Published Manual Number/ECN: MAP30VXXBE/2006145A
- **Publishing System: TPAS**
- **Access date: 4/6/2006**
- **Document ECN's: Latest Available**

Service—

30015V7J,T5J,T5E
30022V6J,T5J,T5E
Washer-Extractors

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

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

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.

Trademarks of Pellerin Milnor Corporation

The following, some of which may be used in this manual, are trademarks of Pellerin Milnor Corporation:

Ampsaver®	Dye-Extractor®	Gear Guardian®	Milnet®	Staph-Guard®
Autolint®	Dyextractor®	Hands-Off®	Milnor®	System 4®
Auto-Purge®	E-P Express®	Hydro-Cushion®	Miltrac	System 7®
Autovac	E-P OneTouch®	Mildata®	Miltron	Totaltrol®
CBW®	E-P Plus®			

Comments and Suggestions

Help us to improve this manual by sending your comments to:

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

Fax: (504) 469-1849

Table of Contents
for MAP30VXXBE/2006145A
30015V7J,T5J,T5E 30022V6J,T5J,T5E Washer-Extractors

Table of Contents, cont.

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, NEGLECT, POWER OR ENVIRONMENTAL CONTROL MALFUNCTIONS, DAMAGE FROM LIQUIDS, OR ANY OTHER CAUSE BEYOND THE NORMAL RANGE OF USE. REGARDLESS OF HOW CAUSED, IN NO EVENT SHALL MILNOR BE LIABLE FOR SPECIAL, INDIRECT, PUNITIVE, LIQUIDATED, OR CONSEQUENTIAL COSTS OR DAMAGES, OR ANY COSTS OR DAMAGES WHATSOEVER WHICH EXCEED THE PRICE PAID TO MILNOR FOR THE EQUIPMENT IT SELLS OR FURNISHES.

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

BIUUUS27 (Published) Book specs- Dates: 20051111 / 20051111 / 20060322 Lang: ENG01 Applic: RUU

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

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

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

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

WARNING 17: 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 360º rotating sinusoidal RMS forces that are transmitted by the machine(s). Moreover, the floor, foundation, or other supporting structure must have sufficient rigidity (i.e., a natural or resonant frequency many times greater than the machine speed with a reasonable factor of safety); otherwise, the mentioned 360º rotating sinusoidal RMS forces can be multiplied and magnified many times. It is especially important to consider all potential vibration problems that might occur due to all possible combinations of forcing frequencies (rotating speeds) of the machine(s) compared to the natural frequencies of the floor and/or any other supporting structure(s). A qualified soil and/or structural engineer must be engaged for this purpose.

Figure 1: How Rotating Forces Act on the Foundation

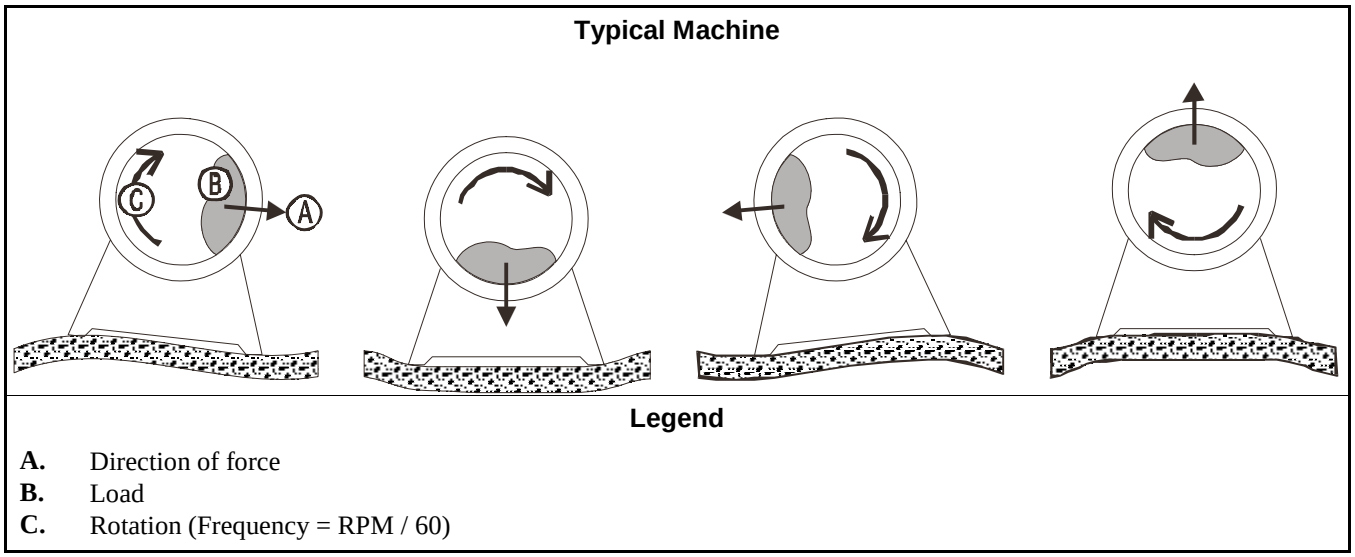


Figure 1 above is intended to depict both on-grade and above-grade installations and is equally applicable to flexibly-mounted washer-extractors, as well as to rigid models installed either directly on a floor slab or on a foundation poured integrally with the slab. Current machine data is available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

— End of BIWUUI02 —

Glossary of Tag Illustrations— G-Style, 30" T-Style, & 30" V-Style Washer-Extractors

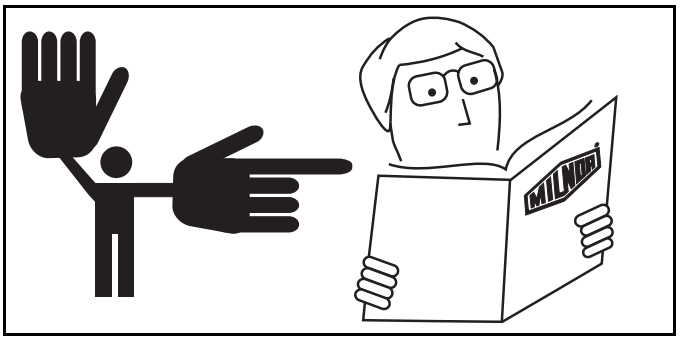
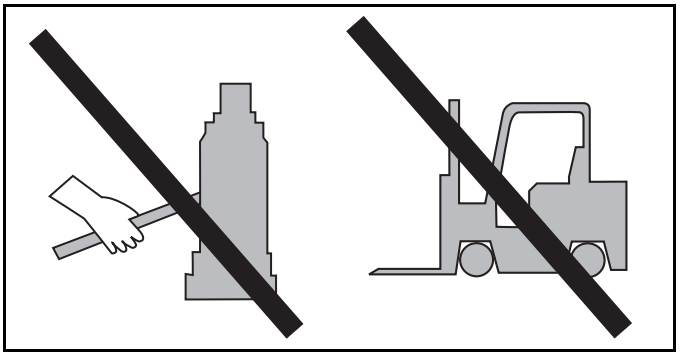
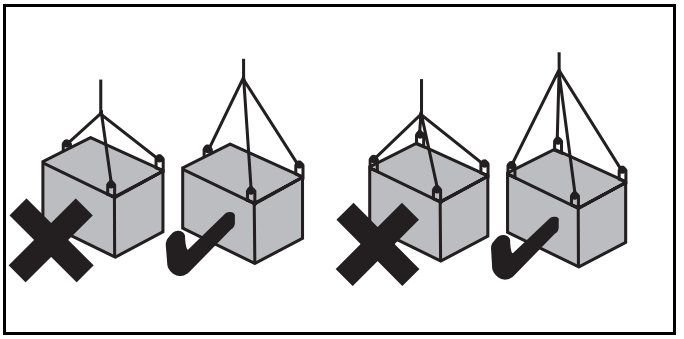
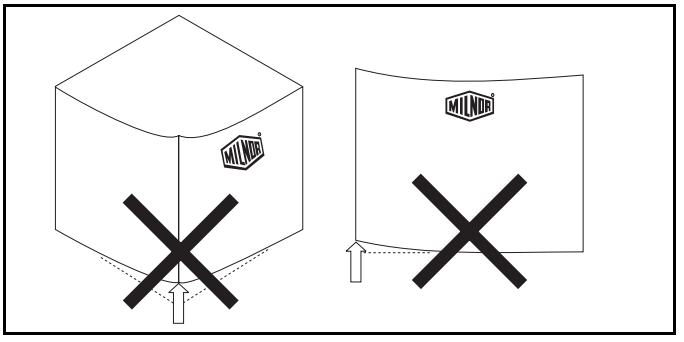
Illustration	Explanation
	Stop! Read the manual first for complete instructions before continuing.
	Do not jack the machine here. Do not lift the machine here.
	Use three point or four point lifting as determined by the lifting eyes furnished. Rig the load using lifting cables of sufficient size and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

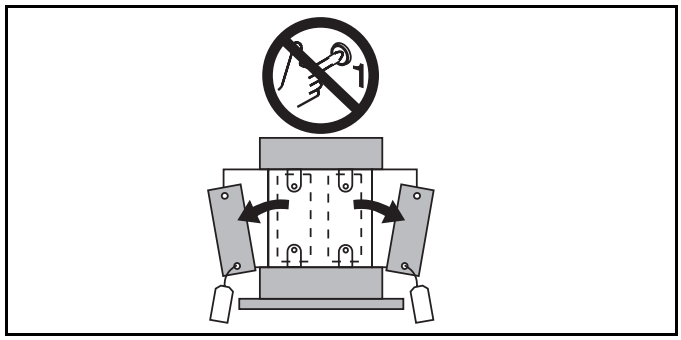
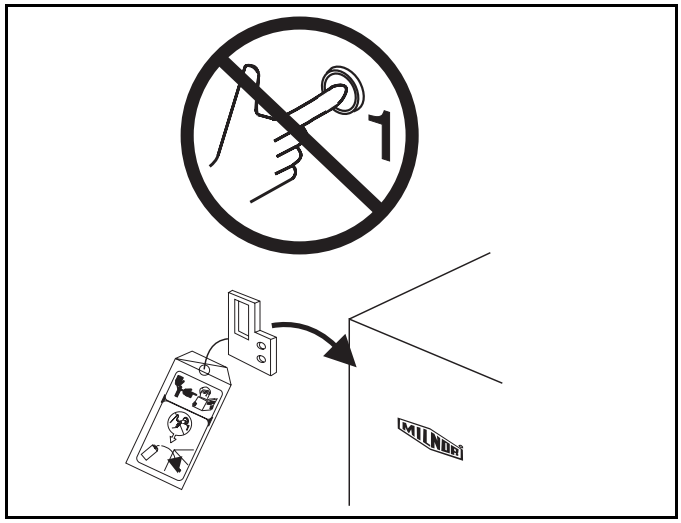
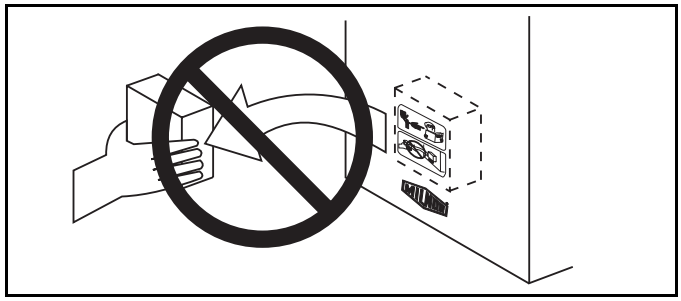
Illustration	Explanation
	Do not start this machine until the packing materials, lifting brackets, etc. with this tag attached or behind this panel are removed. These materials are painted red. Safety stands or brackets (also painted red) may be provided with this machine. Do not discard safety stands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

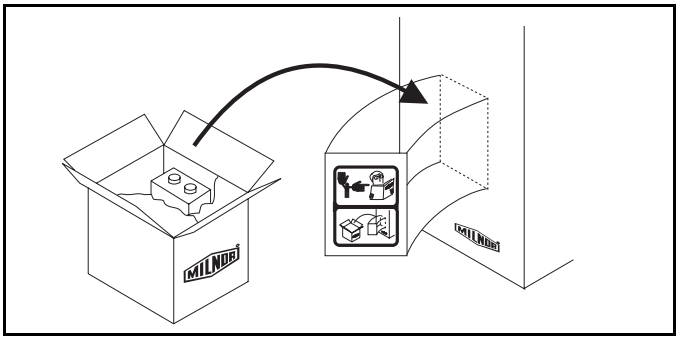
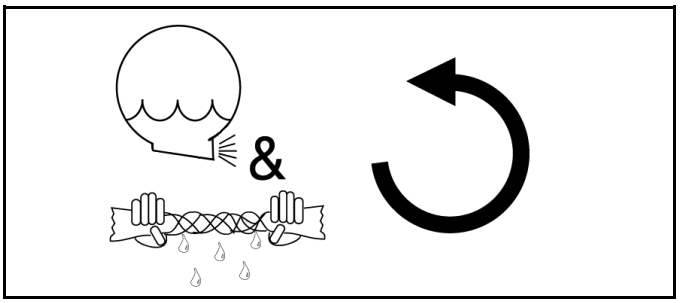
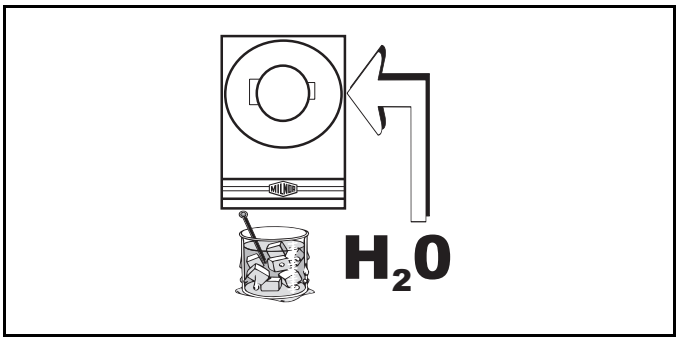
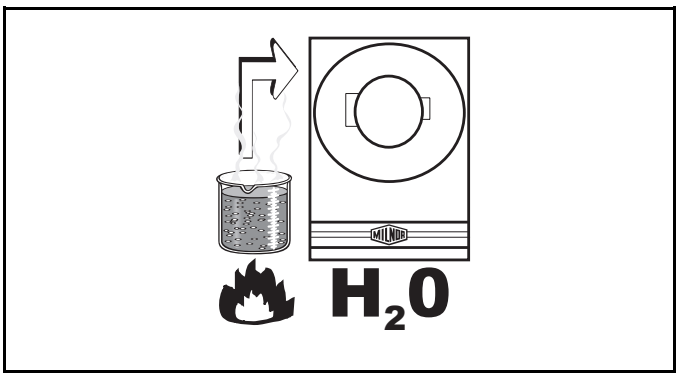
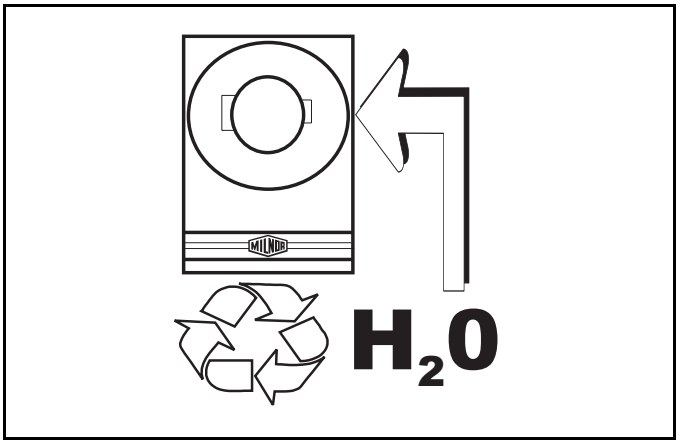
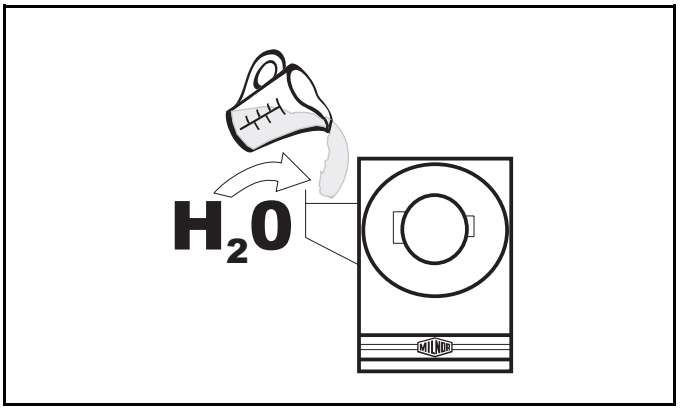
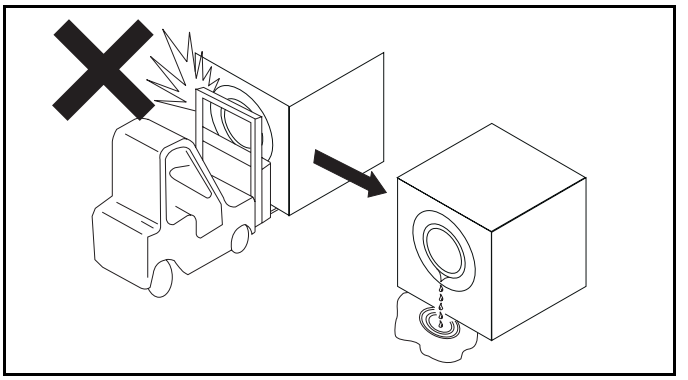
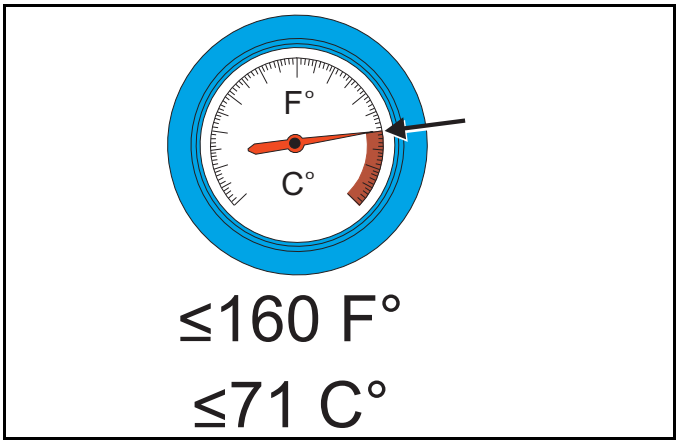
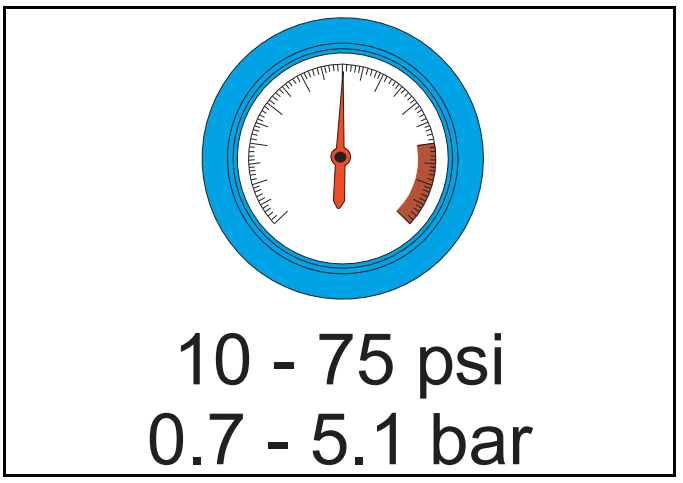
Illustration	Explanation
	Install the appropriate part here before operating the machine.
	During drain and extract, the cylinder must rotate counterclockwise when viewed from here (rear of machine).
	Make cold water connection here.
	Make hot water connection here.

Illustration	Explanation
	Make third (reuse) water connection here.
	Make flushing water connection here.
	Do not strike shell front of washer-extractors during fork lifting. Striking shell front will cause door to leak.
	Water hammer will rupture the water inlet valves on this machine. Eliminate water hammer on waterlines to this machine. Follow all applicable codes when installing water hammer arresters on water lines.



Excessive water temperture will damage valves. Do not exceed 160 degrees Fahrenheit (71 degrees Celsius).



Excessive air pressure will damage valves. Do not exceed 80 psi (5.5 bar).

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.**

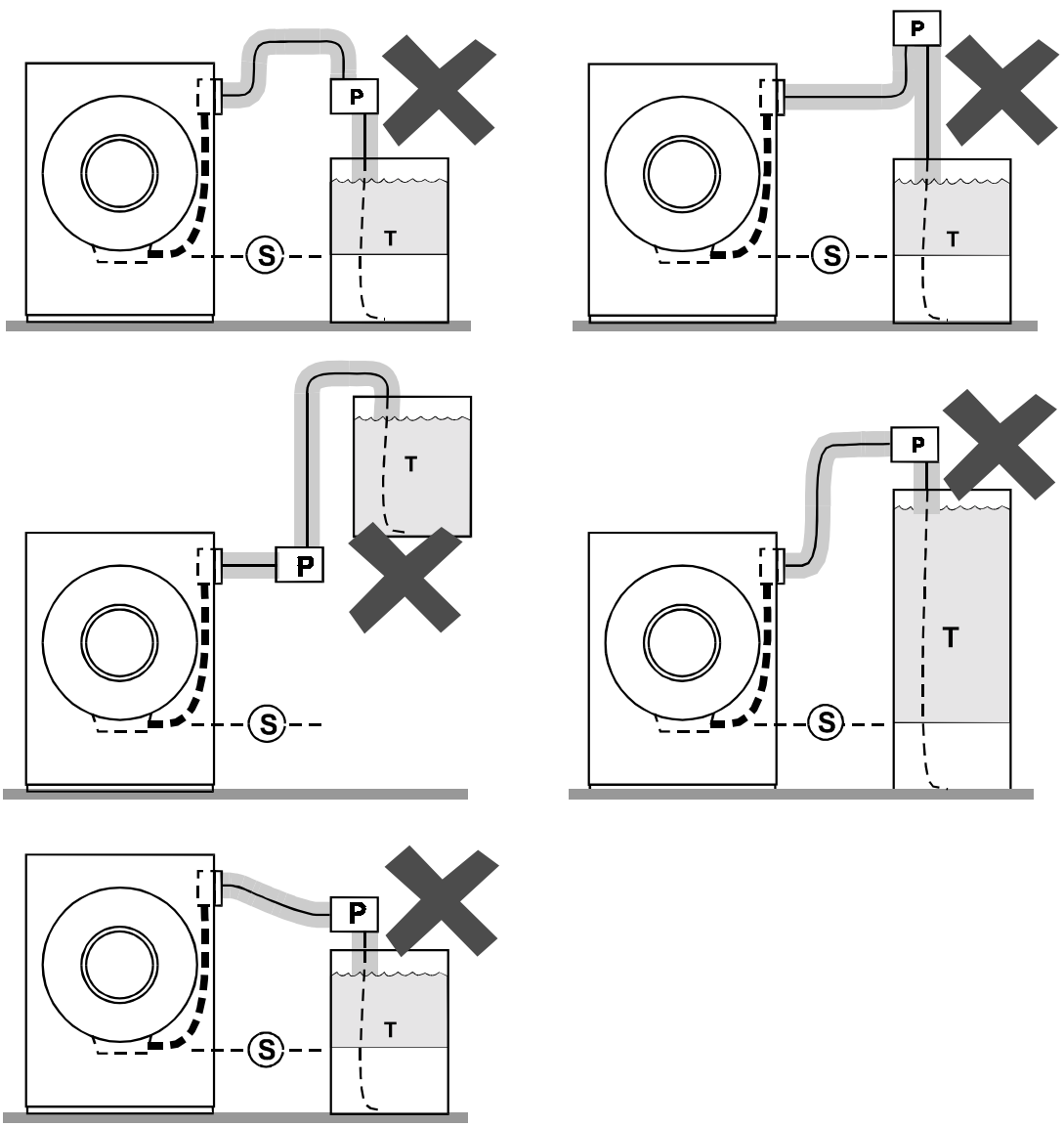
- Ensure that the chemical system prevents unintentional release of chemicals.
- Inspect regularly for proper operation and evidence of damage.

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

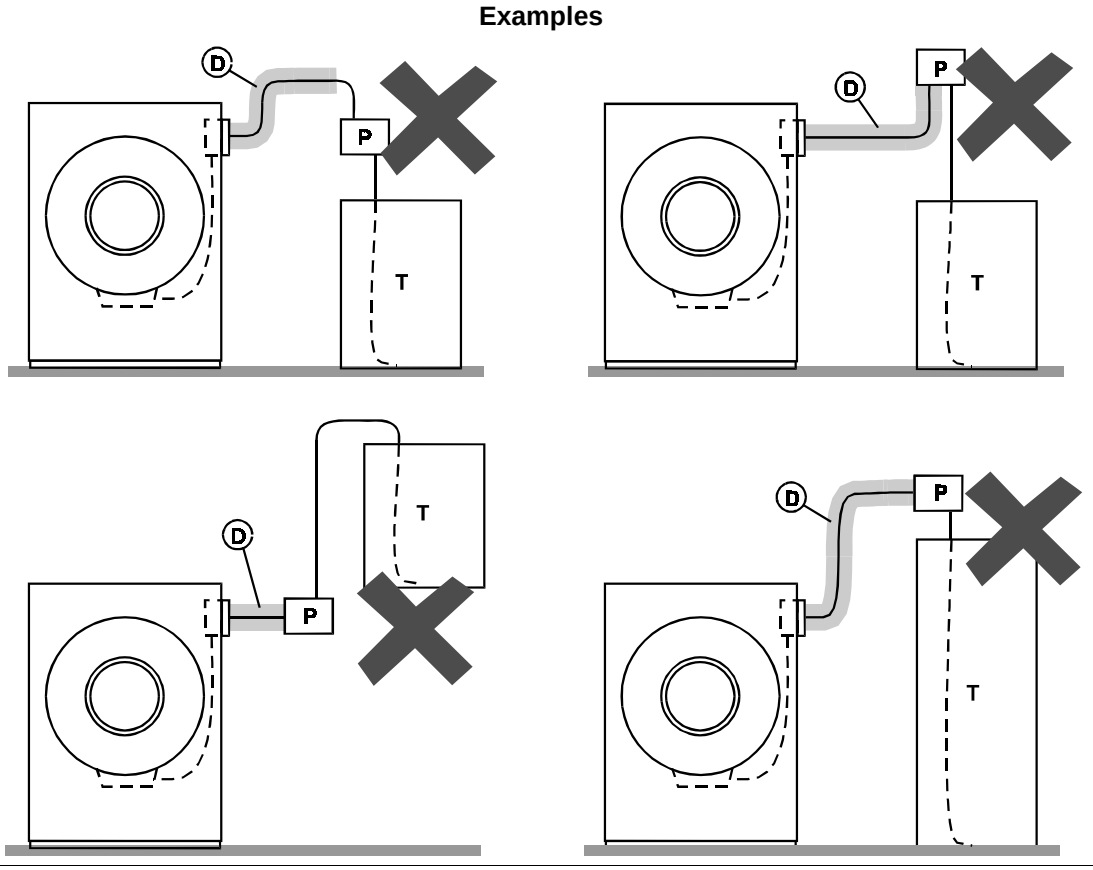


Legend

P. Pump
S. Siphon level. Shading indicates the chemical delivery line and tank content that can siphon into the machine.
T. Chemical tank

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)



Legend

D. Portion of supply line, the contents of which can dribble into the machine
P. Pump
T. Chemical tank

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.

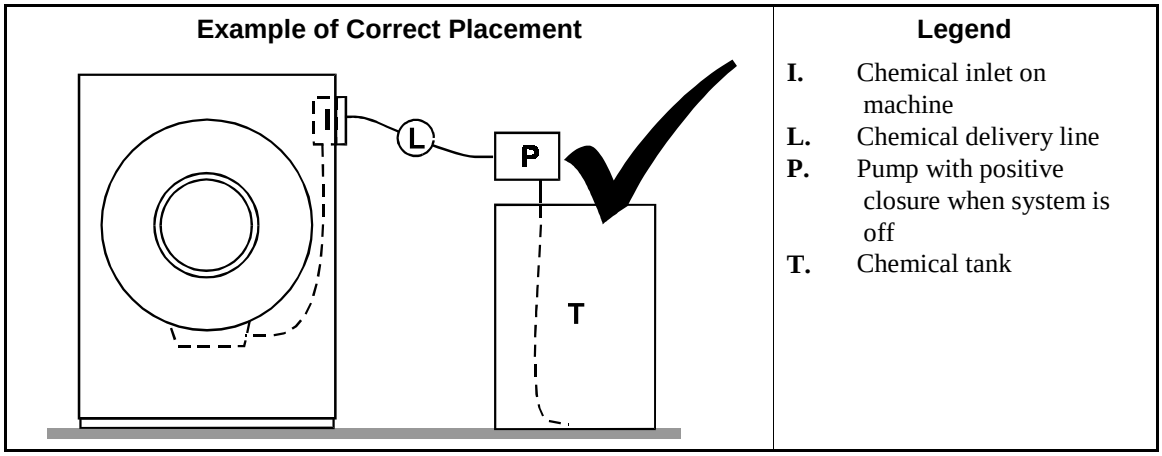
3.1. Siphoning: Positively close the line.—If the pump does not provide positive closure when the system is off, employ a shutoff valve in the line to serve this purpose.

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 —

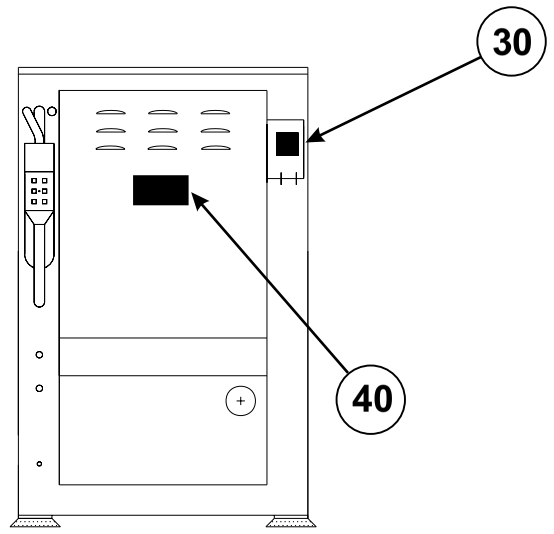
Safety Placard Use and Placement

30015, 30022Txx & Vxx

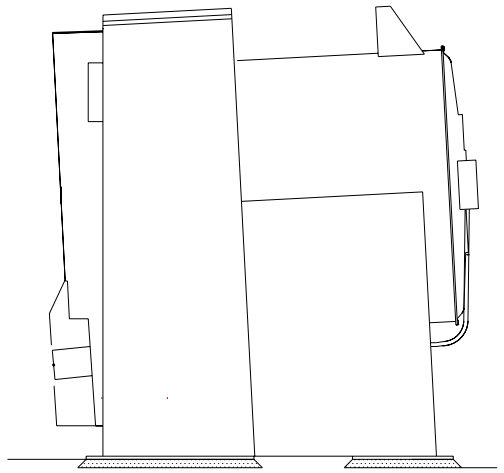
Pellerin Milnor Corporation
P. O. Box 400, Kenner, LA 70063-0400

Litho in U.S.A.

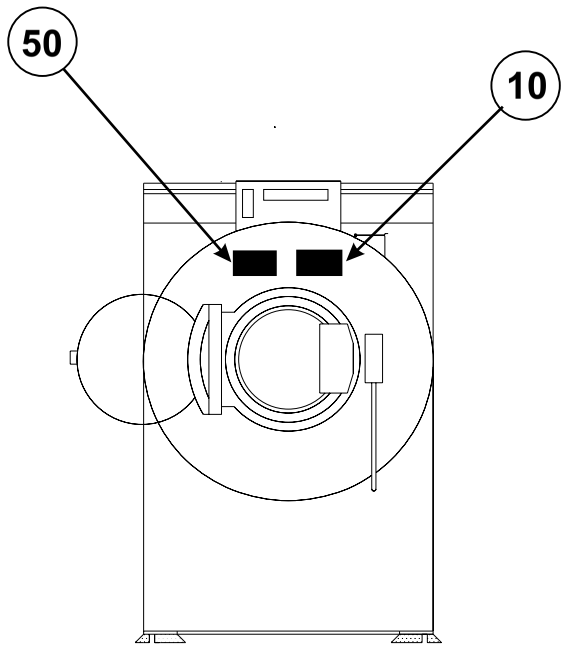
Notes:
1. **Replace placard immediately, if removed or unreadable.**
2. **Approximate locations of placards are shown. Mounting holes are provided on machine. Use #8 self-tapping screws.**



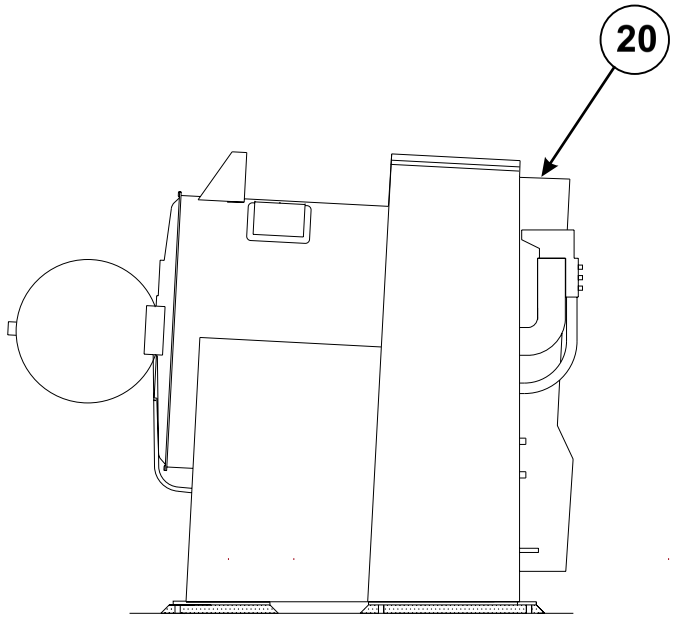
REAR VIEW



LEFT VIEW



FRONT VIEW



RIGHT VIEW

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

Parts List—Safety Placard Placement

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

Used In	Item	Part Number	Description	Comments
.				
			----------ASSEMBLIES----------	
			none	
			----------COMPONENTS----------	
all	10	01 10635A	NPLT:SHELL FORNT RIDGID-TCATA	
all	20	01 10375B	NPLT:ELEC HAZARD SMALL-TCATA	
all	30	01 10375C	NPLT:E-HAZARD SM VERTCL-TCATA	
all	40	01 10689A	NPLT:BELT HAZARD SM TCATA	
all	50	01 10699A	NPLT:SERV HZRD-PLYEST-TCATA	

Safety Placard Use and Placement ISO

30015, 30022Txx & Vxx

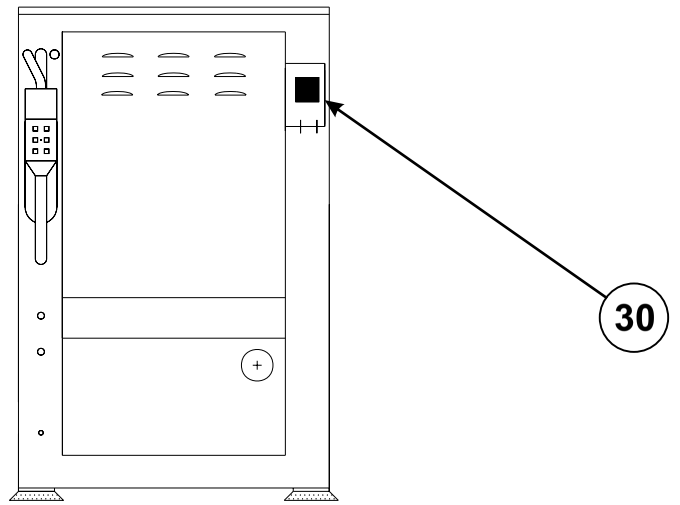
Pellerin Milnor Corporation
P. O. Box 400, Kenner, LA 70063-0400

Litho in U.S.A.

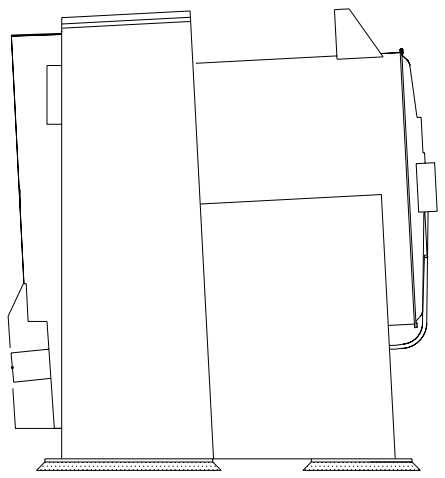
ISO Placards shown on this page

Notes:

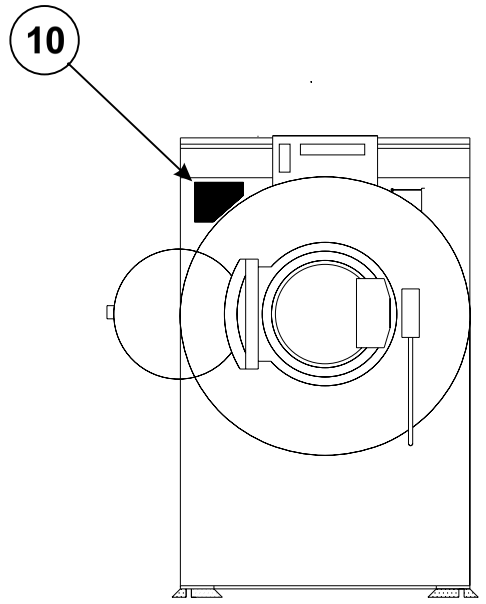
1. **Replace placard immediately, if removed or unreadable.**
2. **Approximate locations of placards are shown. Mounting holes are provided on machine. If aluminum placard use #8 self-tapping screws.**



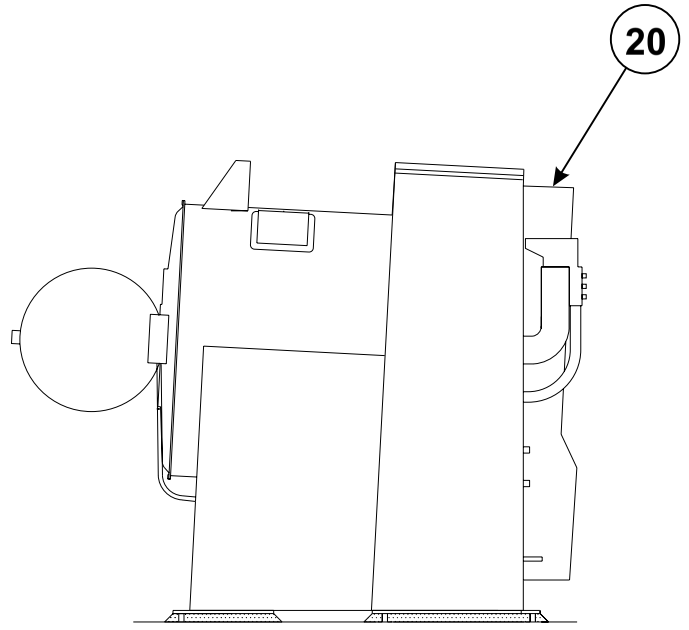
REAR VIEW



LEFT VIEW



FRONT VIEW



RIGHT VIEW

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

Litho in U.S.A.

Parts List—Safety Placard Placement

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

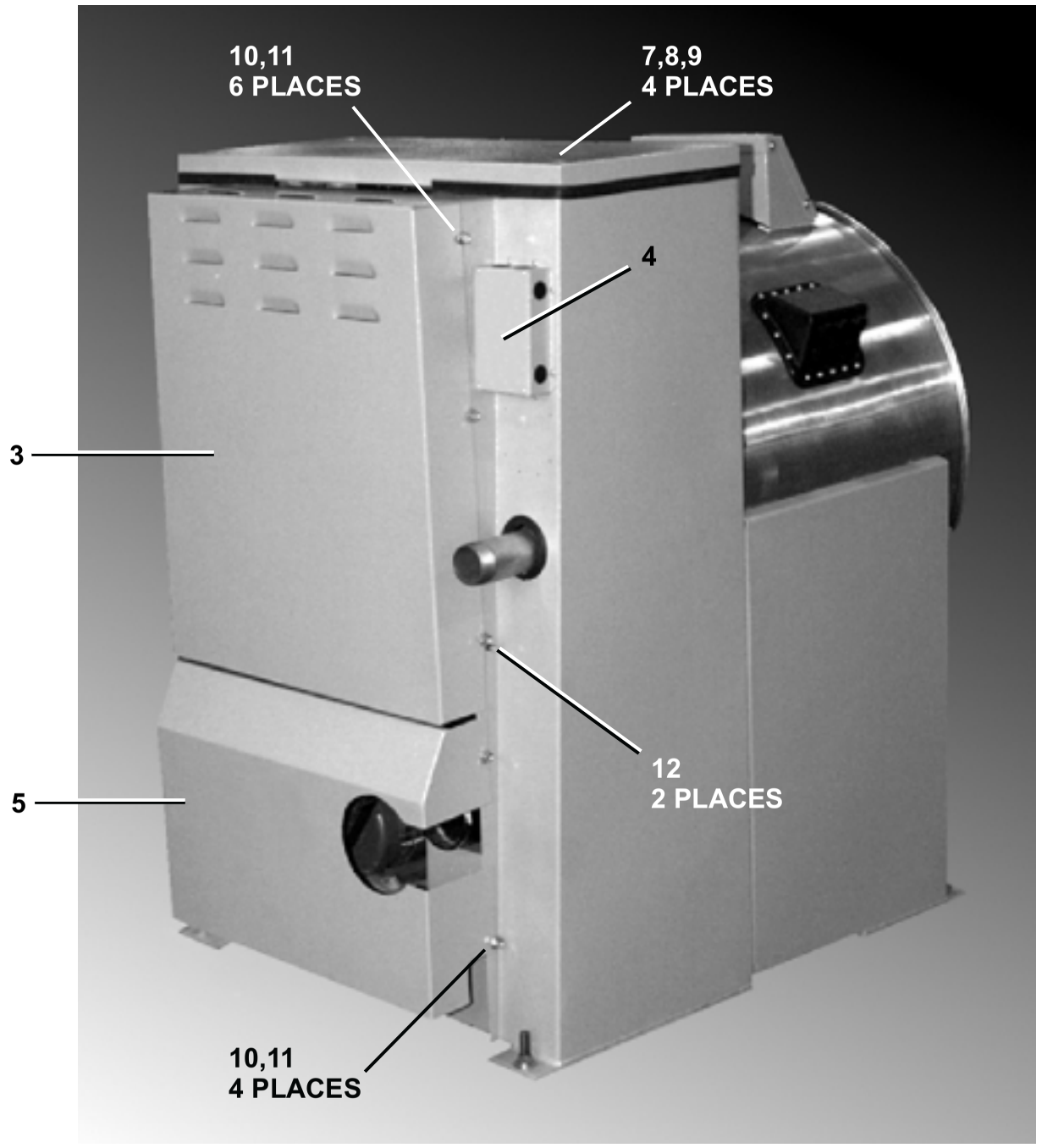
Used In	Item	Part Number	Description	Comments
.				
			----------ASSEMBLIES----------	
			none	
			----------COMPONENTS----------	
all	10	01 10635X	NPLT:30"WE RIGID WARNING ISO	
all	20	01 10375A	NPLT:VDE VOLTAGE WARN 1.25"	
all	30	01 10375	NPLTE:"WARNING" 2X2	

Guards and Covers

30015V7J, T5J,T5E 30022V6J, T5J, T5E

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

Litho in U.S.A.



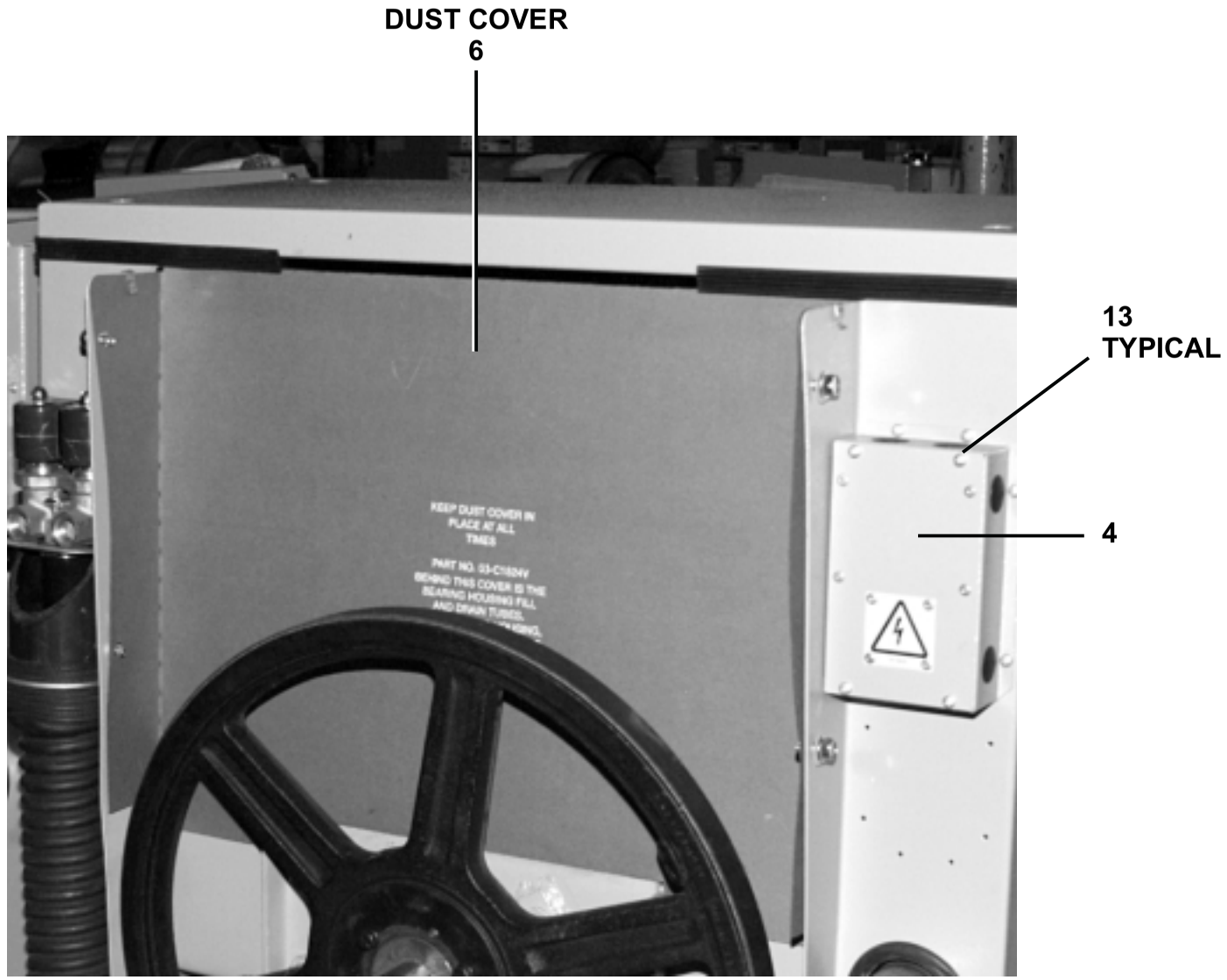
Guards and Covers

30015V7J, T5J,T5E 30022V6J, T5J, T5E

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

Litho in U.S.A.

NOTE: KEEP DUST COVER IN PLACE AT ALL TIMES. REMOVE FOR SERVICING. BEHIND THIS COVER ARE THE BEARING HOUSING FILL AND DRAIN TUBES.



Parts List—Guards and Covers

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

Used In	Item	Part Number	Description	Comments
			----------COMPONENTS----------	
all	1	W2 03699A	*CONSOLE TOP WELDMENT	
all	2	02 03344	TRIM=REAR CONSOLE TOP 7FT/PC	
all	3	X2 03497A	GUARD REAR BELT	
all	4	03 C4X7	COVER:SYSTEM 7 LIQUID SUPPLY	
all	5	W2-03795B	00342# *WLMT=LOWER COVER-STEAM F0141	
all	6	03 C1824V	DUST COVER-30"V6J BELT	
all	7	15K120	HXCAPSCR 3/8-16UNC2AX2 GR5 ZIN	
all	8	02 03344	TRIM=REAR CONSOLE TOP 7FT/PC	
all	9	17N070P	RETAIN NUT 3/8-16 #S10100-27	
all	10	15P200	TRDCUT-F HXWASHD 3/8-16X3/4NIK	
all	11	15U346	FLAWASH 7/8X3/8X.030 NATURAL N	
all	12	15P185	TRDCUT-F HXHD 1/4-20UNC2AX3/4	
all	14	15P010	PHILPAN TRDCUTSCRTYP10-24X1/2S	

Section 1

Service and Maintenance

BIRQUM01 (Published) Book specs- Dates: 20050302 / 20050302 / 20050302 Lang: ENG01 Applic: RMV

Preventive Maintenance

1. Lubrication Guidelines

As required by the warranty, to ensure safe operation, and to achieve optimum performance and service life from Milnor® washer-extractors, the schedules, instructions, and precautions herein must be strictly followed.

WARNING 1: Entangle and Crush Hazard—Belts and pulleys can entangle and crush body parts.

- Lock OFF and tag out power at the wall disconnect before servicing, except where specifically instructed otherwise in this section.
- Insure belt and pulley guards are in place during service procedures.
- Permit only qualified maintenance personnel to perform these procedures.

2. 30022C4x, 30022T5x and 30022V6J Main Bearing Maintenance

30022C4x, 30022T5x and 30022V6J main bearing housings are oil-filled and require periodic draining and refilling (see below).

See the appropriate “MAIN BEARING ASSEMBLY” (see Table of Contents) during this procedure.

1. Remove the drain plug on the bottom of the main bearing housing and allow the bearing housing to drain completely (Figure 1). Inspect the leak-off, drained oil, and magnetic drain plug for water and/or metal particles. Install the drain plug. Water and/or metal particles can indicate worn or damaged seals and bearings.
2. Locate the two 1/2" plastic tubes secured to the electrical control chassis. Clean the surrounding area and remove the cork stoppers from each (Figure 2).
3. Strictly following lubrication specifications, refill the bearing housing. After refilling the bearing housing, re-install the cork stoppers and clean any excess lubricant from the machine.

3. Preventive Maintenance Schedule

Table 1: Preventive Maintenance Checklist

Component		Action	Frequency	Specifications/Figure
Bearing Housing	Oil	Remove fill, vent and drain stoppers. Refill 22 ounces (634 grams)	Every four months	High quality SAE 30 to 50 (ISO 100 - 220) single weight heavy duty motor oil (non-detergent if available). See "Oil Drain and Water Leak-off" and also see "30022C4x,..Fill/Vent Hoses"
Drive Train	Belts and pulleys	Check for wear, replace as required	Monthly	See "Drive Train Pulleys and Belts"
	Motors (if equipped with grease fittings) (See Note 2)	See "Baldor Motor Maintenance...," in this manual (See Note 3)	Every three Months	See motor nameplate. If not specified, use Shell Alvania (or equivalent). See "Motor Grease Points"
Drive Inverter	Inverter	Verify fan operation. Vacuum out inverter vents.	Monthly	See "Inverter Maintenance Points"
Hoses, Clamps, and Connections	Inlet, drain, and chemical hoses and connections	Check for leaks, cracks and bulges	Monthly	
Bolts	Foundation	Check bolt tightness and wear	Monthly	See dimensional drawings
	Rear bearing reinforcement plate and throughout machine			See "30022C4x,...Rear Reinforcement Plate" for 36021C4E and 36026V5J machines, or "42026V6J Rear Reinforcement Plate" for 42026V6J machines.

Note 1: Monthly/200 hours = Once a month or once every 200 operating hours, whichever comes first.

Note 2: Do not over-lubricate motors. Over-lubrication of a motor can seriously damage it by forcing grease into motor windings.

Note 3: If motor manufacturer's instructions conflict with manual section MSSM0274AE, follow manufacturers instructions. Motors are warranted by the manufacturers, not by Milnor.

4. Maintenance Points

Figure 1: 30022C4x, 30022T5x, 36021C4E and 36026V5J Oil Drain and Water Leak-off

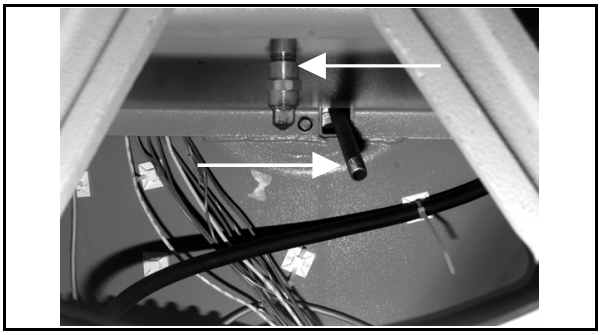


Figure 2: 30022C4x, 30022T5x, 36021C4E and 36026V5J Oil Fill/Vent Hoses (use either hose for filling)

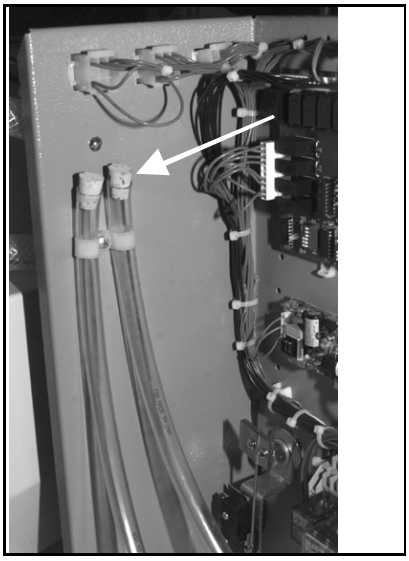


Figure 3: Drive Train Pulleys and Belts (30022V6J shown)

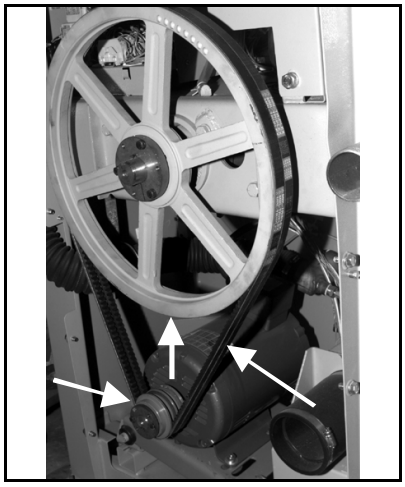


Figure 4: Inverter Maintenance Points

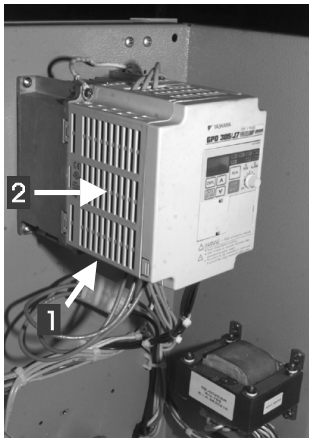
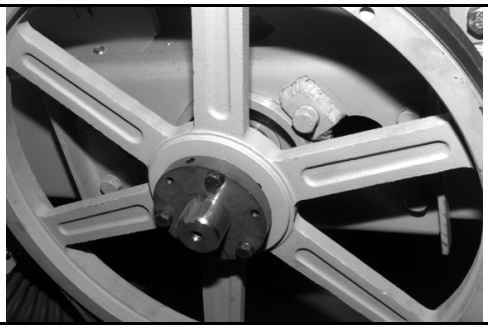
30022C4x, 30022T5x and 30022V6J Inverter	Legend
	**1.** Fan **2.** Vent

Figure 5: 30022C4x, 30022T5x, 30022V6J, 36021C4E and 36026V5J Rear Bearing Reinforcement Plate (30022VxJ shown)



— End of BIRQUM01 —

FASTENER TORQUE REQUIREMENTS

The specifications in this section apply to 1/4 inch and larger Unified National fine and coarse fasteners used on Milnor® machines. This information is to be used only when torque specifications are not stated in the installation or service instructions.

When tightening applicable fastener, abide by the following precautions:

1. Always use new fasteners. Replace bolts, nuts, flat washers, and lock washers in the order shown on the parts drawing.

2. Unless otherwise specified, use:

- Loctite® 271 threadlocker or equivalent for bearing housing mounting bolts from one half to one inch in diameter.
- Loctite® 277 threadlocker or equivalent for bearing housing mounting bolts of one inch diameter or larger.
- Loctite® 242 threadlocker for all other fasteners requiring thread locking compound.

3. Use a torque wrench to assure proper tightness.

4. Never lubricate fasteners. The values specified herein are maximum recommended torques and are calculated from published ASTM and SAE data. Actual allowable torques are application dependent and can vary for many reasons, (joint types, gaskets, etc.). Use these values as a guide.

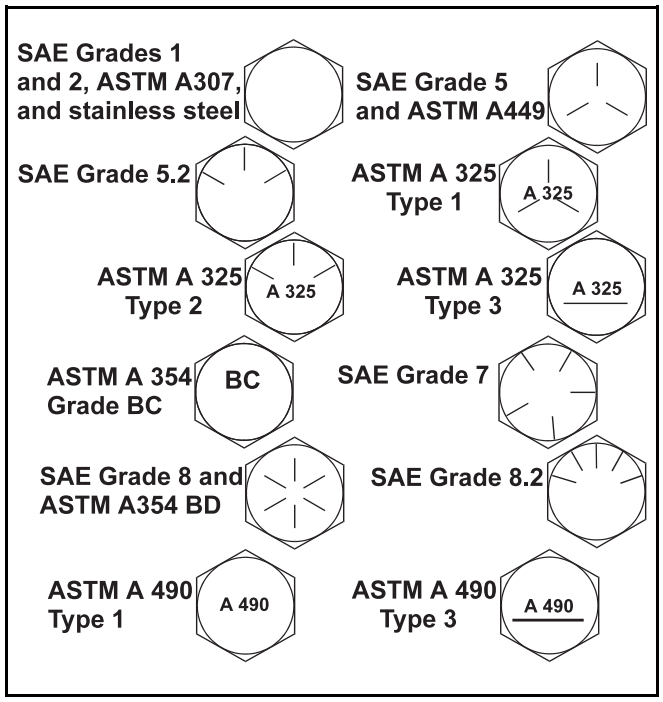


FIGURE 1 (MSSM0101CE)
Fastener Grade Markings

5. Although FIGURE 1 depicts hex head bolts, the table applies to all head types.

Fasteners and Threadlocker

How Fasteners Loosen—Standard threaded fasteners are manufactured with a clearance fit for easy assembly. With the fastener at the proper torque, 85% of the tightening torque is absorbed in the threads and under the fastener head. The remaining 15% provides the friction that prevents the thread from slipping. When this friction is overcome (by bending, thermal expansion, internal pressures, functional loads, or impact) the thread slips and loosens. Although higher torques reduce the likelihood of thread slippage, if slippage occurs, the threads unwind and the fastener loosens. Once thread slippage begins, vibration increases the rate of loosening.

Preventing Loosening—The most effective way to prevent loosening of threaded parts is by proper application of a threadlocking compound. Threadlocker provides lubrication during assembly, then hardens to seal the threads against corrosion and provide resistance to thread slippage.

Applying Threadlocker

NOTE: The following threadlocker information and illustrations are excerpts from the Loctite® User's Guide and are used with permission.

For maximum strength, threadlocker must fill the thread voids completely, as shown in FIGURE 2. Organic or petroleum solvent will remove excess uncured adhesive from joints. Consult information below for the specific fastener application.

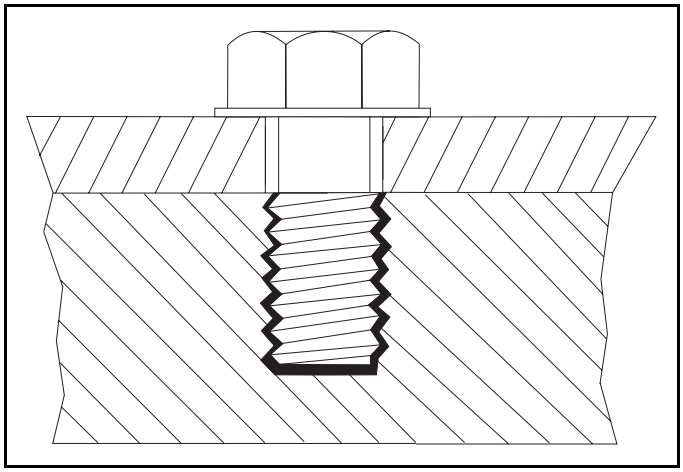


FIGURE 2 (MSSM0101CE)
Correct Threadlocker Use

Bolts and Nuts—See FIGURE 3.

1. Clean all threads (bolt and nut) with cleaning solvent.
2. Spray all threads with Loctite® Primer N. Allow to dry.
3. Insert bolt into through hole assembly.
4. Apply several drops of threadlocker onto bolt engagement area.
5. Assemble and tighten nut to correct torque for the threadlocker.

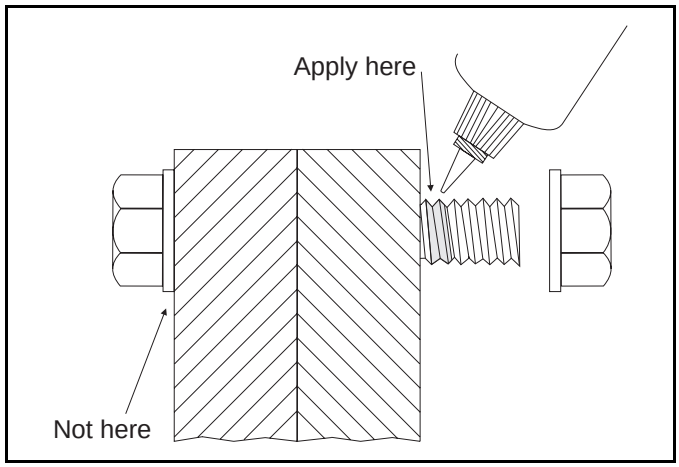


FIGURE 3 (MSSM0101CE)
Applying Threadlocker to Through Hole

Blind Holes—See FIGURE 4.

1. Clean all threads (bolt and nut) with cleaning solvent.
2. Spray all threads with Loctite® Primer N. Allow to dry.
3. Squirt several drops down female threads into bottom of hole.
4. Apply several drops to bolt.
5. Tighten to correct torque for the threadlocker.

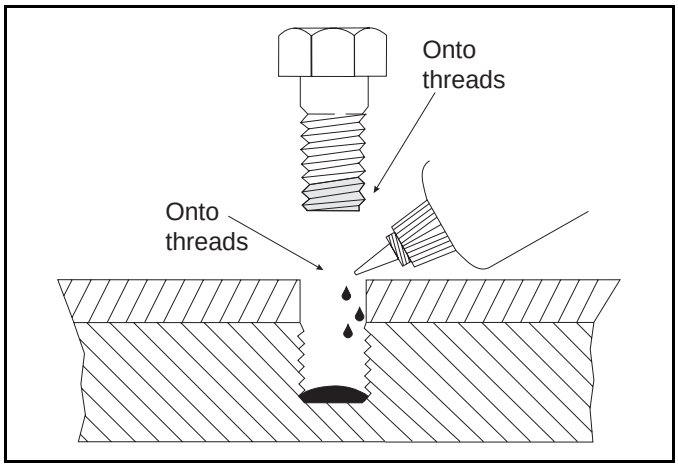


FIGURE 4 (MSSM0101CE)
Applying Threadlocker to Blind Holes

Removing Fasteners

High strength threadlockers like Loctite® 271 (or equivalent) may be weakened by heating to at least 500° F (260° C) as follows.

1. Apply localized heat to fastener as shown in FIGURE 5.
2. Disassemble while hot. Once disassembled, the cured adhesive can be removed with Loctite® Gasket Remover #790 (or equivalent).

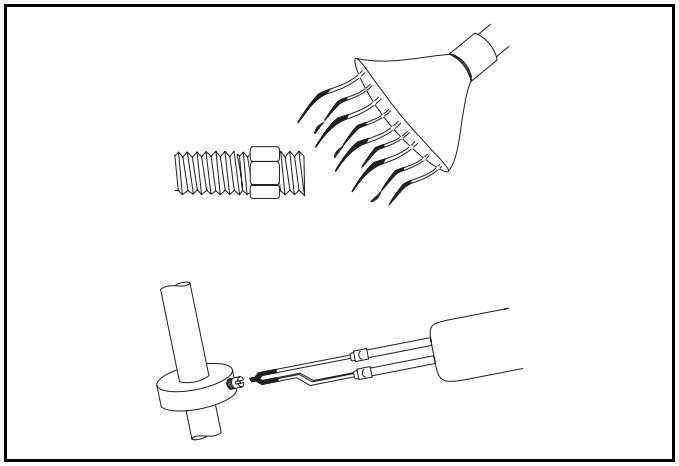


FIGURE 5 (MSSM0101CE)
Removing High Strength Threadlocker

Carbon Steel Fasteners

All values in foot pounds and (Newton meters)

Nominal bolt size	Grade Designation and Standard	Zinc or Cadmium Plated	If instructions call for :					
			Loctite 222 or 262	Loctite 242	Loctite 271	Loctite 272	Loctite 277	Bare
1/4 - 20	SAE Grade 1 ASTM A307	2.5 (3.39)	3.0 (4.06)	3.3 (4.47)	3.6 (4.88)	4.6 (6.23)	4.3 (5.83)	3.3 (4.47)
	SAE Grade 2	4.1 (5.56)	4.9 (6.64)	5.5 (7.45)	6.0 (8.13)	7.7 (10.44)	7.1 (9.63)	5.5 (7.46)
	SAE Grade 4	4.8 (6.50)	5.8 (7.86)	6.4 (8.67)	7.0 (9.49)	9.0 (12.20)	8.3 (11.25)	6.4 (8.67)
	SAE Grade 5 ASTM A449	6.3 (8.54)	7.6 (10.3)	8.4 (11.38)	9.3 (12.60)	11.8 (15.99)	11.0 (14.91)	8.4 (11.39)
	SAE Grade 7	7.9 (10.7)	9.4 (12.7)	10.5 (14.23)	11.5 (15.59)	14.7 (19.93)	13.6 (18.44)	10.5 (14.23)
	SAE Grade 8 ASTM A354 Grade BD	8.9 (12.0)	10.7 (14.5)	11.9 (16.13)	13.1 (17.76)	16.6 (22.50)	15.4 (20.88)	11.9 (16.13)
	ASTM A354 Grade BC	7.9 (10.7)	9.4 (12.7)	10.5 (14.23)	11.5 (15.59)	14.7 (19.93)	13.6 (18.44)	10.5 (14.23)

All values in foot pounds and (Newton meters)

Nominal bolt size	Grade Designation and Standard	Zinc or Cadmium Plated	If instructions call for :					
			Loctite 222 or 262	Loctite 242	Loctite 271	Loctite 272	Loctite 277	Bare
1/4 - 28	SAE Grade 1 ASTM A307	2.8 (3.80)	3.4 (4.61)	3.8 (5.15)	4.1 (5.56)	5.3 (7.18)	4.9 (6.64)	3.8 (5.15)
	SAE Grade 2	4.7 (6.37)	5.6 (7.60)	6.3 (8.54)	6.9 (9.36)	8.8 (11.93)	8.1 (10.98)	6.3 (8.54)
	SAE Grade 4	5.5 (7.46)	6.6 (8.95)	7.3 (9.90)	8.1 (10.98)	10.3 (13.96)	9.5 (12.88)	7.3 (9.90)
	SAE Grade 5 ASTM A449	7.3 (9.90)	8.7 (11.80)	9.7 (13.15)	10.7 (14.50)	13.6 (18.44)	12.6 (17.08)	9.7 (13.15)
	SAE Grade 7	8.9 (12.07)	10.7 (14.50)	11.9 (16.13)	13.1 (17.76)	16.6 (22.51)	15.4 (20.88)	11.9 (16.13)
	SAE Grade 8 ASTM A354 Grade BD	10.2 (13.83)	12.2 (16.54)	13.6 (18.44)	15.0 (20.34)	19.0 (25.76)	17.7 (23.99)	13.6 (18.44)
	ASTM A354 Grade BC	—	—	—	—	—	—	—

All values in foot pounds and (Newton meters)

Nominal bolt size	Grade Designation and Standard	Zinc or Cadmium Plated	If instructions call for :					
			Loctite 222 or262	Loctite 242	Loctite 271	Loctite 272	Loctite 277	Bare
5/16 - 18	SAE Grade 1 ASTM A307	5.1 (6.91)	6.2 (8.40)	6.8 (9.22)	7.5 (10.17)	9.6 (13.02)	8.9 (12.07)	6.8 (9.22)
	SAE Grade 2	8.5 (11.52)	10.2 (13.83)	11.3 (15.32)	12.5 (16.95)	15.9 (21.56)	14.7 (19.93)	11.3 (15.32)
	SAE Grade 4	10.0 (13.56)	12.0 (16.27)	13.3 (18.03)	14.6 (19.79)	18.6 (25.22)	17.3 (23.46)	13.3 (18.03)
	SAE Grade 5 ASTM A449	13.0 (17.63)	15.6 (21.15)	17.4 (23.60)	19.1 (25.90)	24.3 (32.95)	22.6 (30.64)	17.4 (23.60)
	SAE Grade 7	16.1 (21.83)	19.3 (26.17)	21.5 (29.15)	23.6 (31.99)	30.1 (40.81)	27.9 (37.83)	21.5 (29.15)
	SAE Grade 8 ASTM A354 Grade BD	18.5 (25.08)	22.1 (29.96)	24.6 (33.35)	27.1 (36.74)	34.5 (46.78)	32.0 (43.39)	24.6 (33.35)
	ASTM A354 Grade BC	16.1 (21.83)	19.3 (26.17)	21.5 (29.15)	23.6 (31.99)	30.1 (40.81)	27.9 (37.83)	21.5 (29.15)

All values in foot pounds and (Newton meters)

Nominal bolt size	Grade Designation and Standard	Zinc orCadmium Plated	If instructions call for :					
			Loctite 222 or 262	Loctite 242	Loctite 271	Loctite 272	Loctite 277	Bare
5/16 - 24	SAE Grade 1 ASTM A307	5.6 (7.59)	6.7 (9.08)	7.4 (10.03)	8.2 (11.12)	10.4 (14.10)	9.6 (13.01)	7.4 (10.03)
	SAE Grade 2	9.4 (12.74)	11.3 (15.32)	12.5 (16.94)	13.8 (18.71)	17.5 (23.73)	16.3 (22.09)	12.5 (16.94)
	SAE Grade 4	11.0 (14.91)	13.2 (17.90)	14.6 (19.79)	16.1 (21.83)	20.5 (27.79)	19.0 (25.76)	14.6 (19.79)
	SAE Grade 5 ASTM A449	14.4 (19.52)	17.2 (23.32)	19.1 (25.90)	21.1 (28.60)	26.8 (36.35)	24.9 (33.76)	19.1 (25.90)
	SAE Grade 7	17.9 (24.27)	21.4 (29.01)	23.8 (32.27)	26.2 (35.52)	33.4 (45.28)	31.0 (42.03)	23.8 (32.27)
	SAE Grade 8 ASTM A354 Grade BD	20.4 (27.66)	24.4 (33.08)	27.1 (36.74)	29.9 (40.54)	38.0 (51.52)	35.3 (47.86)	27.1 (36.74)
	ASTM A354 Grade BC	—	—	—	—	—	—	—

All values in foot pounds and (Newton meters)

Nominal bolt size	Grade Designation and Standard	Zinc or Cadmium Plated	If instructions call for :					
			Loctite 222 or 262	Loctite 242	Loctite 271	Loctite 272	Loctite 277	Bare
3/8 - 16	SAE Grade 1 ASTM A307	9.0 (12.20)	10.8 (14.64)	12.0 (16.27)	13.1 (17.76)	16.7 (22.64)	15.5 (21.01)	12.0 (16.27)
	SAE Grade 2	14.9 (20.20)	17.9 (24.27)	19.9 (26.98)	21.9 (29.69)	27.9 (37.83)	25.9 (35.11)	19.9 (26.98)
	SAE Grade 4	17.8 (24.13)	21.3 (28.88)	23.7 (32.13)	26.0 (35.25)	33.1 (44.87)	30.8 (41.76)	23.7 (32.13)
	SAE Grade 5 ASTM A449	23.2 (31.45)	27.8 (37.69)	30.9 (41.89)	34.0 (46.09)	43.3 (58.70)	40.2 (54.50)	30.9 (41.89)
	SAE Grade 7	28.7 (38.91)	34.4 (46.64)	38.2 (51.79)	42.0 (56.94)	53.5 (72.54)	49.7 (67.39)	38.2 (51.79)
	SAE Grade 8 ASTM A354 Grade BD	32.7 (44.33)	39.2 (53.15)	43.6 (59.11)	48.0 (65.08)	61.0 (82.70)	56.7 (76.87)	43.6 (59.11)
	ASTM A354 Grade BC	28.7 (38.91)	34.4 (46.64)	38.2 (51.79)	42.0 (56.94)	53.5 (72.54)	49.7 (67.39)	38.2 (51.79)

All values in foot pounds and (Newton meters)

Nominal bolt size	Grade Designation and Standard	Zinc or Cadmium Plated	If instructions call for :					
			Loctite 222 or 262	Loctite 242	Loctite 271	Loctite 272	Loctite 277	Bare
3/8 - 24	SAE Grade 1 ASTM A307	10.2 (13.83)	12.2 (16.54)	13.6 (18.44)	15.0 (20.33)	19.0 (25.76)	17.7 (24.00)	13.6 (18.44)
	SAE Grade 2	16.9 (22.91)	20.3 (27.52)	22.5 (30.52)	24.8 (33.62)	31.5 (42.70)	29.3 (39.73)	22.5 (30.50)
	SAE Grade 4	20.0 (27.11)	24.0 (32.54)	26.7 (36.20)	29.4 (39.86)	37.4 (50.70)	34.7 (47.04)	26.7 (36.20)
	SAE Grade 5 ASTM A449	26.2 (35.52)	31.4 (42.57)	34.9 (47.32)	38.4 (52.06)	48.9 (66.30)	45.4 (61.55)	34.9 (47.32)
	SAE Grade 7	32.3 (43.79)	38.8 (52.60)	43.1 (58.44)	47.4 (64.26)	60.4 (81.89)	56.1 (76.06)	43.1 (58.43)
	SAE Grade 8 ASTM A354 Grade BD	36.9 (50.02)	44.3 (60.06)	49.2 (66.70)	54.1 (73.35)	68.9 (93.41)	64.0 (86.77)	49.2 (66.70)
	ASTM A354 Grade BC	—	—	—	—	—	—	—

All values in foot pounds and (Newton meters)

Nominal bolt size	Grade Designation and Standard	Zinc or Cadmium-Plated	If instructions call for :					
			Loctite 222 or 262	Loctite 242	Loctite 271	Loctite 272	Loctite 277	Bare
7/16 - 14	SAE Grade 1 ASTM A307	14.0 (18.98)	17.0 (23.04)	19.14 (25.95)	21.0 (28.47)	27.0 (36.60)	25.0 (33.89)	19.0 (25.76)
	SAE Grade 2	24.0 (32.54)	28.8 (39.05)	32.0 (43.39)	35.2 (47.72)	44.8 (60.74)	41.6 (56.40)	32.0 (43.39)
	SAE Grade 4	28.3 (38.37)	34.0 (46.10)	37.7 (51.11)	41.5 (56.27)	52.8 (71.59)	49.1 (66.57)	37.7 (51.11)
	SAE Grade 5 ASTM A449	37.1 (50.30)	44.5 (60.33)	49.5 (67.11)	54.4 (73.76)	69.3 (93.96)	64.3 (87.18)	49.5 (67.11)
	SAE Grade 7	45.9 (62.23)	55.1 (74.70)	61.3 (83.11)	67.4 (91.38)	85.8 (116.33)	79.6 (107.92)	61.3 (83.11)
	SAE Grade 8 ASTM A354 Grade BD	52.5 (71.18)	63.0 (85.41)	70.0 (94.90)	77.0 (104.40)	98.0 (132.87)	91.0 (123.38)	70.0 (94.90)
	ASTM A354 Grade BC	45.7 (61.96)	54.9 (74.43)	61.0 (82.70)	67.1 (90.97)	85.4 (115.79)	79.3 (107.52)	61.0 (82.70)

All values in foot pounds and (Newton meters)

Nominal bolt size	Grade Designation and Standard	Zinc or Cadmium Plated	If instructions call for :					
			Loctite 222 or 262	Loctite 242	Loctite 271	Loctite 272	Loctite 277	Bare
7/16 - 20	SAE Grade 1 ASTM A307	16.0 (21.70)	19.2 (26.03)	21.3 (28.88)	23.5 (31.86)	29.9 (40.54)	27.7 (37.56)	21.3 (28.88)
	SAE Grade 2	26.9 (36.48)	32.2 (43.66)	35.8 (48.54)	39.4 (53.42)	50.1 (67.93)	46.6 (63.18)	35.8 (48.54)
	SAE Grade 4	31.6 (42.84)	37.9 (51.39)	42.1 (57.08)	46.3 (62.77)	59.0 (79.99)	54.7 (74.16)	42.1 (57.08)
	SAE Grade 5 ASTM A449	41.4 (56.13)	49.7 (67.38)	55.2 (74.84)	60.8 (82.43)	77.3 (104.80)	71.8 (97.35)	55.2 (74.84)
	SAE Grade 7	51.3 (69.55)	61.5 (83.38)	68.4 (92.74)	75.2 (101.96)	95.7 (129.75)	88.9 (120.53)	68.4 (92.74)
	SAE Grade 8 ASTM A354 Grade BD	58.2 (78.90)	69.9 (94.77)	77.7 (105.35)	85.4 (115.78)	108.7 (147.37)	101.0 (136.94)	77.7 (105.35)
	ASTM A354 Grade BC	—	—	—	—	—	—	—

All values in foot pounds and (Newton meters)

Nominal bolt size	Grade Designation and Standard	Zinc or Cadmium Plated	If instructions call for :					
			Loctite 222 or262	Loctite 242	Loctite 271	Loctite 272	Loctite 277	Bare
1/2 - 13	SAE Grade 1 ASTM A307	22.0 (29.83)	26.0 (35.25)	29.38 (39.83)	32.0 (43.39)	41.0 (55.59)	38.0 (51.52)	29.0 (39.32)
	SAE Grade 2	36.6 (49.62)	43.9 (59.52)	48.8 (66.16)	53.6 (72.67)	68.3 (92.60)	63.4 (85.96)	48.8 (66.16)
	SAE Grade 4	43.1 (58.44)	51.8 (70.23)	57.5 (77.96)	63.3 (85.82)	80.5 (109.14)	74.8 (101.42)	57.5 (77.96)
	SAE Grade 5 ASTM A449	56.7 (76.87)	68.1 (92.33)	75.6 (102.5)	83.2 (112.80)	105.9 (143.58)	98.3 (133.27)	75.6 (102.50)
	SAE Grade 7	69.8 (94.64)	83.8 (113.62)	93.1 (126.23)	102.4 (138.84)	130.4 (176.80)	121.1 (164.19)	93.1 (126.23)
	SAE Grade 8 ASTM A354 Grade BD	79.7 (108.05)	95.6 (129.62)	106.3 (144.12)	116.9 (158.50)	148.8 (201.75)	138.1 (187.24)	106.3 (144.12)
	ASTM A354 Grade BC	69.8 (94.64)	83.8 (113.62)	93.1 (126.23)	102.4 (138.84)	130.4 (176.80)	121.1 (164.19)	93.1 (126.23)

All values in foot pounds and (Newton meters)

Nominal bolt size	Standard and Grade Designation	Zinc or Cadmium Plated	If instructions call for :					
			Loctite 222 or 262	Loctite 242	Loctite 271	Loctite 272	Loctite 277	Bare
1/2 - 20	SAE Grade 1 ASTM A307	24.8 (33.62)	29.8 (40.40)	33.1 (44.88)	36.4 (49.35)	46.4 (62.91)	43.1 (58.44)	33.1 (44.88)
	SAE Grade 2	41.3 (56.00)	49.5 (67.11)	55.0 (74.57)	60.5 (82.02)	77.0 (104.40)	71.5 (96.94)	55.0 (74.57)
	SAE Grade 4	48.8 (66.16)	58.5 (79.32)	65.0 (88.13)	71.5 (96.94)	91.0 (123.38)	84.5 (114.57)	65.0 (88.13)
	SAE Grade 5 ASTM A449	63.8 (86.50)	76.5 (103.72)	85.0 (115.24)	93.5 (126.77)	119.0 (161.34)	110.5 (149.82)	85.0 (115.24)
	SAE Grade 7	78.8 (106.84)	94.5 (128.12)	105.0 (142.36)	115.5 (156.60)	147.0 (199.30)	136.5 (185.07)	105.0 (142.36)
	SAE Grade 8 ASTM A354 Grade BD	90.0 (122.02)	108.0 (146.43)	120.0 (162.70)	132.0 (179.00)	168.0 (277.78)	156.0 (211.51)	120.0 (162.70)
	ASTM A354 Grade BC	—	—	—	—	—	—	—

All values in foot pounds and (Newton meters)

Nominal bolt size	Grade Designation and Standard	Zinc or Cadmium Plated	If instructions call for :					
			Loctite 222 or 262	Loctite 242	Loctite 271	Loctite 272	Loctite 277	Bare
9/16 - 12	SAE Grade 1 ASTM A307	32.0 (43.39)	38.0 (51.52)	42.19 (57.20)	46.0 (62.37)	59.0 (80.00)	55.0 (74.57)	42 (56.94)
	SAE Grade 2	52.7 (71.45)	63.3 (85.82)	70.3 (95.31)	77.3 (104.80)	98.4 (133.41)	91.4 (123.92)	70.3 (95.31)
	SAE Grade 4	62.2 (84.33)	74.7 (101.28)	83.0 (112.53)	91.3 (123.79)	116.2 (157.55)	107.9 (146.30)	83.0 (112.53)
	SAE Grade 5 ASTM A449	81.7 (110.77)	98.1 (133.00)	109.0 (147.78)	119.9 (162.56)	152.6 (206.90)	141.7 (192.17)	109.0 (147.78)
	SAE Grade 7	100.7 (136.53)	120.9 (163.92)	134.3 (182.09)	147.7 (200.25)	188.0 (254.89)	174.6 (236.73)	134.3 (182.09)
	SAE Grade 8 ASTM A354 Grade BD	115.0 (155.92)	138.0 (187.10)	153.3 (207.85)	168.6 (228.59)	214.6 (290.96)	199.3 (270.21)	153.3 (207.85)
	ASTM A354 Grade BC	100.7 (136.53)	120.9 (163.92)	134.3 (182.09)	147.7 (200.25)	188.0 (254.89)	174.6 (236.73)	134.3 (182.09)

All values in foot pounds and (Newton meters)

Nominal bolt size	Grade Designation and Standard	Zinc or Cadmium Plated	If instructions call for:					
			Loctite 222 or 262	Loctite 242	Loctite 271	Loctite 272	Loctite 277	Bare
9/16 - 18	SAE Grade 1 ASTM A307	35.3 (47.86)	42.4 (57.49)	47.1 (63.86)	51.8 (70.23)	66.0 (89.48)	61.2 (82.98)	47.1 (63.86)
	SAE Grade 2	59.1 (80.13)	70.9 (96.13)	78.8 (106.84)	86.6 (117.41)	110.3 (149.55)	102.4 (138.84)	78.8 (106.84)
	SAE Grade 4	69.6 (94.36)	83.5 (113.21)	92.8 (125.82)	102.1 (138.43)	129.9 (176.12)	120.7 (163.65)	92.8 (125.85)
	SAE Grade 5 ASTM A449	91.2 (123.65)	109.5 (148.46)	121.6 (164.87)	133.8 (181.40)	170.3 (230.90)	158.1 (214.36)	121.6 (164.87)
	SAE Grade 7	112.3 (152.26)	134.8 (182.76)	149.8 (203.10)	164.7 (223.30)	209.7 (284.32)	194.7 (263.98)	149.8 (203.10)
	SAE Grade 8 ASTM A354 Grade BD	128.7 (174.61)	154.4 (209.34)	171.6 (232.66)	188.7 (255.84)	240.2 (325.67)	223.0 (302.35)	171.6 (232.66)
	ASTM A354 Grade BC	—	—	—	—	—	—	—

All values in foot pounds and (Newton meters)

Nominal bolt size	Grade Designation and Standard	Zinc or Cadmium Plated	If instructions call for:					
			Loctite 222 or 262	Loctite 242	Loctite 271	Loctite 272	Loctite 277	Bare
5/8 - 11	SAE Grade 1 ASTM A307	44 (59.66)	52 (70.50)	58.2 (78.90)	64 (86.77)	81 (109.82)	76 (103.04)	58 (78.64)
	SAE Grade 2	72.7 (98.57)	87.2 (118.23)	96.9 (131.38)	106.6 (144.53)	135.6 (183.85)	125.9 (170.70)	96.9 (131.38)
	SAE Grade 4	86.1 (116.74)	103.4 (140.19)	114.8 (155.65)	126.3 (171.24)	160.8 (218.02)	149.3 (202.42)	114.8 (155.65)
	SAE Grade 5 ASTM A449	112.5 (152.53)	135.0 (183.04)	150.0 (203.37)	165.0 (223.71)	210.0 (284.72)	195.0 (264.38)	150.0 (203.37)
	SAE Grade 7	138.9 (188.32)	166.6 (225.88)	185.2 (251.10)	203.7 (276.18)	259.2 (351.43)	240.7 (326.35)	185.2 (251.10)
	SAE Grade 8 ASTM A354 Grade BD	158.8 (215.30)	190.5 (258.28)	211.7 (287.03)	232.9 (315.77)	296.4 (401.86)	275.2 (373.12)	211.7 (287.03)
	ASTM A354 Grade BC	139.2 (188.73)	167.0 (226.42)	185.5 (251.50)	204.1 (276.72)	259.8 (352.24)	241.2 (327.02)	185.5 (251.50)

All values in foot pounds and (Newton meters)

Nominal bolt size	Grade Designation and Standard	Zinc or Cadmium Plated	If instructions call for:					
			Loctite 222 or 262	Loctite 242	Loctite 271	Loctite 272	Loctite 277	Bare
5/8 - 18	SAE Grade 1 ASTM A307	49.5 (67.11)	59.4 (80.54)	66.0 (89.48)	72.6 (98.43)	92.4 (125.27)	85.8 (116.33)	66.0 (89.48)
	SAE Grade 2	82.6 (112.00)	99.1 (134.36)	110.2 (149.41)	121.2 (164.33)	154.2 (209.07)	143.2 (194.15)	110.2 (149.41)
	SAE Grade 4	97.3 (131.92)	116.7 (158.22)	129.7 (175.85)	142.7 (193.48)	181.6 (246.22)	168.6 (228.59)	129.7 (175.85)
	SAE Grade 5 ASTM A449	127.7 (173.14)	153.3 (207.85)	170.3 (230.90)	187.3 (253.95)	238.4 (323.23)	221.4 (300.18)	170.3 (230.90)
	SAE Grade 7	157.6 (213.68)	189.1 (256.39)	210.2 (285.00)	231.2 (313.47)	294.2 (398.88)	273.2 (370.41)	210.2 (285.00)
	SAE Grade 8 ASTM A354 Grade BD	179.9 (243.91)	215.9 (292.72)	239.8 (325.13)	263.8 (357.66)	335.8 (455.28)	311.8 (422.74)	239.8 (325.13)
	ASTM A354 Grade BC	—	—	—	—	—	—	—

All values in foot pounds and (Newton meters)

Nominal bolt size	Grade Designation and Standard	Zinc or Cadmium Plated	If instructions call for:					
			Loctite 222 or 262	Loctite 242	Loctite 271	Loctite 272	Loctite 277	Bare
3/4 - 10	SAE Grade 1 ASTM A307	77 (104.40)	93 (126.09)	103.1 (139.78)	113 (153.20)	144 (195.24)	134 (181.68)	103 (139.65)
	SAE Grade 2	129.4 (175.44)	155.3 (210.55)	172.5 (233.88)	189.8 (257.33)	241.5 (327.43)	224.3 (304.11)	172.5 (233.88)
	SAE Grade 4	152.6 (206.90)	183.1 (248.25)	203.4 (275.77)	223.8 (303.43)	284.8 (386.14)	264.5 (358.61)	203.4 (275.77)
	SAE Grade 5 ASTM A449	199.7 (270.76)	239.6 (324.85)	266.3 (361.05)	292.9 (397.12)	372.8 (505.45)	346.1 (469.25)	266.3 (361.05)
	SAE Grade 7	246.8 (334.62)	296.2 (401.60)	329.1 (446.20)	362.0 (355.22)	460.7 (624.63)	427.8 (580.02)	329.1 (446.20)
	SAE Grade 8 ASTM A354 Grade BD	282.0 (382.34)	338.3 (458.67)	375.9 (509.65)	413.5 (560.63)	526.3 (713.57)	488.7 (662.59)	375.9 (509.65)
	ASTM A354 Grade BC	246.4 (334.07)	295.7 (400.92)	328.6 (445.53)	361.5 (490.13)	460.0 (623.67)	427.2 (579.20)	328.6 (445.53)

All values in foot pounds and (Newton meters)

Nominal bolt size	Grade Designation and Standard	Zinc or Cadmium Plated	If instructions call for:					
			Loctite 222 or 262	Loctite 242	Loctite 271	Loctite 272	Loctite 277	Bare
3/4 - 16	SAE Grade 1 ASTM A307	86.5 (117.28)	103.8 (140.73)	115.3 (156.33)	126.8 (171.92)	161.4 (218.83)	149.9 (203.24)	115.3 (156.33)
	SAE Grade 2	144.1 (195.37)	173.0 (234.56)	192.2 (260.59)	211.4 (286.62)	269.1 (364.85)	249.8 (338.68)	192.2 (260.59)
	SAE Grade 4	170.2 (230.76)	204.2 (276.86)	226.9 (307.64)	249.6 (338.41)	317.6 (430.61)	294.9 (399.15)	226.9 (307.64)
	SAE Grade 5 ASTM A449	222.9 (302.21)	267.5 (362.68)	297.2 (402.95)	326.9 (443.22)	416.1 (564.16)	386.3 (523.75)	297.2 (402.95)
	SAE Grade 7	275.6 (373.66)	330.8 (448.50)	367.5 (498.26)	404.3 (548.16)	514.5 (697.57)	477.8 (647.81)	367.5 (498.26)
	SAE Grade 8 ASTM A354 Grade BD	315.0 (427.08)	378.0 (512.50)	420.0 (569.44)	462.0 (626.39)	588.0 (797.22)	546.0 (740.28)	420.0 (569.44)
	ASTM A354 Grade BC	—	—	—	—	—	—	—

All values in foot pounds and (Newton meters)

Nominal bolt size	Grade Designation and Standard	Zinc or Cadmium Plated	If instructions call for:					
			Loctite 222 or 262	Loctite 242	Loctite 271	Loctite 272	Loctite 277	Bare
7/8 - 9	SAE Grade 1 ASTM A307	124.7 (169.07)	149.6 (202.83)	166.3 (225.47)	182.9 (247.98)	232.8 (315.63)	216.1 (293.0)	166.3 (225.47)
	SAE Grade 2	124.7 (169.07)	149.6 (202.83)	166.3 (225.47)	182.9 (247.98)	232.8 (315.63)	216.1 (293.00)	166.3 (255.47)
	SAE Grade 4	246.1 (333.67)	295.3 (400.37)	328.1 (444.84)	360.9 (489.32)	459.4 (622.86)	426.6 (578.40)	328.1 (444.84)
	SAE Grade 5 ASTM A449	322.4 (437.11)	386.9 (524.57)	429.8 (582.73)	472.8 (641.03)	601.8 (815.93)	558.8 (757.63)	429.8 (582.73)
	SAE Grade 7	397.9 (539.48)	477.4 (647.27)	530.5 (719.26)	583.5 (791.12)	742.7 (1007.00)	689.6 (935.00)	530.5 (719.26)
	SAE Grade 8 ASTM A354 Grade BD	454.5 (616.22)	545.3 (739.33)	605.9 (821.49)	666.5 (903.65)	848.3 (1150.14)	787.7 (1067.98)	605.9 (821.49)
	ASTM A354 Grade BC	397.9 (539.48)	477.4 (647.27)	530.5 (719.26)	583.5 (791.12)	742.7 (1007.00)	689.6 (935.00)	530.5 (719.26)

All values in foot pounds and (Newton meters)

Nominal bolt size	Grade Designation and Standard	Zinc or Cadmium Plated	If instructions call for:					
			Loctite 222 or 262	Loctite 242	Loctite 271	Loctite 272	Loctite 277	Bare
7/8 - 14	SAE Grade 1 ASTM A307	137.8 (186.83)	165.4 (224.25)	183.8 (249.20)	202.1 (274.01)	257.3 (348.85)	238.9 (323.90)	183.8 (249.20)
	SAE Grade 2	137.8 (186.83)	165.4 (224.25)	183.8 (249.20)	202.1 (274.01)	257.3 (348.85)	238.9 (323.90)	183.8 (249.20)
	SAE Grade 4	271.5 (368.11)	325.8 (441.73)	362.0 (490.80)	398.2 (539.89)	506.8 (687.13)	470.6 (638.05)	362.0 (490.80)
	SAE Grade 5 ASTM A449	355.2 (481.59)	426.2 (577.85)	473.6 (642.12)	521.0 (706.38)	663.0 (898.91)	615.7 (834.78)	473.6 (642.12)
	SAE Grade 7	438.0 (593.85)	525.7 (712.75)	584.1 (791.93)	642.5 (871.11)	817.7 (1108.65)	759.3 (1029.47)	584.1 (791.93)
	SAE Grade 8 ASTM A354 Grade BD	501.2 (679.54)	601.5 (815.53)	668.3 (906.09)	735.1 (996.66)	935.6 (1268.50)	868.8 (1177.94)	668.3 (906.09)
	ASTM A354 Grade BC	—	—	—	—	—	—	—

All values in foot pounds and (Newton meters)

Nominal bolt size	Grade Designation and Standard	Zinc or Cadmium Plated	If instructions call for:					
			Loctite 222 or 262	Loctite 242	Loctite 271	Loctite 272	Loctite 277	Bare
1 - 8	SAE Grade 1 ASTM A307	187.5 (254.22)	225.0 (305.06)	250.0 (338.95)	275.0 (372.85)	350.0 (474.54)	325.0 (440.64)	250.0 (338.95)
	SAE Grade 2	187.5 (254.22)	225.0 (305.06)	250.0 (338.95)	275.0 (372.85)	350.0 (474.54)	325.0 (440.64)	250.0 (338.95)
	SAE Grade 4	369.4 (500.84)	443.3 (601.03)	492.5 (667.74)	541.8 (734.58)	689.5 (934.84)	640.3 (868.13)	492.5 (667.74)
	SAE Grade 5 ASTM A449	482.8 (654.59)	579.4 (785.56)	643.8 (872.88)	708.1 (960.05)	901.3 (1222.00)	836.9 (1134.69)	643.8 (872.88)
	SAE Grade 7	596.3 (808.47)	715.5 (970.09)	795.0 (1077.88)	874.5 (1185.66)	1113.0 (1509.03)	1033.5 (1401.24)	795.0 (1077.88)
	SAE Grade 8 ASTM A354 Grade BD	681.6 (924.13)	817.9 (1108.92)	908.8 (1232.17)	999.6 (1355.28)	1272.3 (1725.00)	1181.4 (1601.77)	908.8 (1232.17)
	ASTM A354 Grade BC	596.7 (809.01)	716.1 (970.90)	795.6 (1078.69)	875.2 (1186.61)	1113.9 (1510.25)	1034.3 (1402.32)	795.6 (1078.69)

All values in foot pounds and (Newton meters)

Nominal bolt size	Grade Designation and Standard	Zinc or Cadmium Plated	If instructions call for :					
			Loctite 222 or 262	Loctite 242	Loctite 271	Loctite 272	Loctite 277	Bare
1 - 12	SAE Grade 1 ASTM A307	205.3 278.35	246.4 (334.07)	273.8 (371.22)	301.1 (408.24)	383.3 (519.69)	355.9 (482.54)	273.8 (371.22)
	SAE Grade 2	205.3 (278.35)	246.4 (334.07)	273.8 (371.22)	301.1 (408.24)	383.3 (519.69)	355.9 (482.54)	273.8 (371.22)
	SAE Grade 4	404.1 (547.88)	484.9 (657.44)	538.8 (730.52)	592.6 (803.46)	754.3 (1022.70)	700.4 (949.62)	538.8 (730.52)
	SAE Grade 5 ASTM A449	528.8 (716.96)	634.5 (860.27)	705.0 (955.85)	775.5 (1051.44)	987.0 (1338.19)	916.5 (1242.61)	705.0 (955.85)
	SAE Grade 7	652.5 (884.67)	783.0 (1061.60)	870.0 (1179.56)	957.0 (1297.52)	1218.0 (1651.39)	1131.0 (1533.42)	870.0 (1179.56)
	SAE Grade 8 ASTM A354 Grade BD	746.3 (1011.85)	895.5 (1214.14)	995.0 (1349.04)	1094.5 (1483.49)	1393.0 (1888.66)	1293.5 (1753.73)	995.0 (1349.04)
	ASTM A354 Grade BC	—	—	—	—	—	—	—

All values in foot pounds and (Newton meters)

Nominal bolt size	Grade Designation and Standard	Zinc or Cadmium Plated	If instructions call for :					
			Loctite 222 or 262	Loctite 242	Loctite 271	Loctite 272	Loctite 277	Bare
1 - 14	SAE Grade 1 ASTM A307	210.0 (284.72)	252.0 (341.66)	280.0 (379.63)	308.0 (417.60)	392.0 (531.48)	364.0 (493.52)	280.0 (379.63)
	SAE Grade 2	210.0 (284.72)	252.0 (341.66)	280.0 (379.63)	308.0 (417.60)	392.0 (531.48)	364.0 (493.52)	280.0 (379.63)
	SAE Grade 4	413.4 (560.50)	496.1 (672.62)	551.3 (747.46)	606.4 (822.17)	771.8 (1046.42)	716.6 (971.58)	551.3 (747.46)
	SAE Grade 5 ASTM A449	540.9 (733.36)	649.1 (880.06)	721.3 (977.95)	793.4 (1075.70)	1009.8 (1369.10)	937.6 (1271.22)	721.3 (977.95)
	SAE Grade 7	668.4 (906.23)	802.1 (1087.50)	891.3 (1208.44)	980.4 (1329.25)	1247.8 (1691.79)	1158.6 (1570.85)	891.3 (1208.44)
	SAE Grade 8 ASTM A354 Grade BD	764.1 (1035.98)	916.9 (1243.15)	1018.8 (1381.31)	1120.6 (1519.33)	1426.3 (1933.80)	1324.4 (1795.65)	1018.8 (1381.30)
	ASTM A354 Grade BC	—	—	—	—	—	—	—

All values in foot pounds and (Newton meters)

Nominal bolt size	Grade Designation and Standard	Zinc or Cadmium Plated	If instructions call for :					
			Loctite 222 or 262	**Loctite 242**	**Loctite 271**	**Loctite 272**	**Loctite 277**	**Bare**
1-1/8 • 7	SAE Grade 1 ASTM A307	265.8 (360.37)	318.9 (432.37)	354.4 (480.50)	389.8 (528.50)	496.1 (672.62)	460.7 (624.63)	354.4 (480.50)
	SAE Grade 2	265.8 (360.37)	318.9 (432.37)	354.4 (480.50)	389.8 (528.50)	496.1 (672.62)	460.7 (624.63)	354.4 (480.50)
	SAE Grade 4	523.1 (709.23)	627.8 (851.18)	697.5 (945.68)	767.3 (1040.32)	976.5 (1323.96)	906.8 (1229.46)	697.5 (945.68)
	SAE Grade 5 ASTM A449	595.9 (807.93)	715.1 (969.55)	794.5 (1077.20)	874.0 (1184.99)	1112.3 (1508.07)	1032.9 (1400.43)	794.5 (1077.20)
	SAE Grade 7	844.8 (1145.40)	1013.8 (1374.53)	1126.4 (1527.20)	1239.0 (1679.86)	1577.0 (2138.13)	1464.3 (1985.33)	1126.4 (1527.20)
	SAE Grade 8 ASTM A354 Grade BD	966.1 (1309.86)	1159.3 (1571.80)	1288.1 (1746.43)	1416.9 (1921.06)	1803.4 (2445.08)	1674.6 (2270.46)	1288.1 (1746.43)
	ASTM A354 Grade BC	844.8 (1145.40)	1013.8 (1374.53)	1126.4 (1527.20)	1239.0 (1679.86)	1577.0 (2138.13)	1464.3 (1985.33)	1126.4 (1527.20)

All values in foot pounds and (Newton meters)

Nominal bolt size	Grade Designation and Standard	Zinc or Cadmium Plated	If instructions call for :					
			Loctite 222 or 262	**Loctite 242**	**Loctite 271**	**Loctite 272**	**Loctite 277**	**Bare**
1-1/8 • 12	SAE Grade 1 ASTM A307	297.4 (403.22)	356.9 (483.89)	396.6 (537.72)	436.2 (591.40)	555.2 (752.75)	515.5 (698.93)	396.6 (537.72)
	SAE Grade 2	297.4 (403.22)	356.9 (483.89)	396.6 (537.72)	436.2 (591.40)	555.2 (752.75)	515.5 (698.93)	396.6 (537.72)
	SAE Grade 4	586.4 (795.05)	703.7 (954.09)	781.9 (1060.12)	860.1 (1166.14)	1094.6 (1484.08)	1016.4 (1378.06)	781.9 (1060.12)
	SAE Grade 5 ASTM A449	667.6 (905.14)	801.1 (1086.15)	890.2 (1206.95)	979.2 (1327.62)	1246.2 (1689.62)	1157.2 (1568.95)	890.2 (1206.95)
	SAE Grade 7	948.2 (1285.58)	1137.8 (1542.65)	1264.2 (1714.02)	1390.6 (1855.40)	1769.9 (2399.66)	1643.5 (2228.30)	1264.2 (1714.02)
	SAE Grade 8 ASTM A354 Grade BD	1083.2 (1468.62)	1299.8 (1762.30)	1444.2 (1958.07)	1588.6 (2153.85)	2021.9 (2741.33)	1877.5 (2545.55)	1444.2 (1958.07)
	ASTM A354 Grade BC	—	—	—	—	—	—	—

All values in foot pounds and (Newton meters)

Nominal bolt size	Grade Designation and Standard	Zinc or Cadmium Plated	If instructions call for :					
			Loctite 222 or 262	Loctite 242	Loctite 271	Loctite 272	Loctite 277	Bare
1-1/4 • 7	SAE Grade 1 ASTM A307	375.0 (508.43)	450.0 (610.11)	500.0 (677.91)	550.0 (745.70)	700.0 (949.07)	650.0 (881.28)	500.0 (677.91)
	SAE Grade 2	375.0 (508.43)	450.0 (610.11)	500.0 (677.91)	550.0 (745.70)	700.0 (949.07)	650.0 (881.28)	500.0 (677.91)
	SAE Grade 4	738.3 (1001.00)	885.9 (1201.12)	984.4 (1334.67)	1082.8 (1468.08)	1378.1 (1868.45)	1279.7 (1735.04)	984.4 (1334.67)
	SAE Grade 5 ASTM A449	840.2 (1139.16)	1008.3 (1367.07)	1120.3 (1518.93)	1232.3 (1670.78)	1568.4 (2126.47)	1456.4 (1974.62)	1120.3 (1518.93)
	SAE Grade 7	1191.8 (1615.87)	1430.2 (1939.09)	1589.1 (2154.53)	1748.0 (2369.97)	2224.7 (3016.30)	2065.8 (2800.85)	1589.1 (2154.53)
	SAE Grade 8 ASTM A354 Grade BD	1362.9 (1847.85)	1635.5 (2217.44)	1817.2 (2463.80)	1998.9 (2710.15)	2544.1 (3449.34)	2362.3 (3202.85)	1817.2 (2463.80)
	ASTM A354 Grade BC	1192.4 (1616.68)	1430.9 (1940.04)	1589.8 (2155.48)	1748.8 (2371.05)	2225.8 (3017.78)	2066.8 (2802.20)	1589.8 (2155.48)

All values in foot pounds and (Newton meters)

Nominal bolt size	Grade Designation and Standard	Zinc or Cadmium Plated	If instructions call for :					
			Loctite 222 or 262	Loctite 242	Loctite 271	Loctite 272	Loctite 277	Bare
1-1/4 • 12	SAE Grade 1 ASTM A307	414.8 (562.40)	497.8 (674.93)	553.1 (749.90)	608.4 (824.88)	774.4 (1049.95)	719.1 (974.97)	553.1 (749.90)
	SAE Grade 2	414.8 (562.40)	497.8 (674.93)	553.1 (749.90)	608.4 (824.88)	774.4 (1049.95)	719.1 (974.97)	553.1 (749.90)
	SAE Grade 4	816.8 (1107.43)	980.2 (1328.97)	1089.1 (1476.62)	1198.0 (1624.27)	1524.7 (2067.22)	1415.8 (1919.57)	1089.1 (1476.62)
	SAE Grade 5 ASTM A449	930.5 (1261.60)	1116.6 (1513.90)	1240.6 (1682.03)	1364.7 (1850.29)	1736.9 (2354.92)	1612.8 (2186.66)	1240.6 (1682.03)
	SAE Grade 7	1320.7 (1790.63)	1584.8 (2148.70)	1760.9 (2387.46)	1937.0 (2626.22)	2465.3 (3342.50)	2289.2 (3103.74)	1760.9 (2387.46)
	SAE Grade 8 ASTM A354 Grade BD	1509.4 (2046.47)	1811.3 (2455.80)	2012.5 (2728.59)	2213.8 (3001.51)	2817.5 (3820.02)	2616.3 (3547.23)	2012.5 (2728.58)
	ASTM A354 Grade BC	—	—	—	—	—	—	—

All values in foot pounds and (Newton meters)

Nominal bolt size	Grade Designation and Standard	Zinc or Cadmium Plated	If instructions call for :					
			Loctite 222 or 262	Loctite 242	Loctite 271	Loctite 272	Loctite 277	Bare
1-3/8 • 6	SAE Grade 1 ASTM A307	491.1 (665.84)	589.4 (799.12)	654.8 (887.79)	720.3 (976.60)	916.8 (1243.00)	851.3 (1154.21)	654.8 (887.80)
	SAE Grade 2	491.1 (665.84)	589.4 (799.12)	654.8 (887.79)	720.3 (976.60)	916.8 (1243.00)	851.3 (1154.21)	654.8 (887.80)
	SAE Grade 4	968.1 (1312.57)	1161.7 (1575.06)	1290.8 (1750.10)	1419.9 (1925.13)	1807.1 (2450.10)	1678.0 (2275.07)	1290.8 (1750.09)
	SAE Grade 5 ASTM A449	1102.1 (1494.25)	1322.6 (1793.20)	1469.5 (1992.38)	1616.5 (2191.68)	2057.3 (2789.33)	1910.4 (2590.16)	1469.5 (1992.38)
	SAE Grade 7	1563.6 (2119.96)	1876.4 (2544.06)	2084.8 (2826.61)	2293.3 (3109.30)	2918.8 (3957.37)	2710.3 (3674.68)	2084.8 (2826.61)
	SAE Grade 8 ASTM A354 Grade BD	1786.6 (2422.30)	2144.0 (2906.88)	2382.2 (3229.83)	2620.4 (3552.79)	3335.1 (4521.80)	3096.8 (4198.70)	2382.2 (3229.83)
	ASTM A354 Grade BC	1563.6 (2119.96)	1876.4 (2544.06)	2084.8 (2826.61)	2293.3 (3109.30)	2918.8 (3957.37)	2710.3 (3674.68)	2084.8 (2826.61)

All values in foot pounds and (Newton meters)

Nominal bolt size	Grade Designation and Standard	Zinc or Cadmium Plated	If instructions call for :					
			Loctite 222 or 262	Loctite 242	Loctite 271	Loctite 272	Loctite 277	Bare
1-3/8 • 12	SAE Grade 1 ASTM A307	559.5 (758.58)	671.3 (910.16)	745.9 (1011.30)	820.5 (1112.45)	1044.3 (1415.88)	969.7 (1314.74)	745.9 (1011.30)
	SAE Grade 2	559.5 (758.58)	671.3 (910.16)	745.9 (1011.30)	820.5 (1112.45)	1044.3 (1415.88)	969.7 (1314.74)	745.9 (1011.30)
	SAE Grade 4	1102.1 (1494.25)	1322.6 (1793.21)	1469.5 (1992.38)	1616.5 (2191.68)	2057.3 (2789.33)	1910.4 (2590.16)	1469.5 (1992.38)
	SAE Grade 5 ASTM A449	1254.3 (1700.60)	1505.1 (2040.64)	1672.3 (2267.34)	1839.6 (2494.16)	2341.3 (3174.38)	2174.0 (2947.55)	1672.3 (2267.34)
	SAE Grade 7	1780.2 (2413.63)	2136.2 (2896.30)	2373.6 (3218.17)	2611.0 (3540.04)	3323.0 (4505.39)	3085.7 (4183.65)	2373.6 (3218.17)
	SAE Grade 8 ASTM A354 Grade BD	2034.1 (2757.87)	2441.0 (3309.56)	2712.2 (3677.25)	2983.4 (4044.95)	3797.1 (5148.18)	3525.8 (4780.35)	2712.2 (3677.25)
	ASTM A354 Grade BC	—	—	—	—	—	—	—

All values in foot pounds and (Newton meters)

Nominal bolt size	Grade Designation and Standard	Zinc or Cadmium Plated	If instructions call for :					
			Loctite 222 or 262	Loctite 242	Loctite 271	Loctite 272	Loctite 277	Bare
1-1/2 • 6	SAE Grade 1 ASTM A307	652.5 (884.67)	783.0 (1061.60)	870.0 (1179.56)	957.0 (1297.52)	1218.0 (1651.39)	1131.0 (1533.43)	870.0 (1179.56)
	SAE Grade 2	652.5 (884.67)	783.0 (1061.60)	870.0 (1179.56)	957.0 (1297.52)	1218.0 (1651.39)	1131.0 (1533.43)	870.0 (1179.56)
	SAE Grade 4	1283.9 (1740.74)	1540.7 (2088.91)	1711.9 (2321.03)	1883.1 (2553.14)	2396.6 (3249.36)	2225.4 (3017.24)	1711.9 (2321.03)
	SAE Grade 5 ASTM A449	1462.5 (1982.88)	1755.0 (2379.46)	1950.0 (2643.85)	2145.0 (2908.23)	2730.0 (3701.39)	2535.0 (3437.00)	1950.0 (2643.85)
	SAE Grade 7	2074.2 (2812.24)	2489.1 (3374.77)	2765.6 (3749.66)	3042.2 (4124.67)	3871.9 (5249.60)	3595.3 (4874.58)	2765.6 (3749.66)
	SAE Grade 8 ASTM A354 Grade BD	2370.9 (3214.51)	2845.1 (3857.44)	3161.3 (4286.15)	3477.4 (4714.73)	4425.8 (6000.58)	4109.6 (5571.88)	3161.3 (4286.15)
	ASTM A354 Grade BC	2074.9 (2813.20)	2489.9 (3375.85)	2766.6 (3751.01)	3043.2 (4126.03)	3873.2 (5251.36)	3596.5 (4876.20)	2766.6 (3751.01)

All values in foot pounds and (Newton meters)

Nominal bolt size	Grade Designation and Standard	Zinc or Cadmium Plated	If instructions call for :					
			Loctite 222 or 262	Loctite 242	Loctite 271	Loctite 272	Loctite 277	Bare
1-1/2 • 12	SAE Grade 1 ASTM A307	734.1 (995.30)	880.9 (1194.34)	978.8 (1327.07)	1076.6 (1459.67)	1370.3 (1857.88)	1272.4 (1725.14)	978.8 (1327.07)
	SAE Grade 2	734.1 (995.30)	880.9 (1194.34)	978.8 (1327.07)	1076.6 (1459.67)	1370.3 (1857.88)	1272.4 (1725.14)	978.8 (1327.07)
	SAE Grade 4	1445.6 (1959.97)	1734.8 (2352.07)	1927.5 (2613.34)	2120.3 (2874.33)	2698.5 (3658.68)	2505.8 (3397.41)	1927.5 (2613.34)
	SAE Grade 5 ASTM A449	1645.3 (2230.73)	1974.4 (2676.93)	2193.8 (2974.40)	2413.1 (3271.73)	3071.3 (4164.13)	2851.9 (3866.66)	2193.8 (2974.40)
	SAE Grade 7	2334.4 (3165.02)	2801.3 (3798.06)	3112.5 (4219.99)	3423.8 (4642.05)	4357.5 (5907.98)	4046.3 (5486.05)	3112.5 (4219.99)
	SAE Grade 8 ASTM A354 Grade BD	2667.7 (3616.92)	3201.2 (4340.25)	3556.9 (4822.51)	3912.6 (5304.78)	4979.6 (6751.44)	4623.9 (6269.17)	3556.9 (4822.51)
	ASTM A354 Grade BC	—	—	—	—	—	—	—

Other Fastener Torque Specifications

All values in foot-pounds and (Newton-meters)

Nominal bolt size	18 - 8 Stainless Steel	316 Stainless Steel	Brass	Aluminum 2024 - T4
1/4 - 20	6.3 (8.54)	6.6 (8.95)	5.1 (6.91)	3.8 (5.15)
1/4 - 28	7.8 (10.57)	8.3 (11.25)	6.4 (8.67)	4.8 (6.50)
5/16 - 18	11.0 (14.90)	11.5 (15.60)	8.9 (12.06)	6.7 (9.08)
5/16 - 24	11.8 (16.00)	12.3 (16.67)	9.7 (13.15)	7.2 (9.76)
3/8 - 16	19.7 (26.71)	20.6 (27.93)	16.0 (21.70)	11.9 (16.13)
3/8 - 24	21.6 (29.28)	22.6 (30.64)	17.7 (24.00)	13.1 (17.76)
7/16 - 14	31.3 (42.44)	32.8 (44.47)	26.4 (35.80)	19.0 (25.76)
7/16 - 20	33.3 (45.15)	34.8 (47.18)	27.3 (37.00)	20.2 (27.38)
1/2 - 13	43.1 (58.43)	45.2 (61.28)	35.2 (47.72)	26.1 (35.38)
1/2 - 20	45.1 (61.14)	47.1 (63.86)	36.9 (50.00)	27.3 (37.00)
9/16 - 12	56.8 (77.00)	59.4 (80.53)	46.5 (63.04)	34.4 (46.64)
9/16 - 18	62.7 (85.00)	65.6 (88.94)	51.3 (69.55)	38.0 (51.52)
5/8 - 11	92.5 (125.41)	96.7 (131.10)	75.6 (102.50)	59.6 (80.80)
5/8 - 18	103.7 (140.60)	108.4 (146.97)	84.7 (114.84)	66.5 (90.16)
3/4 - 10	127.5 (172.86)	131.8 (178.70)	104.1 (141.14)	81.7 (110.77)
3/4 - 16	124.2 (168.39)	129.8 (175.98)	101.7 (137.88)	79.8 (108.19)

Other Fastener Torque Specifications

All values in foot-pounds and (Newton-meters)

Nominal bolt size	18 - 8 Stainless Steel	316 Stainless Steel	Brass	Aluminum 2024 - T4
7/8 - 9	194.0 (263.03)	202.5 (274.55)	158.8 (215.30)	124.6 (168.93)
7/8 - 14	193.2 (261.94)	201.7 (273.47)	157.9 (214.08)	124.2 (168.40)
1 - 8	286.7 (388.71)	299.6 (406.20)	234.6 (318.07)	183.8 (249.20)
1 - 14	259.2 (351.43)	270.8 (367.16)	212.1 (287.57)	166.3 (225.47)
1-1/8 • 7	413.0 (559.95)	432.0 (585.71)	337.0 (456.91)	265.0 (359.29)
1-1/8 • 12	390.0 (528.77)	408.0 (553.17)	318.0 (431.15)	251.0 (340.31)
1-1/4 • 7	523.0 (709.09)	546.0 (740.28)	428.0 (580.30)	336.0 (455.55)
1-1/4 • 12	480.0 (650.80)	504.0 (683.33)	394.0 (534.19)	308.0 (417.60)
1-1/2 • 6	888.0 (1203.97)	930.0 (1260.91)	727.0 (985.68)	570.0 (772.82)
1-1/2 • 12	703.0 (953.14)	732.0 (992.46)	575.0 (779.60)	450.0 (610.12)

Section 2

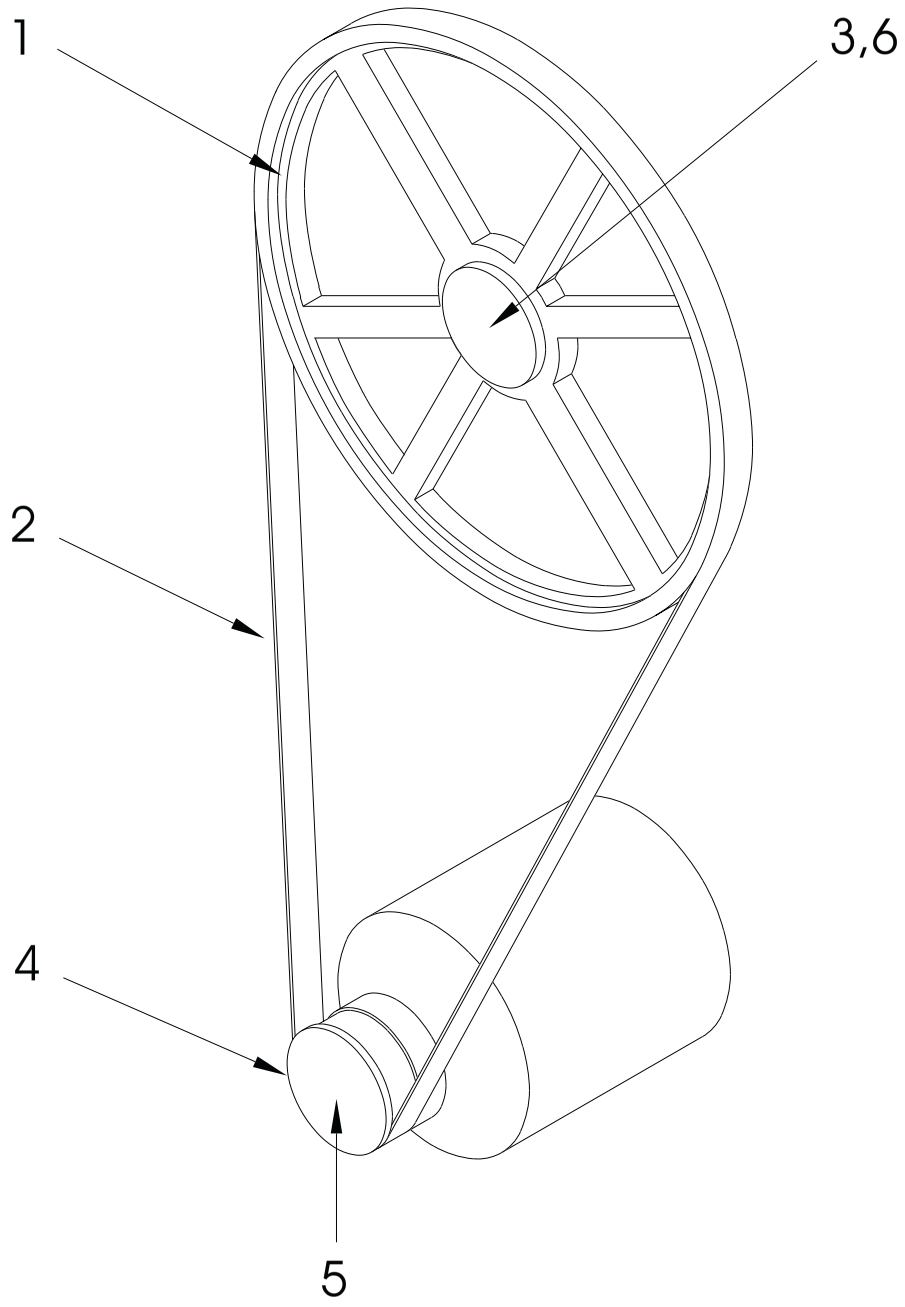
Drive Assemblies

Drive Chart

30015T5J,T5E & 30022T5J,T5E

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

Litho in U.S.A.



Parts List—Drive Chart

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

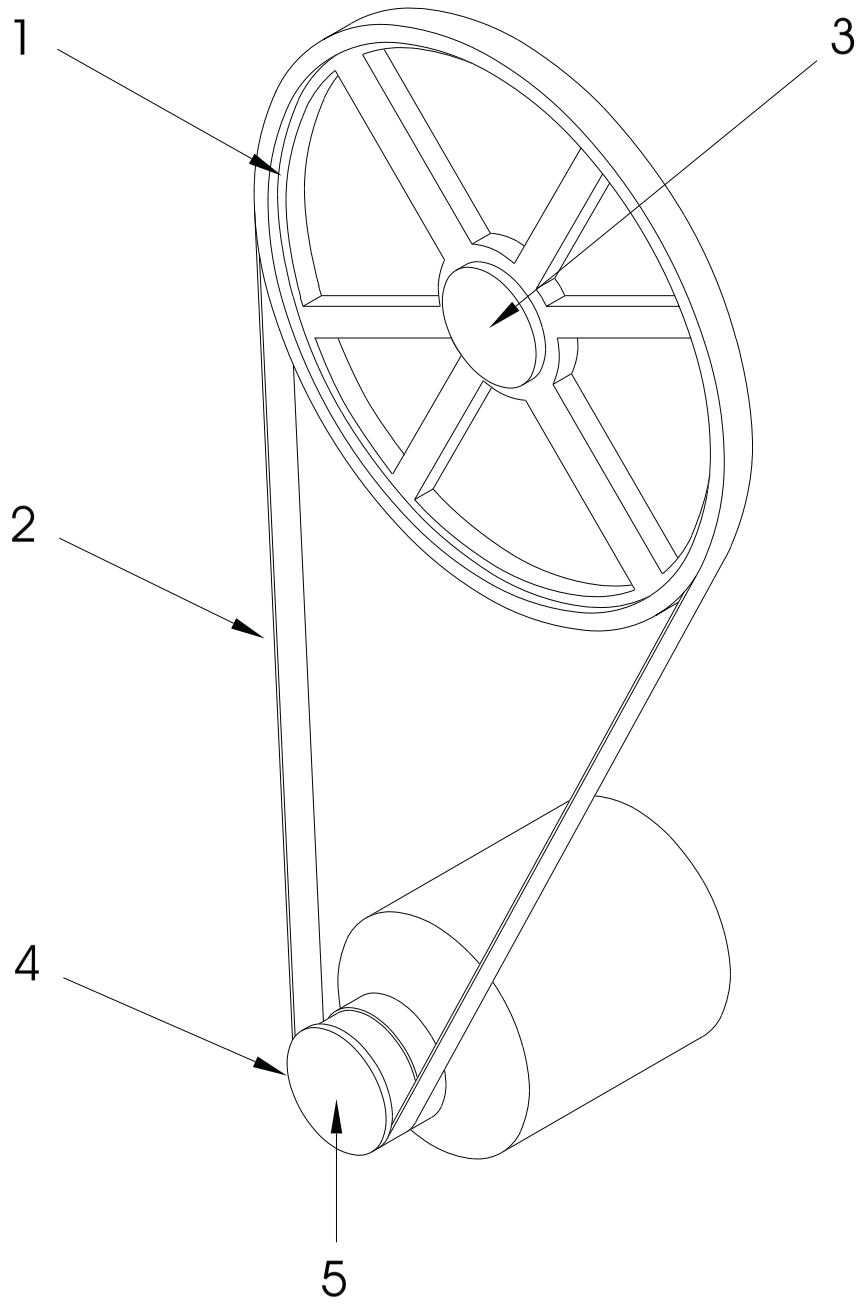
Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	D33 03260	94000Z DRIVE CHART-3015/22V4 60CYC	30015 & 30022T5J
			----------COMPONENTS----------	
all	1	562240R3SF	VPUL 3G3V22.4 (SF) MTO SPECIAL	
all	2	56VR082XB3	VBAND 3R3VX820 EA = 1 BELT	
all	3	56Q1KSF	1+1/2" BUSH VPUL QD TYPE SF	
all	4	560260R3JA	VPUL 3G3V2.60 QD TYPE JA	
all	5	56Q0RJA	7/8" BUSHING VPUL QD TYPE "JA"	
all	6	15E230	STRMACHKEY 3/8SQX2+1/2 TOL.+0	

Drive Chart

30015V7J & 30022V6J

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

Litho in U.S.A.



Parts List— Drive Chart

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

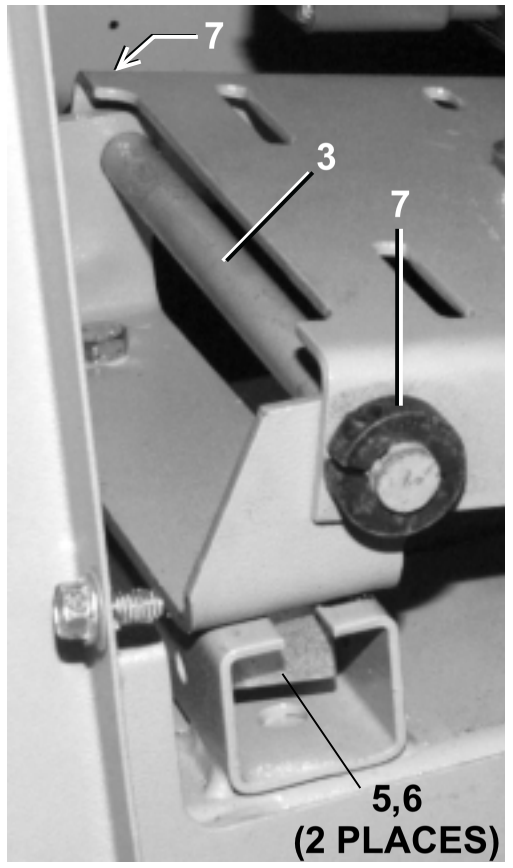
Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	D33 02850	93000Z DRIVE CHART=3022V7 VSP 50CYC	30015V7J & 30022V6J 50 CYCLE
	B	D33 02860	93000Z DRIVE CHART=3022V7 VSP 60CYC	30015V7J & 30022V6J 60 CYCLE
			----------COMPONENTS----------	
all	1	561825B2SD	VPUL 2B18.25 (SD) MTO	
all	2	56VB071XM2	VBELT BX71 MATCHSET2 EA=1BELT	2 BELT SET
all	3	56Q1KSD	1+1/2" BUSH VPUL QD TYPE SD	
all	4	56030B2H	VPUL 2B3.0/A2.6 2BK32H R EQUAL	
all	5	56Q1CH	1+1/8" BUSH VPUL TYP H,D,OR QT	

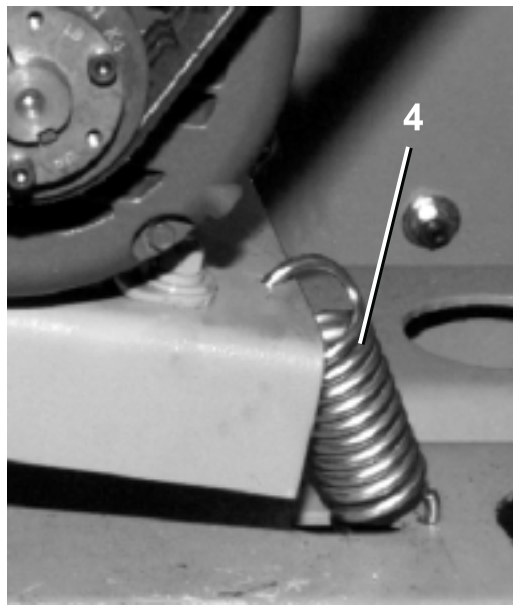
Motor Mount

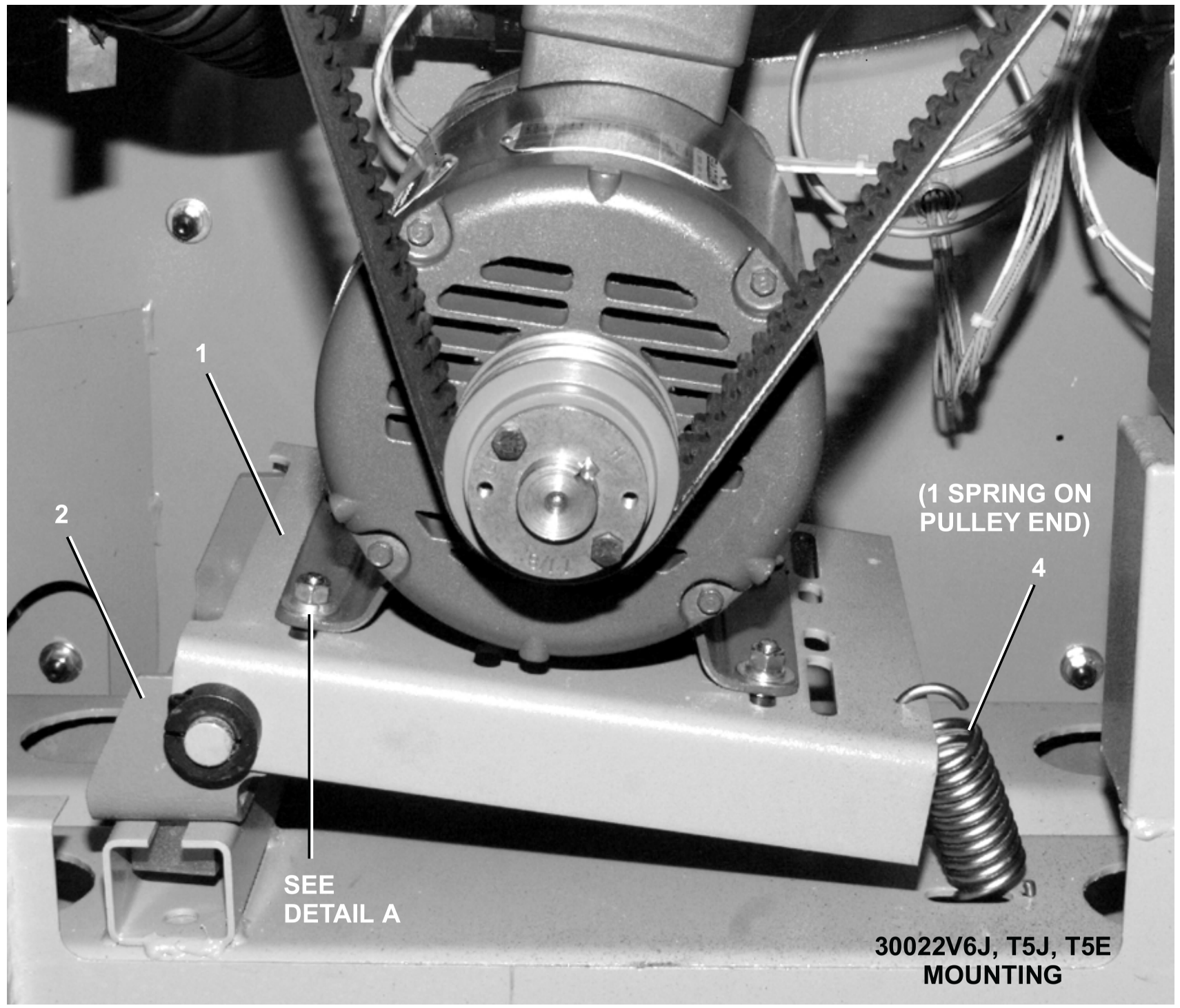
30015, 30022, 36026, & 42026Vxx,Txx

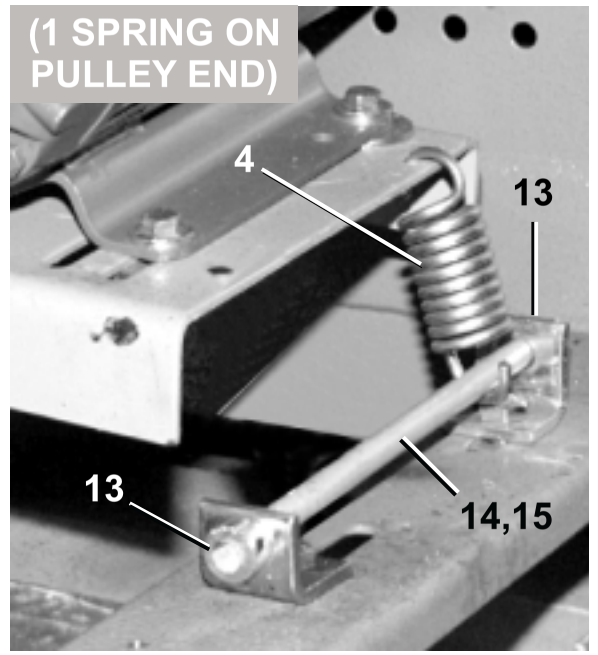
Pellerin Milnor Corporation
P. O. Box 400, Kenner, LA 70063-0400

Litho in U.S.A.



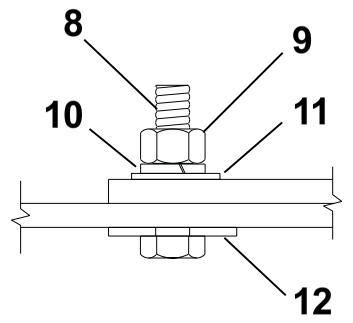






36026V5J, V7J, & 42026V6J MOUNTING

(ITEM 15, TUBE, SLIDES OVER SHAFT TO TIGHTEN BELT)



DETAIL A (4 PLACES)

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

Parts List—Motor Mount

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

Used In	Item	Part Number	Description	Comments
----------ASSEMBLIES----------				
	A	ADB3022S4	ASSY=DRIVE BASE, 3022S4	30015V7J,T5J,T5E 30022V6J,T5J,T5E 36026V5J,V7J ,42026V6J
----------COMPONENTS----------				
all	1	02 04256	PLATE=MOTOR MNT, 3022S4	
all	2	02 04257	BRKT=MOTOR MOUNT, 3022S4	
all	3	02 04258	SHAFT=MOTOR MOUNT, 3022S4	
all	4	02 04259	SPRNG/MOT MOUNT/3022S4#SPC2690	
all	5	02 19283	NUT=1/2-13UNCX1+1/25Q SPEC	
all	6	15K162	HXCAPSCR 1/2-13UNC2AX1.5 GR5 P	
all	7	54JH10750C	SHFTCOLLAR 3/4" CLPTYP CFG#12S	
all	8	15K095	HXCPSCR 3/8-16UNC2AX1 GR5 ZINC	
all	9	15G205	HXNUT 3/8-16UNC2B ZINC GR2	
all	10	15U255	LOCKWASHER MEDIUM 3/8 ZINCPL	
all	11	15U240	FLATWASHER(USS STD) 3/8" ZNC P	
all	12	15U241	FLATWASHER 13/32IDX1+3/4ODX14G	
All	13	54JH10750C	SHFTCOLLAR 3/4” CLPTYP CFG#12	
All	14	02 04258	2000142B SHAFT=MOTOR MOUNT, 3022S4	
All	15	02 04258B	2000342B TUBE MOTOR MOUNT SPRING ADJ	

Section 3

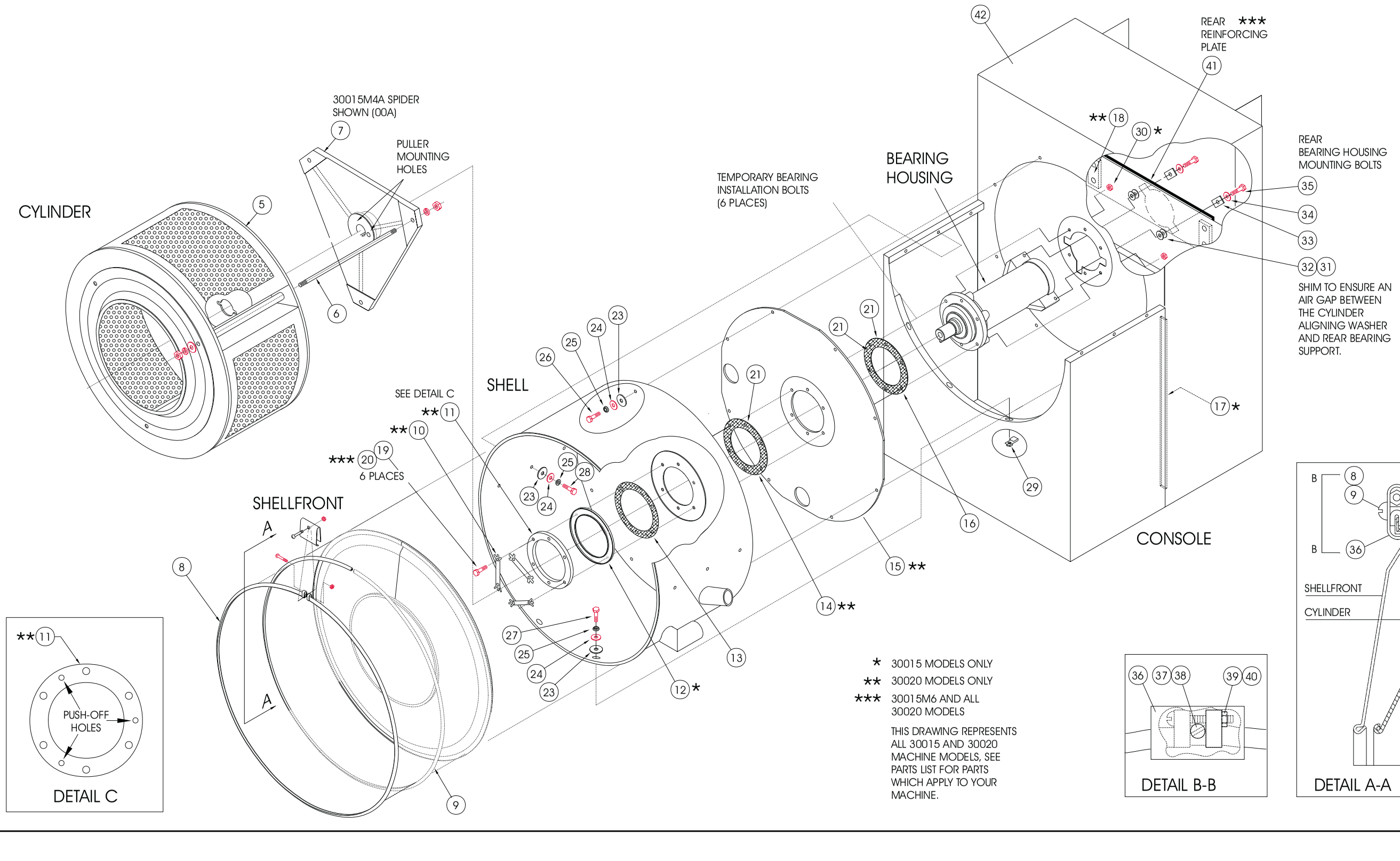
Bearing Assemblies

Cylinder, Shell, Bearing, and Console Installation

30015, 30020, & 30022 Rigid Mount Washer Extractors

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

Litho in U.S.A.



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

Litho in U.S.A.

Parts List—Cylinder,Shell,Bearing,Console Installation

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

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	ACA02CWE	CYL ASSY=3015CWE/NMA/C4M/OE	30015C4A,M4X,C4T, K5X,S5X,**30015T5J,T5E**
	B	ACA33C6M	* CYL ASSY=3015C6M	**30015V7J** 30015M6X
	C	ACA33C5M	* CYL ASSY=3020C5M	30020M4A,C4A,M5X
	D	ACA3020M7	CYL ASSY=3020 M7J/G/P	30020M7X
	E	ACA3022M5	*CYL ASSY=3022 M5/C/K/S	30022M4X,M5X,K5X,C5X **30022V6J,30022T5J**
	F	ASH33023	SHELL+CONSOLE 3015M4A	30015M4A,M4T
	G	ASH33008	SHELL+CONSOLE 3015C4-MICRO	30015C4A,C4T
	H	ASH33015	SHELL+CONSOLE 3015M4	30015M4G,M4J,M4P
	I	ASH33007	SHELL+CONSOLE 3015 M6-MICRO	30015M6A,M6G,M6J, M6P,M6T
	J	ASH33030	SHELL+CONSOLE 3015K4	30015K5A,K5T
	K	ASH33031	SHELL+CONSOLE 3015S5	30015S5A,S5G,S5J,S5T
	L	ASH33024	SHELL+CONSOLE 3020M4A	30020M4A
	M	ASH33010	SHELL+CONSOLE 3020C4A-MICRO	30020C4A
	N	ASH33009	SHELL+CONSOLE 3020M5-MICRO	30020M5G,M5J,M5P
	O	ASH33019	SHELL+CONSOLE 3020M7-MICRO	30020M7G,M7J,M7P
	P	ASH33032	SHELL+CONSOLE 3022K4	30022K5A,K5T
	Q	ASH33033	SHELL+CONSOLE 3022S5	30022S5A,S5G,S5J,S5T
	R	ASH33034	SHELL+CONSOLE 3022M5	30022M4X,M5X
	S	ASH33035	SHELL+CONSOLE 3022C4	30022C5X
	T	ASH3022V5	ASSY=SHELL+CONSOLE, 3022V5	**30022V5J,T5J**
	U	ASH33040	SHELL+CONSOLE 3015V7	**30015V7J,30015T5J**
			----------COMPONENTS----------	
all	1	15B200	HEXCAPSCR 3/4-10X1+3/4 SS18-8	
all	2	15U350	LOCKWASHER 3/4 MED SS18-8	
all	3	02 11196	COVER=SHAFT RETAINER=304S/S	
all	4	02 14359	SPACER SHT RETNR-LG OUR MATL	
all	4	02 14359A	SHAFT RETNR SPACER 2+3/4" SQ	
A	5	ACA02CWE	CYL ASSY=3015CWE/NMA/C4M/OE	
B	5	ACA33C6M	* CYL ASSY=3015C6M	
C	5	ACA33C5M	* CYL ASSY=3020C5M	
D	5	ACA3020M7	CYL ASSY=3020 M7J/G/P	
E	5	ACA3022M5	*CYL ASSY=3022 M5/C/K/S	
all	6	02 02138A	CYLTIEROD-3/3015W+CWU 18-8SS	PART OF 005A & 005B
all	6	02 03703	CYLINDER TIE ROD C5M SU$30	PART OF 005C
all	6	02 03703A	CYLINDER TIE ROD 3020M7	PART OF 005D
all	6	02 03703J	CYLINDER TIE ROD 3022S5	PART OF 005E
all	7	X2 02758	SPIDER=1/CWU+25W	PART OF 005A
all	7	X2 03561	SPIDER=C6M ONLY-CASTIRON	PART OF 005B
all	7	X2 03561A	SPIDER C5M	PART OF 005C & 005E
all	7	X2 03561B	SPIDER=FABRICATED 3020M7	PART OF 005D
all	8	Y2 02059	*SHELL CLAMP RING=30" MACHINE	
all	9	02 02087C	EXTRUS*ION-SHELL=30"MACHINES (	
all	10	02 03629	LOCKSTRAP=BEAR HOUS S/S	30020+30022
all	11	X2 03576	RING=SHELL BACK CLAMP=1/C6M	30020+30022
all	12	02 03444	RING=SHELL BACK CLAMP	30015
all	13	02 03446	1 GASKET=SHELBACK CLAMPRING	30015
All	13	02 03575	GASKET=SHELLBAKCLAMPRING=CWM	30020+30022
all	14	02 03574	GASKET=MAIN BEARINGHOUSE=CWM	30020+30022
all	15	02 03568	PLATE-BG HOUSING REINFORCING	30020+30022
all	16	02 03574	GASKET=MAIN BEARINGHOUSE=CWM	30020+30022
all	16	02 03335	GASKET BEARING HOUSING CWE	30015
all	17	02 03749	BAR=REINF STRIP 3015	30015
all	18	02 03560	TAPSTRIP=BEARING SUPPORT	30020+30022
all	19	15K126	HEXCAPSCR 3/8-16NCX2+1/2SS18-8	30015
all	19	15K196	HEXCAPSCR 1/2-13UNC2X3 18-8SS	30020+30022
All	20	20C013C	GSKT ELIM.250CC LCT#504-41	
all	21	20C036A	PERMATEX NO 2C IN 11 OZ TUBES	
all	22	15K182	HEXTAPSCR 1/2-13X2ZINC GR5 FUL	
all	23	02 02293	DOOR HANDLE NUT GASKET	
all	24	15U245	FLTWASH 3/8 STD COMM 18-8 SS	
all	25	24G030N	ROLLED WASH.379ID NYLTITE 37W	
all	26	15K096	HEXCAPSCR 3/8-16UNC2X1SS18-8	30015C4A,M4A
all	26	15K100	HEXCAPSCR 3/8-16X1+1/4 SS18-8	30015M6X, 30020+30022
all	27	15K086	HXCAPSCR 3/8-16NCX3/4 SS18-8	
all	28	15K086	HXCAPSCR 3/8-16NCX3/4 SS18-8	30015C4A,M4A
all	29	17N071	NUT J-TYPE T#C33952-3816-3B 3/	
all	30	15G218	HXLOKNUT NYL 3/8-16 STL/ZNC	30015MODELS ONLY
all	31	15U245	FLTWASH 3/8 STD COMM 18-8 SS	
all	32	15U312	FLAWASHER 3/4ODX33/64IDX11GA Z	
all	33	02 03397	CYLINDER ALIGNING WASHER	
all	34	15U300	LOKWASHER REGULAR 1/2 ZINC PLT	
all	35	15K182	HEXTAPSCR 1/2-13X2ZINC GR5 FUL	
all	36	02 02181	GUARD=SHELL MOUNT RING CLIP	
all	37	15K046S	HEXCAPSCR 1/4-20UNC2A X 2.25 S	
all	38	15G168	SQNUT 1/4-20UNC2 SS18-8	
all	39	15N146	RDMACHSCR 10-24UNC2X1 SS18-8	
all	40	15G130	HEXMACHSCRNUT 10-24UNC2 SS18-8	
all	41	02 03559	SUPPORT=REAR BRG HOUSE	
All	42	W2 03770B	WLMT=REAR CONSOLE, 3022V5	

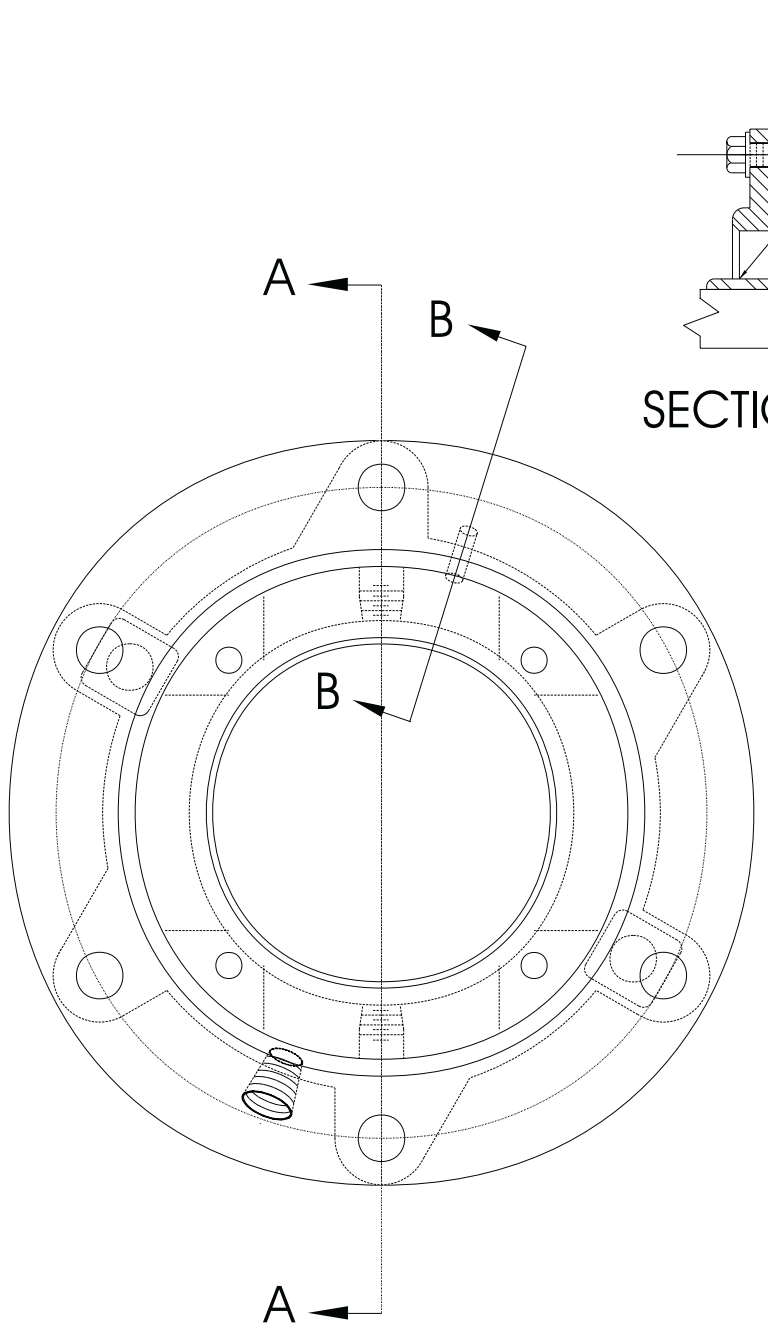
Main Bearing Assembly

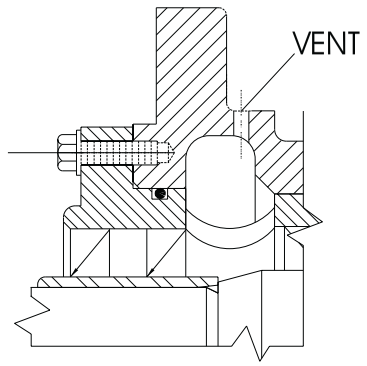
30015V7J, T5J, T5E, M6x

BMP910034/2001036V
(Sheet 1 of 2)

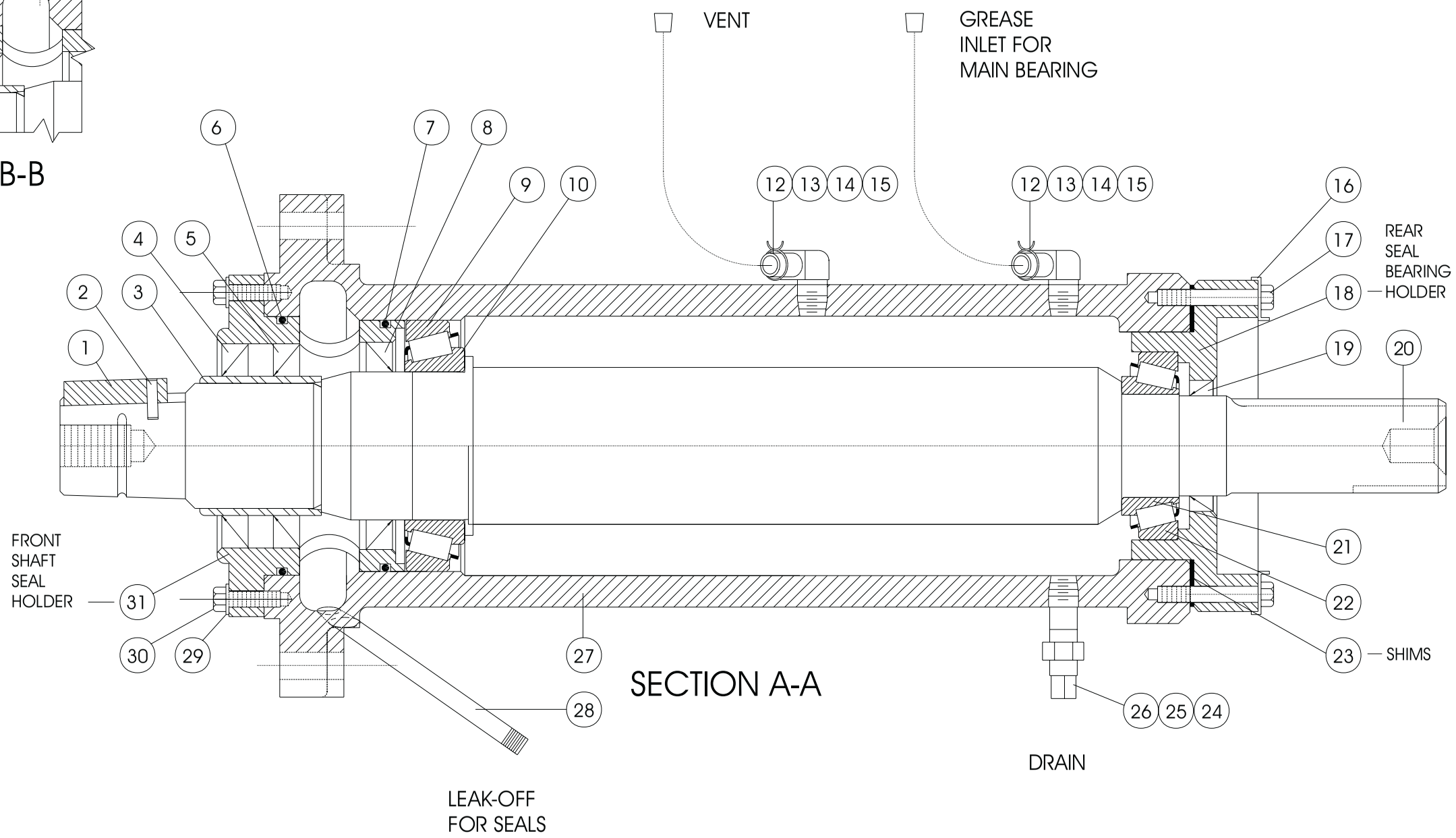
Pellerin Milnor Corporation
P. O. Box 400, Kenner, LA 70063-0400

Litho in U.S.A.





SECTION B-B



SECTION A-A

60

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

Parts List—Main Bearing Assembly

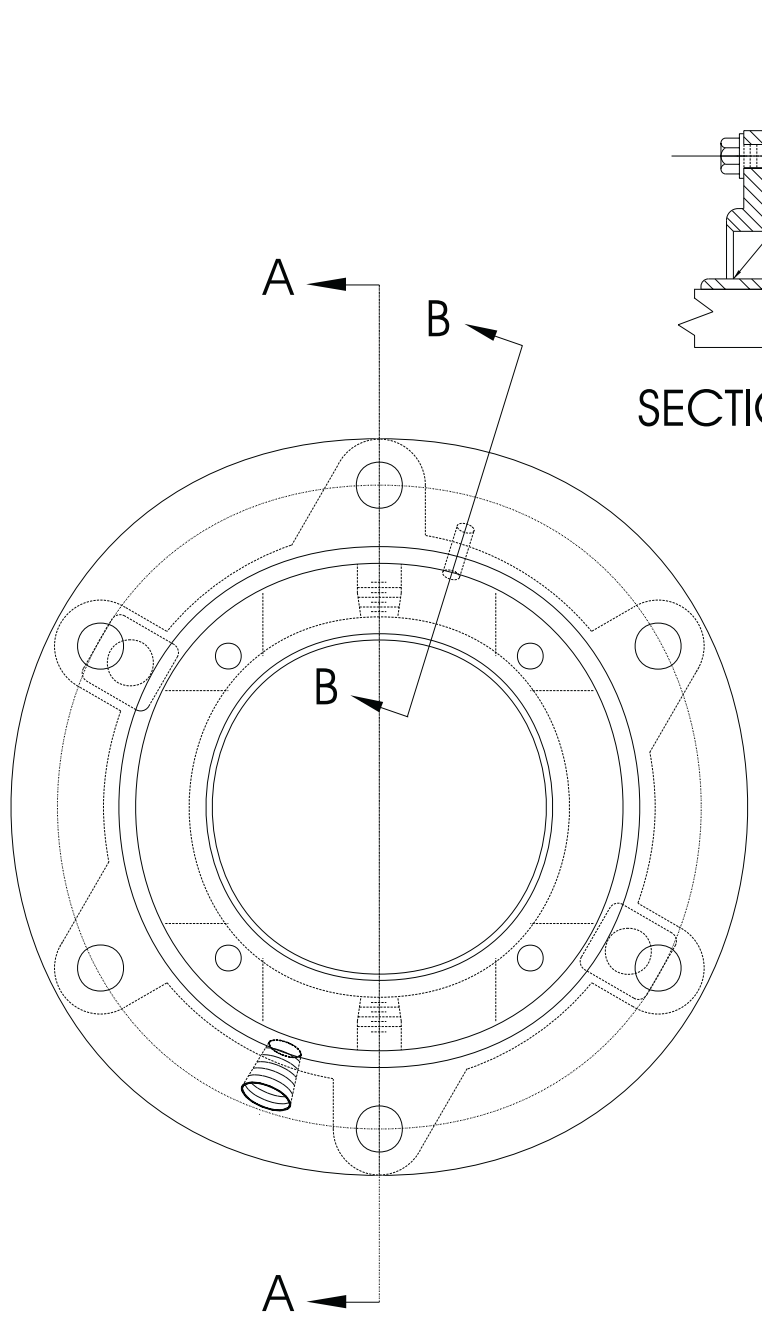
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

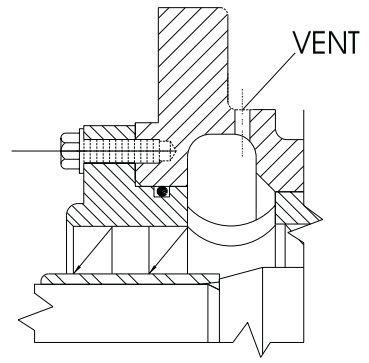
Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	SA 33 048	* BEARING ASSY 3015C6M ONLY	**30015V6J, T5J**,**T5E**, M6x
			----------COMPONENTS----------	
all	1	02 02294A	SHAFT KEY 3/8 X 3/8	
all	2	15H089S	SPRINGPIN 1/8"DIA X 5/8" LONG	
all	3	02 03311	SEAL SLEEVE OUR MATL	
all	4	24S005	SEAL 2.25 X 3.0 X .375 SS BUNA	
all	5	24S005	SEAL 2.25 X 3.0 X .375 SS BUNA	
all	6	60C151	ORING 3+7/8ID1/8CS BUNA70#241	
all	7	60C150	ORING 3+3/4ID1/8CS BUNA70 #240	
all	8	24S015	SEAL 2.265X3.256X.433 CR#23678	
all	9	54A319	CUP 28920 TIMKN 2-24 1/BX+PT#	
all	10	54A320	CONE 28985 TIMKN 2-51 1/BX+PT#	
all	12	5SL0EBEC	NPTELB 90DEG STRT 1/4 BRASS125	
all	13	03 01142	NIPPLE 1/4X1+1/4 BRASS	
all	14	27A043A	HOSECLAMP.562"DIA.SPRG#HC9STZD	
all	15	60E005P	PVC TUBING 1/2"ID X 5/8"OD	
all	16	02 03407	LOCKING WASHER ZINC PLATE	
all	17	15K127	HEXFLGSCR 3/8-16X2 GR8 CS	
all	18	X2 03659A	HOUSE=SEAL+BRG 30M,V7	
all	19	24S048AAA	SEAL 1.625X2.375X.375 CS/BUNA	
all	20	X2 03314A	MAIN SHAFT=3015N6E+C6M	
all	21	54A308	CONE M802048 TIM 2-24 1/BX+PT#	
all	22	54A307	CUP M802011 TIMK 2-24 1/BX+PT#	
all	23	02 03320B	SHIM .003 ARTUS GREEN	
all	23	02 03320C	SHIM .005 ARTUS BLUE	
all	23	02 03320D	SHIM .010 ARTUS BROWN	
all	23	02 03320G	SHIM .0075 ARTUS TRANSMATTE	
all	24	5SP0EFFSSM	NPT PLUG 1/4 SQSLDMAGNET BLKST	
all	25	5N0E01KBE2	NPT NIP 1/4X1.5TBE BRASS STD.	
all	26	5SCC0EBE	NPT COUP 1/4 BRASS 125# W/HEX	
all	27	X2 03573	BEARHOUSE=C6M ONLY	
all	28	5N0E05AG42	NPT NIP 1/4X5 TBE GALSTL SK40	
all	29	02 03564	BOLT LOCKING TAB 1/4 BOLT	
all	30	15B080	HEXCAPSCR 5/16 X1+1/4 SS-18-8	
All	31	X2 03437	HOLDER=SHAFT SEAL=1/CWU	

Main Bearing Assembly
30020 & 30022

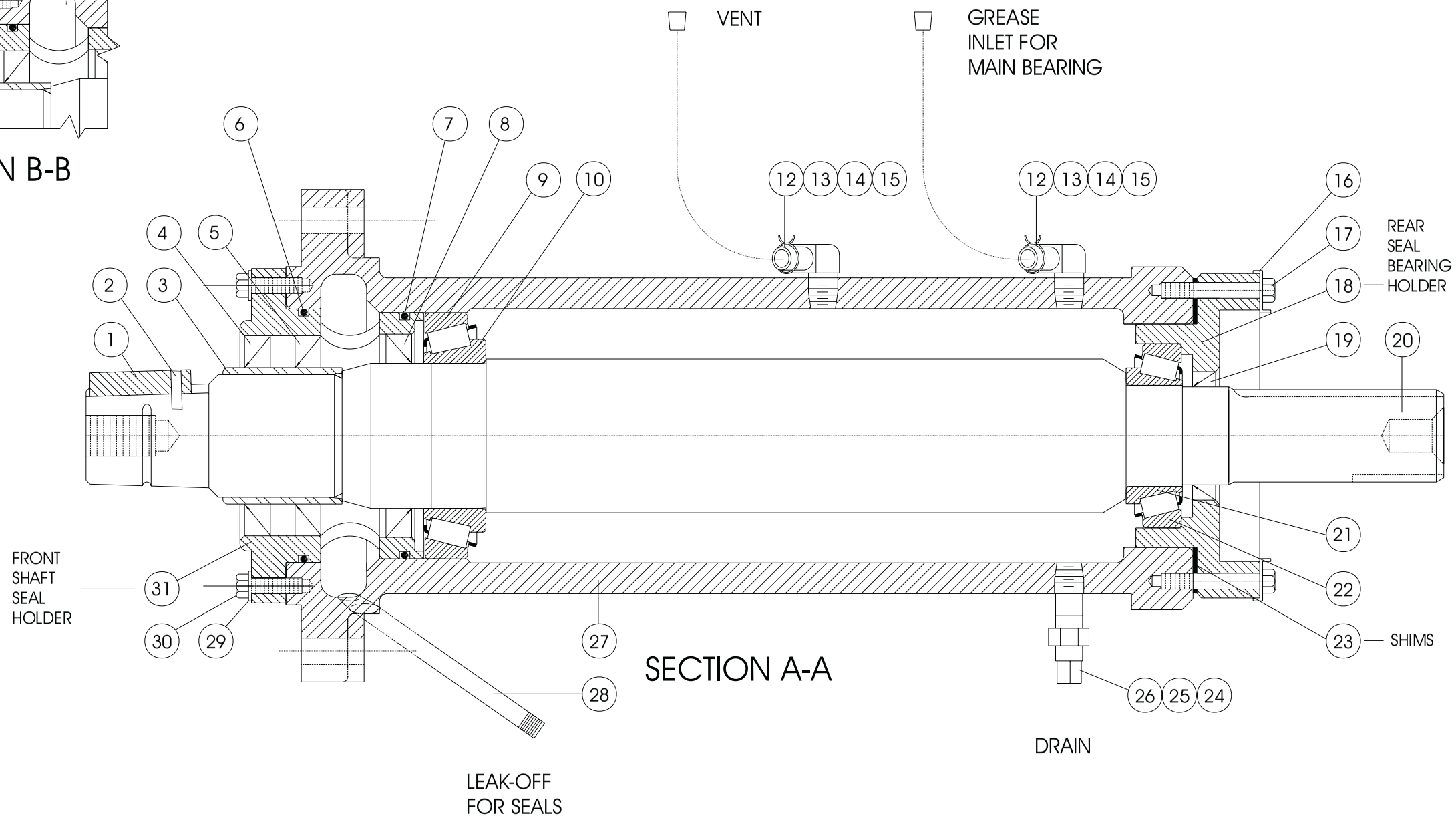
Pellerin Milnor Corporation
P. O. Box 400, Kenner, LA 70063-0400

Litho in U.S.A.





SECTION B-B



SECTION A-A

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

Litho in U.S.A.

Parts List—Main Bearing

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

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	A33 09901	* BEARING ASSY=C5M + N4M	30020M4A,C4A,C4E M5X+30022M4X,M5X, C5X,S5X,K5X
	B	ABM33001	BEARING ASSY=3020M7	30020M7X
	CC	A33 09901V	MAIN BEARASY 3020C4/M5-VITON	30020M4A,C4A,C4E M5X+30022M4X,M5X, C5X,S5X,K5X OPTIONAL VITON
			----------COMPONENTS----------	
all	1	15H089S	SPRINGPIN 1/8"DIA X 5/8" LONG	
all	2	02 02294A	SHAFT KEY 3/8 X 3/8	
all	3	02 13143	SEALSLEEVE=SWE-1/SWE	
AB	4	24S053	SEAL 2.625X3.625X.437#10050LUP	
C	4	24S053V	SEAL 2.625X3.625X.437#10050LUP	
AB	5	24S053	SEAL 2.625X3.625X.437#10050LUP	
C	5	24S053V	SEAL 2.625X3.625X.437#10050LUP	
all	6	60C151	ORING 3+7/8ID1/8CS BUNA70#241	
all	7	60C151	ORING 3+7/8ID1/8CS BUNA70#241	
all	8	24S052A	SEAL 2.559X3.55X.315 CR#25430	
all	9	54A916	CUP TIMKN#JLM710910 1/BX+PT#	
all	10	54A915	CONE TIMKN#JLM710949C 1/BX	
all	12	5SL0EBEC	NPTELB 90DEG STRT 1/4 BRASS125	
all	13	03 01142	NIPPLE 1/4X1+1/4 BRASS	
all	14	27A043A	HOSECLAMP.562"DIA.SPRG#HC9STZD	
all	15	60E005P	PVC TUBING 1/2"ID X 5/8"OD	
all	16	02 03407	LOCKING WASHER ZINC PLATE	
all	17	15K127	HEXFLGSCR 3/8-16X2 GR8 CS	
all	18	X2 03659A	HOUSE=SEAL+BRG 30M,V7	
all	19	24S048AAA	SEAL 1.625X2.375X.375 CS/BUNA	
all	20	X2 13103A	SHAFT,MAIN FOR 3020C5M+N4M	
all	21	54A308	CONE M802048 TIM 2-24 1/BX+PT#	
all	22	54A307	CUP M802011 TIMK 2-24 1/BX+PT#	

Parts List, cont.—Main Bearing

Used In	Item	Part Number	Description	Comments
all	23	02 03323	SHIM=.003 CRS GREEN	AS REQUIRED
all	23	02 03323A	SHIM=.005 CRS BLUE	AS REQUIRED
all	23	02 03323B	SHIM=.010 CRS RED	AS REQUIRED
all	23	02 03323C	SHIM=.0075 CRS BLACK	AS REQUIRED
All	23	02 03323D	SHIM=,020 CRS WHITE	
all	23	02 03323E	SHIM=.050 CRS CLEAR	
all	24	5SP0EFFSSM	NPT PLUG 1/4 SQSLDMAGNET BLKST	
all	25	5N0E01KBE2	NPT NIP 1/4X1.5TBE BRASS STD.	
all	26	5SCC0EBE	NPT COUP 1/4 BRASS 125# W/HEX	
AC	27	X2 03573A	HOUSING BEARING C5M	
B	27	X2 13105A	HOUSING=MAIN BEARING 3020M7	
all	28	5N0E05AG42	NPT NIP 1/4X5 TBE GALSTL SK40	
all	29	02 03564	BOLT LOCKING TAB 1/4 BOLT	
all	30	15B080	HEXCAPSCR 5/16 X1+1/4 SS-18-8	
all	31	X2 13144A	HOLDER=SHFT SEAL(05=24S052A)	

Section 4

Shell and Door Assemblies

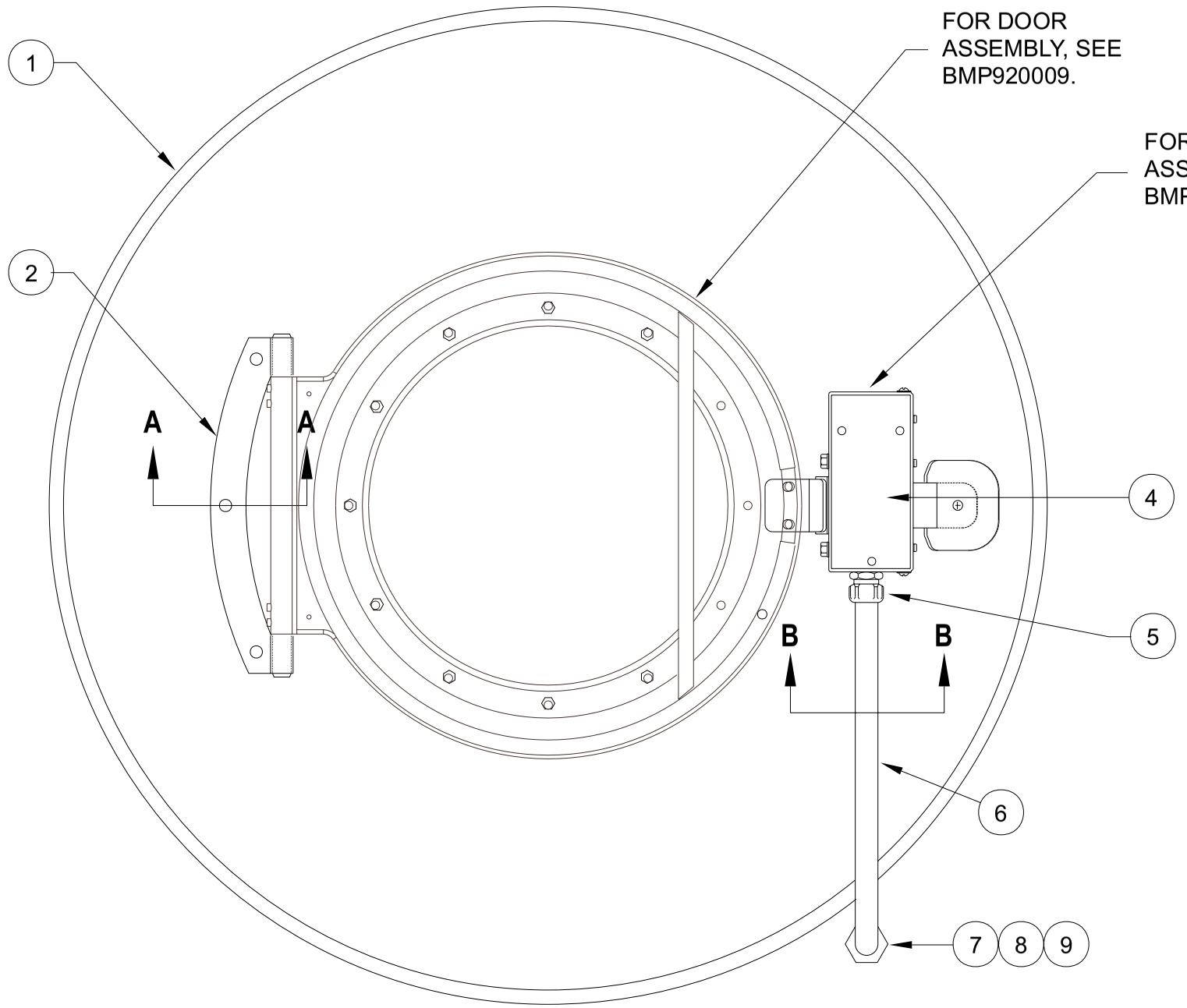
Shellfront Assembly, Conduit, & Interlock

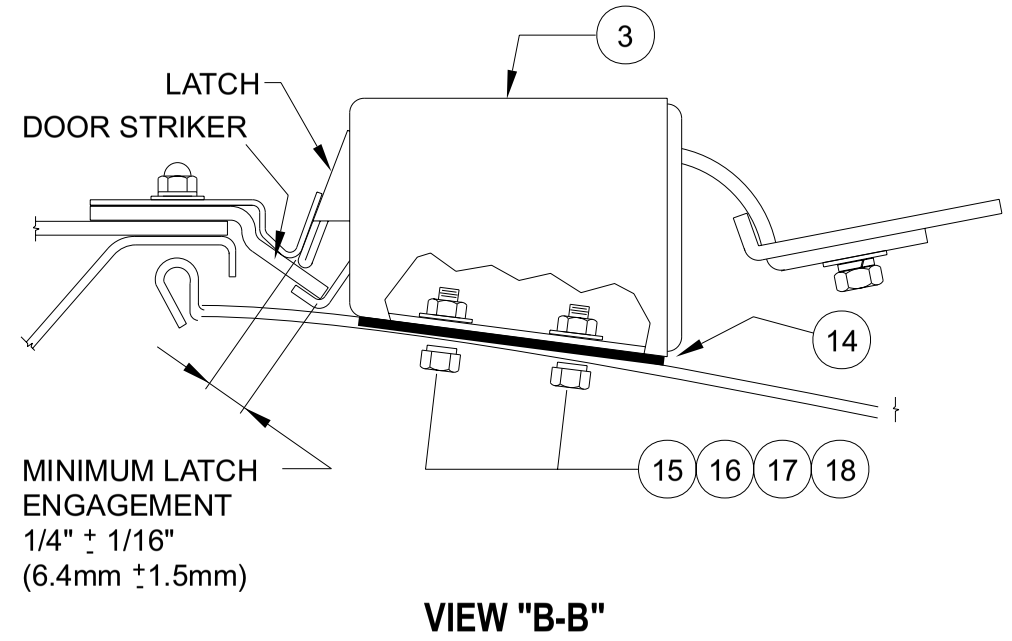
3010 / 3015 G5E,G5X,CGE

30015 V7J,T5J,C4A,C4E & 30022 V6J,T5J,C4A,C4E

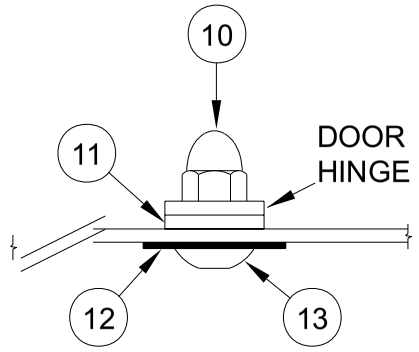
Pellerin Milnor Corporation
P. O. Box 400, Kenner, LA 70063-0400

Litho in U.S.A.





VIEW "B-B"



VIEW "A-A"

ADJUSTMENTS:

1. ADJUST DOOR STRIKER SO THAT IT TOUCHES THE LATCH SQUARELY AND EVENLY.
2. ADJUST THE LATCH SO THAT THE MINIMUM ENGAGEMENT WITH THE DOOR FULLY CLOSED EQUALS 1/4" ± 1/16" (6.4mm ± 1.5mm).

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

Litho in U.S.A.

Parts List—Shellfront, Conduit & Interlock

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

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	A33 10100C	*SHLASSY (IDNT) UNLOK N4P	3015M4G/J/P, M6J,D4A 3022M5G/J
	B	A33 10100H	SHELL FRONT ASSY 3015/20M4A	3015M4A,C4T,M4T,M6A,M6T 3022M5T,3022C4T
	C	A33 10100M	SHLASSY N/LOCK 3015/22S#G/J	3022S4J,S4G,S5J 3015K4A,S4J,S5G,S5J
	D	A33 10100N	SHLASSY N/LOCK 3015/22V/T	**3010G5E,G5X 3015G5E,G5X,V7J,T5E,T5J,T5X 3022V6J,T5E,T5J,T5X**
	E	A33 10100F	*SHLASSY (IDNT) UNLOK C4A	**3015C4A, 3022C4A**
	F	A33 10100G	SHLFRTASY N/O ILOK W/PROX	**3010CGE,3015CGE,30015C4E 30022C4E**
			----------COMPONENTS----------	
ABCDE	1	X2 02361B	SHELLFRONT,30",ELECTRIC LOCK	
F	1	X2 02361C	2002296D SHELLFRT=30" ILOC W/PROX	
A.C,D	2	A33 07100C	*DRASSY(INDNT)LK,LOGO N4,5,6P	
B	2	A33 07100H	95027 DOOR ASY 3015/3020M4A	
EF	2	A33 07100F	95027# DRASSY (INDNT)LK,LOGO C4A	
A,B	3	EDL00171	INTRLKHSG ASSY=N/UNLOCK 240V	
C	3	EDL00371	INTERLKHSG=N/LOCK+SWITCH240V	
D	3	EDL00271	INTRLKHSG ASSY=N/LOCK 220V	
F	3	EDL00171C	INTRLKHSG ASSY=N/O W/ PROX 240	
all	4	01 10422	NPLATE:DOOR ILOC->N4,5,6 P	
all	5	12K040	1/2"COND.EMT COND. PECO #260B	
All	6	03 01446	1/2 EMT CONDUIT 900D=DR INTR	
all	7	10Y71M4GEX	*M4G EXTERNAL CONNECTIONS	
all	8	12K040	1/2"COND.EMT COND. PECO #260B	
all	9	12P1ASSB	SNAPBUSH 7/8"MH X 11/16	
all	10	15G200C	HXCPNUT HI 3/8-16 BRASS NIK PL	
all	11	02 02819C	SPACER-SHELLFRONT/HINGE	
all	12	02 02293	DOOR HANDLE NUT GASKET	
all	13	15K084	TRUSS HXSOK 3/8-16 X 23/32SS	
ABCDE	14	02 03669	GASKET=INTRLK HOUSING	
F	14	02 03669C	GASKET=INTRLK HOUSING 8" LONG	
all	15	15N174	HXCAPSCR 1/4-20UNC2X5/8SS18-8	
all	16	15U180	LOCKWASHER MEDIUM 1/4 ZINCPL	
all	17	24G020N	ROLLED WASH.252ID NYLTITE 25W	

Parts List, cont.—Shellfront, Conduit & Interlock

Used In	Item	Part Number	Description	Comments
All	18	15G168	SQNUT 1/4-20UNC2 SS18-8	

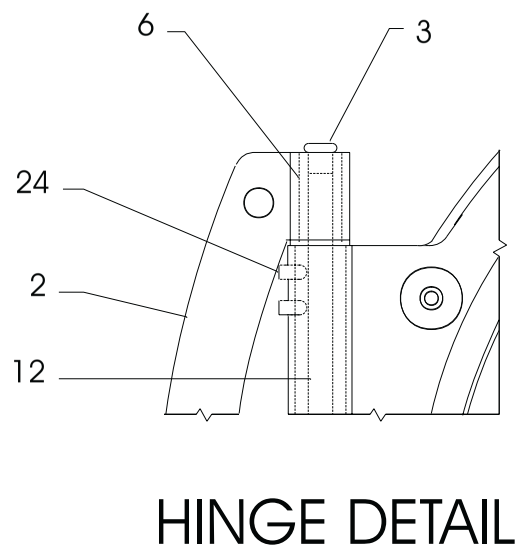
Door Assembly

30015 & 30022 Rigid Mount

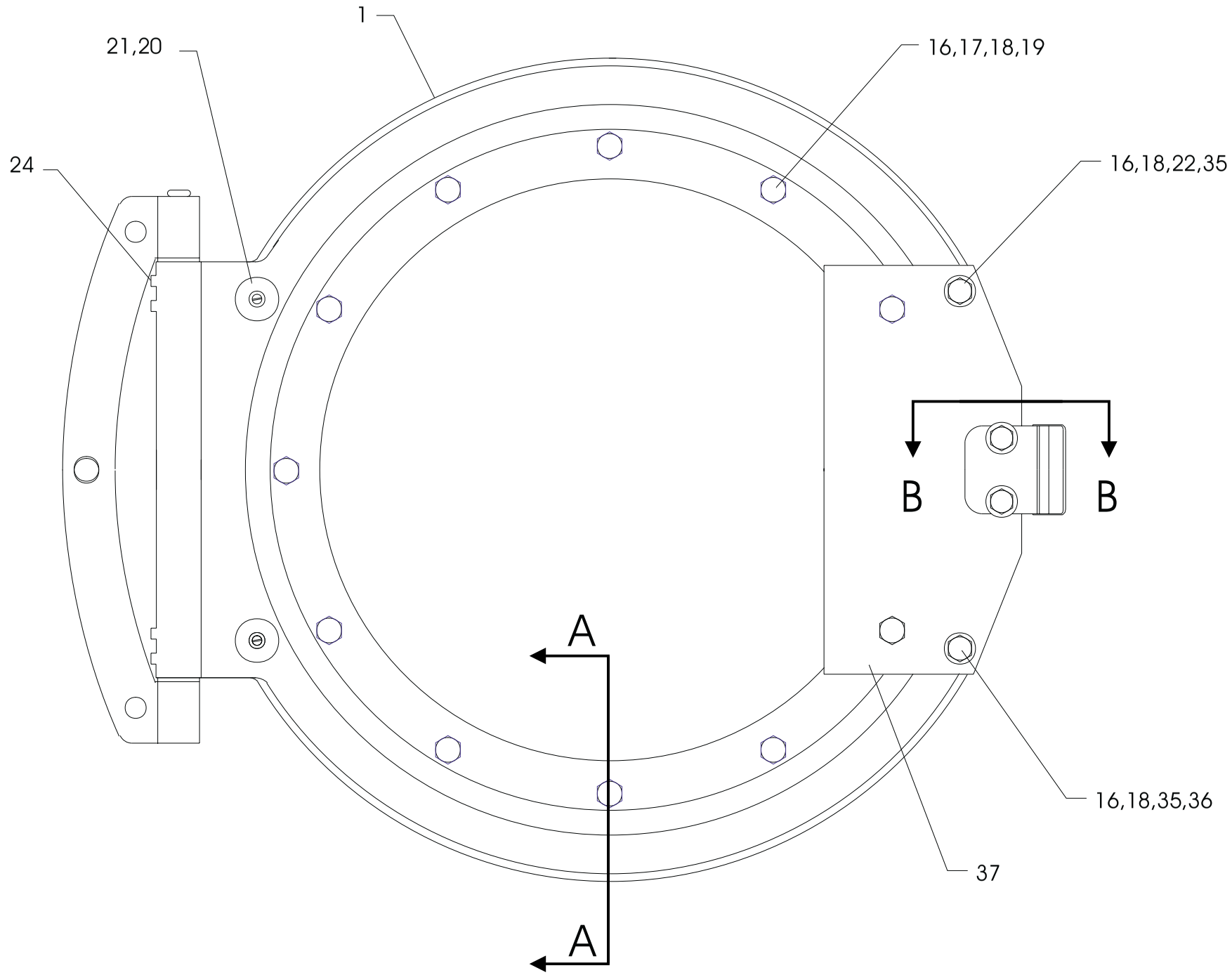
BMP920009/2001036V
(Sheet 1 of 2)

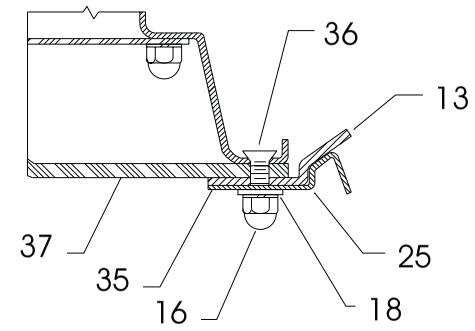
Pellerin Milnor Corporation
P. O. Box 400, Kenner, LA 70063-0400

Litho in U.S.A.

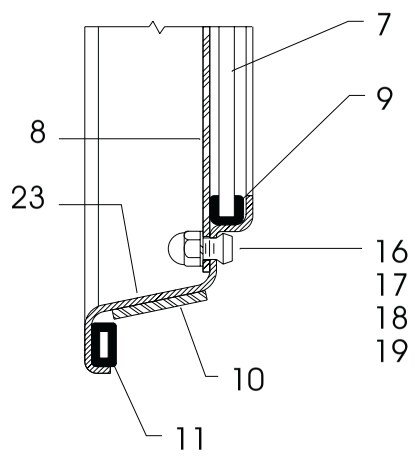


HINGE DETAIL





VIEW B-B



VIEW A-A

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

Litho in U.S.A.

Parts List—Door Assembly

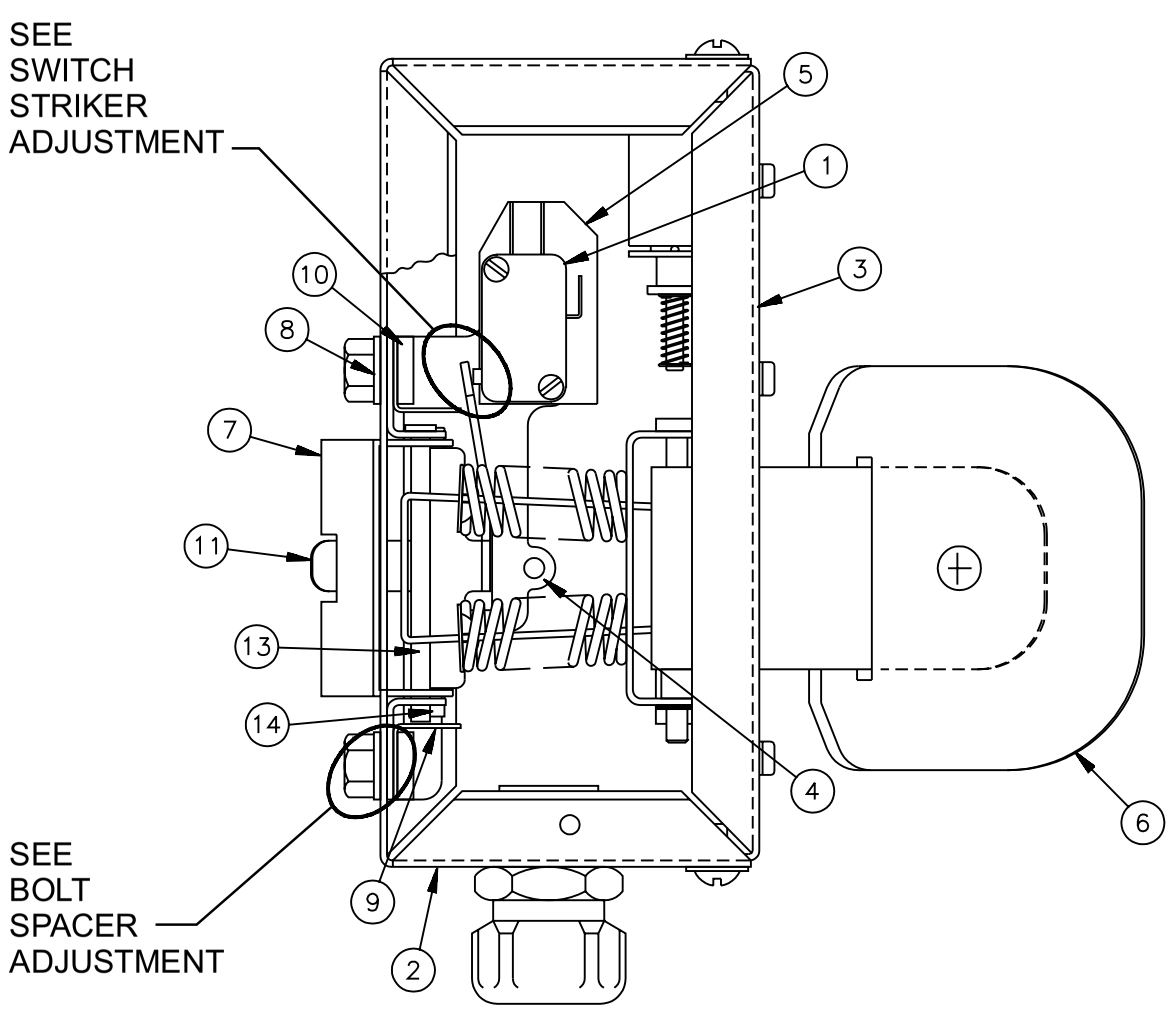
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

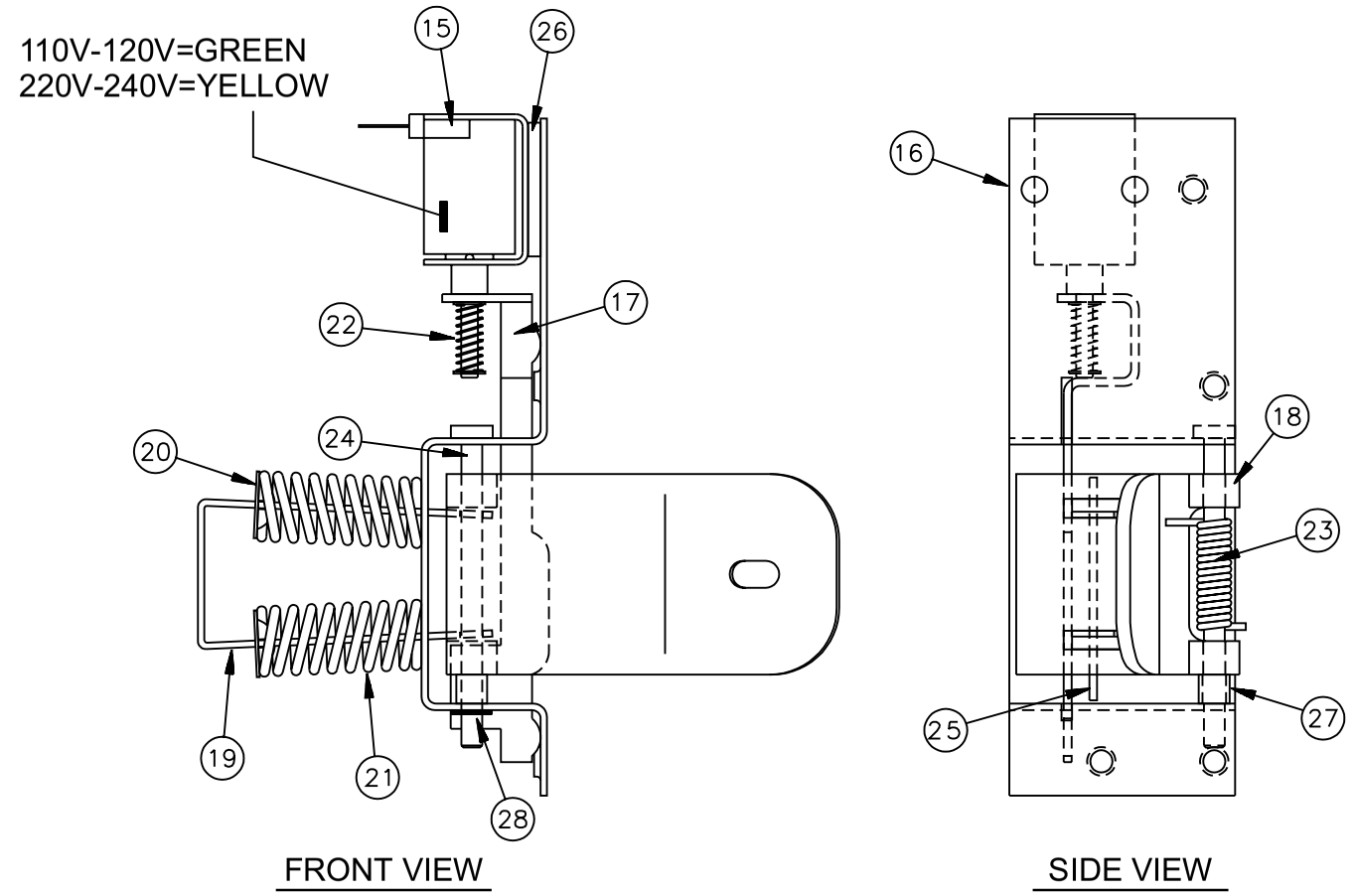
Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	A33 07100C	*DRASSY(INDNT)LK,LOGO N4,5,6P	**30015V7J,T5J,T5E** **3022V6J,T5J,T5E** 3015V7G/V7J;3022V7G/V7J 3015M4G/J/P,M6J,D4A 3022M5G/J 3022S4J,S4G,S5J 3015K4A,S4J,S5G,S5J
	B	A33 07100H	DOOR ASY 3015/3020M4A	30015M4A+30020M4A ONLY
	C	A33 06900F	ASSY=DOOR W/MLOGO DKRED 3022	3022F8J/F8P/F8W
			----------COMPONENTS----------	
all	1	X2 02814C	DOOR=SHELL W/1LOK-3020	
all	2	02 02819	HINGE=STAMPED DOOR 25#	
all	3	12P1AGHP1	HOLEPLUG 3/8"BLACK LPE	
all	6	02 02817	FLANGE BRG=DOOR HINGE-NYLON	
A	7	02 09215D	DR GLASS=N4,5,6P W/MIL LOGO	
B	7	02 09215A	DORGLAS=DRAW W/MILNOR LOGO	
C	7	02 09215E	DOOR GLASS W/MIL LOGO (RED)	
all	8	02 09021	RING=DOOR GLASS PRESSURE	
all	9	02 02366	GASKET DOORGLAS GTR52-5220-3	
all	10	02 10545	EXTR BAND-STAMPED SS CYLDOOR	
all	11	02 10342A	GASKET=15" DOOR	
all	12	02 02764	HINGEPIN=SHELLDOOR L=10+5/8"	
all	13	03 01420C	DOOR STRIKER=ILOC	
all	16	15G140	HXCPNT 1/4-20 #C250=20 NKLPLT	
all	17	15K031	BUTSOKCAPSCR 1/4-20X1/2 SS18-8	
all	18	15U181	LOCKWASHER MEDIUM 1/4 SS18-8	
all	19	24G020N	ROLLED WASH.252ID NYLTITE 25W	
all	20	60C080	RECESS BUMPER RUBBERLAVELLE #7	
all	21	15P103	TRDCUT-F RDHDSLOT 8-32UNCX1/2	
all	22	15N173A	FLTMACSCR 1/4-20 UNCX5/8 UCUTS	
all	23	20C044	ADHESIVE 3M EC-1300 IN PINT CO	
all	24	15Q077	SOKSETSCR 1/4-20X1/4 ZINC ALLE	
all	25	03 01423C	LATCH GUARD ILOC 3015-20	
all	35	15U188	FLTWASH 1/4 STD COMM SS18-8	
all	36	15N191	FLATMACHSCR 1/4-20X7/8 SS18-8	
all	37	03 01420D	DOOR HANDLE=ILOC 3015-20	

Interlock Assembly

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

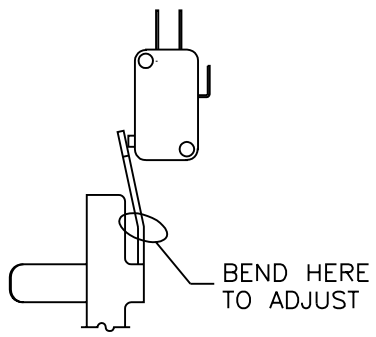
Litho in U.S.A.





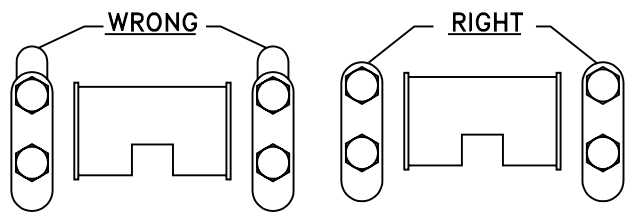
ASSEMBLIES 00AA,00BB,00CC,00DD

SWITCH STRIKER ADJUSTMENT



Adjust the switch striker arm by bending as shown so that :
1) The switch is activated when the door is closed
2) The switch does not actuate when the unlatching lever is fully depressed with the door open
3) The arm does not over travel and hit the switch housing when the door is closed and the switch is actuated.

BOLT SPACER ADJUSTMENT



Bolt Spacer Adjustment
1) On a new machine the slots on the front housing should not show a gap past the bolt spacers.
2) The spacers should be installed with the long side toward the shellfront

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

Litho in U.S.A.

Parts List—Interlock Assembly

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

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	EDL00171	88093# INTRLKHSG ASSY=N/UNLOCK 240V	**30015V7J,T5J,T5E** 3015/20/22 Mxx,Cxx,Vxx
	AA	EDL00171A	93207@ RR PIVOT PL ASSY=N/UNLOK240V	USED ON 00A (CONTAINS ITEMS 15-28)
	B	EDL00221	96411 INTRLKHSG ASSY=N/LOCK 220V	3022F8J/P/W 3630F8J/P/W/S
	BB	EDL00271A	93207#*RR PIVOT PL ASSY=N/LOCK 220V	USED ON 00B (CONTAINS ITEMS 15-28)
	C	EDL00337	88093#*INTRLKHSG ASSY=N/LOCK 120V	36&42QXX,BWP 3015D4A **36021V6J, 36026V5J** **36026V7J, 42026V6J**
	CC	EDL00337A	93207# RR PIVOT PL ASSY=N/LOCK 120V	USED ON 00C (CONTAINS ITEMS 15-28)
	D	EDL00371	94000Z INTERLKHSG=N/LOCK+SWITCH240V	**3022V6J,T5J** 3022S4J,S4G,S5J 3015K4A,S4J,S5G,S5J
	DD	EDL00271A	93207#*RR PIVOT PL ASSY=N/LOCK 220V	USED ON 00D & 00E (CONTAINS ITEMS 15-28)
	E	EDL00271	88093#INTRLKHSG ASSY=N/LOCK 220V	**30022T5E**
			----------COMPONENTS----------	
all	1	09R014A	05ZMIMI-SW SPDT STAKON #V15G1C26K	
all D only	2 2	03 01426 03 01426A	77201D HOUSING=FRONT=ILOC 94186D HOUSING=FRONT= ILOC W/UNLATC	
all D only	3 3	03 01427A 03 01427B	77181C HOUSING=REAR=ILOC (C-7) 94186D HOUSING=REAR=ILOC W/UNLATCH	
all	4	03 01429	75479C PLATE=FNT PIVOT=ILOC	
all	5	03 01335	INSULATOR=AUTOSPOT	
all	6	03 01425A	92683C DOOR HANDLE EXTENSION	
all	7	03 01423	75736B LATCH = INTERLOCK	
all	8	03 01417	75100B PLATE=SPACER=ILOC	
all	9	03 01418B	75194B KEEPER=LATCH PIN/NOTCH	
all	10	03 01418	75100B TAP STRIP=ILOC	

Parts List, cont.—Interlock Assembly

Used In	Item	Part Number	Description	Comments
all	11	03 01424A	90501B STRIKER=SWITCH=LONG TAB	
all	12	03 01442	92697B SOLENOID INSULATION=DR INTRK	(NOT SHOWN)
all	13	03 01443	84251AFLATHDRIVET 5/32X2+5/16 ZINC	
all	14	15H091	01Z STRGHTPIN 5/32"X2.25 LG ZINC	
AA,BB,DD CC	15 15	09K062B71 09K062B37	04Z SOLENOID 240/60--220/50 = ILOC 03Z SOLENOID(C-7)120/60--110/50	
all	16	03 01428A	93207C PLATE=REAR PIVOT=ILOC (C-7)	
AA BB,DD CC	17 17 17	03 01421B 03 01421A 03 01421D	93207B SLIDE=NORMALLY OPEN(C7 SOL) 75736B SLIDE=NORMALLY LOCKED=ILOC 77341B SLIDE=NORMALLY LOCKED(C7-S)	
all	18	03 01425	75479B HANDLE=ILOC	
all	19	03 01422	94256C KEEPER=SPRING=ILOC	
all	20	03 01444A	77503B SPRING CUP = ILOC	
all	21	03 01444	82293ASPRING .51/1.69/46+CADPL	
all	22	03 01445	88481ASPRING .2/.625/.319+CADPL	
all	23	03 01445B	75935B TORQUE SPRING (.53 IN-#)CDPL	
all	24	03 01443	84251AFLATHDRIVET 5/32X2+5/16 ZINC	
all	25	15H090I	STRAIGHT PIN 5/32"DIAX1.75"LG ZINC	
AA only	26	03 S1X1	88172B SHIM:DOOR INTLK SOLENOID N4P	
all B	27 27	27B205080Z 27B205080E	SPCRROLL.177ID.218L.027T STLZC 01ZSPCRROLL.177ID.25L.027TK CSZNC	
BB,CC,DD	28	03 01418C	75736B KEEPER=NORMLOCKED SLIDE=ILOC	

Section 5

Chemical Supply Devices

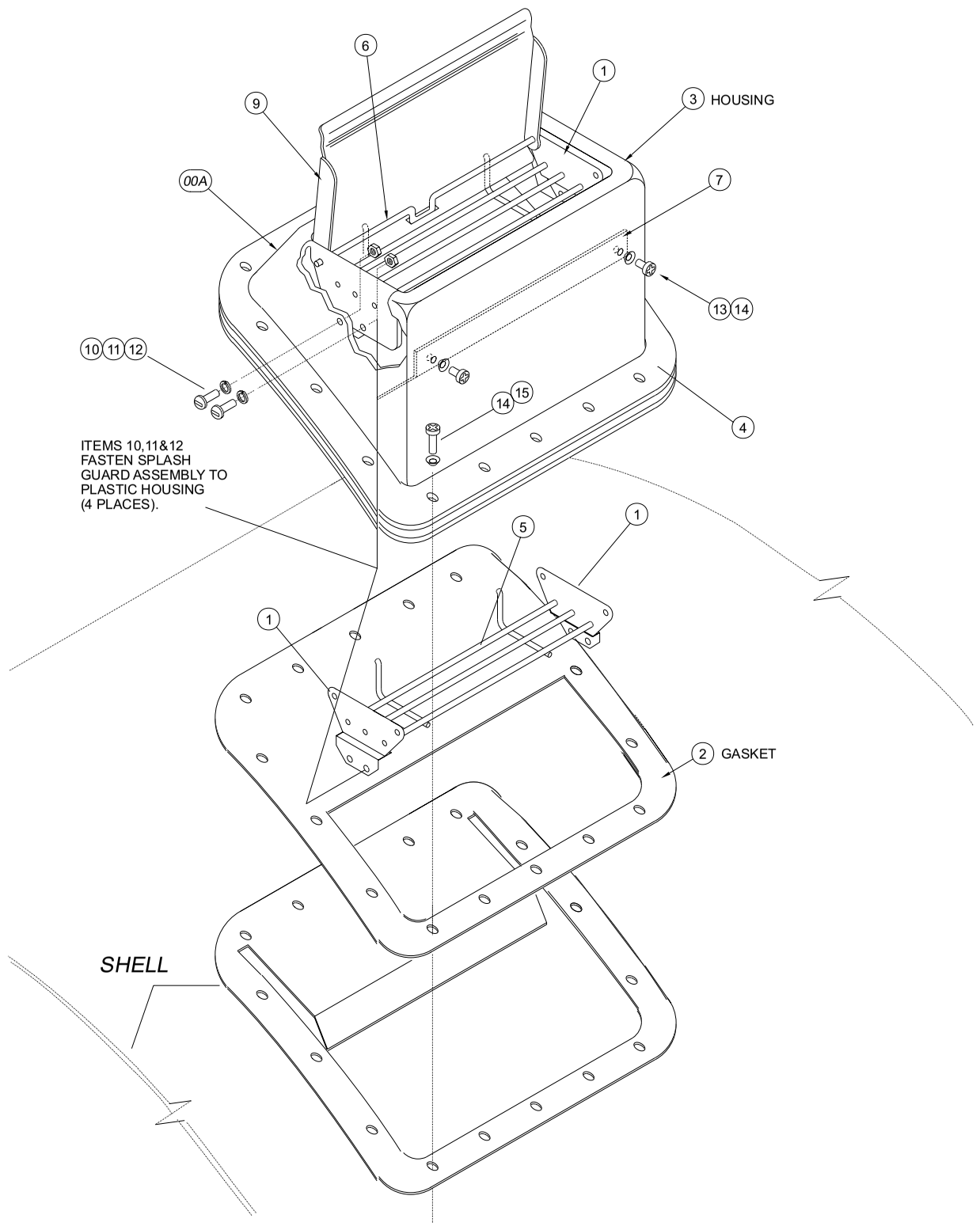
Soap Chute Installation

3010 & 3015 G5E,G5X 3010 & 3015CGE

30015V7J,T5J,T5E,C4A,C4T,C4E 30022V6J,T5J,T5E,C4A,C4T,C4E

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

Litho in U.S.A.



Parts List—Soap Chute Installation

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

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	SA-33-058M	94000Z ASSY=PLSTC SOAP INLET	
			----------COMPONENTS----------	
all	1	02 03130	BRACKET=PLASTIC SOAP INLET	
all	2	02 03304D	GASKET=SOAPCHUTE 1/8"EPDM BL	
all	3	02 03589I	PLASTIC SHELLSIDE SOAP INLET	
all	4	02 03589T	BACKING RING=PLSTC CHEM INLT	
all	5	02 03594	GUARD SOAP CHUTE=CWU	
all	6	02 03595	PIN SOAP CHUTE HINGE=CWU	
all	7	02 03630A	SPLASH GUARD= SOAP CHUTE	
All	9	02 03593	89432B LID-SOAPCHUTE CWE TY304 SS	
all	10	15N133	RDMACSCR 10-24UNCZA X5/8" SS18	
all	11	15U160	LOCKWASHER MEDIUM #10 SS18-8	
all	12	15G130	HEXMACHSCRNUT 10-24UNC2 SS18-8	
all	13	15P050	PHDCUT-F PANHD 10-32X3/4 SS410	
all	14	24G018N	ROLLED WASH.194ID NYLTITE 10W	
all	15	15P051	TRDFRM AB HOLTHD 10-16X3/4SS41	

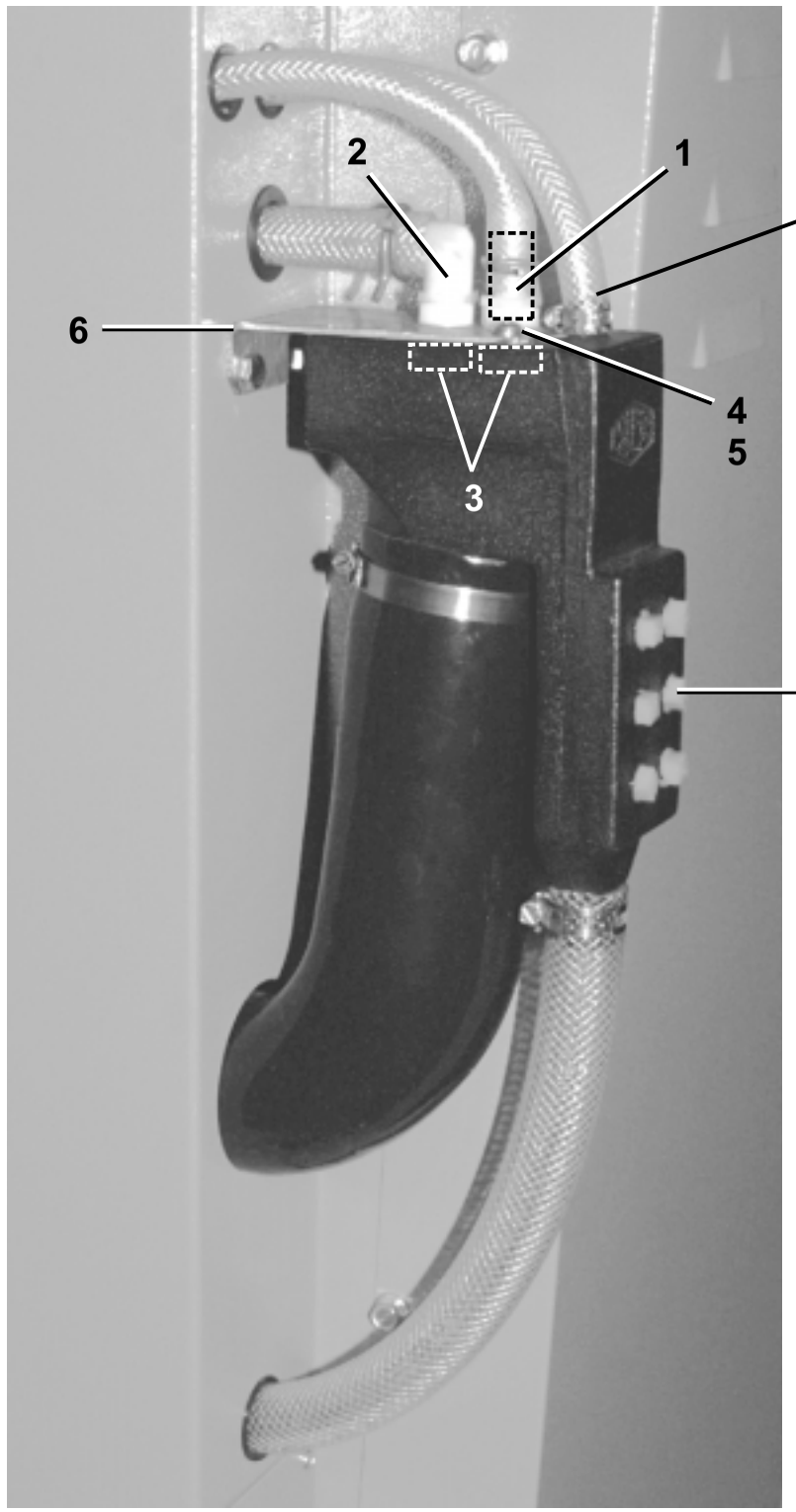
Peristaltic Supply Box

3010 & 3015 G5E,G5X,CGE

30015V7J,T5J,T5E,T5X,C4A,C4T 30022V6J,T5J,T5E,T5X,C4A,C4T

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

Litho in U.S.A.



Parts List—Peristaltic Supply Box

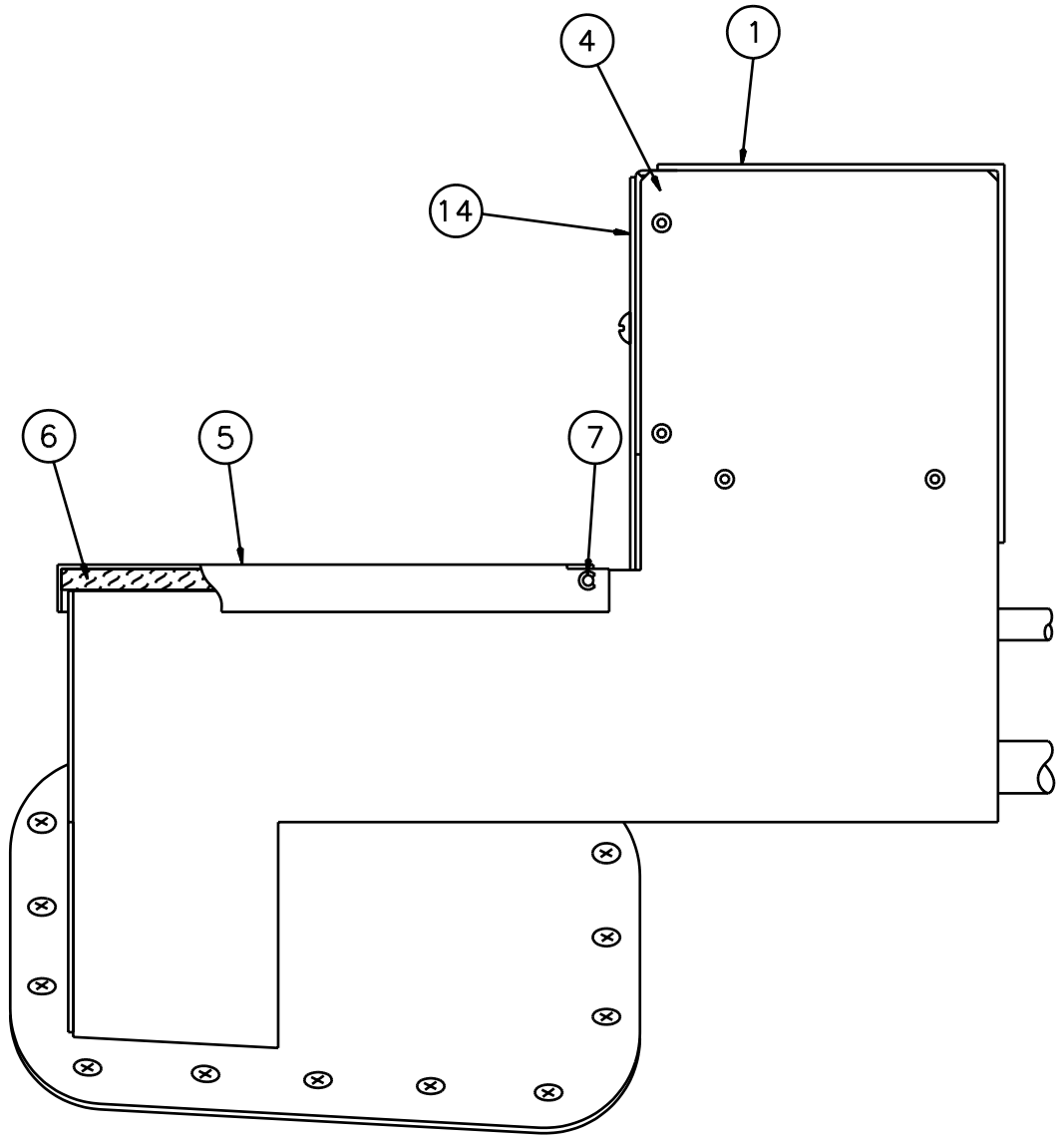
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

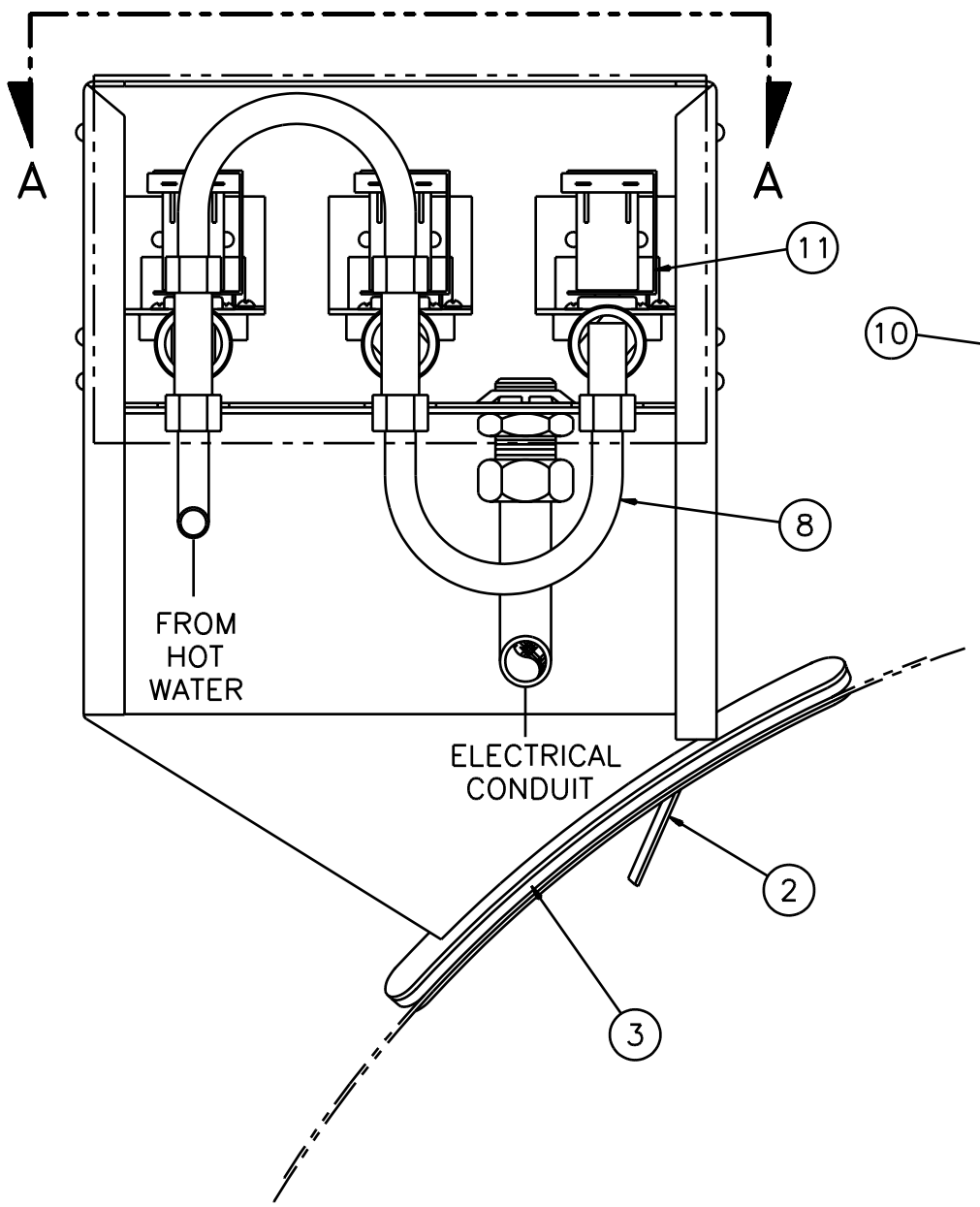
Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	SA 33 058P	ASSY=PLSTC PERSTL REAR INLET	
			----------COMPONENTS----------	
	1	51E513N	HOSEADPT3/4"HX11/16 W/NUT=NYL.	
	2	51E513EBN	3/4" 90DEG. ELBOW W/NUT	
	3	51E513NU	NUT 11/16 THRD.#64138 US PLAST	
	4	15K031	BUTSOKCAPSCR 1/4-20X1/2 SS18-8	
	5	15U181	LOCKWASHER MEDIUM 1/4 SS18-8	
	6	02 03588F	3015/20 PERST BOX TOP BRKT	
	7	02 03588E	PERISTALTIC/WATER INLET 30	
	8	51PB0GN	PLUG PIPE 3/8"NPT P-38 HD POLY	
	9	20C040	SIL SEAL RTV BLACK 85GR #59330	

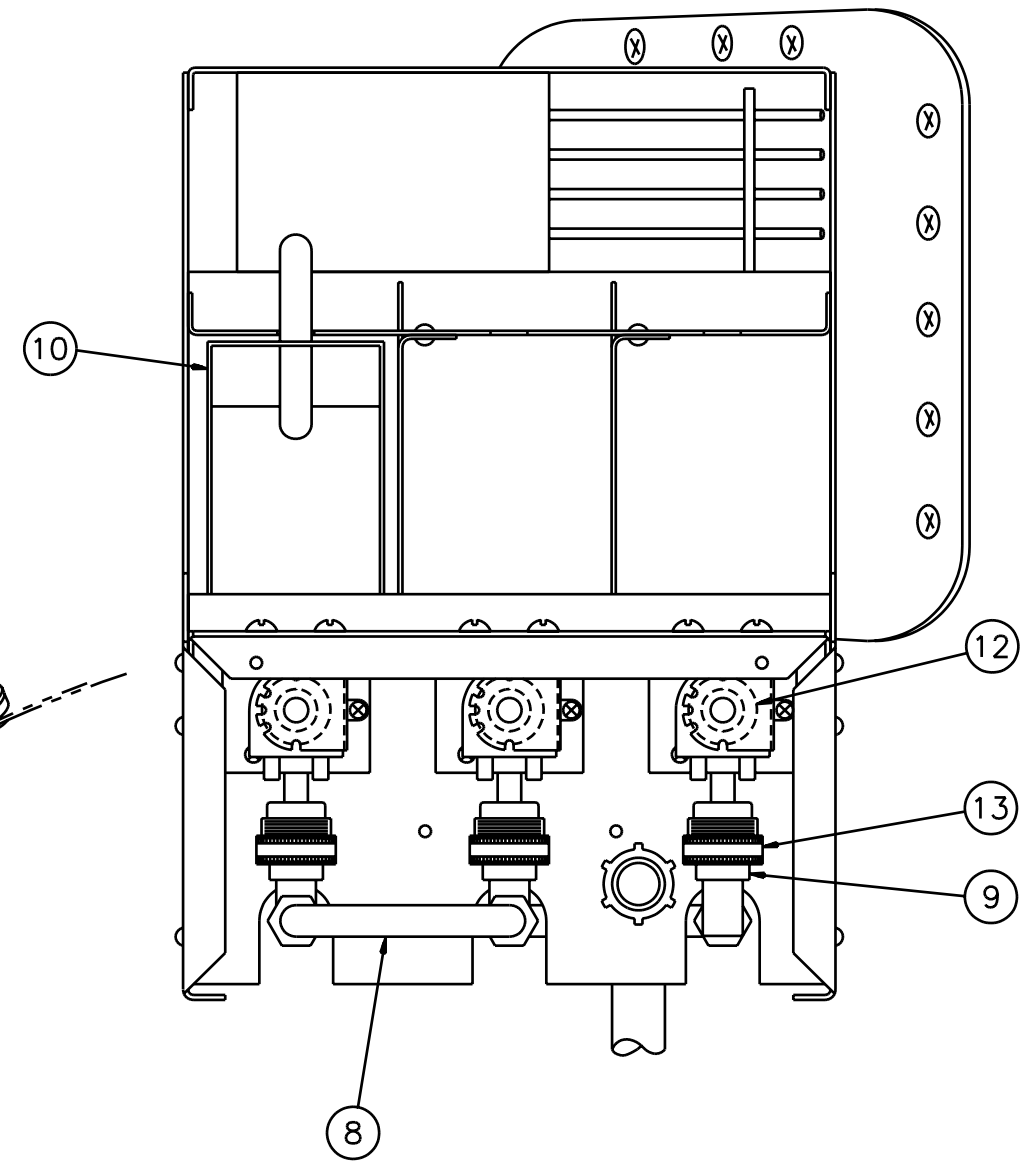
3 Compartment Supply Injector

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

Litho in U.S.A.







VIEW "A–A"

ITEMS 1, 5–7 LEFT OFF
THIS VIEW FOR CLARITY

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

Parts List—3 Compartment Supply Injector

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

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	GWS33001B	89241@ INSTALL 4SUP INJ SYSTEM 7	3 COMPARTMENT SUPPLY INSTALLATION
	B	AWS33001B	89241D*ASSY=3FLUSH SUP INJ SYSTEM 7	CONTAINS ITEMS 4-13
			----------COMPONENTS----------	
all	1	02 03732B	94031B COVER 4 COMP SUPPLY VALVES	
all	2	02 03732F	90346C TAPPED PLATE=SUPPLY MOUNT	
all	3	02 03304A	94493C GASKET=SOAP CHUTE 1/8"EPDM	
all	4	W2 03732	93102D* SUPPLY INJECTOR 4 COMP SUPP	
all	5	02 03732G	87501C LID=4 COMPARTMENT SUPPLY	
all	6	02 03732U	78302B GASKET=LID 4 COMP SUPPLY	
all	7	02 03732S	78132B HINGE PIN=LID 4 COMP SUPPLY	
all	8	02 03732T	77411B TUBE COPPER-VALVE CONN. 3/8	
all	9	02 03732Z	83446B ADAPTER HOSETHD 3/4"X1/4 NPT	
all	10	W2 03732A	93303B* SUPPLY CUP WLMT 4 COMP SUPP	
all	11	96P013B71	04Z 3/4" 2WAY PLASTIC VALVE 240V60C	
all	12	60C007	RUBGROM #2861 1/2ID-13/16X1/8PNL MT	
all	13	53A060H	KNURLED HOSENUT 3/4-HOSE PH#94GH-12	
all	14	01 10438X	95072B NPLT:3POCK SUPPLY SYSTEM7ISO	SYS 7 - HOTEL
all	14	01 10438Y	95072B NPLT:3POCK SUPPLY EP-PLUSISO	EP PLUS
all	14	01 10438L	92343C NPLT:M4A 3 COMPARTMENT SUPPY	M4A

Section 6

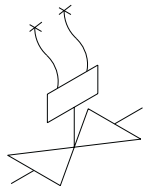
Water and Steam Piping and Assemblies

Schematic Symbols Key

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

Litho in U.S.A.

ISOMETRIC SYMBOLS



REGULATOR

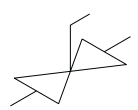
GAS COCK

2-WAY VALVE

PRESSURE SWITCH

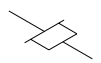
ON/OFF MODULATING VALVE

PIPE PLUG



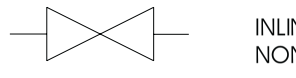
GAS STOP VALVE

REDUCER

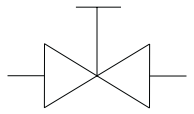


MALE CONNECTOR

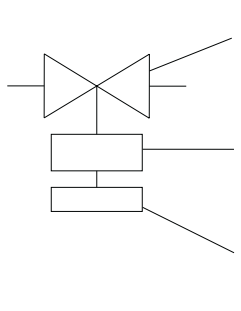
STANDARD SYMBOLS



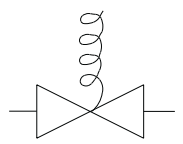
INLINE VALVE NON-SPECIFIC



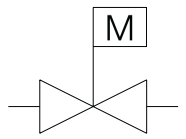
MANUAL BALLVALVE



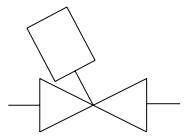
BALLVALVE (THERMAL)



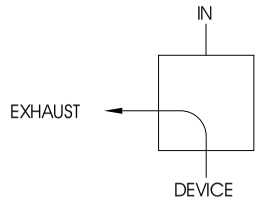
ELECTRICALLY OPERATED 2-WAY VALVE



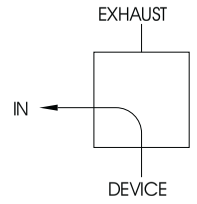
MOTOR OPERATED VALVE



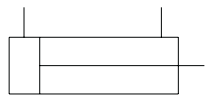
STEAM VALVE



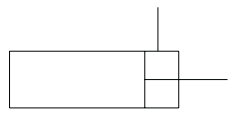
3-WAY N/C AIR PILOT VALVE



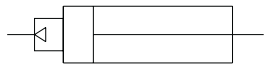
3-WAY N/O AIR PILOT VALVE



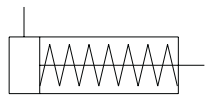
CYLINDER (DOUBLE ACTING)



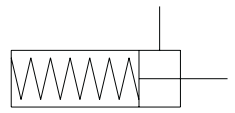
CYLINDER (SINGLE ACTING)



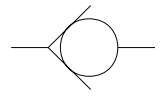
CYLINDER W/QUICK EXHAUST VALVE



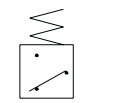
CYLINDER AIR EXTEND SPRING RETRACT



CYLINDER AIR RETRACT SPRING EXTEND

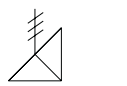


CHECK VALVE



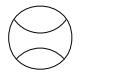
PRESSURE SWITCH

PRESSURE REGULATOR

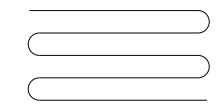


RELIEF VALVE

GAUGE

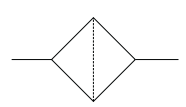


FLOW SENSOR

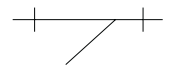


COIL

AIR LINE FILTER-AUTO

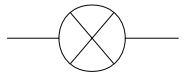


SPECIAL PURPOSE FILTER/STRAINER



Y-STRAINER

VACUUM BREAKER



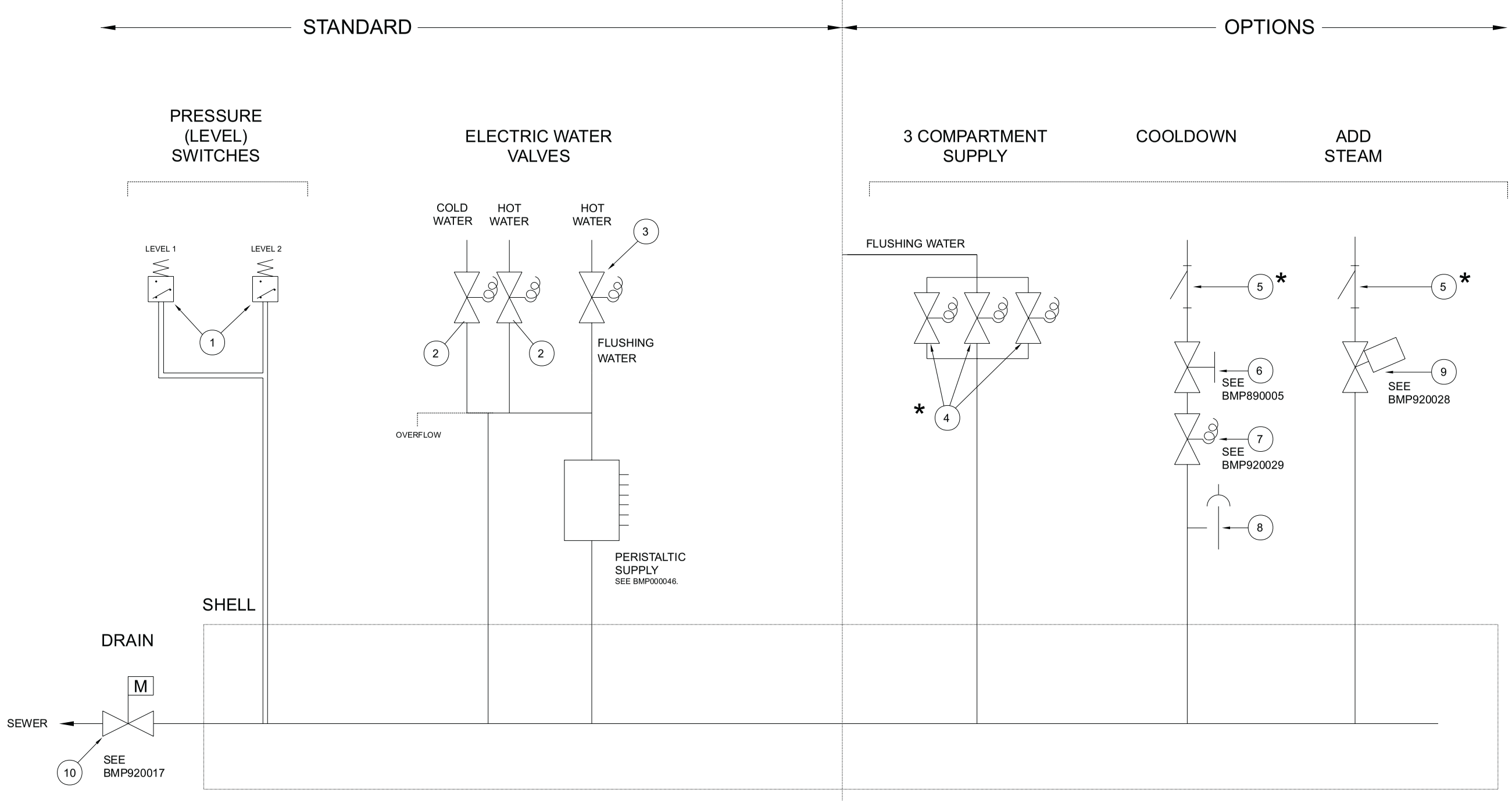
STEAMTRAP

Water / Steam / Drain Schematics

30015V7J,T5J,T5E 30022V6J, T5J,T5E

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

Litho in U.S.A.



* - STRAINER MUST BE CLEANED, SEE "PREVENTIVE MAINTENANCE" IN THE TABLE OF CONTENTS.

* * - PRESSURE REGULATOR MUST REMAIN SET AT THE FACTORY SETTING OF 28 P.S.I. SEE BMP900031 FOR MAINTENANCE PROCEDURES.

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

Parts List—Water/Steam/Drain Schematic

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

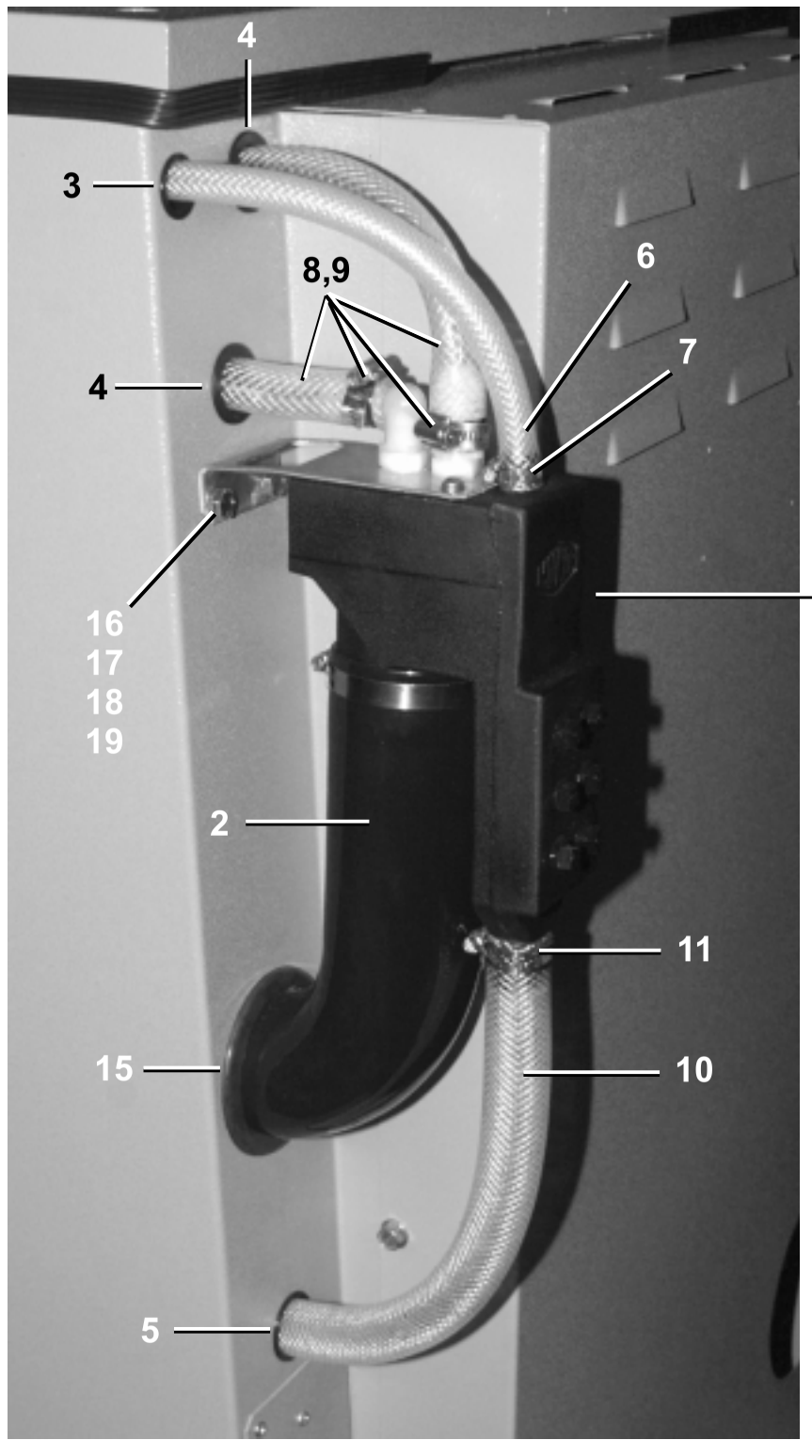
Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	SA 33 058R	3015/22 WATER VALVE ASSY	
	B	SA 33 058P	ASSY=PLSTC PERSTL REAR INLET	
	C	AWS33001B	*ASSY=3FLUSH SUP INJ SYSTEM 7	
	D	SA 33 054A	*INLET ASSY=CLDN M4567J/P CWM	
			----------COMPONENTS----------	
all	1	09N086A	PRESS SWITCH EATON #738-761	
all	2	96P053C71	3/4"INLET/OUTLET VALVE 220V	
all	3	96P053D71	3/4"INLET 1/2"DUO OUTLET 220V	
all	4	96P013B71	3/4" 2WAYPLASTICVAL 240V60C	
all	5	51T025	Y-STRAINER 1/2" CAST IRON	
all	6	96D034	BALLVALVE 1/2" WATTS #6400-SS	
all	7	96TDC2AA71	1/2" N/C 2WAY 240V50/60C VALVE	
all	8	96M021	1/2"VAC BREAKER #288A	
all	9	96P039A37	1/2"STEAMVAL120V50/60C 150PSI	
all	10	96P039A71	1/2"STEAMVAL240V50/60C 150PSI	
all	11	96D350A71	DRINVAL 3"N/O MTRDR240V 50/60C	
All	12	96J061	FLOW REGULATOR #MR04-101	

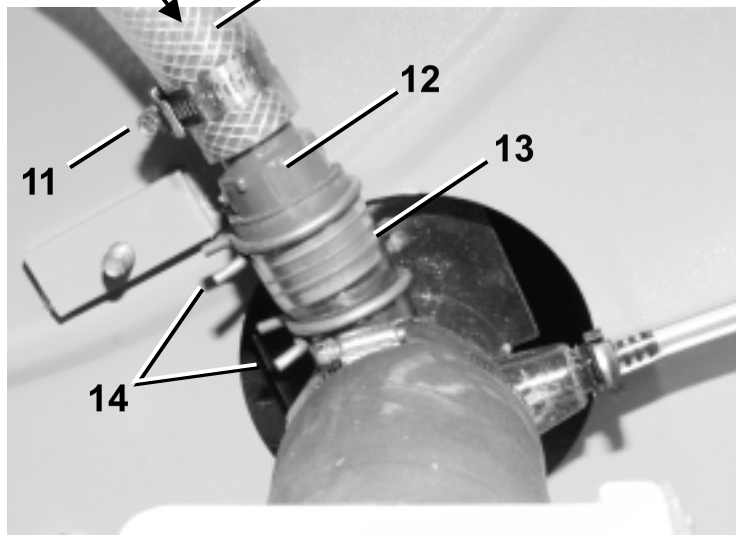
Water Inlet Assemblies with Peristaltic Supply

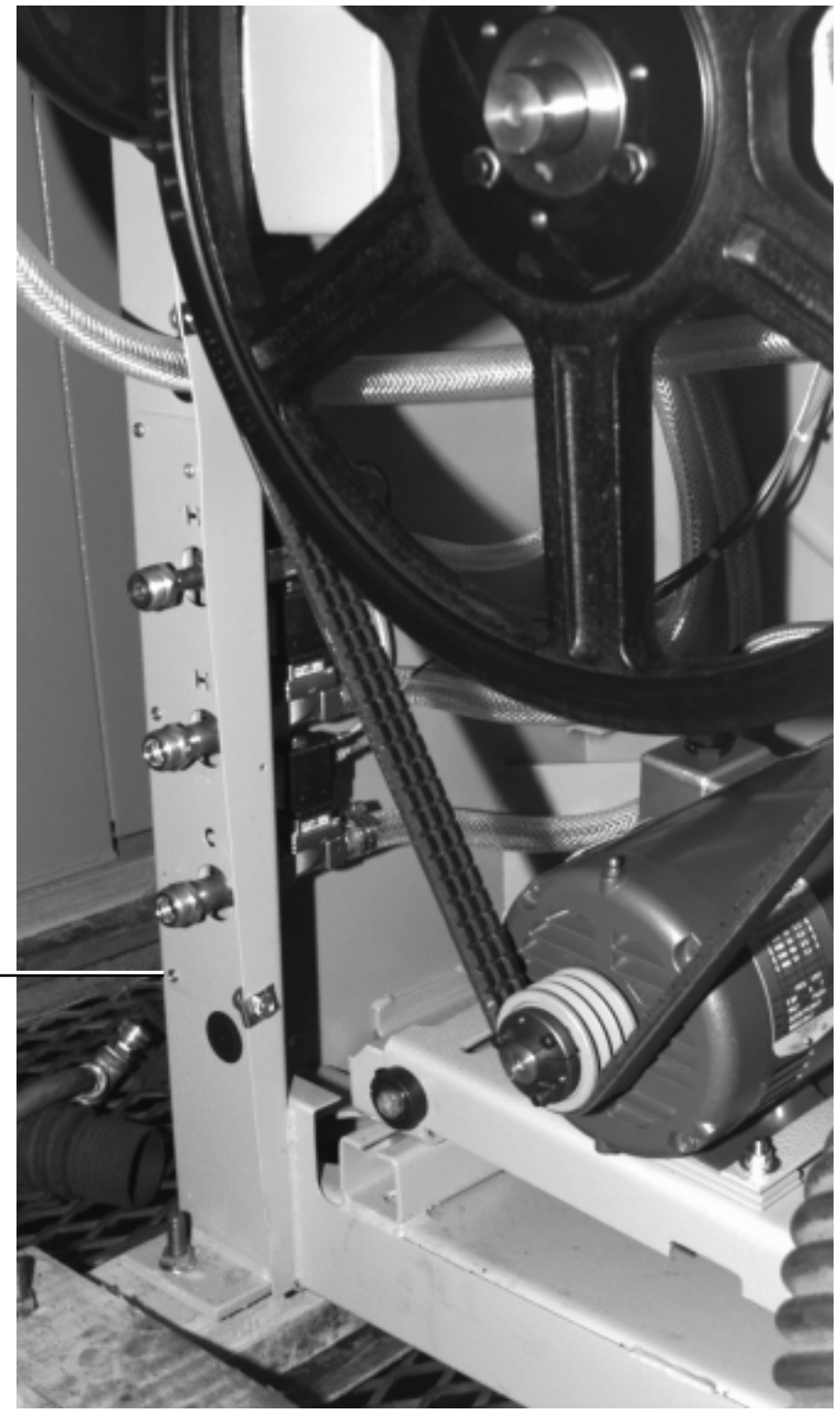
30015V7J, T5J, T5E, T5X, C4A 30022V6J, T5J, T5E, T5X, C4A, C4T

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

Litho in U.S.A.





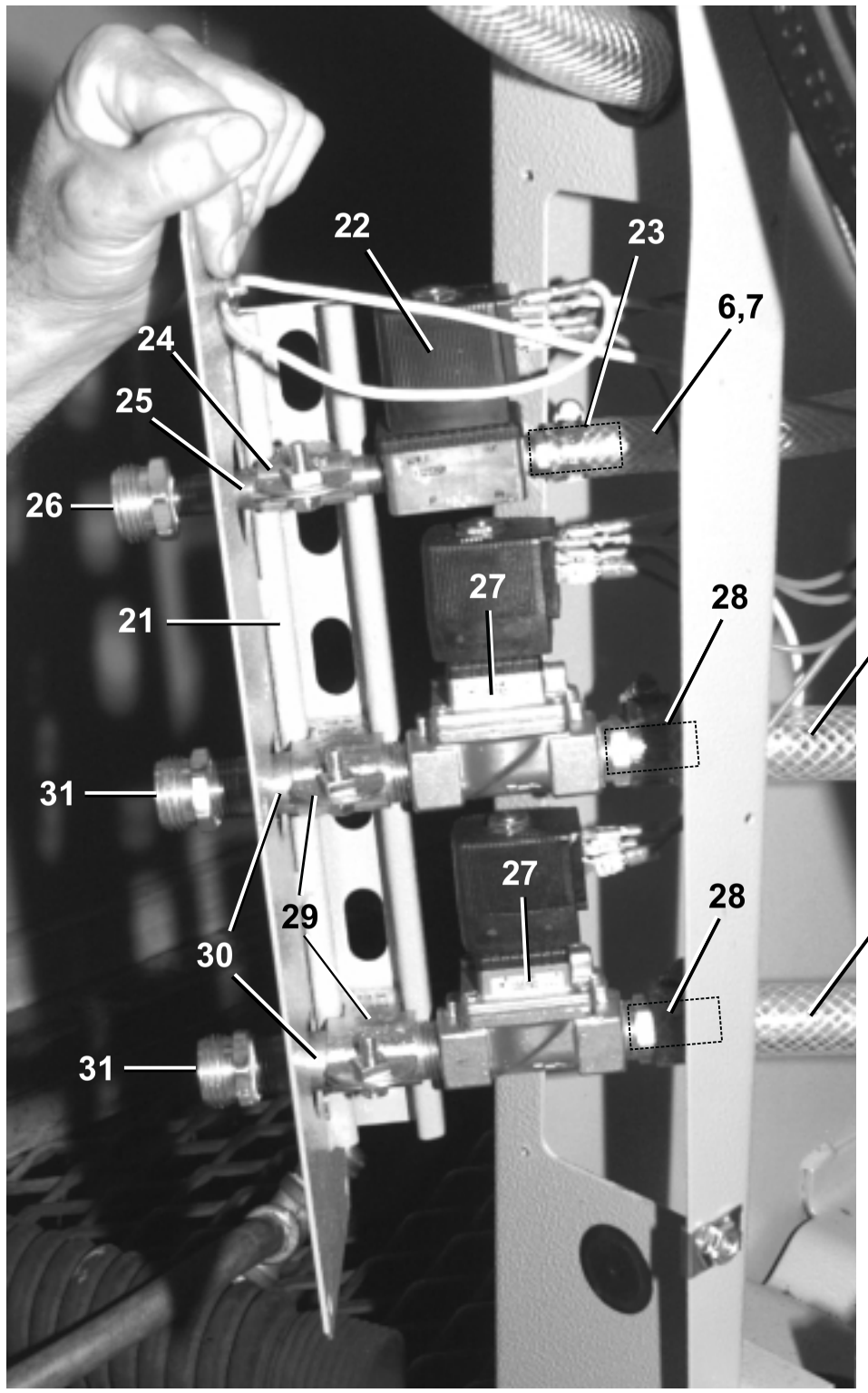


Water Inlet Assemblies with Peristaltic Supply

30015V7J, T5J, T5E, T5X, C4A 30022V6J, T5J, T5E, T5X, C4A, C4T

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

Litho in U.S.A.



Parts List—Water Inlet Assemblies

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

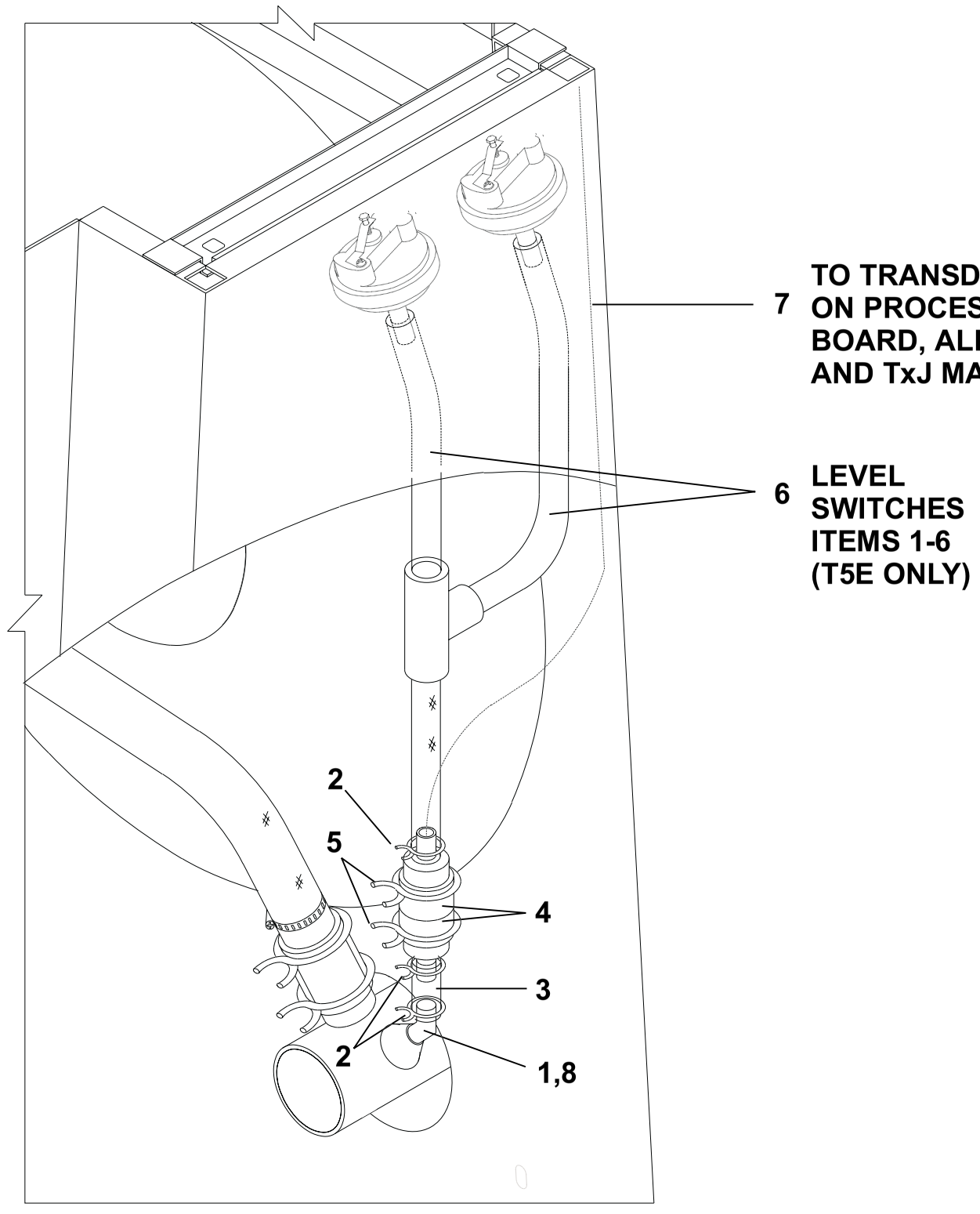
Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	GA 33 058P	INST=H2O+PERSTAL REAR INLET	
	B	SA 33 058T	3015/22 BRASS WATER VALVE ASSY	
	C	SA 33 058P	ASSY=PLSTC PERSTL REAR INLET	
			----------COMPONENTS----------	
	1	SA 33 058P	ASSY=PLSTC PERSTL REAR INLET	
	2	02 03588B	PARISTALTIC/WATER INLET HOSE	
	3	12P11CSB	SNAPBUSH 1.093"MH X .94"ID	
	4	12P11KSB	SNAPBUSH 1.50" X 1.312	
	5	12P11JSB	SNAPBUSH 1.50"MH X 1.312	
	6	60E006C	PVC TUBING NYL.REINF.5IDX.75OD	
	7	27A044	HOSECLAMP 5/8"ID BREEZE#6706SS	
	8	60E008A	TUBINGNYLREINF.75"IDX1.025"OD	
	9	27A044S	HOSECLAMP 11/16-1.25SSCR#64012	
	10	60E010	TUBINGPOLYBRAID 1"X1.312	
	11	27A090S	HOSECLAMP 13/16-1.5"SS#64016B	
	12	51AB1EN1A	INSERT REDUCER PVC 1+1/4"X 1"	
	13	60E014A02A	HOSE 1.25IDX2"LG PVC	
	14	27A052	HOSECLAMP 1.5"DIA.SPRING#R24HC	
	15	60C121	GROMMET-FILLTUBE3015/22	
	16	15G205	HXNUT 3/8-16UNC2B ZINC GR2	
	17	15U240	FLATWASHER(USS STD) 3/8" ZNC P	
	18	15U255	LOCKWASHER MEDIUM 3/8 ZINCPL	
	19	15K085	HEXCAPSCR 3/8-16UNC2AX3/4 GR5	
	20	15P011	TRDCUT-F PANHD 10-24X1/2 NIKST	
	21	W2 03588S	3015/22 BRASS H20 MNT WLMT	
	22	96P058A71	1/4"NPT X 1/8"ORIFICE 240V 5/6	
	23	51E502B	HOSESTEM BRASS 1/4MPX1/8HOSEID	
	24	27A0650CLP	TUBING CLP 1/2"OD #PS1200-1/2	
	25	5N0E03KBE2	NPT NIP 1/4X3.5 TBE BRASS STD	
	26	51E513A	3/4"MHX1/4"FP PARKER#78GH-12-4	
	27	96P057A71	1/2"NPT X 1/2"ORIFICE 240V 5/6	
	28	51E510	HOSESTEM BRASS 1/2MPX3/4HOSEID	
	29	27A0050	CLP-RGDSTL COND #PS1100-1/2	
	30	5N0K03KB42	NPT NIP 1/2X3.5 TBE BRASS STD	
	31	51E513B	3/4"MHX1/2"FP PARKER#80GH-12-8	

Level Switches

30015V7J,T5J,T5E 30022V6J,T5J,T5E

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

Litho in U.S.A.



Parts List - Level Switches

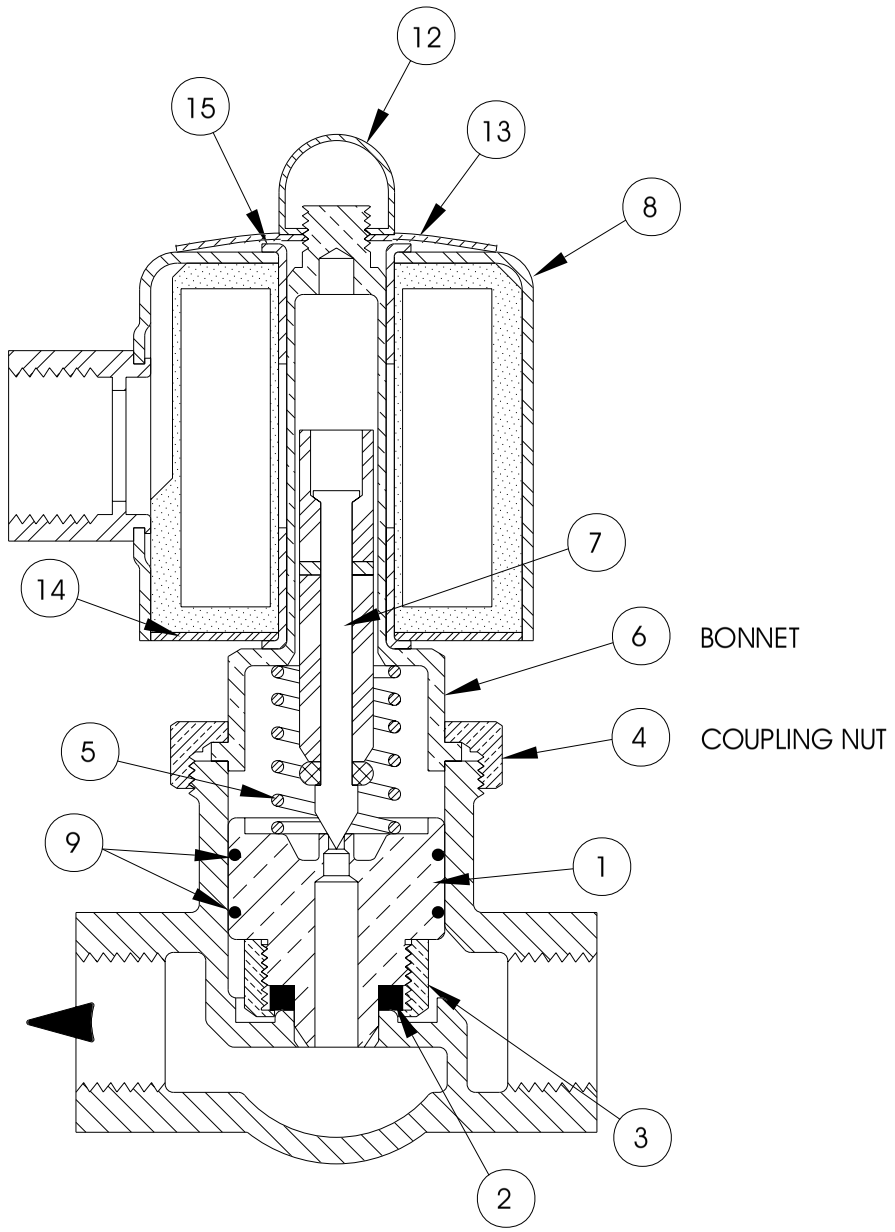
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

Used In	Item	Part Number	Description	Comments
			----------COMPONENTS----------	
all	1	51E509	HOSESTEM BRASS 1/2MPX1/2HOSEID	
all	2	27A044A	HOSECLAMP.687"ID ROTOR#HC11STR	
all	3	60E005P	PVC TUBING 1/2"ID X 5/8"OD	
all	4	02 03332C	AIRCHAMBER=PRESSWITH-CWU	
all	5	27A052	HOSECLAMP 1.5"DIA.SPRING#R24HC	
all	6	A33 12000J	PRES TUBE "T" ASSY MXJ	
all	7	60E002S	PVC TUBING .170IDX.4370D CLR	
all	8	51E502P	HOSE ADPT.1/4"MPX3/16H POLY-E	

1/2” & 3/4” Hayes Electric Steam Valves

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

Litho in U.S.A.



GENERAL MAINTENANCE:

1. COUPLING NUTS MUST NOT BE TIGHTENED EXCESSIVELY. USE A STEADY PULL WITH A 14" OR SMALLER WRENCH. DO NOT HAMMER ON NUT OR WRENCH. LIMIT MAXIMUM TORQUE ON COUPLING NUT TO 600LB/INCH. EXCESSIVE TIGHTENING OF COUPLING NUT WILL DISTORT VALVE BODY CAUSING THE PISTON BODY TO JAM AND THE VALVE TO SHUT OFF.

2. IF THE VALVE LEAKS BETWEEN THE BODY AND BONNET, LOOSEN THE COUPLING NUT AND TURN THE BONNET SLIGHTLY, THEN TIGHTEN THE COUPLING NUT. IF THE VALVE STILL LEAKS, REPEAT THE OPERATION. IN NO CASE MUST THE COUPLING NUT BE TIGHTENED EXCESSIVELY.

Parts List—Electric Steam Valve

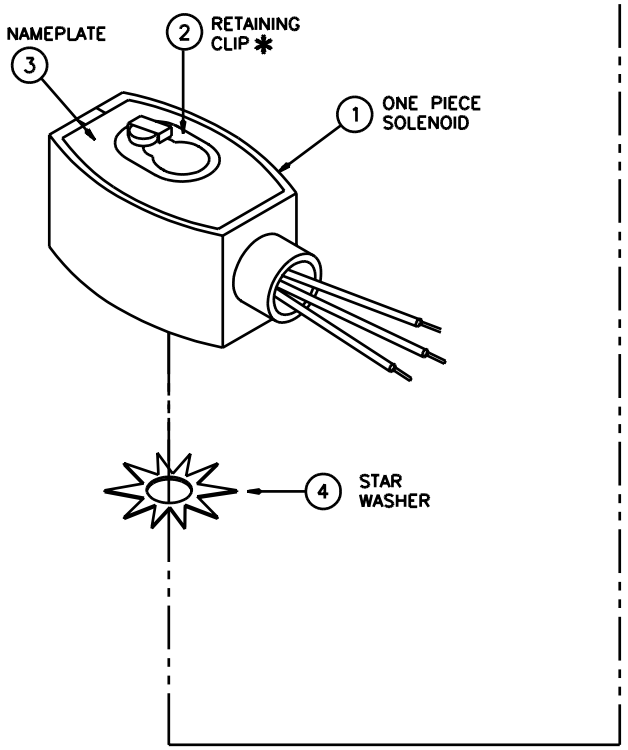
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	96P039	1/2"STEAMVAL 24V50/60C 150PSI	1/2" VALVE- 24 VOLT
	B	96P039A37	1/2"STEAMVAL120V50/60C 150PSI	1/2" VALVE- 120 VOLT
	C	96P039A71	1/2"STEAMVAL240V50/60C 150PSI	1/2" VALVE- 240 VOLT
	D	96P040E	3/4"STEAMVAL 24V50/60C 150PSI	3/4" VALVE- 24 VOLT
	E	96P040A37	3/4"STEAMVAL120V50/60C 150PSI	3/4" VALVE- 120 VOLT
			----------COMPONENTS----------	
A,B,C	1	96V224S	PISTON ASSY STEAMVAL HAYS #763	
D,E	1	96V224SA	PISTON ASSY STEAMVAL HAYS #777	
A,B,C	2	96V225S	PISTON SEAT WASHER HAYS #85553	
D,E	2	96V225SA	PISTON SEAT WASHER HAYS #85567	
A,B,C	3	96V248	SEATWASHER NUT HAYS#82222 96P0	
D,E	3	96V226	SEAT WASHER FOR 96P053 HAYS	
A,B,C	4	96V246	COUPLING NUT FOR 96P014&96P016	
D,E	4	96V254	COUPLING NUT HAYS #76028 = 9	
A,B,C	5	96V244	PISTON SPRING FOR HAYS 3/08	
D,E	5	96V222A	PISTON SPRING HAYS 82488	
A,B,C	6	96V242	BONNET FOR HAYS 3108 HAYS83021	
D,E	6	96V260	BONNET HAYS #83192 FOR 96P151	
all	7	96V223	PLUNGER HAYS #7319503	
A,D	8	96P040V24	COIL 1/2"&3/4" STEAMVALVE 24V5	
B,E	8	96P040V37	COIL 1/2"&3/4"STEAMVALVE 120V5	
C	8	96P040V71	COIL 1/2"&3/4" STEAMVALVE 240V	
A,B,C	9	96V222TS	TEFLONSPLIT RING HAYS #86334	
D,E	9	96V222TSA	TEFLON SPLITRING STEMVAL HAYS#	
all	12	96V250	PALNUT HAYS #3069-PC	
all	13	96V251	SPRING WASHER HAYS #83600	
all	14	96V264	BOTTOM PLATE (COIL) HAYS#8223	
all	15	96V262	FERRULE (COIL SLEEVE) HAYS #82	

2-Way Electric Water Valve

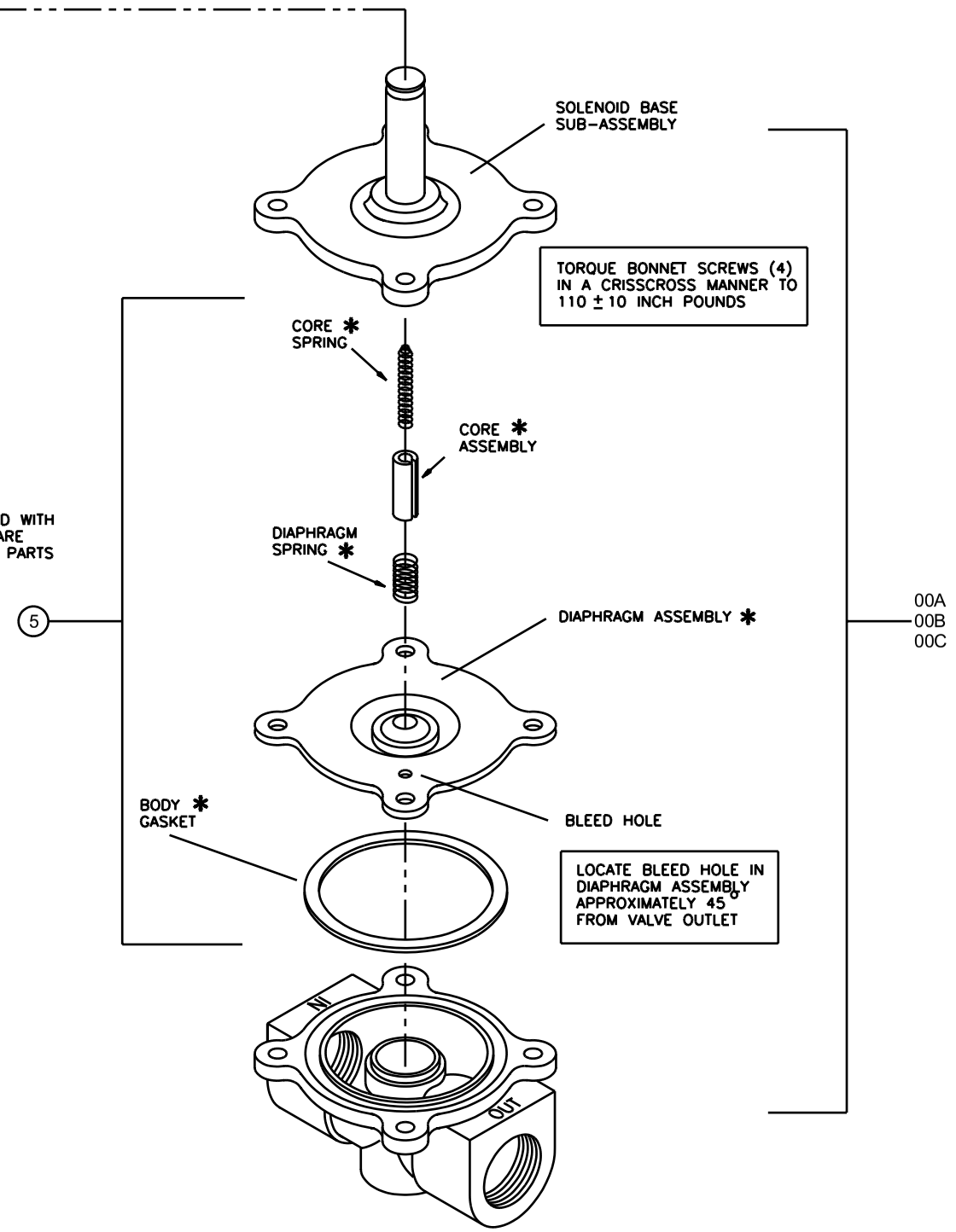
Pellerin Milnor Corporation
P. O. Box 400, Kenner, LA 70063-0400

Litho in U.S.A.



SOLENOID ASSEMBLY

NOTE:
ONLY PARTS MARKED WITH AN ASTERICKS (•) ARE INCLUDED IN VALVE PARTS KIT, ITEM 4.



VALVE ASSEMBLY

Identification and Description

Check nameplate for correct catalog number, pressure, voltage, and service.

Safety Instructions

⚠ DANGER ⚠

SHOCK HAZARD will cause death or severe injury.

☞ **Lock OFF and tag out power at wall disconnect before servicing. Power switches on machine and control box disable only control circuit power in electrical boxes.**

⚠WARNING⚠

EXPLOSION HAZARD may cause serious injury.

☞ **Release pressure to valve before disassembly.**

⚠ CAUTION ⚠

BURN HAZARD Solenoid enclosures become too hot to touch when energized for a long period. This will not damage the solenoid, but may cause a painful burn.

☞ **Allow solenoids to cool before servicing the valves.**

Maintenance

READ ALL SAFETY STATEMENTS ABOVE BEFORE PROCEEDING ANY FURTHER!

Coil Replacement

1. Remove retaining clip. NOTE: Whe metal retaining clip disengages, it springs upwards.
2. Slip yoke containg coil and sleeves off solenoid base sub-assembly.
3. Replace coil.
4. Reassemble in reverse order.

Valve Disassembly and Reassembly

1. Remove retaining clip.
2. Slip entire solenoid enclosure off the solenoid base sub-assembly.
3. Remove solenoid base sub-assembly, core assembly and core spring.
4. Remove diaphragm spring, diaphragm assembly and gasket.
5. Replace all worn or damaged parts.
6. Reassemble in reverse order.

Troubleshooting

Control Circuit: Listen for a metallic click when energizing the solenoid. Absence of the click indicates loss of power to the solenoid. Check for loose connections, blown fuses, open or grounded coil circuit, and broken lead wires.
Faulty coil: Check for open circuit in coil. Replace coil if necessary.
Low voltage: Voltage across coil leads must be at least 85% of nameplate rating for proper operation.
Incorrect pressure: Pressure to valve must be within range specified on nameplate.
Excess leakage: Disassemble valve and clean all parts. Replace all worn parts for best results.

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

Parts List—2-Way Electric Water Valve

Used In	Item	Part Number	Description	Comments
.				
	00A	96TDC2AA24	03Z 1/2” N/C 2WAY 24V50/60C VALVE	VALVE ASSEMBLY
	00B	96TDC2AA37	03Z 1/2” N/C 2WAY 120V50/60C VALVE	VALVE ASSEMBLY
	00C	96TDC2AA71	03Z 1/2” N/C 2WAY 240V50/60C VALVE	VALVE ASSEMBLY
	001A	96T1001A24	SOLENOID 24V50/60C ASCO#260283-001	USED WITH 00A
	001B	96T1001A37	SOLENOID 120V50/60C ASCO#260283-002	USED WITH 00B
	001C	96T1001A71	SOLENOID 240V50/60C ASCO#260283-003	USED WITH 00C
	002	96V1001CLP	METAL CLIP M6	USED IN 00A, 00B, 00C
	003	96V1001PLT	NAMPLATE, BLANK REDHAT II COIL M6	USED IN 00A, 00B, 00C
	004	96V1001WSH	STAR WASHER REDHAT II COIL M6	USED IN 00A, 00B, 00C
	005	96V235B	PARTKIT ASCO #K258-120 FOR 8210D2	REPAIRS 00A, 00B, 00C

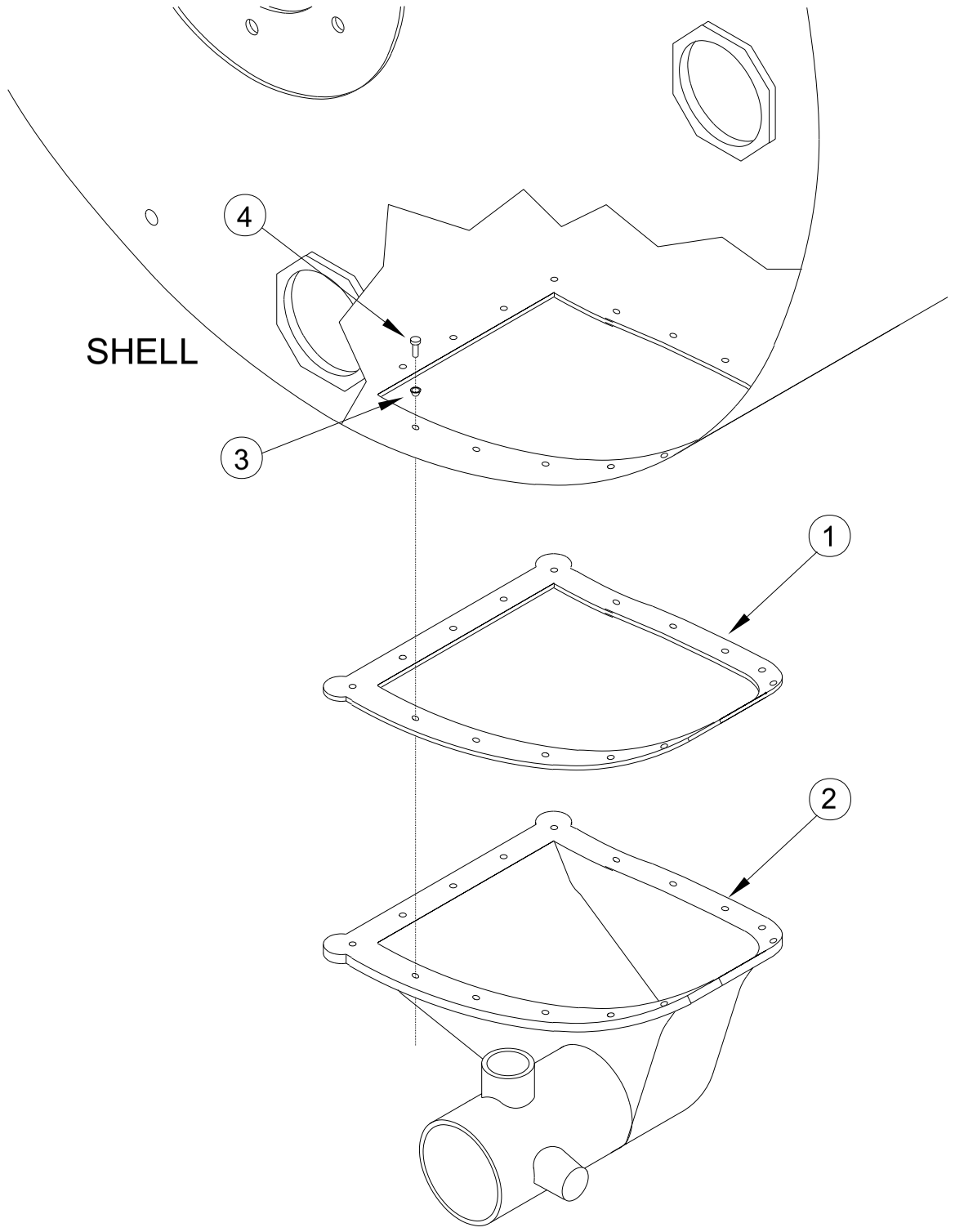
Drain Sump Installation

3010 G5E,G5X,CGE; 3015G5E,G5X,CGE

30015, 30022Vxx, Txx, C4A, C4T, C4E; 30015, 30020, 30022Qxx

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

Litho in U.S.A.



Parts List—Drain Sump Installation

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

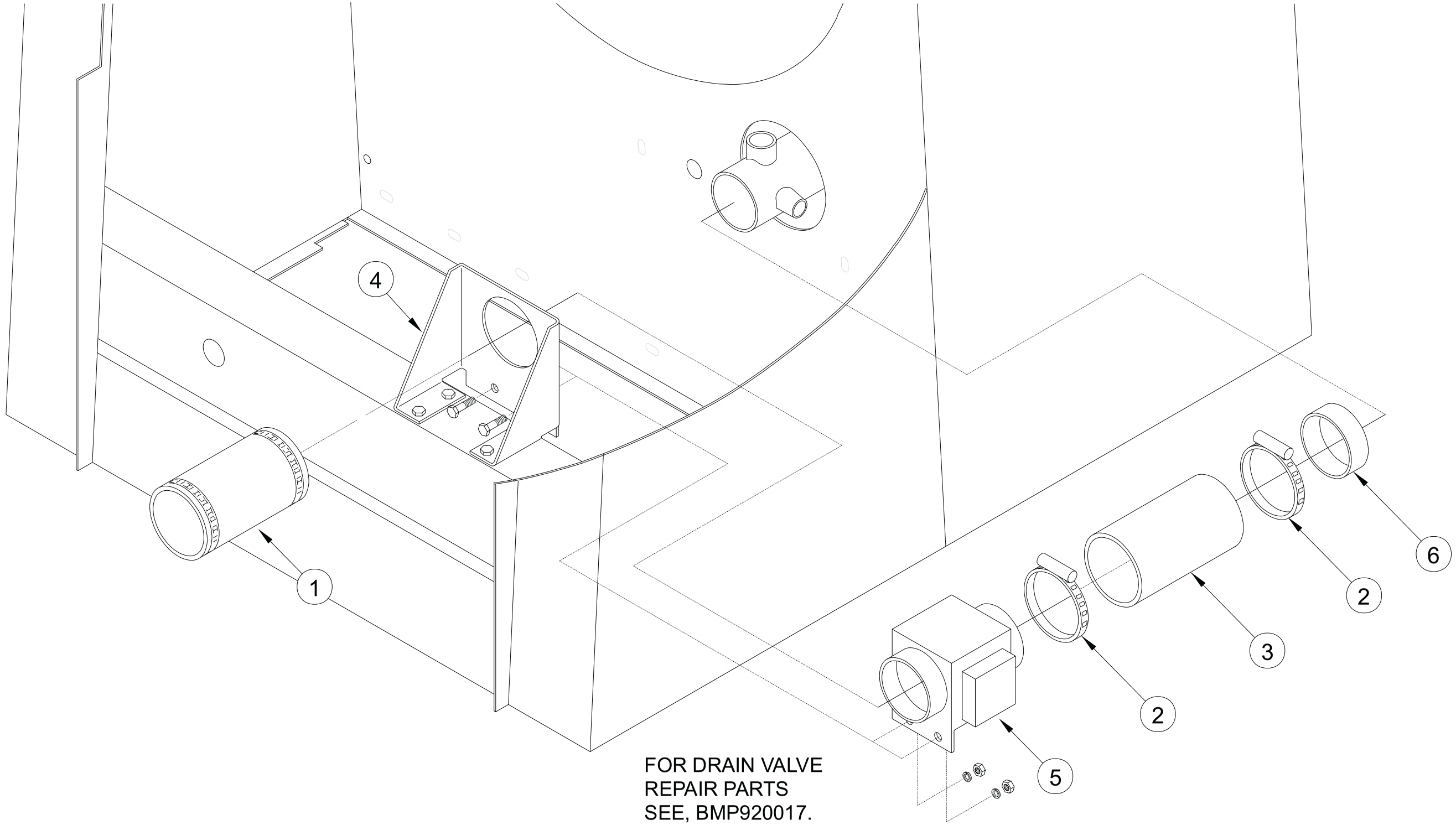
Used In	Item	Part Number	Description	Comments
			----------COMPONENTS----------	
all	1	02 03366A	DRAIN SUMP GASKET 1/8"EPDM	
all	2	02 03332A	BODY=SUMP-1608 GLASTIC	
all	3	24G018N	ROLLED WASH.194ID NYLTITE 10W	
all	4	15P050	PHDCUT-F PANHD 10-32X3/4 SS410	

DrainValve Installation

30015, 30020 & 30022 Rigid Mount Washer Extractors

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

Litho in U.S.A.



FOR DRAIN VALVE
REPAIR PARTS
SEE, BMP920017.

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

Parts List—Drain Valve Installation

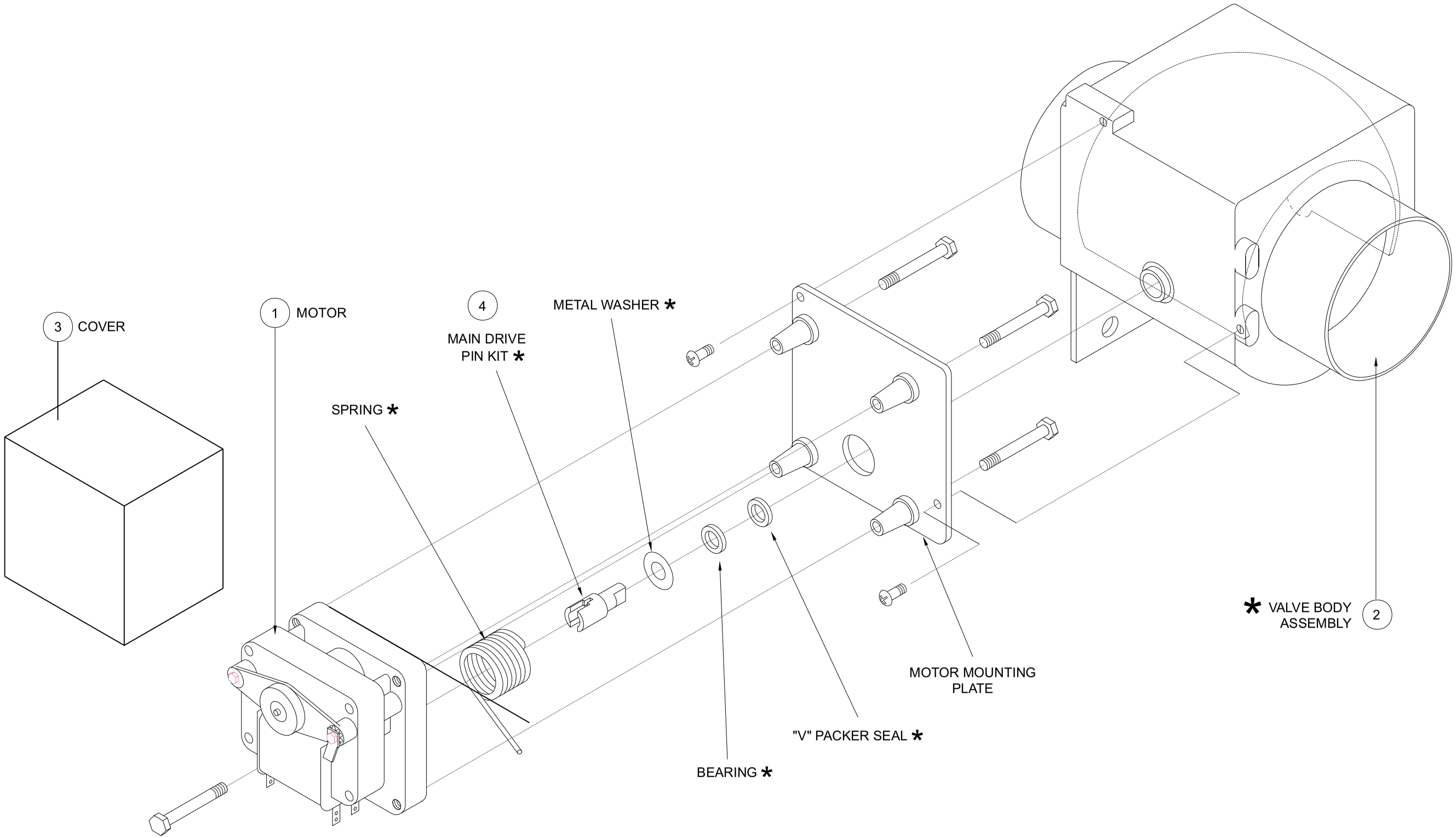
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	AD-33-011S	FLL TUBE & DRAIN ASSY 240V 30V	
			----------COMPONENTS----------	
all	1	60B075	DFW56-33PMSP RUBB CONN.	
all	2	27A082	HOSECLAMP 2.5625-3.5CADSC#HS48	
all	3	60E303A07A	HOSE=3"ID X 7" LG.	
all	4	02 03412	BRKT=DEPEND-O DUMPVAL MTG	
all	5	96D350A71	DRINVAL 3"MTRDR 240V 50/60C	
all	6	02 03412S	SLEEVE=DUMPVALVE HOSE	

3” Electric Drain Valve

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

Litho in U.S.A.



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

Litho in U.S.A.

Parts List—3” Electric Drain Valve

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

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	96D350A37	DRINVAL 3"N/O MTRDR120V 50/60C	
	B	96D350A71	DRINVAL 3"N/O MTRDR240V 50/60C	
			----------COMPONENTS----------	
A	1	96D35MTR37	120V 50/60CMTR FOR 3"DRAINVAL	
B	1	96D35MTR71	240V 50/60CMTR FOR 3"DRAINVAL	
all	2	96D35B0D	B0DY & BALL FOR 3" DRAIN VALVE	
all	3	96D35C0V	MTRCOVER 2-PCFOR 3"DRAINVAL	
all	4	96D35PIN	DRIVE PIN KIT FOR 3" DRAIN VAL	