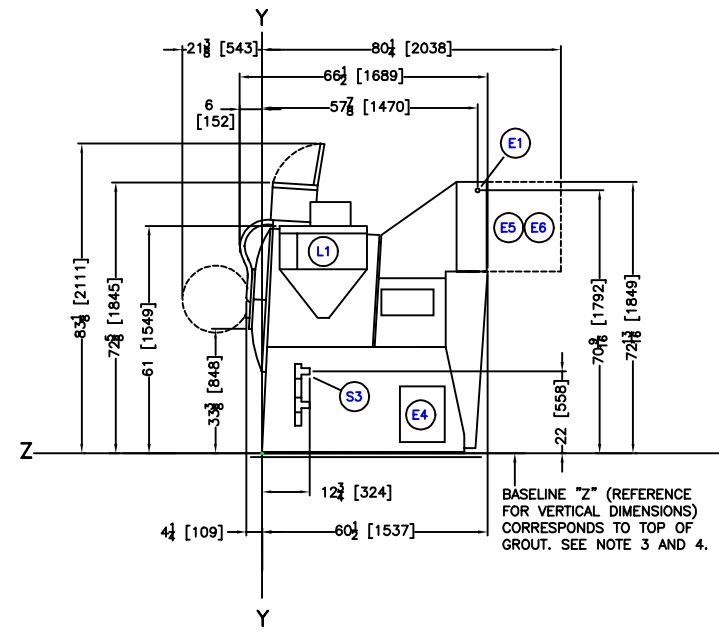
FOUNDATION VIEW



LEFT VIEW



FRONT VIEW



RIGHT VIEW

W3	SALT WATER INLET, 3" NPT, FEMALE.
W2	HOT WATER INLET, 1-1/4" NPT, ELECTRIC VALVE
W1	COLD WATER INLET, 1-1/4" NPT, ELECTRIC VALVE
S3	OPTIONAL STEAM RELIEF VALVE, 1-1/4" NPT (NSP ONLY)
S2	OPTIONAL STEAM CONDENSATION RETURN 3/4" NPT (NSP ONLY)
S1	OPTIONAL ELECTRIC STEAM INLET, 1-1/4" NPT
L2	COMPARTMENT SUPPLY
L1	SOAP CHUTE
E6	PROCESS CONTROL PANEL BOX.
E5	HIGH VOLTAGE CONTROL PANEL BOX.
E4	OPTIONAL LOW SPEED EXTRACT BOX
E3	MICROPROCESSOR CONTROL PANEL.
E2	EMERGENCY STOP.
E1	MAIN ELECTRICAL CONNECTION.
D1	DRAIN TO SEWER, 4" NPT.
CG	CENTER OF GRAVITY
B1	DOOR OPENING 18" DIAMETER
A1	MAIN AIR CONNECTION 1/4" NPT.
ITEM	LEGEND

- NOTES**
- 9 "STEAM HAMMER", CAUSED BY WET STEAM OR CONDENSATION, MAY BE PREVENTED BY INSTALLING A TRAP IMMEDIATELY BEFORE THE STEAM VALVE.
 - 8 SPECIFICATION OF DYNAMIC FORCES TRANSMITTED TO A FOUNDATION WILL BE SUPPLIED BY PELLERIN MILNOR UPON REQUEST.
 - 7 DIMENSIONS LOCATING CENTER OF GRAVITY ARE TAKEN FOR AN EMPTY MACHINE.
 - 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 DESIGN 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 (AND 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.

3621CPE, NSP WASHER EXTRACTOR

DM 0 0.5M 1M DWG#
INCHES 0 12 24 36 BD36CPE1BE
2001435D

PELLERIN MILNOR CORPORATION
P.O. Box 400 Kenner, LA 70063, USA, Phone 504/467-9591,
FAX 504/468-1849, Telex ITT 480124/PELM UI, Cable PELMILNOR