

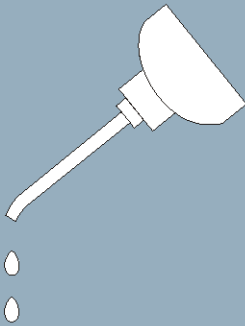
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Service

76032 Tunnel Washer



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

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PELLERIN MILNOR CORPORATION LIMITED STANDARD WARRANTY

We warrant to the original purchaser that MILNOR machines including electronic hardware/software (hereafter referred to as "equipment"), will be free from defects in material and workmanship for a period of one year from the date of shipment (unless the time period is specifically extended for certain parts pursuant to a specific MILNOR published extended warranty) from our factory with no operating hour limitation. This warranty is contingent upon the equipment being installed, operated and serviced as specified in the operating manual supplied with the equipment, and operated under normal conditions by competent operators.

Providing we receive written notification of a warranted defect within 30 days of its discovery, we will—at our option—repair or replace the defective part or parts, EX Factory (labor and freight specifically NOT included). We retain the right to require inspection of the parts claimed defective in our factory prior to repairing or replacing same. We will not be responsible, or in any way liable, for unauthorized repairs or service to our equipment, and this warranty shall be void if the equipment is tampered with, modified, or abused, used for purposes not intended in the design and construction of the machine, or is repaired or altered in any way without MILNOR's written consent.

Parts damaged by exposure to weather, to aggressive water, or to chemical attack are not covered by this warranty. For parts which require routine replacement due to normal wear—such as gaskets, contact points, brake and clutch linings, belts, hoses, and similar parts—the warranty time period is 90 days.

We reserve the right to make changes in the design and/or construction of our equipment (including purchased components) without obligation to change any equipment previously supplied.

ANY SALE OR FURNISHING OF ANY EQUIPMENT BY MILNOR IS MADE ONLY UPON THE EXPRESS UNDERSTANDING THAT MILNOR MAKES NO EXPRESSED OR IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR USE OR PURPOSE OR ANY OTHER WARRANTY IMPLIED BY LAW INCLUDING BUT NOT LIMITED TO REDHIBITION. MILNOR WILL NOT BE RESPONSIBLE FOR ANY COSTS OR DAMAGES ACTUALLY INCURRED OR REQUIRED AS A RESULT OF: THE FAILURE OF ANY OTHER PERSON OR ENTITY TO PERFORM ITS RESPONSIBILITIES, FIRE OR OTHER HAZARD, ACCIDENT, IMPROPER STORAGE, MIS-USE, NEGLIGENCE, POWER OR ENVIRONMENTAL CONTROL MALFUNCTIONS, DAMAGE FROM LIQUIDS, OR ANY OTHER CAUSE BEYOND THE NORMAL RANGE OF USE. REGARDLESS OF HOW CAUSED, IN NO EVENT SHALL MILNOR BE LIABLE FOR SPECIAL, INDIRECT, PUNITIVE, LIQUIDATED, OR CONSEQUENTIAL COSTS OR DAMAGES, OR ANY COSTS OR DAMAGES WHATSOEVER WHICH EXCEED THE PRICE PAID TO MILNOR FOR THE EQUIPMENT IT SELLS OR FURNISHES.

THE PROVISIONS ON THIS PAGE REPRESENT THE ONLY WARRANTY FROM MILNOR AND NO OTHER WARRANTY OR CONDITIONS, STATUTORY OR OTHERWISE, SHALL BE IMPLIED.

WE NEITHER ASSUME, NOR AUTHORIZE ANY EMPLOYEE OR OTHER PERSON TO ASSUME FOR US, ANY OTHER RESPONSIBILITY AND/OR LIABILITY IN CONNECTION WITH THE SALE OR FURNISHING OF OUR EQUIPMENT TO ANY BUYER.

BMP720097/19036

How to Get the Necessary Repair Components



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

You can get components to repair your machine from the approved supplier where you got this machine. Your supplier will usually have the necessary components in stock. You can also get components from the Milnor® factory.

Tell the supplier the machine model and serial number and this data for each necessary component:

- The component number from this manual
- The component name if known
- The necessary quantity
- The necessary transportation requirements
- If the component is an electrical component, give the schematic number if known.
- If the component is a motor or an electrical control, give the nameplate data from the used component.

To write to the Milnor factory:

Pellerin Milnor Corporation
Post Office Box 400
Kenner, LA 70063-0400
UNITED STATES

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

— End of BIUUUD19 —

Trademarks

BNUUUU02.R01 0000158093 A.2 7/13/17 1:11 PM Released

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

Table 1 Trademarks

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

End of document: BNUUUU02



CBW[®] Batch Washer Extended Warranties

Batch washer support wheels—five-year warranty, 100% of price.

For five years after date of the machine's manufacture, 100% of the price will be discounted on support wheels in all MILNOR CBW washers manufactured on or after September 1, 1987. This warranty will also apply to support wheels shipped as spare parts on or after September 1, 1988 (the five-year limitation will date from the time of shipment from the MILNOR factory).

Upon receipt of the failed part for our inspection and verification that it does fall within the above stipulated dates, we will supply a new P/N A62-00101A, 2 ½" wide, or P/N A62-00101, 1 ½" wide wheel assembly with bearings and shaft, but less support brackets.

Drive and seal components—prorated five-year warranty.

With all MILNOR CBW batch washers shipped April 24, 1989, or after, the following extended prorated warranty shall apply to motors, chains, sprockets, gears reducers, couplings, V-belts, pulleys, guide rollers, and L-seal components:

If Manufacturing Date is Less Than	Warranty Discount is	User Should Pay
1 year	100%	Nothing
2 years	100%	Nothing
3 years	75%	25%
4 years	50%	50%
5 years	25%	75%

Conditions for the above extended warranties.

These warranties apply to the parts mentioned above, but do not include transportation or installation. They are predicated on reasonable and proper operation and maintenance, including proper lubrication, adjustment of V-belts and chains, etc. Parts not properly lubricated, adjusted or maintained, or parts that have been subjected to abuse (including but not limited to continuing to operate the CBW washer with any inoperative gear reducer or chain drive), are not included in this warranty.

Under all of the terms of our standard warranty, except as modified above, replacement parts will be shipped via our dealer on our standard charge basis. When appropriate, subsequent credit, in accordance with the schedules mentioned above, will be issued for those parts which we determine fall within the extended warranty coverage. For your convenience, parts will be marked in such a way that it can easily be determined when they were supplied.

All failed parts for which these warranties are claimed must of course be returned promptly to MILNOR.

Pellerin Milnor Corporation, 700 Jackson St., Kenner, LA 70062

MSSM0908AE/90141A

**WARNING: THIS MACHINE IS MANUFACTURED UNDER U.S.
PATENT NUMBER 4,236,393 DATED 12/2/80.**

(OTHER DOMESTIC AND/OR FOREIGN PATENTS PENDING)

Safety and Maintenance

1

Safety—Continuous Batch Washer

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. These may not stop certain devices such as pumps on some machines.



CAUTION 3: Burn Hazards—Contact with hot goods or machine components can burn you.

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

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

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

4. Safety Alert Messages—Cylinder and Processing Hazards

[Document BIUUUS13]

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



WARNING 4: 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 5: Explosion and Fire Hazards—Flammable substances can explode or ignite in the cylinder, drain trough, or sewer. The machine is designed for washing with water, not any other solvent. Processing can cause solvent-containing goods to give off flammable vapors.

- Do not use flammable solvents in processing.
- Do not process goods containing flammable substances. Consult with your local fire department/public safety office and all insurance providers.

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

5.1. Damage and Malfunction Hazards

5.1.1. Hazards Resulting from Inoperative Safety Devices



WARNING 6: 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 7: Electrocutation 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 8: Entangle and Crush Hazards—Guards, covers, and panels—Operating the machine with any guard, cover, or panel removed exposes moving components.

- Do not remove guards, covers, or panels.

5.1.2. Hazards Resulting from Damaged Mechanical Devices



WARNING 9: 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.



CAUTION 10: Machine Damage Hazards—Drive shaft and drive motors—Although the tunnel may operate with drive shafts disconnected between modules or units, or with a motor not functioning, the added stress on drive components will quickly damage the machine.

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

5.2. Careless Use Hazards

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



WARNING 11: Multiple Hazards—Careless operator actions can kill or injure personnel, damage or destroy the machine, damage property, and/or void the warranty.

- Do not tamper with or disable any safety device or operate the machine with a malfunctioning safety device. Request authorized service.
- Do not operate a damaged or malfunctioning machine. Request authorized service.
- Do not attempt unauthorized servicing, repairs, or modification.
- Do not use the machine in any manner contrary to the factory instructions.
- Use the machine only for its customary and intended purpose.
- Understand the consequences of operating manually.



CAUTION 12: Goods Damage and Wasted Resources—Entering incorrect cake data causes improper processing, routing, and accounting of batches.

- Understand the consequences of entering cake data.

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



WARNING 13: Electrocutation and Electrical Burn Hazards—Contact with electric power can kill or seriously injure you. Electric power is present inside the cabinetry unless the main machine power disconnect is off.

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

any other overriding standard.



WARNING 14: 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 15: 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.
- Abide by the confined space entry procedures in the reference manual.

— End of BIUUUS27 —

Proximity Safeguarding for Automatic Shuttle Conveyors

Proximity safeguarding—a means of preventing personnel from entering the path of a machine, such as an industrial robot, that moves within a large area.

1. Applicability

This document—

applies to Milnor® automated laundering systems with shuttle conveyors that move without operator intervention (automatic operation),

does not apply to shuttles that require operator input continually, such as directing all shuttle movements (manual operation).

2. References for Proximity Safeguarding

ANSI Z8.1-2016 “American National Standard for Commercial Laundry and Drycleaning Equipment and Operations - Safety Requirements”

OSHA Standard 29 CFR § 1910.212 “General Requirements for All Machines”

OSHA Directive STD 01-12-002 - Pub 8-1.3 “Guidelines for Robotic Safety”

ANSI/RIA R15.06-2012 “American National Standard for Industrial Robots and Robot Systems- Safety Requirements”

ANSI/ASME B15.1-2000 “Safety Standard for Mechanical Power Transmission Apparatus”

OSHA Publication 3067 “Concepts and Techniques of Machine Safeguarding”

ISO 10472-1 “Safety Requirements for Industrial Laundry Machinery”

3. Hazards To Personnel in Proximity to Shuttle Conveyors

Milnor automated laundering systems use automatic shuttle conveyors to transport goods among the processing machines in the system. Depending on model, an automatic shuttle conveyor may move in any of the following ways, in addition to running its conveyor belt(s):

- It may travel along (traverse) a line of machines (typically dryers).
- Its conveyor bed(s) may ascend and descend (elevate) within the machine frame.
- Its conveyor bed(s) may extend and retract within the machine frame.
- The conveyor bed and frame may pivot.
- Wet goods shuttles have a bucket that elevates and tilts.

These motions pose strike, crush, sever, and entrapment hazards to personnel in proximity to the shuttle. **For the safety of personnel, owner/users must provide proximity safeguarding that protects personnel from the moving shuttle.**

A common method of proximity safeguarding is safety fencing with interlocked gates that disable the shuttle when a gate is opened. When a shuttle is disabled, this will eventually cause other machines in the system to hold (wait for action from another machine), but it will not necessarily cause them to immediately stop moving. In the case of a tunnel system, the press or centrifugal extractor can pose additional hazards to personnel in proximity to the equipment. **Hence, the safeguards must also disable any presses or extractors.** Tunnels and dryers do not pose a significant hazard to personnel merely because they are in proximity to the equipment, and need not be automatically disabled.



WARNING 1: Multiple Hazards—Proximity safeguarding provides only partial protection and only against injury resulting from entering the shuttle path. It is not a substitute for proper

lockout/tagout procedures and good safety practices.

- Always lockout/tagout any individual machine (or follow the published maintenance procedures) when performing maintenance or clearing a fault on that machine.
- Ensure that all personnel understand the safeguards and do not attempt to defeat them.
- Inspect safeguards weekly to ensure that they are not mechanically or electrically circumvented.

4. How Milnor Accommodates Proximity Safeguarding

Milnor provides connection points on shuttles, presses and centrifugal extractors for interfacing with devices such as gate interlock switches. These connection points are tagged for easy identification. When Milnor provides equipment layout drawings for an automated laundering system, it indicates on the drawing, the perimeter of the shuttle movement area that must be guarded. The following hazard statement is displayed on connection point tags as well as equipment layout drawings prepared by Milnor:



WARNING 2: Strike, Crush, Sever, and Entrapment Hazards—Serious bodily injury or death can result to personnel in proximity to machinery/systems that traverse, elevate, extend, pivot, and/or tilt. The following mandatory minimum safety requirements must be installed with the machinery system (local codes may require additional precautions):

- Safety fence enclosing machine movement areas,
- Lockable electrical interlocks on all gates, properly interfaced as shown on machine schematics, to disable machine movement when any gate is opened,
- Signs to alert personnel to these hazards, placed prominently around the fenced area.

Although the objectives of proximity safeguarding are the same anywhere, design requirements vary with local codes (which occasionally change) and with the plant layout. For this reason, Milnor does not provide detailed designs or materials for proximity safeguarding. If the necessary expertise does not exist within the owner/user's organization, consult appropriate sources such as local engineers or architects specializing in industrial facility design.

5. Examples of Safety Fencing With Interlocked Gates

Fencing with interlocked gates like that depicted in [Figure 1](#) and [Figure 2](#), may be used to meet the proximity safeguarding requirement. Should the owner/user choose this method, the following information may be useful. However, **this information may not satisfy current or local code requirements. The owner/user must determine its suitability for his particular facility.**

Figure 1: Example Fence Layout for Automated Laundering System Where One Tunnel Serves a Bank of Dryers

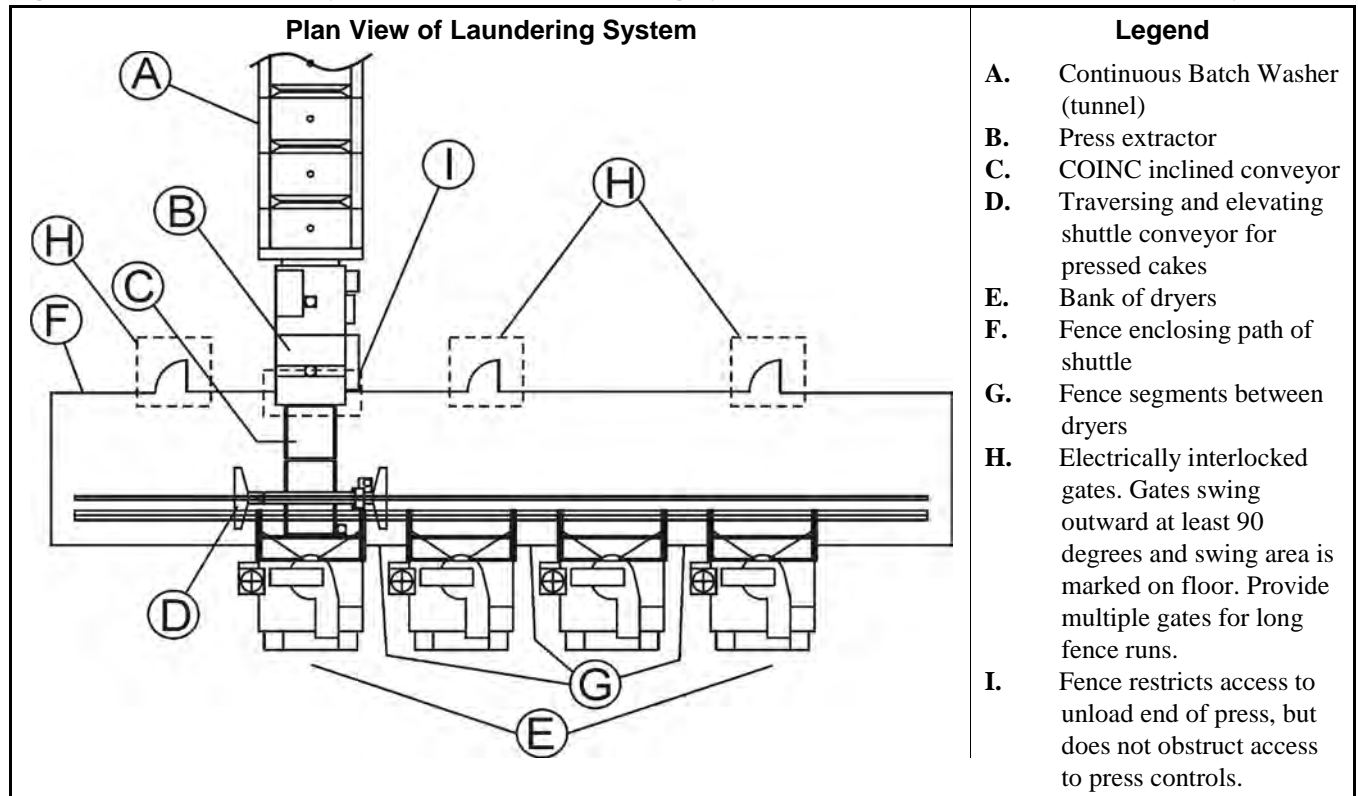
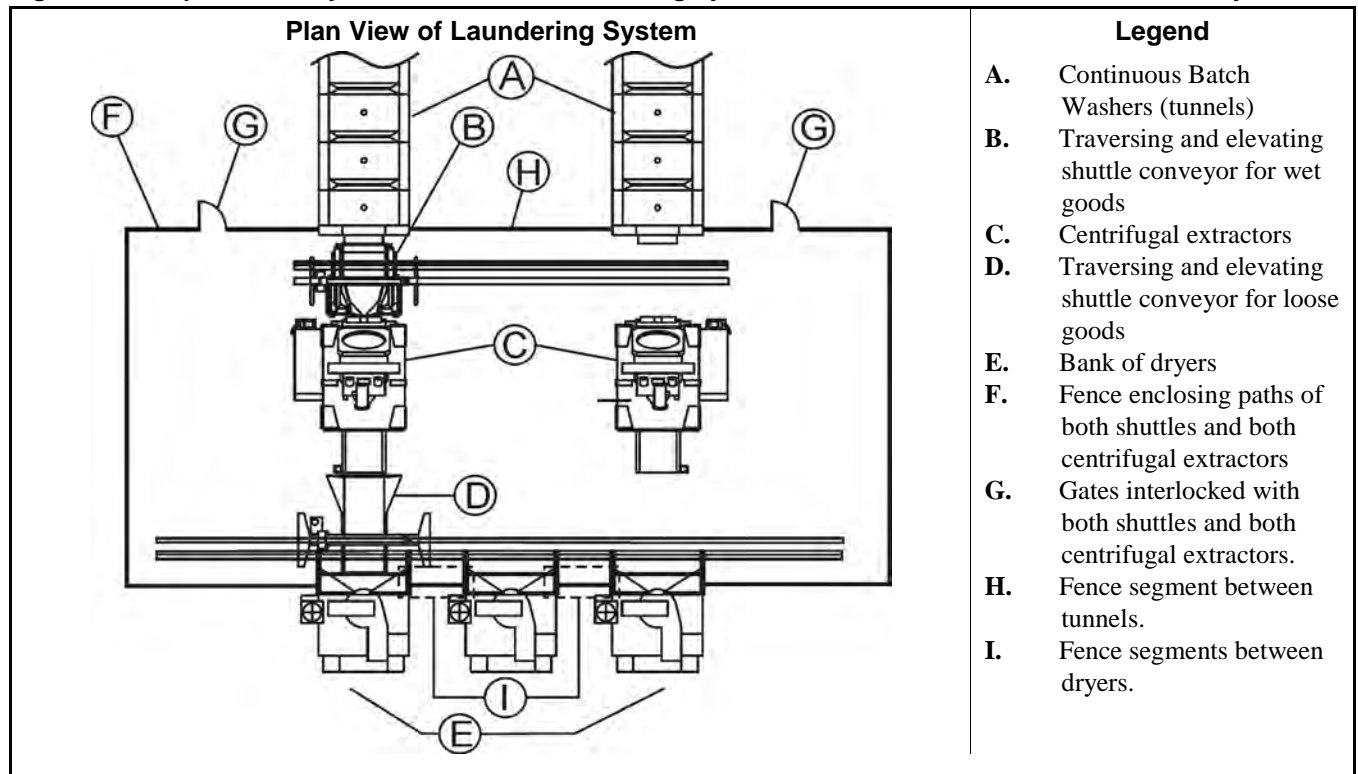


Figure 2: Example Fence Layout for Automated Laundering System Where Two Tunnels Serve a Bank of Dryers



- 5.1. Fence Dimensions**—The fence must discourage climbing over and prevent crawling under.
- 5.2. Fence Materials and Setback**—The fence must be constructed of materials and located so as to prevent personnel from reaching through gaps in the fence and contacting the enclosed machinery.
- 5.3. Gates**—Personnel gates must be held firmly closed but permit personnel to easily pass through when necessary. Gates must be equipped with a positive latching arrangement to prevent accidental opening. Adequate floor space must be provided to allow the gate to swing at least 90 degrees when fully open. Gates must open outward; that is, away from the fenced perimeter. The floor must be permanently marked to show the gate’s swing area, to discourage obstructing its movement.
- 5.4. Control Circuitry**—All gates must be electrically interlocked with any shuttle conveyors within the fenced area and with any presses or centrifugal extractors that the fence either encloses or intersects. Opening any gate must have the following effects:
1. Shuttle(s), press(es), and/or centrifugal extractor(s) stop moving immediately.
 2. An audible alarm sounds.
 3. Shuttle(s), press(es), and/or centrifugal extractor(s) cannot be restarted merely by closing the gate(s), but must be restarted at the machine control panel once the gate(s) are closed.
- Milnor shuttles, presses and centrifugal extractors provide such functionality when properly interfaced with gate interlock switches.
- 5.5. System Emergency Stop Switches**—The laundry must establish rules and procedures that prohibit personnel from remaining within the fenced area with machine(s) enabled, except in accordance with published maintenance procedures. System emergency stop switches (panic buttons) should be provided inside and outside the fenced perimeter. Emergency stop switches should be located so that personnel anywhere inside the fenced perimeter are only a short distance from a switch, and they should be clearly marked as to their locations and function. Connect switches in series with the gate interlocks so that pressing an emergency stop switch performs the same control function as opening a gate.
- 5.6. Isolating Individual Machine Controls**—The interlock circuitry for each machine must be electrically isolated from that of the other machines. Hence, each gate interlock switch must provide as many pairs of dry contacts as there are machines to interface to. A pair of switch contacts must never be shared by two or more machines.
- 5.7. Recommended Signage**—Safety placards should be posted along the fence and at each gate, alerting personnel to the hazards within. At minimum, the size of lettering and distance between placards should be such that anyone contemplating entering the fenced area will likely see and read the placard first. Wording should be provided in each native language spoken by laundry personnel.

— End of BISUII01 —

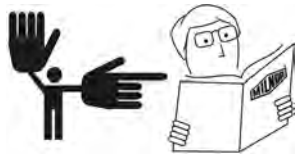
Understanding the Tag Guidelines for the Models Listed Below

76032C2F 76032T2F

Several installation guidelines and precautions are displayed symbolically, on tags placed at the appropriate locations on the machine. Some are tie-on and others are adhesive tags. Tie-on tags and white, adhesive tags may be removed after installation. Yellow adhesive tags must remain on the machine.

Most tags contain only symbols (no words). A few are worded. The explanations below, start with the tag part number (displayed on the tag). If a tag contains no words, the meaning of the tag is explained below. If the tag contains words, the explanation below simply repeats the wording.

Display or Action



Explanation

Read the manual before proceeding. This symbol appears on most tags. The machine ships with a complete set of manuals. The safety, installation, and electrical schematic manuals are particularly important to installers.



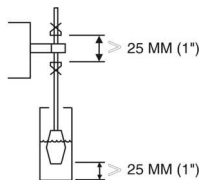
B2TAG88005: This carefully built product was tested and inspected to meet Milnor® performance and quality standards by



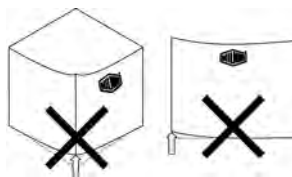
B2TAG94078: Do not forklift here; do not jack here; do not step here—whichever applies.



B2TAG94081: Motor must rotate in this direction. On single motor washer-extractors and centrifugal extractors, the drive motor must turn in this direction during draining and extraction. This tag is usually wrapped around a motor housing. If the motor turns in the opposite direction when the machine is first tested, the electrical hookup is incorrect and must be reversed as explained in the schematic manual.



B2TAG94082: Maintain a 25 millimeter (1") minimum clearance between level float clips. Set low level so that the bottom of the float is always at least 25 millimeters (1") above the bottom of the float tube.



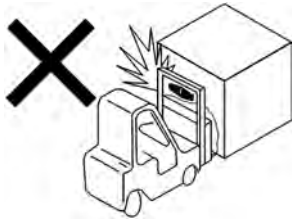
B2TAG94084: Do not lift from one corner of the machine, as this can cause the frame to rack, damaging it.

Display or Action

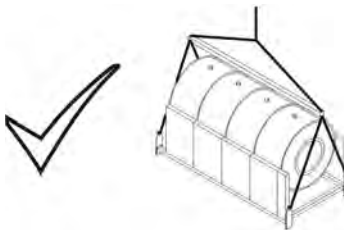


Explanation

B2TAG94102 shown—others similar: Match up the components with this number. These tags are used to pair up electrical or hose connections between major components of a machine shipped dis-assembled.



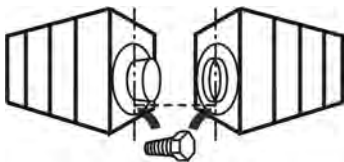
B2TAG94118: Do not strike shipping container during forklifting. Fragile components inside.



B2TAG94144: Lift tunnel units as shown, using the lifting eyes and spreader bar.



B2TAG94146: Fill with oil to this level.



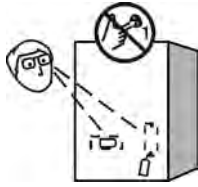
B2TAG98006: Align top dead center bolts when mating CBW tunnel washer units.



B2TAG99006: Do not loosen allen screws. Screws hold springs under tension which can fly out with great force.

Understanding the Tag Guidelines for the Models Listed Below

Display or Action

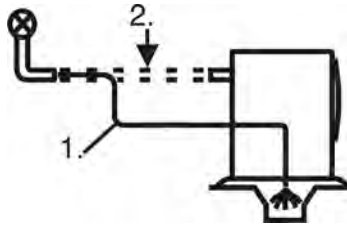


Explanation

B2T2001028: Look for tags inside the machine. These tags may identify shipping restraints to be removed or components to be installed. Do not start the machine until these actions are completed.



B2T2002013: Do not start the machine until shipping restraints are removed. This tag will appear on the outside of the machine to alert you to the presence of internal shipping restraints. A tag will also appear on the restraint to help identify it. Most, but not all shipping restraints display the color red. Some shipping restraints are also safety stands. Do not discard these.



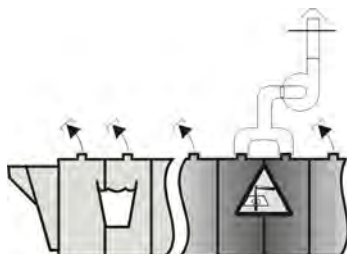
B2T2002032: Flush incoming water lines before making connections.



B2T2003014: Make sure that you use the specified hydraulic oil.



B2T2004027: Steam connection (optional)



B2T2008001: Read the installation instructions. Remove temporary vent covers. Install a powered vent unit on the oxidation zone modules and a separate powered vent unit on the finish zone module and adjacent press, if there is one.

Display or Action



Explanation

B2T2010023: Set the press frame in accordance with this instruction and the installation manual.

— End of BIUUUI02 —

Safety Placard Use and Placement

76032 CBW

BMP050070/2005464V
(Sheet 1 of 2)

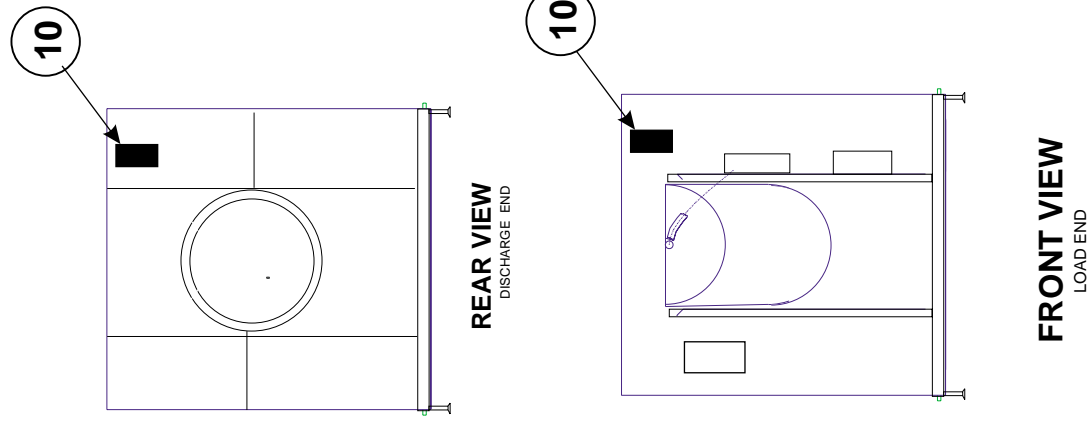
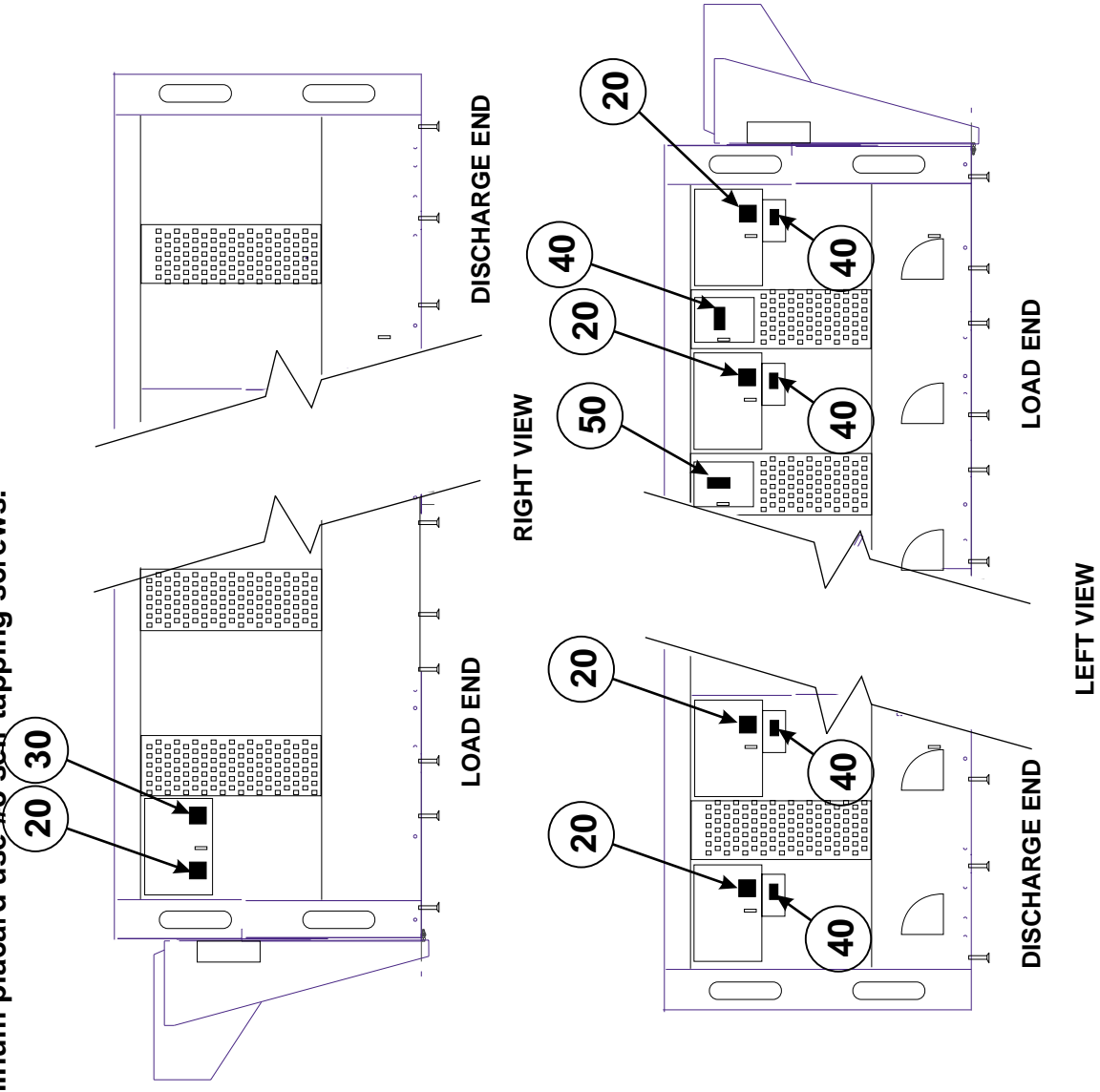


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Litho in U.S.A.

Notes:

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





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Parts List—Safety Placard Placement

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

Used In	Item	Part Number	Description	Comments
-----ASSEMBLIES-----				
none				
-----COMPONENTS-----				
all	10	01 10511A	NPLT:CBW END HAZARD-TCATA	
all	20	01 10377A	NPLT:ELEC HAZARD LG-TCATA	
all	30	01 10699B	NPLT:SERV HZRD-ALUM-TCATA	
all	40	01 10375A	NPLT:VDE VOLTAGE WARN 1.25"	
all	50	01 10375C	NPLT:E-HAZARD SM VERTCL-TCATA	

Safety Placard Use and Placement ISO 76032 CBW

BMP050071/2005464V
(Sheet 1 of 2)



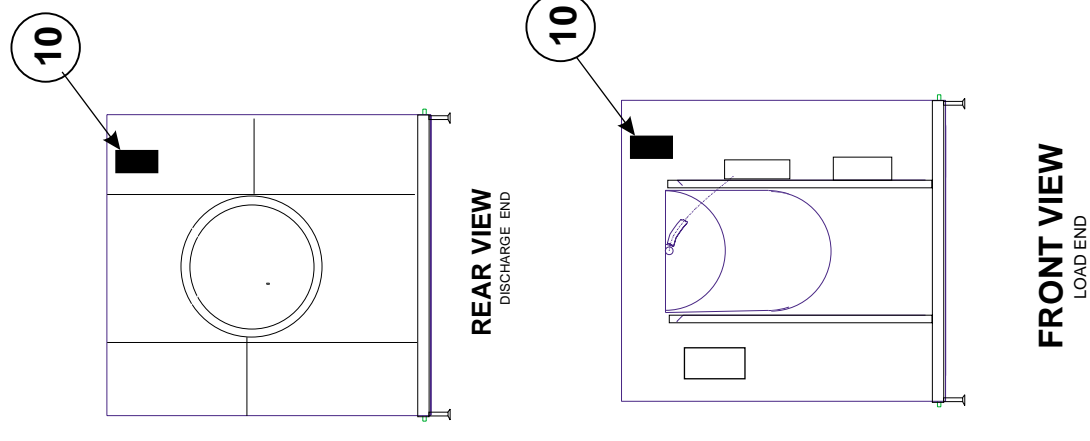
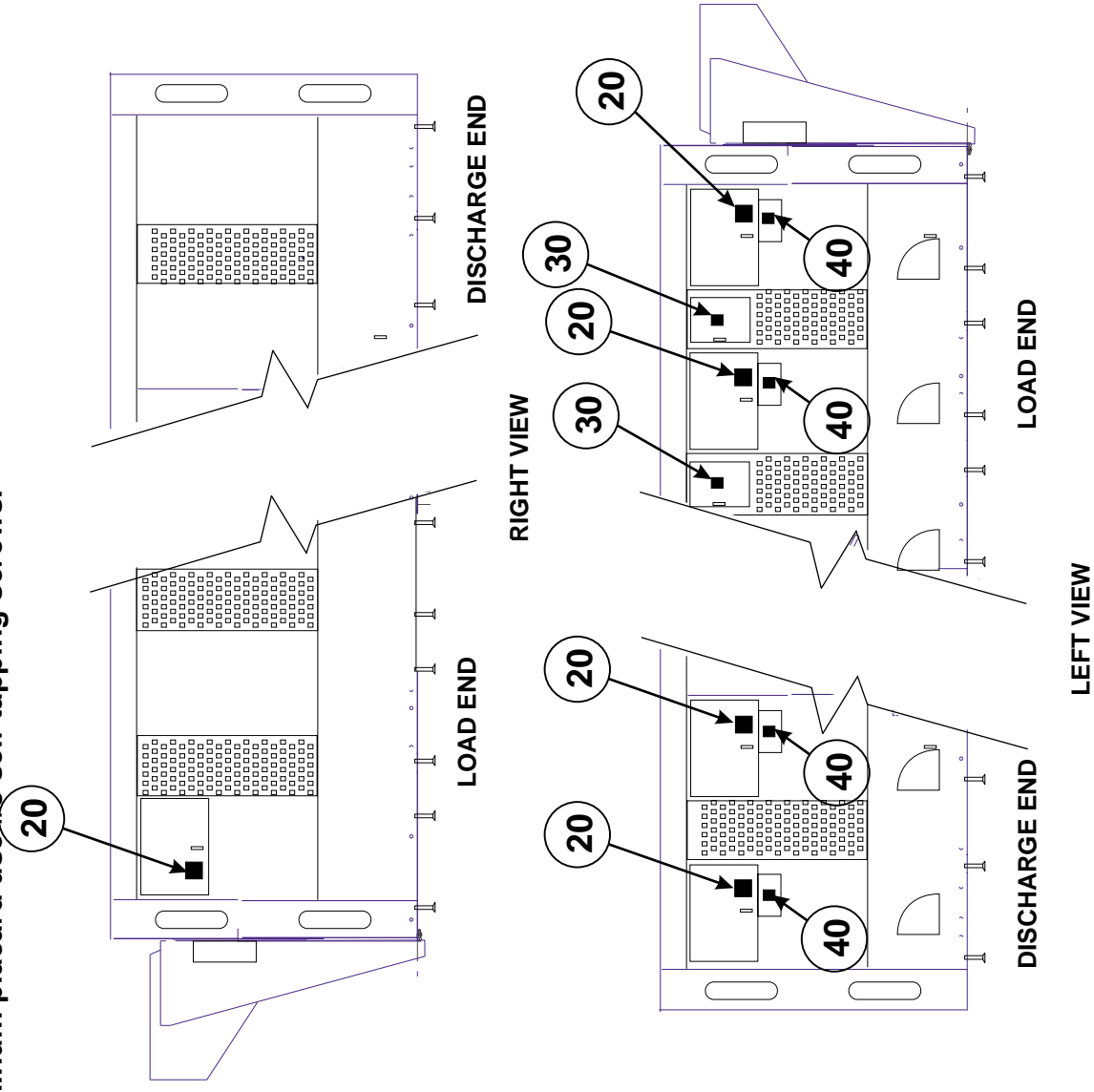
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ISO Placards shown on this page

Notes:

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





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Parts List—Safety Placard Placement

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

Used In	Item	Part Number	Description	Comments
			-----ASSEMBLIES----- none	
			-----COMPONENTS-----	
all	10	01 10511X	NPLT:CBW WARNINGS	
all	20	01 10377	NPLTE:"WARNING" 4X4	
all	30	01 10375	NPLTE:"WARNING" 2X2	

Prevent Damage from Chemical Supplies and Chemical Systems

BNUUUR02.C01 0000160549 D.2 B.2 7/19/19 10:22 AM Released

All Milnor® washer-extractors and CBW® tunnel washers use stainless steel with the ANSI 304 specification. This material gives good performance when chemical supplies are correctly applied. If chemical supplies are incorrectly applied, this material can be damaged. The damage can be very bad and it can occur quickly.

Chemical supply companies usually:

- supply chemical pump systems that put the supplies in the machine,
- connect the chemical pump system to the machine,
- write wash formulas that control the chemical concentrations.

The company that does these procedures must make sure that these procedures do not cause damage. **Pellerin Milnor Corporation accepts no responsibility for chemical damage to the machines it makes or to the goods in a machine.**

1. How Chemical Supplies Can Cause Damage

BNUUUR02.R01 0000160548 D.2 B.3 11/27/18 2:24 PM Released

Dangerous Chemical Supplies and Wash Formulas — Some examples that can cause damage are:

- a very high concentration of chlorine bleach,
- a mixture of acid sour and hypo chlorite,
- chemical supplies (examples: chlorine bleach, hydrofluosilicic acid) that stay on the stainless steel because they are not quickly flushed with water.

The book “Textile Laundering Technology” by Charles L. Riggs gives data about correct chemical supplies and formulas.

Incorrect Configuration or Connection of Equipment — Many chemical systems:

- do not prevent a vacuum in the chemical tube (for example, with a vacuum breaker) when the pump is off,
- do not prevent flow (for example, with a valve) where the chemical tube goes in the machine.

Damage will occur if a chemical supply can go in the machine when the chemical system is off. Some configurations of components can let the chemical supplies go in the machine by a siphon ([Figure 1: Incorrect Configurations That Let the Chemical Supply Go In the Machine by a Siphon, page 2](#)). Some can let chemical supplies go in the machine by gravity ([Figure 2: Incorrect Configurations That Let the Chemical Supply Go In the Machine by Gravity, page 3](#)).

Figure 1. Incorrect Configurations That Let the Chemical Supply Go In the Machine by a Siphon

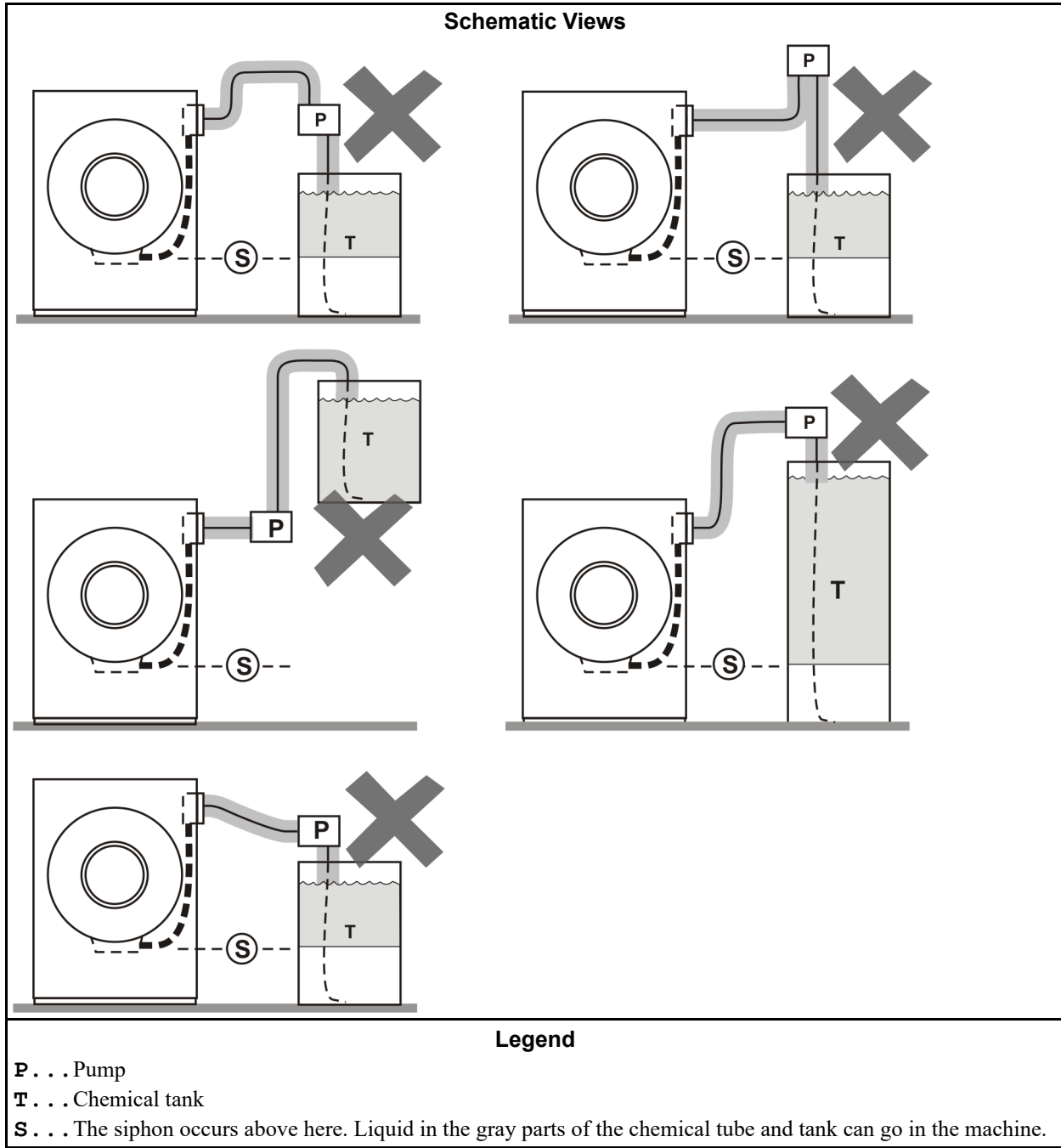
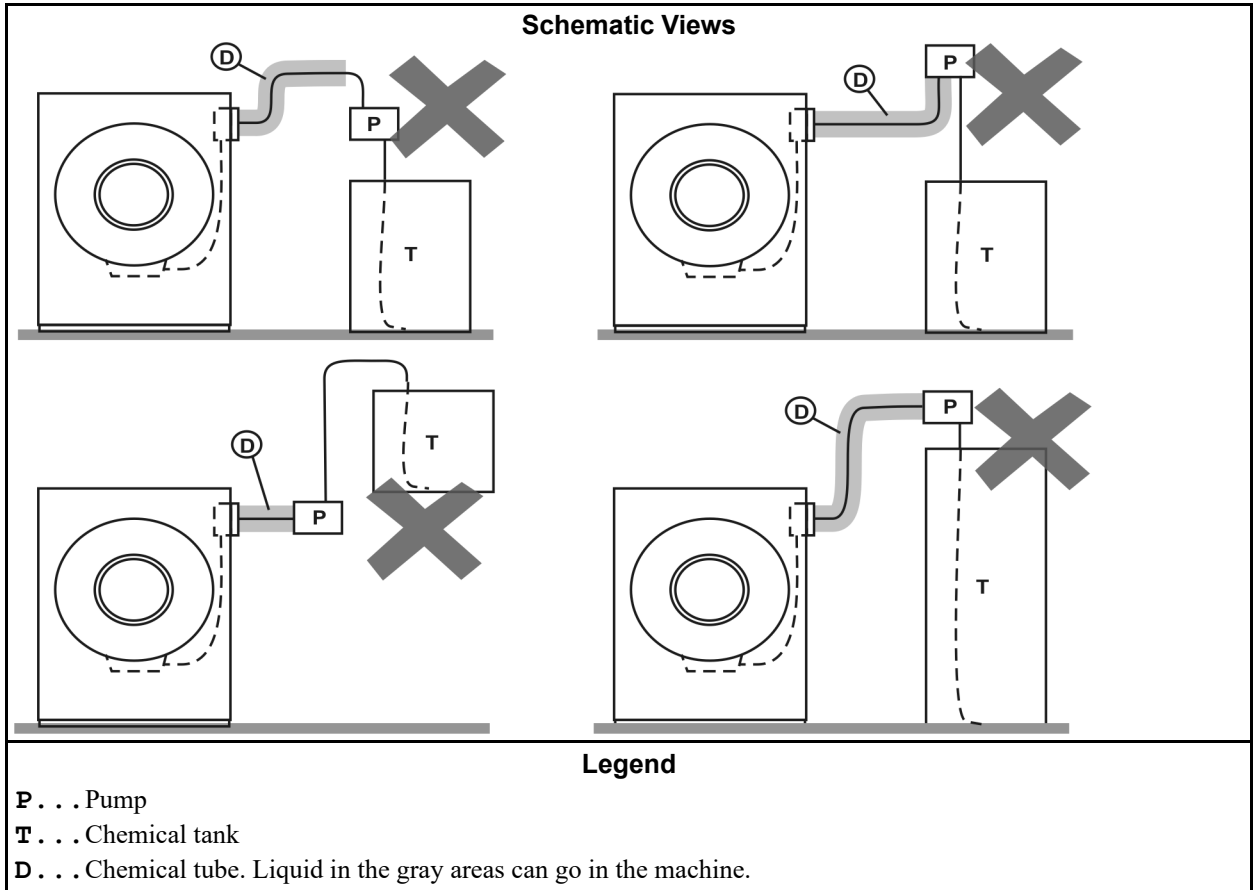


Figure 2. Incorrect Configurations That Let the Chemical Supply Go In the Machine by Gravity

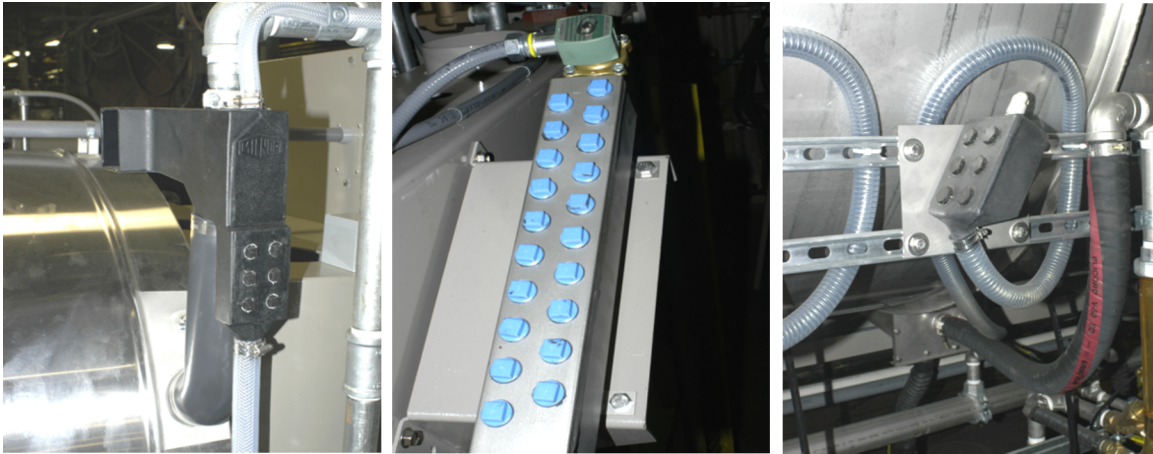


2. Equipment and Procedures That Can Prevent Damage

BNUUUR02.R02 0000160545 D.2 B.2 11/27/18 2:03 PM Released

Use the chemical manifold supplied. — There is a manifold on the machine to attach chemical tubes from a chemical pump system. The manifold has a source of water to flush the chemical supplies with water.

Figure 3. Examples of Manifolds for Chemical Tubes. Your equipment can look different.



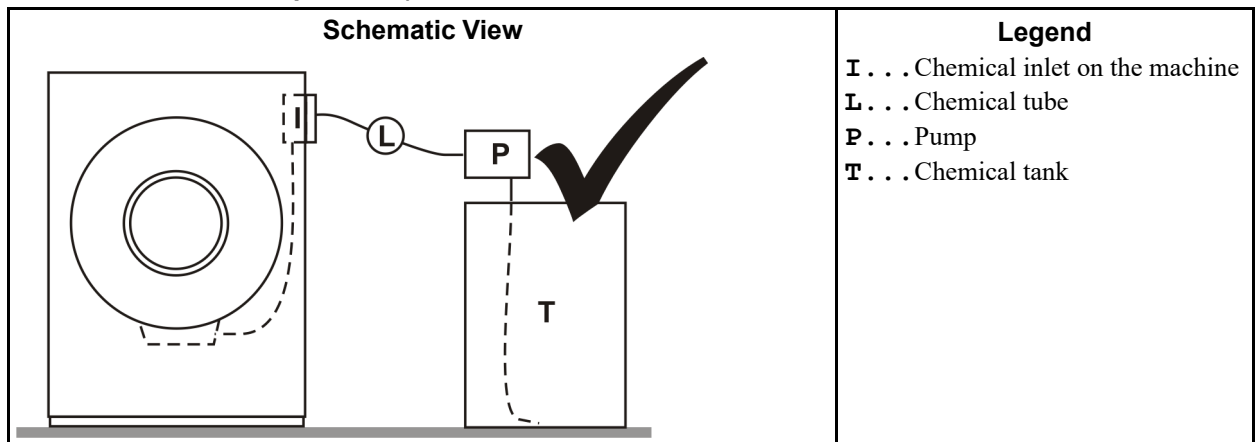
Close the line. — If the pump does not always close the line when it is off, use a shutoff valve to do this.

Do not let a vacuum occur. — Supply a vacuum breaker in the chemical line that is higher than the full level of the tank.

Flush the chemical tube with water. — If the liquid that stays in the tube between the pump and the machine can flow in the machine, flush the tube with water after the pump stops.

Put the chemical tube fully below the inlet. — It is also necessary that there is no pressure in the chemical tube or tank when the system is off.

Figure 4. A Configuration that Prevents Flow in the Machine When the Pump is Off (if the chemical tube and tank have no pressure)



Prevent leaks. — When you do maintenance on the chemical pump system:

- Use the correct components.
- Make sure that all connections are the correct fit.
- Make sure that all connections are tight.

End of document: BNUUUR02

Torque Requirements for Fasteners



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

The document about the assembly gives the torque requirements for other fasteners. **If fastener torque specifications or threadlocker requirements in an assembly document are different from this document, use the assembly document.**

Figure 1: The Bolts in Milnor® Equipment

The Marks on Bolt Heads	Legend
	<p>A. SAE Grades 1 and 2, ASTM A307, and stainless steel</p> <p>B. Grade BC, ASTM A354</p> <p>C. SAE Grade 5, ASTM A449</p> <p>D. SAE Grade 8 and ASTM A354 BD</p>

1. Torque Values

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

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

1.1. Fasteners Made of Carbon Steel

1.1.1. Without a Threadlocker

Table 1: Torque Values for Standard Fasteners with Maximum 5/16-inch Diameters and No Lubricant

Dimension	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
	Pound-Inches	N-m	Pound-Inches	N-m	Pound-Inches	N-m	Pound-Inches	N-m
1/4 x 20	66	7	101	11	143	16	126	14
1/4 x 28	76	9	116	13	163	18	--	--
5/16 x 18	136	15	209	24	295	33	258	29
5/16 x 24	150	17	232	26	325	37	--	--

Torque Requirements for Fasteners

Table 2: Torque Values for Standard Fasteners Larger Than 5/16-inch Diameters and No Lubricant

Dimension	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
	Pound-feet	N-m	Pound-feet	N-m	Pound-feet	N-m	Pound-feet	N-m
3/8 x 16	20	27	31	42	44	59	38	52
3/8 x 24	23	31	35	47	50	68	--	--
7/16 x 14	32	43	49	66	70	95	61	83
7/16 x 20	36	49	55	75	78	105	--	--
1/2 x 13	49	66	75	102	107	145	93	126
1/2 x 20	55	75	85	115	120	163	--	--
9/16 x 12	70	95	109	148	154	209	134	182
9/16 x 18	78	106	121	164	171	232	--	--
5/8 x 11	97	131	150	203	212	287	186	252
5/8 x 18	110	149	170	231	240	325	--	--
3/4 x 10	172	233	266	361	376	510	329	446
3/4 x 16	192	261	297	403	420	569	--	--
7/8 x 9	167	226	429	582	606	821	531	719
7/8 x 14	184	249	473	641	668	906	--	--
1 x 8	250	339	644	873	909	1232	796	1079
1 x 12	274	371	704	954	994	1348	--	--
1 x 14	281	381	723	980	1020	1383	--	--
1 1/8 x 7	354	480	794	1077	1287	1745	1126	1527
1 1/8 x 12	397	538	891	1208	1444	1958	--	--
1 1/4 x 7	500	678	1120	1519	1817	2464	1590	2155
1 1/4 x 12	553	750	1241	1682	2012	2728	--	--
1 3/8 x 6	655	888	1469	1992	2382	3230	2085	2827
1 3/8 x 12	746	1011	1672	2267	2712	3677	--	--
1 1/2 x 6	869	1178	1949	2642	3161	4286	2767	3751
1 1/2 x 12	979	1327	2194	2974	3557	4822	--	--

Table 3: Torque Values for Plated Fasteners with Maximum 5/16-inch Diameters and No Lubricant

Dimension	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
	Pound-Inches	N-m	Pound-Inches	N-m	Pound-Inches	N-m	Pound-Inches	N-m
1/4 x 20	49	6	76	9	107	12	95	11
1/4 x 28	56	6	88	10	122	14	--	--
5/16 x 18	102	12	156	18	222	25	193	22
5/16 x 24	113	13	174	20	245	28	--	--

Table 4: Torque Values for Plated Fasteners Larger Than 5/16-inch Diameters and No Lubricant

Dimension	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
	Pound-feet	N-m	Pound-feet	N-m	Pound-feet	N-m	Pound-feet	N-m
3/8 x 16	15	20	23	31	33	44	29	38
3/8 x 24	17	23	26	35	37	49	--	--
7/16 x 14	24	32	37	50	52	71	46	61
7/16 x 20	27	36	41	55	58	78	--	--
1/2 x 13	37	49	56	76	80	106	70	93
1/2 x 20	41	55	64	85	90	120	--	--
9/16 x 12	53	70	81	110	115	153	101	134
9/16 x 18	59	79	91	122	128	174	--	--
5/8 x 11	73	97	113	150	159	212	139	186
5/8 x 18	83	110	127	172	180	240	--	--
3/4 x 10	129	173	200	266	282	376	246	329
3/4 x 16	144	192	223	297	315	420	--	--
7/8 x 9	125	166	322	430	455	606	398	531
7/8 x 14	138	184	355	474	501	668	--	--
1 x 8	188	250	483	644	682	909	597	796
1 x 12	205	274	528	716	746	995	--	--
1 x 14	210	280	542	735	765	1037	--	--
1 1/8 x 7	266	354	595	807	966	1288	845	1126
1 1/8 x 12	298	404	668	890	1083	1444	--	--
1 1/4 x 7	375	500	840	1120	1363	1817	1192	1590
1 1/4 x 12	415	553	930	1261	1509	2013	--	--
1 3/8 x 6	491	655	1102	1470	1787	2382	1564	2085
1 3/8 x 12	559	758	1254	1672	2034	2712	--	--
1 1/2 x 6	652	870	1462	1982	2371	3161	2075	2767
1 1/2 x 12	733	994	1645	2194	2668	3557	--	--

1.1.2. With a Threadlocker

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

LocTite Product	Dimension			
	1/4-inch	1/4- to 5/8-inch	5/8- to 7/8-inch	1-inch +
LocTite 222	OK			
LocTite 242		OK		
LocTite 262			OK	
LocTite 272			High temperature	
LocTite 277				OK

Note 2: The acceptable bolt size ranges for various LocTite® threadlocking products is the LocTite manufacturer's **general** recommendation. Specific applications sometime require that a LocTite product is applied to a bolt size outside the ranges shown here. For example, Milnor specifies LocTite 242 for use on certain 1" bolt applications and has confirmed this usage with the LocTite manufacturer. You may see variances such as this in the documentation for specific machine assemblies.

Torque Requirements for Fasteners

Table 6: Torque Values if You Apply LocTite 222

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

Table 7: Torque Values if You Apply LocTite 242

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

Table 8: Torque Values if You Apply LocTite 262

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

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

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

Table 10: Torque Values if You Apply LocTite 277

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

1.2. Stainless Steel Fasteners

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

Dimension	316 Stainless		18-8 Stainless		18-8 Stainless with Loctite 767	
	Pound-Inches	N-m	Pound-Inches	N-m	Pound-Inches	N-m
1/4 x 20	79	9	76	9	45	5
1/4 x 28	100	11	94	11	56	6
5/16 x 18	138	16	132	15	79	9
5/16 x 24	148	17	142	16	85	10

Table 12: Torque Values for Stainless Steel Fasteners Larger Than 5/16-inch

Dimension	316 Stainless		18-8 Stainless		18-8 Stainless with Loctite 767	
	Pound-feet	N-m	Pound-feet	N-m	Pound-feet	N-m
3/8 x 16	21	28	20	27	12	16
3/8 x 24	23	31	22	29	13	18
7/16 x 14	33	44	31	42	19	25
7/16 x 20	35	47	33	45	20	27
1/2 x 13	45	61	43	58	26	35
1/2 x 20	47	64	45	61	27	37
9/16 x 12	59	81	57	77	34	46
9/16 x 18	66	89	63	85	38	51
5/8 x 11	97	131	93	125	56	75
5/8 x 18	108	150	104	141	62	84
3/4 x 10	132	179	128	173	77	104
3/4 x 16	130	176	124	168	75	101
7/8 x 9	203	275	194	263	116	158
7/8 x 14	202	273	193	262	116	157
1 x 8	300	406	287	389	172	233
1 x 14	271	367	259	351	156	211
1-1/8 x 7	432	586	413	560	248	336
1-1/8 x 12	408	553	390	529	234	317
1-1/4 x 7	546	740	523	709	314	425
1-1/4 x 12	504	683	480	651	288	390
1-1/2 x 6	930	1261	888	1204	533	722
1-1/2 x 12	732	992	703	953	422	572

2. Preparation



WARNING 2: Fire Hazard—Some solvents and primers are flammable.

- Use threadlocker and primers with sufficient airflow.
 - Do not use flammable material near ignition sources.
1. Clean all threads with a wire brush or a different tool.
 2. Remove the grease from the fasteners and the mating threads with solvent. Make the parts dry.

Note 3: Loctite 7649 Primer™ or standard solvents will remove grease from parts.

3. Apply a spray of Loctite 7649 Primer™ or equal on the fasteners and the mating threads. Let the primer dry for one minute minimum.

3. How to Apply a Threadlocker

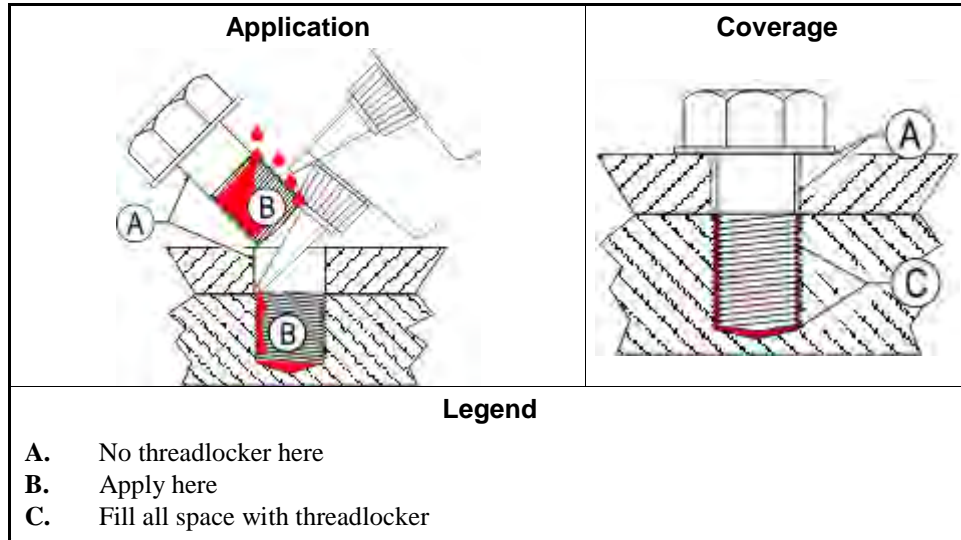


CAUTION 3: Malfunction Hazard—Heat, vibration, or mechanical shocks can let the fasteners loosen if you do not apply the threadlocker correctly. Loose fasteners can cause malfunctions of the equipment.

- Read the threadlocker manufacturer's instructions and warnings. Obey these instructions.

Apply the threadlocker only to the areas where the fastener threads and the mating threads engage.

Figure 2: Blind Hole



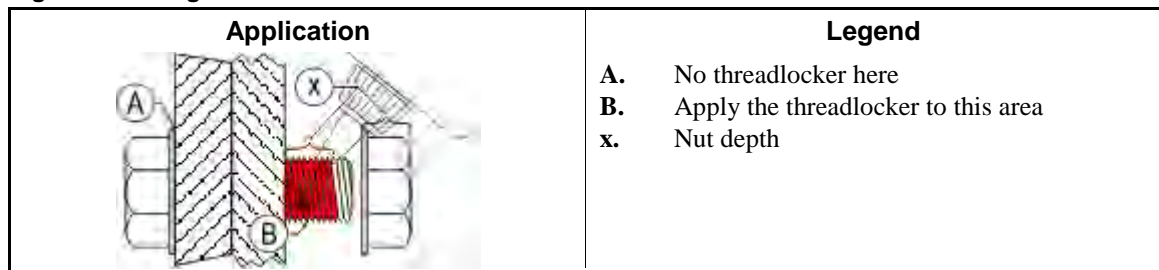
3.1. Blind Holes

1. Apply the threadlocker down the threads to the bottom of the hole.
2. Apply the threadlocker to the bolt.
3. Tighten the bolt to the value shown in the correct table ([Table 5](#) to [Table 11](#)).

3.2. Through Holes

1. Put the bolt through the assembly.
2. Apply the threadlocker only to the bolt thread area that will engage the nut.
3. Tighten the bolt to the value shown in the correct table ([Table 5](#) to [Table 11](#)).

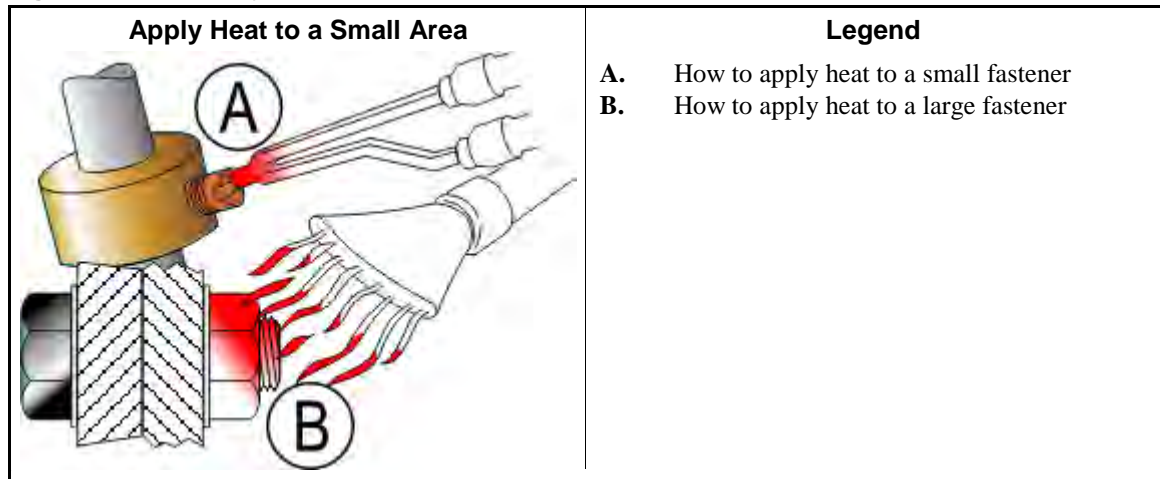
Figure 3: Through Hole



- 3.3. Disassembly**—For high-strength threadlocker, apply heat for five minutes. Disassemble with hand tools while the parts are hot.

For low-strength and moderate-strength threadlocker, disassemble with hand tools.

Figure 4: Disassembly



— End of BIUUM04 —

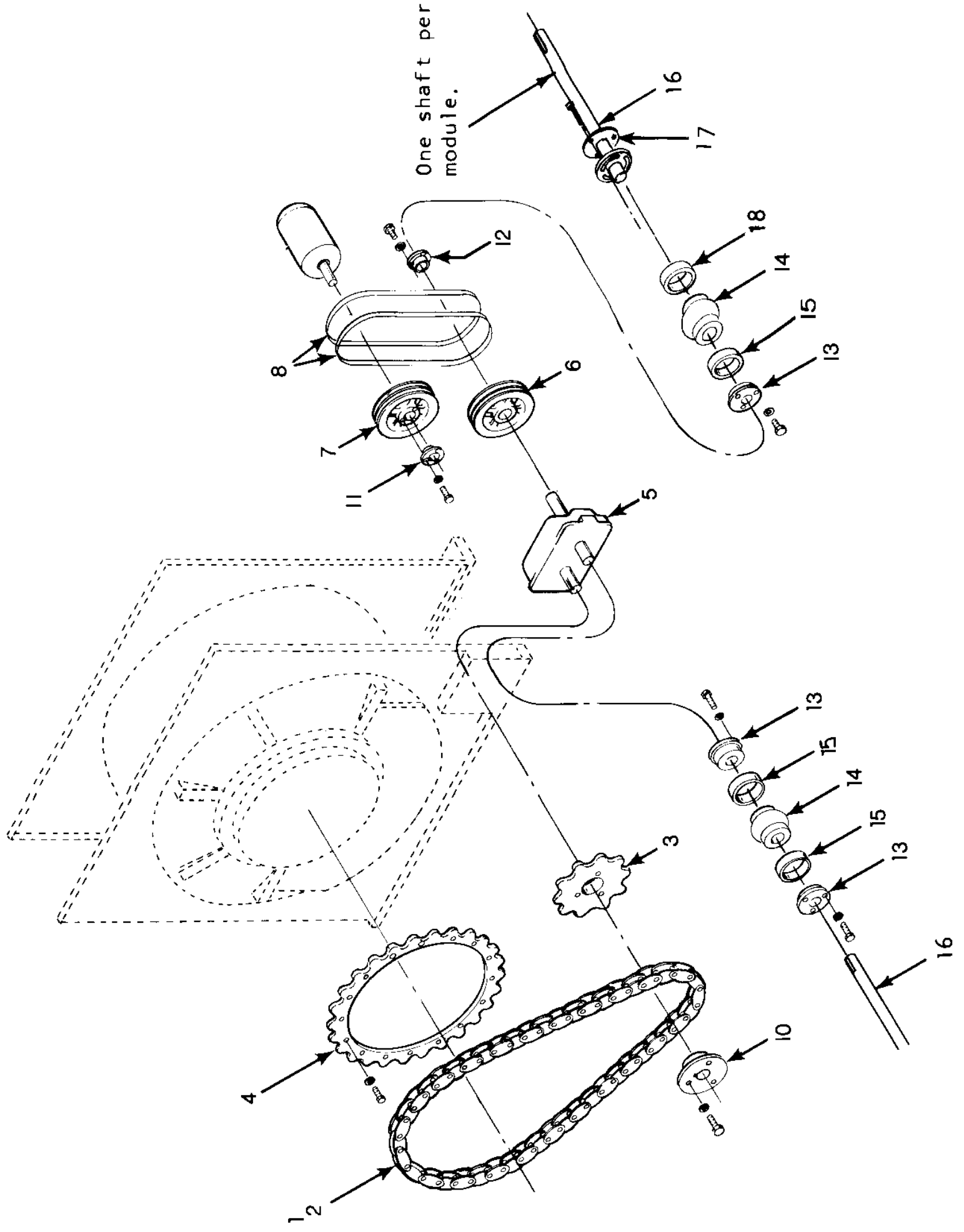
Structural and Drive Components

2



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Used In		Item	Part Number	Description	Comments
<p>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.</p>					
-----ASSEMBLIES-----					
A			D62 00350	*DRIVECHART IND-CBW WASH 50CY	
B			D62 00360	*DRIVECHART IND-CBW WASH 60CY	
-----COMPONENTS-----					
all	1		54G100CA	ROLLCHAIN ANSI 100-1R 15.312	
all	2		54G100	CONN LINK ANSI 100 SPRING CLIP	MASTER LINK
all	2		54G100R	ROLLER LINK ANSI 100	HALF LINK
all	3		54N100E19	SPROCKET 100E19 QD TYPE	
all	4		X6 20601	SPROCKET W/MFAC DRILL HOLES	
all	5		54S011HCA	RED 15.4 DORRIS #1115-100HCA	
all	6		56094B2H	VPUL 2B9.4/A9.0 2BK100H R EQUAL	
A	7		56059B2H	VPUL 2B5.9/A5.5 2BK65H R EQUAL	
B	7		56049B2H	VPUL 2B4.9/A4.5 2BK55H R EQUAL	
A	8		56VB043X	V-BELT BX43 RAWEDGE COG	
B	8		56VB042X	VBELT BX42 DAYCO RAWEDGE COG	
all	10		56Q1KE	1+1/2" BUSH VPUL QD TYPE E	
all	11		56Q1GH	1+3/8" BUSH VPUL TYPE H,D,ORQT	
all	12		56Q1AH	1.0" BUSH VPUL TYPE H,D, OR QT	
all	13		56Q1ASDS	1.0" BUSH VPUL QD TYPE SDS	
all	14		54J227	FLEXPLG REX#E10 (EA=2 HALVES)	
all	15		54J227A	HUB,FLEX COUPLING TUN +TILTS	
all	16		X6 20092B	SHAFT+PLATE MACH=ADJ.COUP.CB	
all	17		06 20092D	WASHER DOUBLER ADJ. COUPLING	
all	18		54J227B	HUB ADJ.COUPLING CBW	

Chain Oiler

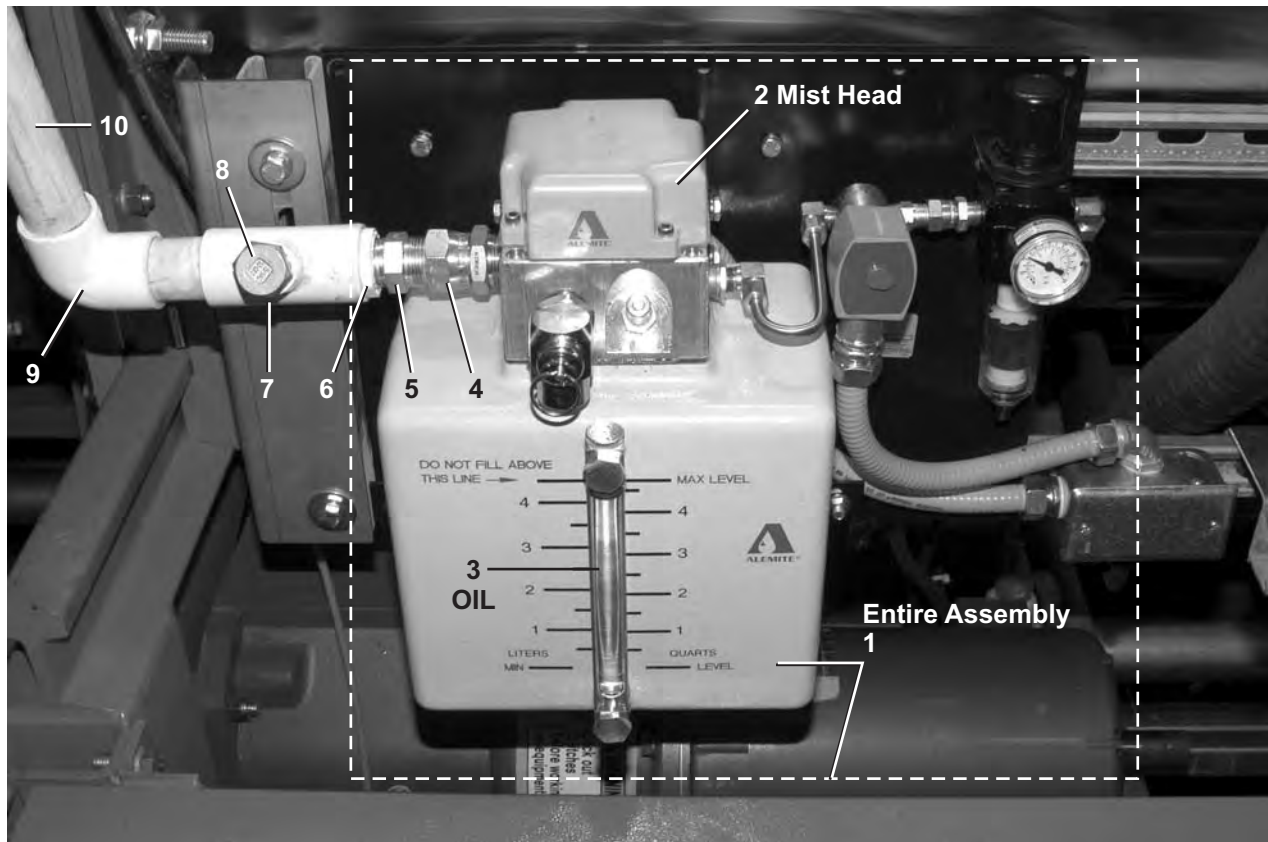
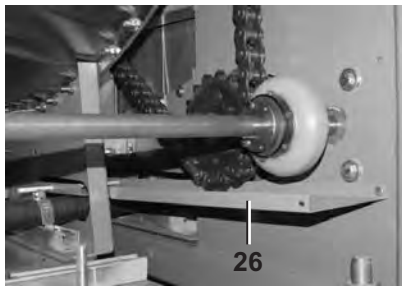
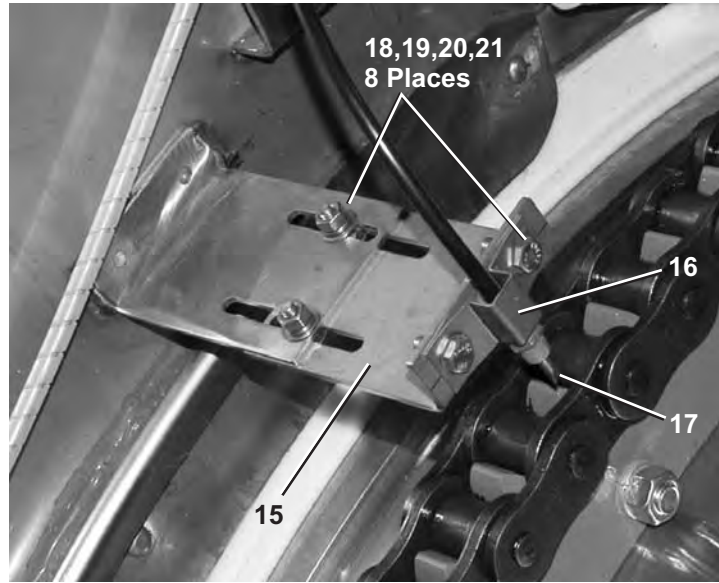
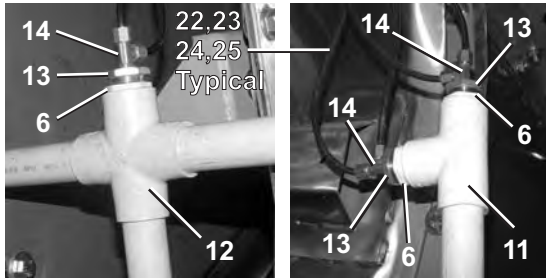
76032, 76028G3 & 76039G3 Tunnels, 92048G4 Tunnels

BMP110071/2013102A
(1 / 2)



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Parts List—Chain Oiler

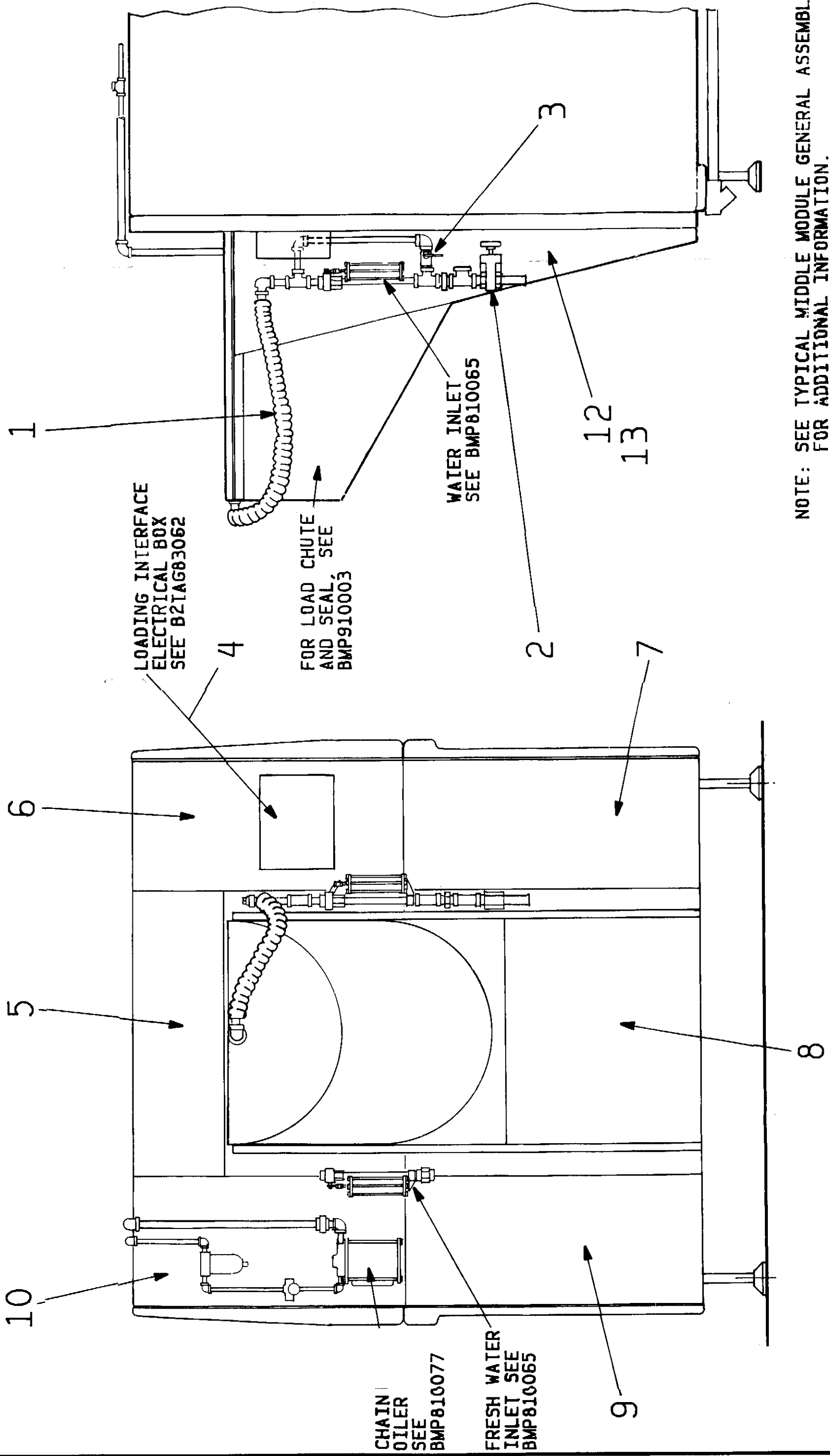
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

Used In	Item	Part Number	Description	Comments
-----ASSEMBLIES-----				
	A	G67CL001	GEN ASSY OILER RESV G3	76028G3, 76039G3 & 92048G4 TUNNELS 76032 TUNNELS
	B	A67CL001	ASSY OILERRESV G3	
	C			
-----COMPONENTS-----				
ABC	1	27E790E	ALEMITE OILMIST SYSTEM#3943BC	
ABC	2	27E790F	REPAIR PART-ALEMITE MIST HEAD	
all	3	20H000A	MILNOR CHAIN LUBRICANT	
all	4	52ZC0PS004	TUBEFITMALESW 3/4"#1404-12-12	
all	5	52ZC0PS003	TUBEFITMALECON 3/4"#2404-12-12	
all	6	5KC1AP4D0P	SOKADAPTER 1"SX3/4"FP PVC S40	
all	7	5K1AP4A0K	TEE 1"SX1"SX1/2"FP PVC S40	
all	8	5SP0KDEHK	NPT PLUG 1/2 HXCTRSNK GALSTL	
all	9	5KL1AP4A	SOK ELBOW 90DEG 1" PVC SCH40	
all	10	5P1AP4EN	1" PIPE PVC SK40 20RML	
all	11	5K1AP8A	SOKTEE 1" PVC SCH40	
all	12	5KX1AP4	SOK CROSS 1" PVC SK40	
all	13	5SB0P0CNFA	NPTHEXBUSH 3/4X1/8GALV150#CORD	
all	14	53A043S	TEE=TUBEXMPXTUBE 1/4"#B71A-4B	
all	15	06 40199	7626 BRKT OILER BRUSH	
all	16	06 20187	BRKT BRUSH HOLDER OILER 1/MD	
all	17	27E790D	SPRAYFITT=ALEMITE #381288-8	
all	18	15K039	HXCAPSCR 1/4-20UNC2AX3/4 GR5 Z	
all	19	15G165	HXNUT 1/4-20UNC2BSAE ZC GR2	
all	20	15U180	LOCKWASHER MEDIUM 1/4 ZINCPL	
all	21	15U185	FLATWASHER(USS STD) 1/4" ZNC P	
all	22	53A509	TUBE INSERT 5/16"OD X .53"LG.	
all	23	53A059	SLEEVE 1/4"BRASS PH#60C-4	
all	24	53A059A	NUT 1/4"BR.HOLYOKE AND #61A-4	
all	25	60E004TE	1/4"OD X.170"ID NYL(BLK)TUBING	



CBW FIRST MODULE GENERAL ASSEMBLY

BMP830062
91047B



NOTE: SEE TYPICAL MIDDLE MODULE GENERAL ASSEMBLY FOR ADDITIONAL INFORMATION.

CBW First Module General Assembly

BMP830062R/91047B
(Sheet 1 of 1)



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Parts List—CBW First Module General Assembly

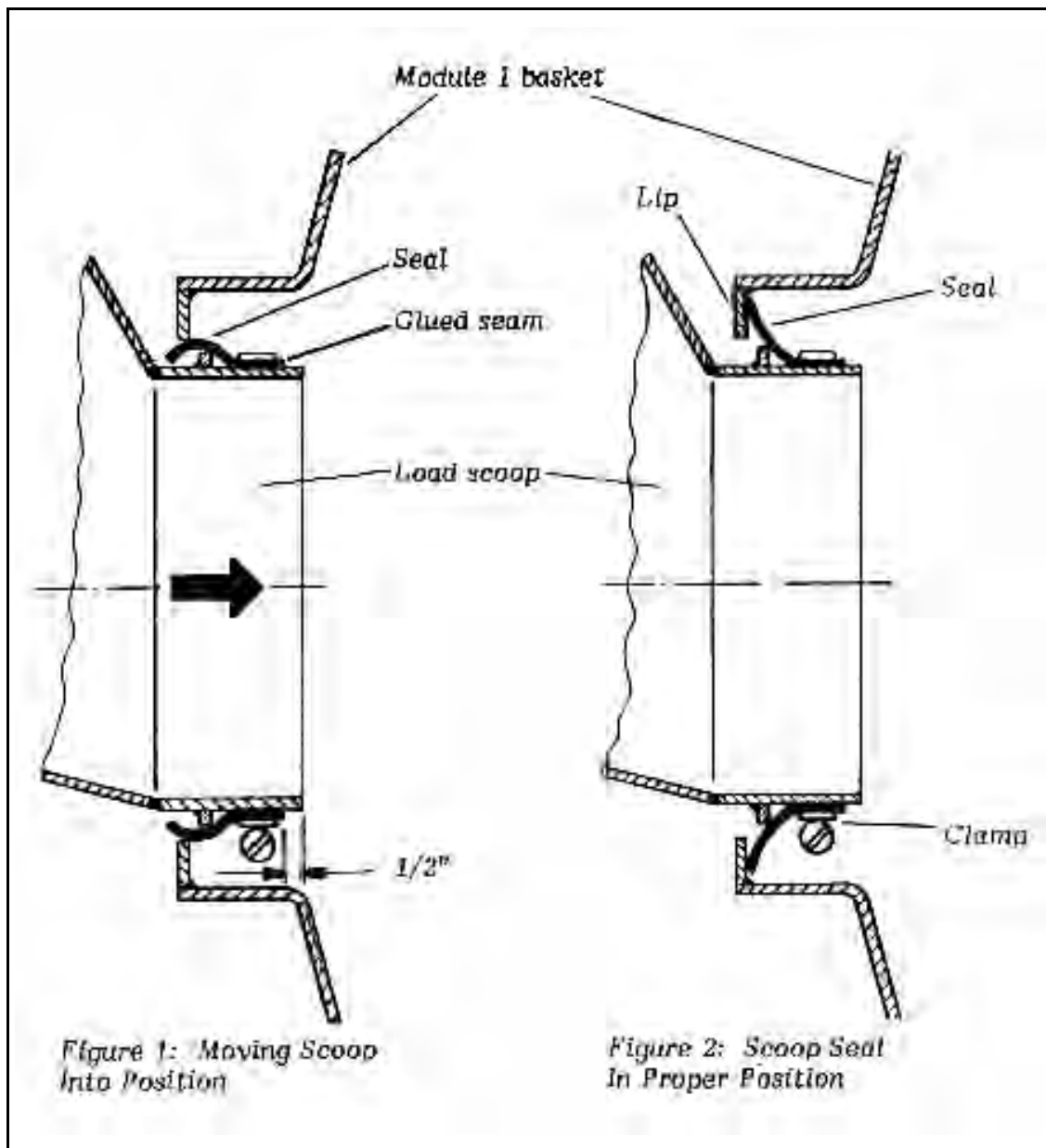
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

Used In	Item	Part Number	Description	Comments
			-----ASSEMBLIES-----	
	Z	A62 03300A	92821D*FUNNEL+SEAL ASSY SIDE MTG	REFERENCE ONLY
			-----COMPONENTS-----	
all	1	60E255	WATER FILL HOSE 2" ID BY THE FOOT	
all	2	96D130	01Z 1+1/2" GATE VALVE BRONZE	
all	3	96D050A	01Z 3/4" BALLVALVE BRZ WATTS#B6100	
all	4	EE162005DL	85477S ELECBOX 16X20X5=BOX+LTCHDOOR	
all	5	06 20337E	96197D ANGLE COVER TOP MID LOAD	
all	6	06 20337C	95461D+COVER=TOP RT LOAD END	
all	7	06 20337A	96197# COVER=BOT RT LOAD END	
all	8	06 20337R	88437C COVER BOT MIDDLE LOAD END	
all	9	06 20337	96197D COVER=BOT LF LOAD END	
all	10	06 20337D	95461D COVER=TOP LF LOAD	
all	12	06 20390	96257D LEG LOAD FUNNEL RIGHT SIDE	
all	13	06 20390A	96257# LEG LOAD FUNNEL LEFT SIDE	

LOAD SCOOP SEAL REPLACEMENT

In order to function properly, the load scoop seal (see First Module Assy. dwg.) must be positioned as shown in Figure 2, with the free edge of the seal resting firmly against the inside of the lip on the Module 1 basket. If seal replacement becomes necessary (and during initial installation of the load scoop), observe the following procedures:

1. With the CBW empty and the cylinders approximately in the Top Dead Center Position, lock out power to the CBW.
2. With the power locked out and observing the published safety, precautions (see safety page), enter Module 1 through the load scoop.



3. If the load scoop has just been installed, the seal which was preattached will probably be positioned as shown in Figure 1. Pull the seal through until it is properly seated (Figure 2).
4. If a new seal is to be installed, remove and replace the seal, making certain that:
 - a) The positioning of the seal and clamp forces the free edge of the seal against the inside of the module lip all around.
 - b) The glued seam of the seal is positioned at top dead center to prevent leaking should the seam come unglued.
5. This completes the load scoop seal replacement.

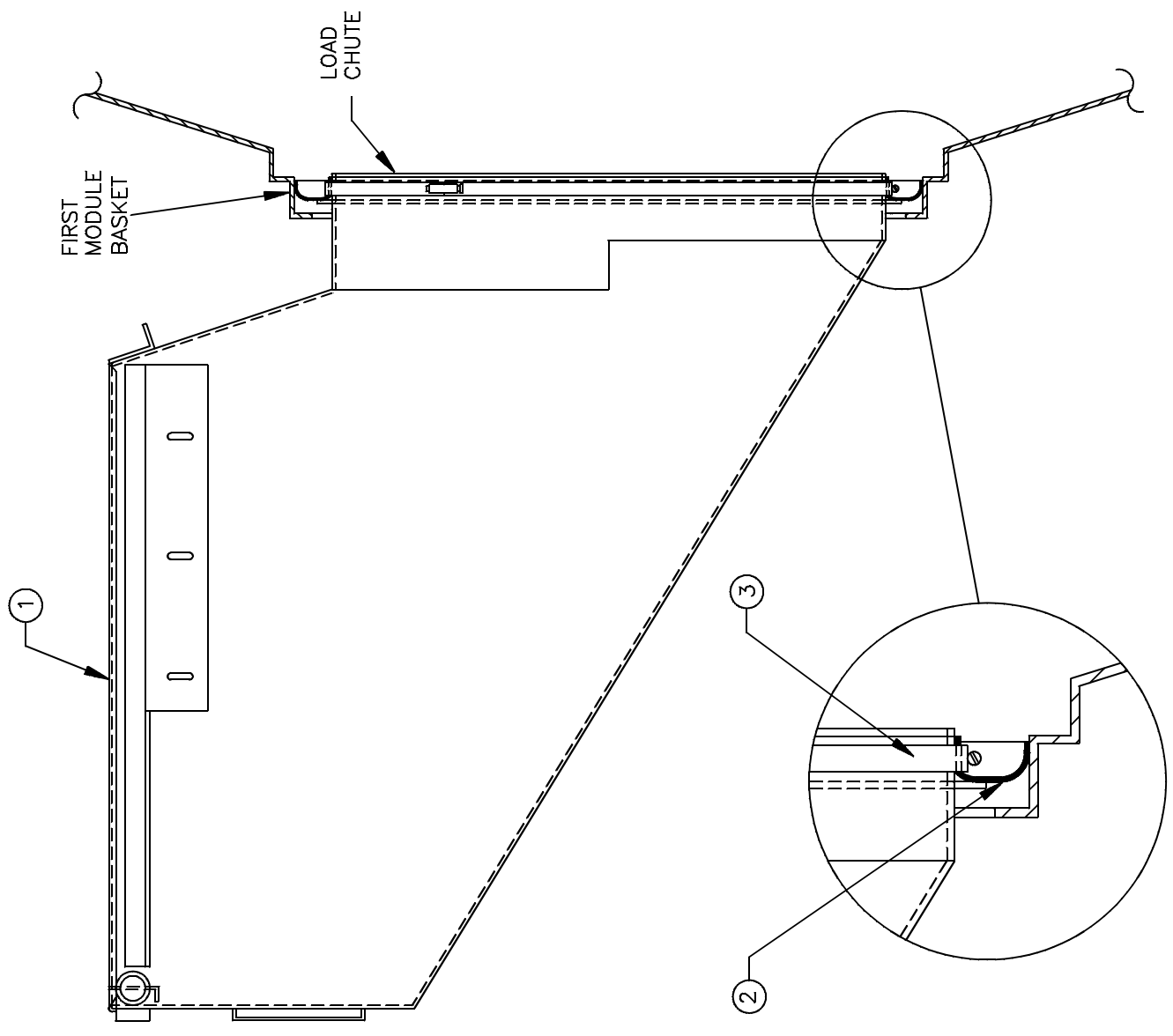


DRAWING

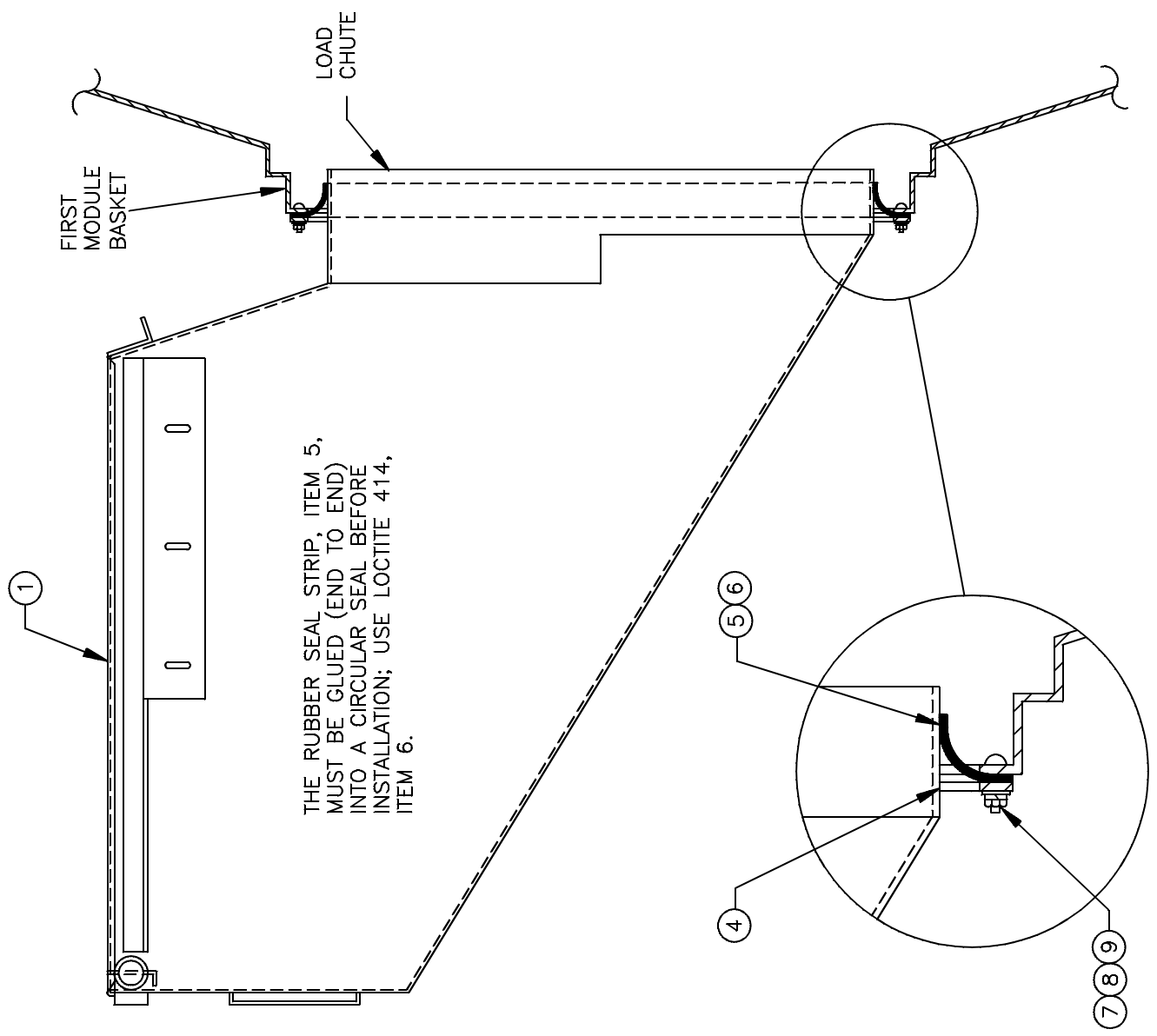
(See other page for parts list, if applicable.)

CBW LOAD CHUTE AND SEAL

BMP910003/91132V (Page 1)



TYPE "A" - SEAL MOUNTED TO CHUTE
 USED ON TUNNELS MANUFACTURED PRIOR TO JUNE 5, 1990



THE RUBBER SEAL STRIP, ITEM 5, MUST BE GLUED (END TO END) INTO A CIRCULAR SEAL BEFORE INSTALLATION; USE LOCTITE 414, ITEM 6.

TYPE "B" - SEAL MOUNTED TO BASKET
 USED ON TUNNELS MANUFACTURED SINCE JUNE 5, 1990



PELLERIN MILNOR CORPORATION
 700 JACKSON STREET/POST OFFICE BOX 400
 KENNER, LOUISIANA 70063-0400 USA

PARTS LIST

(See other page for drawing.)

CBW LOAD CHUTE AND SEAL

BMP910003/91132V (Page 2)

ITEM	PART NUMBER	DESCRIPTION	HOW PART IS USED IN ASSEMBLY (Only if pertinent)
00Z	A62 03300A	91063D*FUNNEL+SEAL ASSY SIDE MTG	REFERENCE
001	W6 20219C	91016D*FUNNEL W/LMT SIDE MTG	
002	06 20370A	86372B SEAL STRIP 1/8X3+1/2X103+3/8	
003	27A083	HOSECLAMP,5+1/8-7.0" CADSCR HS-104	
004	06 20212N	90516C LOAD CHUTE SEAL-OUTER RING	
005	06 20212P	90491B CBW-LOAD CHUTE SEAL	
006	20C010A	SUPERBONDER LOCTITE 414 #41450	
007	15G180	HEXNUT 1/4-20 BRASS	
008	15U181	LOCKWASHER MEDIUM 1/4 SS18-8	
009	15U180	LOCKWASHER MEDIUM 1/4 ZINCPL	
		***** END OF PARTS LIST *****	

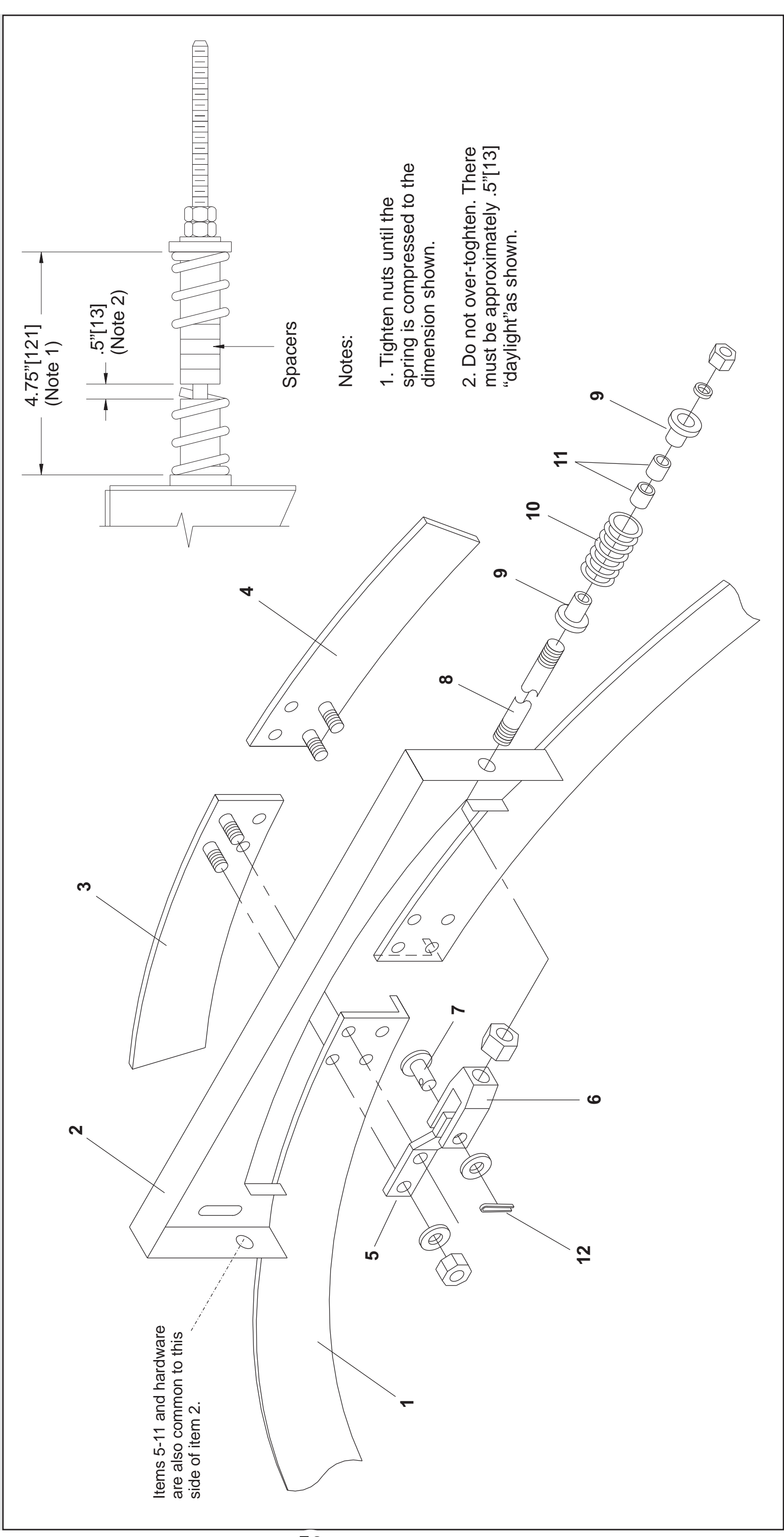
Tension Seal Assembly
76028G2/G3 & 76039G2/G3 Tunnels, 92048G4 Tunnels

BMP840026/2011474B
 (Sheet 1 of 2)



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Parts List—Tension Seal 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	G62 00400H	INST SPLIT SEAL-ENTRY&EXIT	76028G2/G3 76039G2/G3
	B	GSS63001	SPLIT -LSEAL INSTALL	92048G4
-----COMPONENTS-----				
A	1	X6 20615	SEAL=OPEN CUT&DRILL	
B	1	X6 30038	SEAL OPEN,CUT&DRILL-8648CBW	
all	2	W6 20639	*L-SEAL CVR IN-LIP EXIT WLMT	
all	3	W6 20638	PLT=REINF-SPLT-SL-LG-LF-WLMT	
all	4	W6 20637	PLT=REINF-SPLT-SL-LG-RT-WLMT	
all	5	06 20416A	BRKT YOKE CONN.SPLIT SEAL	
all	6	17A004	ADJ YOKE END 1/4-28 XYLAN COAT	
all	7	17A004A	CLEVIS PIN 1/4"X3/4"DRILLED SS	
all	8	06 20416C	ROD=SPRING TENSION SPLITSEAL	
all	9	06 20416D	BUSHING=SPRING ALIGNMENT	
all	10	06 20162B	SPRING COMP.SPLIT SEAL TENS	
all	11	27B17006HN	SPCR .281ID.613OD.500L	
all	12	15H019	STDCOTTERPIN 1/16X1/2 SS18-8	



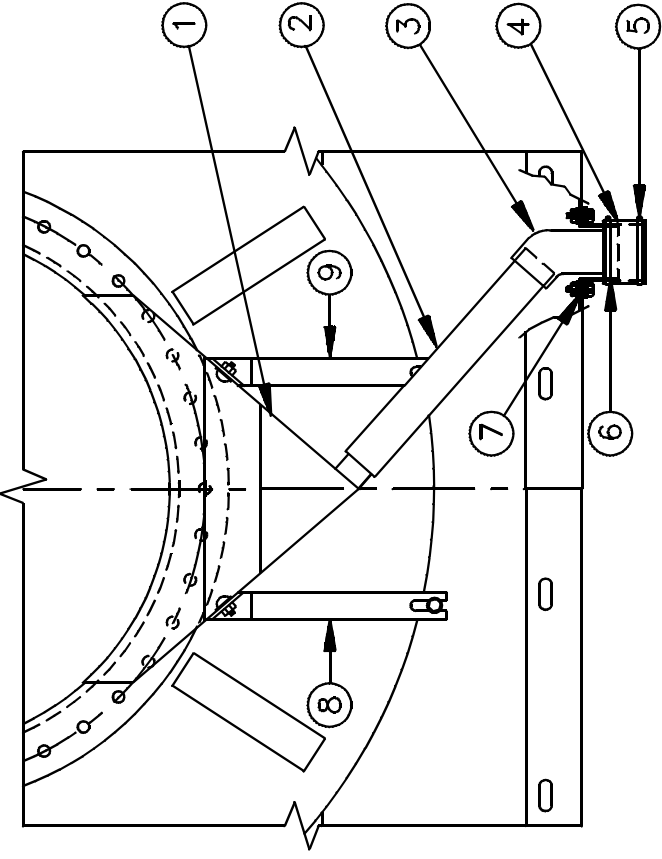
DRAWING

(See other page for parts list,
 if applicable.)

CBW ENTRY AND EXIT WATER COLLECTORS

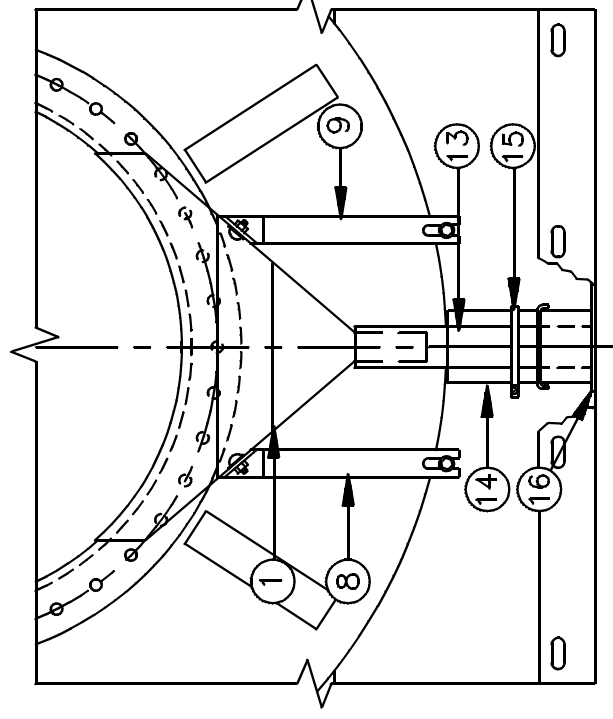
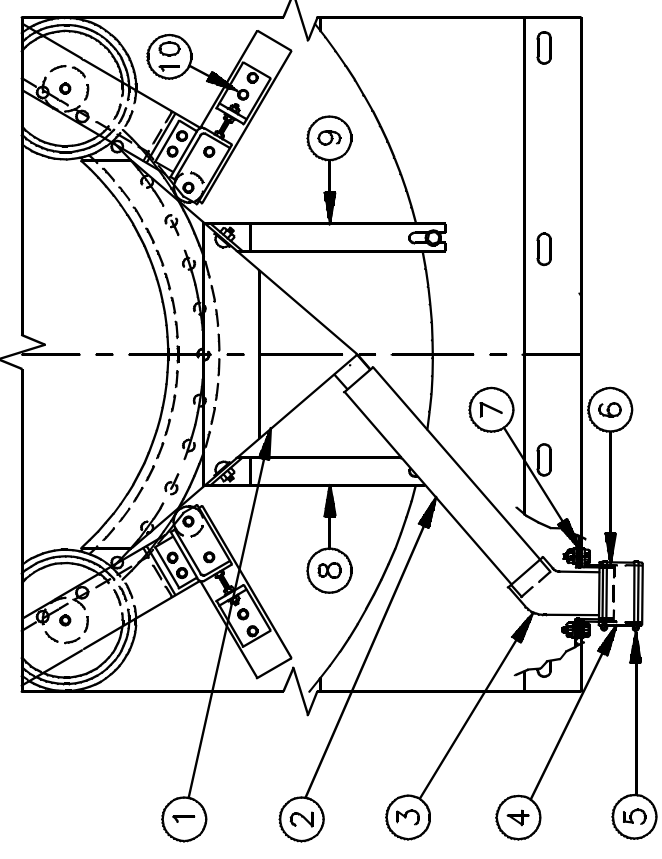
BMP910017/91341V (Page 1)

**ENTRY WATER COLLECTOR
 ASSEMBLY**

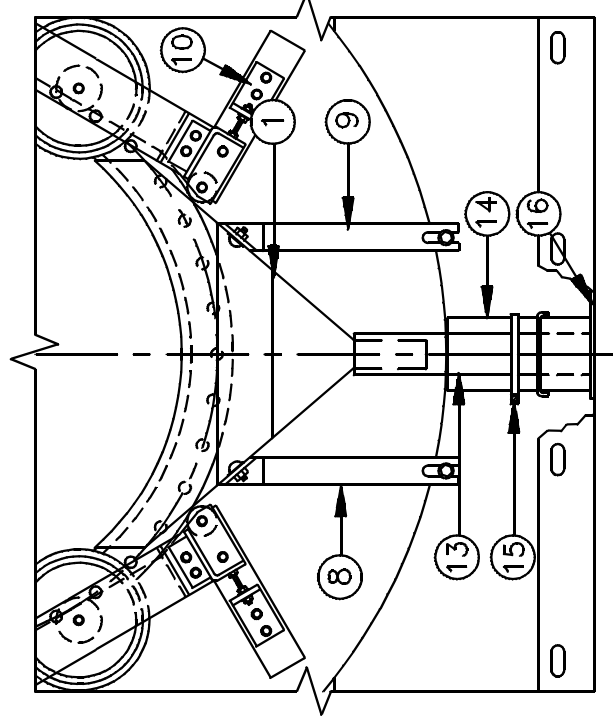


ANGLED SCOOP USED
 PRIOR TO AUGUST 28,
 1990.

**EXIT WATER COLLECTOR
 ASSEMBLY**



PLASTIC SCOOP TO
 DRAIN STRAIGHT DOWN
 USED SINCE
 AUGUST 28, 1990.





PARTS LIST

(See other page for drawing.)

CBW ENTRY AND EXIT WATER COLLECTORS

BMP910017/91341V (Page 2)

ITEM	PART NUMBER	DESCRIPTION	HOW PART IS USED IN ASSEMBLY (Only if pertinent)
00A	G62 03100H	88261D PLASTIC SCUPPER ASSY=EXIT	
00B	G62 03100I	87421 @ PLASTIC SCUP.ENTRY W/O TARG.	
00C	G62 03100J	87421D PLASTIC SCUPPER ENTRY W/TARG	
00D	G62 03100K	88261#PLASTIC SCUP. FIRST&LAST EXIT	
00E	G62 03100L	91066D EXIT WATER COLLECTOR ASSY.	
00F	G62 03100M	91066D ENTRY WATER COLLECTOR ASSY.	
001A	06 20629B	87431D EXIT SIDE-WATER COLL NO-TARG	00A
001B	06 20629C	87431D INLET WATER COLLECT NO-TARG	00B
001C	06 20629	87016D INLET SIDE-WATER COLLECTOR	00C
001D	06 20629A	87016YEXIT SIDE-WATER COLLECTOR	00D
001E	06 20629D	90246D ENTRY&EXIT H2O COLLECT-TARG	00E,00F
002	06 20632B	88172# SCUPPER BRKT LEFT SIDE	
003	51JR2A2A4F	ELBOW PIPE 45DEG 2" SXS PVC SK40	00A,00B,00C,00D
004	60E304C	01Z HOSE 3.5"IDX5"LONG GATES4175EC	00A,00B,00C,00D
005	27A084S	HOSECLAMP 3+9/16-4.5" SS SCR HSS-64	00A,00B,00C,00D
006	W6 20631F	87241B*DRAIN FLANGE WLMT	00A,00B,00C,00D
007	06 20631D	87241B GASKET=CBW DRAIN FLANGE	00A,00B,00C,00D
008	06 20632B	88172# SCUPPER BRKT LEFT SIDE	
010	06 20242	83211B ANGLE=LOCK WHEELPOSIT 4/MOD	00E
011	51LBZAN18K	91113N NIPPLE 2"X18.5"NO THD 40 PVC	00E,00F
012A	06 20525	91102B+EXIT DRAIN PIPE-SUPPORT BKT	00E
012B	06 20526	91066B+ENTRY DRAIN PIPE-SUPPORT BKT	00F
013	27A084S	HOSECLAMP 3+9/16-4.5" SS SCR HSS-64	00E,00F
014	06 20527	91066B WATER DRAIN PIPE-SUPP. STRIP	00E,00F
015	27A084S	HOSECLAMP 3+9/16-4.5" SS SCR HSS-64	
016	06 20527	91066B WATER DRAIN PIPE-SUPP. STRIP ***** END OF PARTS LIST *****	

CBW Typical Middle Module General Assembly

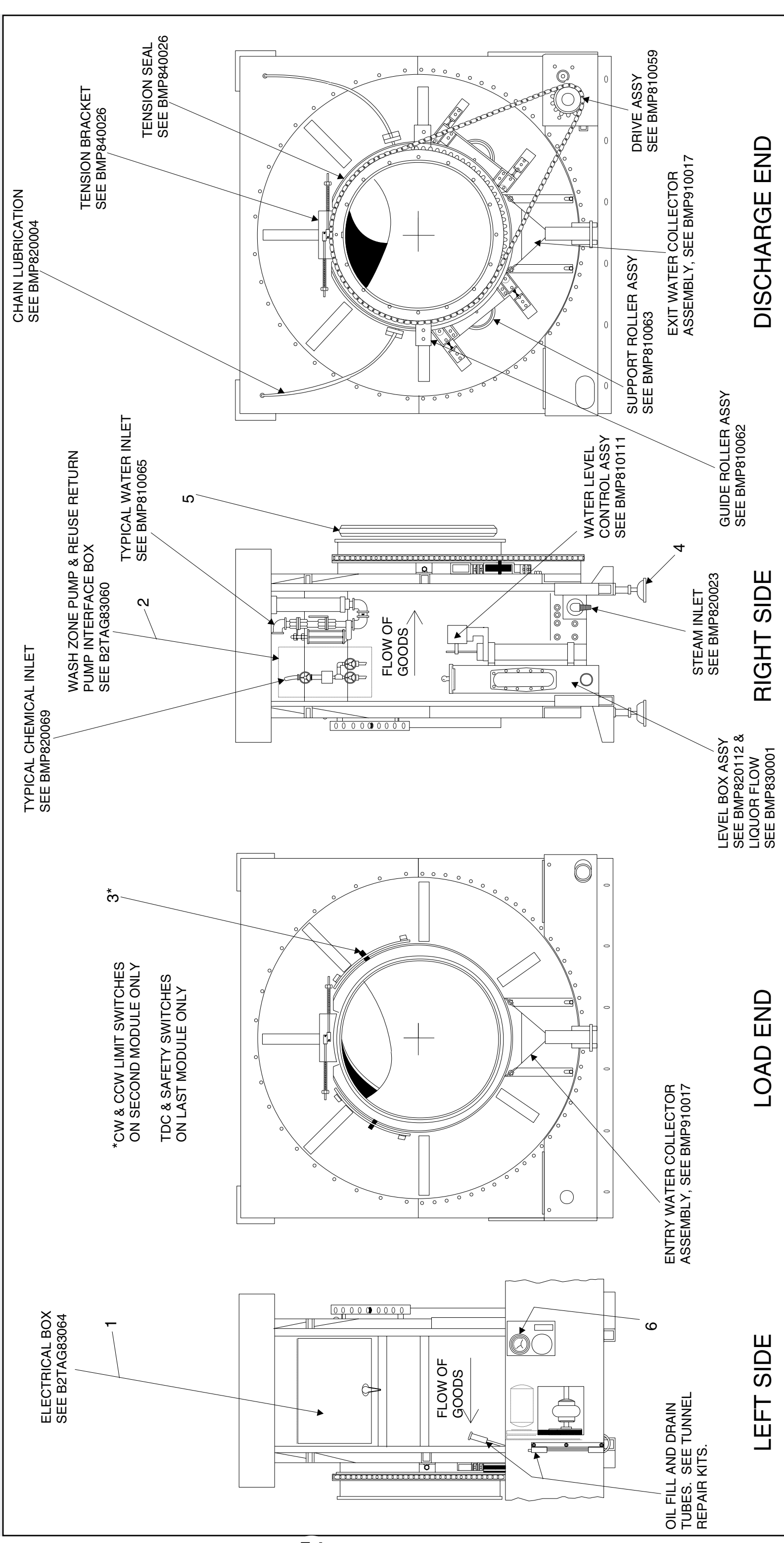
BMP840027/98313V
(Sheet 1 of 2)



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BMP840027/98313V (1 of 2)

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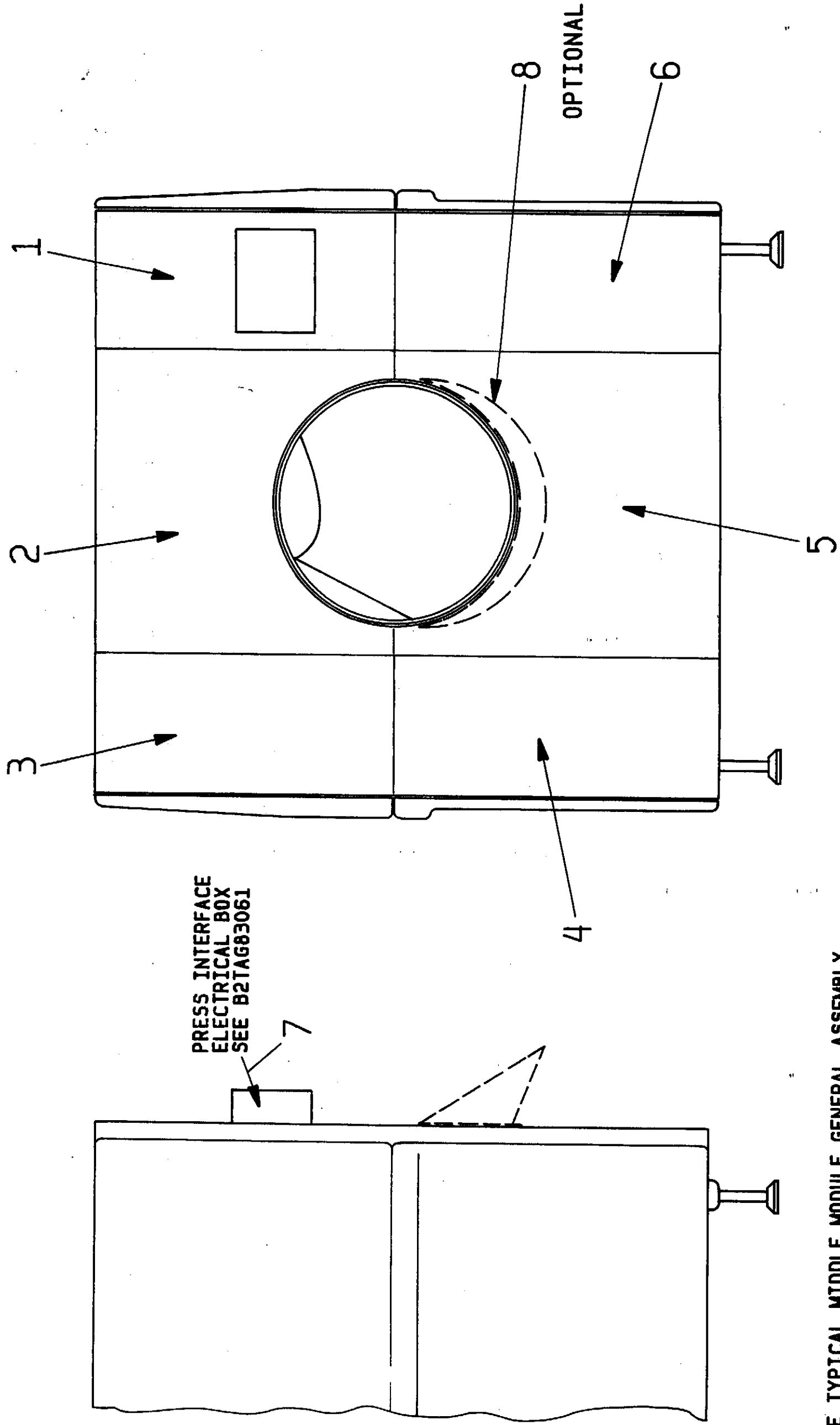
Parts List—CBW Typical Middle Module General Assembly
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.)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

Used In	Item	Part Number	Description	Comments
			----- COMPONENTS -----	
all	1	EE182607A	90217S ELECBOX 18X26X07 CBW MODULE	
all	2	EE162005DL	85477S ELECBOX 16X20X5=BOX+LTCHDOOR	
all	3A	09RPS30ADU	98271APRXSW.QK CONN.30M NO-DC UNSHL	
all	3B	09RPSDC002	04Z CONN.STR FEMALE DC 3A 300V 2M	
all	4	A62-01800A	88252B*TUNNEL FEET ASSY 1+1/4 2/MOD	
all	5	X6-20372B	90046C RING=BRG.CYL SUPPORT LARGE	
all	6	30R000621	03ZSTORK COMBISTAT 2-POLE 70-230F	

Used In	Item	Part Number	Description	Comments

CBW LAST MODULE GENERAL ASSEMBLY

BMP830063
83341B



NOTE: SEE TYPICAL MIDDLE MODULE GENERAL ASSEMBLY
FOR ADDITIONAL INFORMATION.

CBW Last Module General Assembly

BMP830063R/83341A
(Sheet 1 of 1)



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Parts List—CBW Last Module General 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-----				
none				
-----COMPONENTS-----				
all	1	06 20305B	85243D COVER=TOP RT UNLOAD END	
all	2	06 20305D	95461D COVER=TOP MIDDLE UNLOAD	
all	3	06 20305C	85243# COVER=TOP LF UNLOAD END	
all	4	06 20305E	86356D COVER=BOT LF UNLOAD END	
all	5	06 20305H	92507C COVER=BOT MIDDLE UNLOAD END	
all	6	06 20305F	86257D COVER=BOT RT UNLOAD END	
all	7	EE162005DL	85477S ELECBOX 16X20X5=BOX+LTCHDOOR	
all	8	W6 20339	81113D*UNLOAD SCOOP WLMT	

SUPPORT ROLLER REPLACEMENT

APPLICABILITY 76032 CBW

SCOPE: How to raise basket off of rollers, replace and adjust rollers.

GENERAL

The support rollers on every CBW module are adjusted at the factory for correct alignment and weight distribution. With proper lubrication, these components should provide long service life under continuous use. If it becomes necessary to replace support rollers, the following procedures will simplify the task of replacement and insure that the new rollers are also properly adjusted.

NOTE: Two repair kits for support rollers are available from the MILNOR factory (see "Tunnel Repair Kits" elsewhere). One provides the bearing and seals for repair of one support roller and the other provides the entire wheel assembly.

Proceed as follows for each roller to be replaced:

1. Using a "come-along" and cable wrapped under the cylinder and secured to the upper longitudinal braces as shown in Figure 1 at right, raise the basket just until it is suspended above the rollers. The rollers should then turn freely.
2. Referring to Figure 2, next page, attach one end of a rope to the roller bracket and run the other end over the top interconnecting frame. Secure the rope (**not on the temp controller bracket**).
3. Remove the grease fitting attached to the center of the roller, and secure it out of the way.

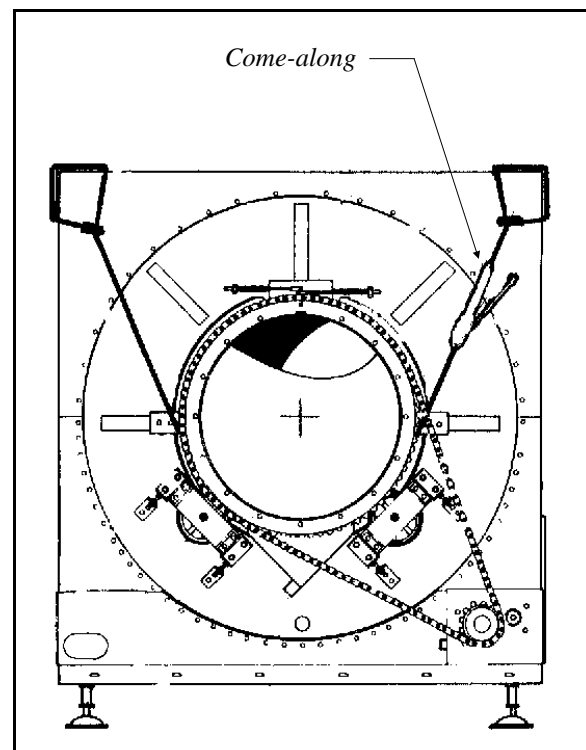


Figure 1 (MSSMD407AE)
Raising Basket

CAUTION: The support roller will be removed in the next step. **Do not** loosen or remove the positioning bolts, adjusting nuts, lock nuts or the bracket they are attached to. (See Figure 2). These items are not part of the Support Roller Assembly and must be left tightly attached to the shell. The positioning bolts were adjusted at the MILNOR factory and must remain as originally adjusted to insure proper alignment of the support roller when it is replaced.

4. Remove all the holding bolts. (See Figure 2.) Check for washers between the roller and the shell front and keep track of washer positions.

NOTE: The Small Holding Bolts identified in Figure 2 were only used on some older machine models. If your machine has these bolts, remove them. They will not be replaced.

5. Let the rope support the weight of the roller as you guide the roller out around the chain and out from the CBW.
6. Untie the old roller. If you purchased a complete new support roller assembly, proceed to Step 8.
7. If you purchased replacement bearings and seals, rebuild the support roller assembly using the replacement components.

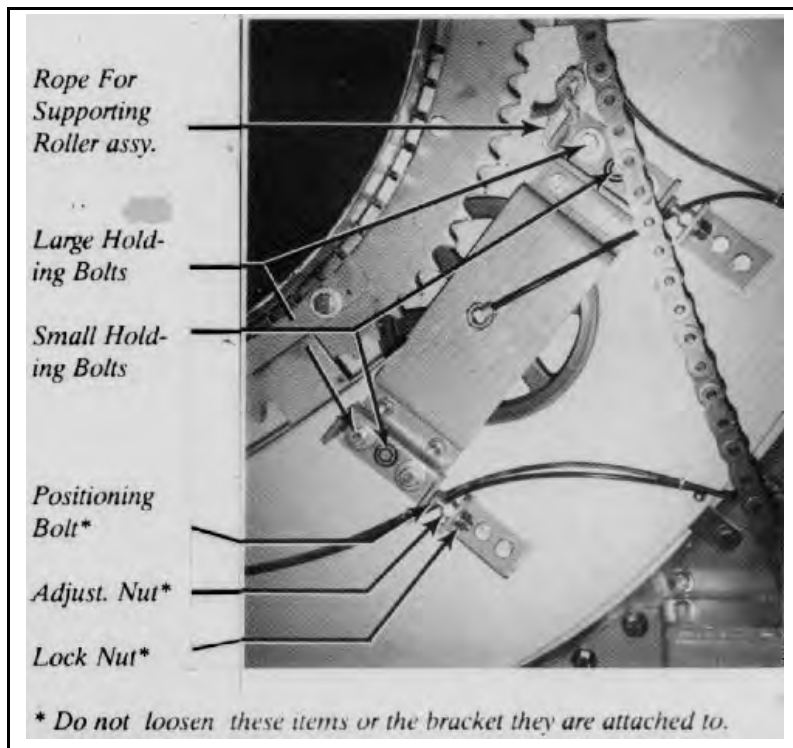


Figure 2 (MSSMD407AE)
Removing Roller

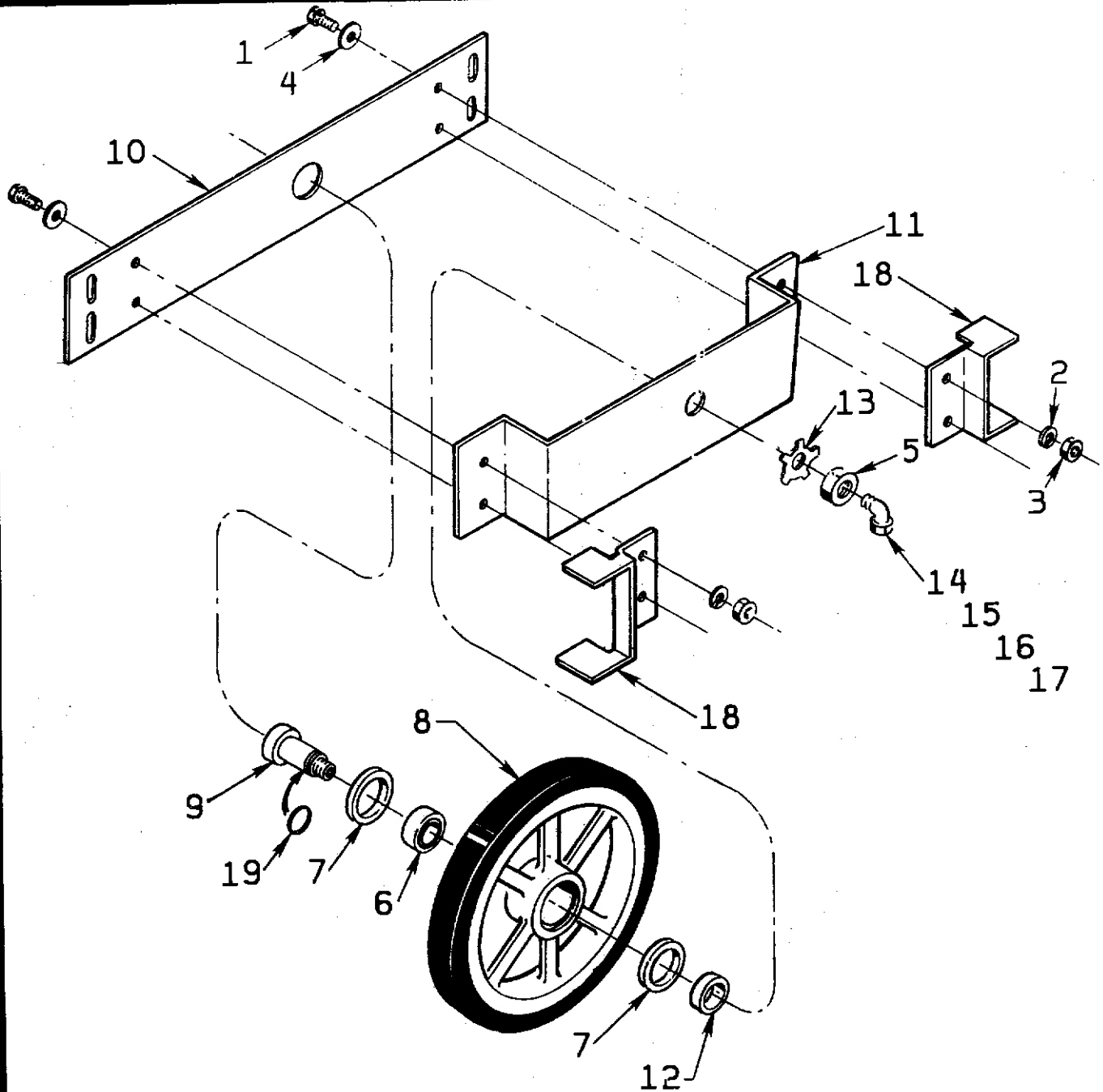
8. Tie the new or rebuilt roller assembly to the rope. Let the rope support the weight of the roller as you guide the roller back into position, then secure the rope.
9. On early models of the CBW, the back of the support roller shafts did not protrude through the blue plastic water catcher. On newer models, however, this shaft is longer. Check to see if there is a hole in the water catcher to accommodate the shaft. If not, a hole must be drilled in the water catcher.

-
10. Replace the large holding bolts into the proper holes, allowing the roller assembly to rest on the heads of the two positioning bolts. Tighten the holding bolts fully. **Remember to replace any washers behind the roller in their proper positions.** If your machine had small holding bolts, do not replace these. They may be discarded.
 11. Remove the rope.
 12. Install the grease fitting on the roller.
 13. Lower the basket slowly and then remove the jack.
 14. Check to insure that the basket makes contact with the roller. This completes the installation of the roller.
 15. After all support rollers have been installed, run the CBW and observe the rollers as the baskets rotate. The rollers should not rub the sides of the support track or the shell front or the plastic splashguards. If rubbing does occur, then raise the basket and insert or remove spacers between the roller and shell front as necessary.
 16. It is not necessary to lubricate the new support rollers upon installation. They were prelubricated at the factory. However, after one week of operation, they should be relubricated as explained in the lubrication instructions elsewhere. Also, at this time check to be sure all bolts are tight.



SUPPORT ROLLER ASSY.

BMP810063
93051B



NOTE:
TORQUE ITEM 9 TO 50FT/LBS.
DO NOT USE AN IMPACT
WRENCH ON THIS
FASTENER.

Support Roller

BMP810063R/91446A
(Sheet 1 of 1)



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

Litho in U.S.A.

Parts List—Support Roller

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	A62 00100C	89313D SUPP.ROLLER 2.5X10 W/BRKT	
			-----COMPONENTS-----	
all	1	15K162	HXCAPSCR 1/2-13UNC2AX1.5 GR5 PLATED	
all	2	15U300	LOKWASHER REGULAR 1/2 ZINC PLT	
all	3	15G230	HXNUT 1/2-13UNC2B SAE ZINC GR2	
all	4	15U280	01Z FL+WASHER(USS STD)1/2 ZNC PL+D	
all	5	15G245	HXFINJAMNUT 3/4-10UNC2 SS18-8	
all	6	54AV25401	01Z BRG TIMK #L44643 ASSY 902A8 1BX	
all	7	24S033A	01Z SEAL 1.25X2.125X.375 JM# 19653	
all	8	06 20600B	94503D ROLLER 10X2.5/1.5" URETHANE	
all	9	06 20602A	88407B SHAFT=2.5 WIDE ROLLER-SHORT	
all	10	06 20155A	90173B PLATE=WHEEL MTG INNER-SHORT	
all	11	06 20612A	92393C BRKT=ROLLER SUP OUTER-SHORT	
all	12	06 20603	90197B COLLAR=2.5"WIDE ROLLER	
all	13	06 20070	80433B LOCKING WASHER ROLLER SHAFT	
all	14	53A031B	BODY-MAL90ELL1/4X1/8COMPPH#269C-42B	
all	15	53A059A	NUT 1/4"COMP.HOLYOKE ANDERSON#61A-4	
all	16	53A500	1/4" SLEEVE-DELRIN	
all	17	53A501	TUBEINSERT .170"OD	
all	18	06 20241A	88172C BRKT=RT POS WHL POSIT-SHORT	RIGHT SIDE
all	18	06 20241B	88172# BRKT=LF POS WHL POSIT-SHORT	LEFT SIDE
all	19	60C120	ORING 7/8 ID 1/16CS BN 70 DURO #020	
all	20	20H012A	SHELL ALVANIA EP-2 LF E= 14 OZ CART	
all	21	20C014S	PIPE SEALANT-PST-W/TEF 250CC #56765	
all	22	20C006N	PRIMER LOCQUIC-N 60Z #76456	

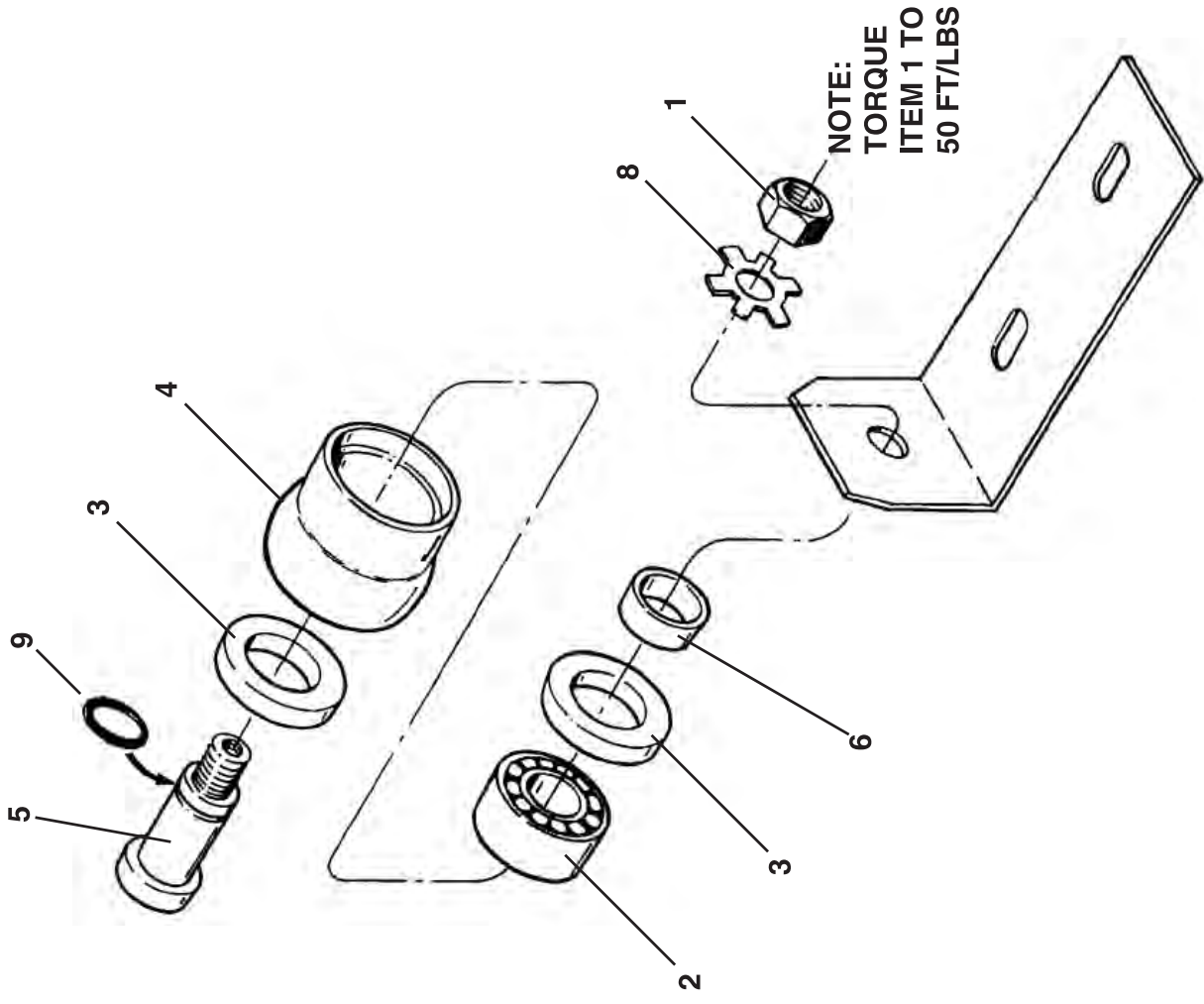


DRAWING AND PARTS LIST
 (See other page for more,
 if applicable.)

GUIDE ROLLER ASSEMBLY
76032CBW®

BMP810062/94477V (Page 1)

ITEM	PART NUMBER	DESCRIPTION	HOW PART IS USED IN ASSEMBLY (Only if pertinent)
001	15G245	HXFJNAMNUT 3/4-10UNC2 SS18-8	
002	54AV25401	01Z BRG TIMK #L44643 ASSY 902A8 1BX	
003	24S033A	01Z SEAL 1.25X2.125X.375 JM# 19653	
004	06 20604	88407C ROLLER=GUIDE CYL=3"TRACK	
005	06 20020A	88407B SHAFT=SIDE ROLLER	
006	06 20068	86477B COLLAR=ROLLER BRG	
007	06 20608	90342C ANGLE=GUIDE ROLLER 3"TRACK	
008	06 20070	80433B LOCKING WASHER ROLLER SHAFT	
009	60C120	ORING 7/8 ID 1/16CS BN 70 DURO #020 ***** END OF PARTS LIST *****	

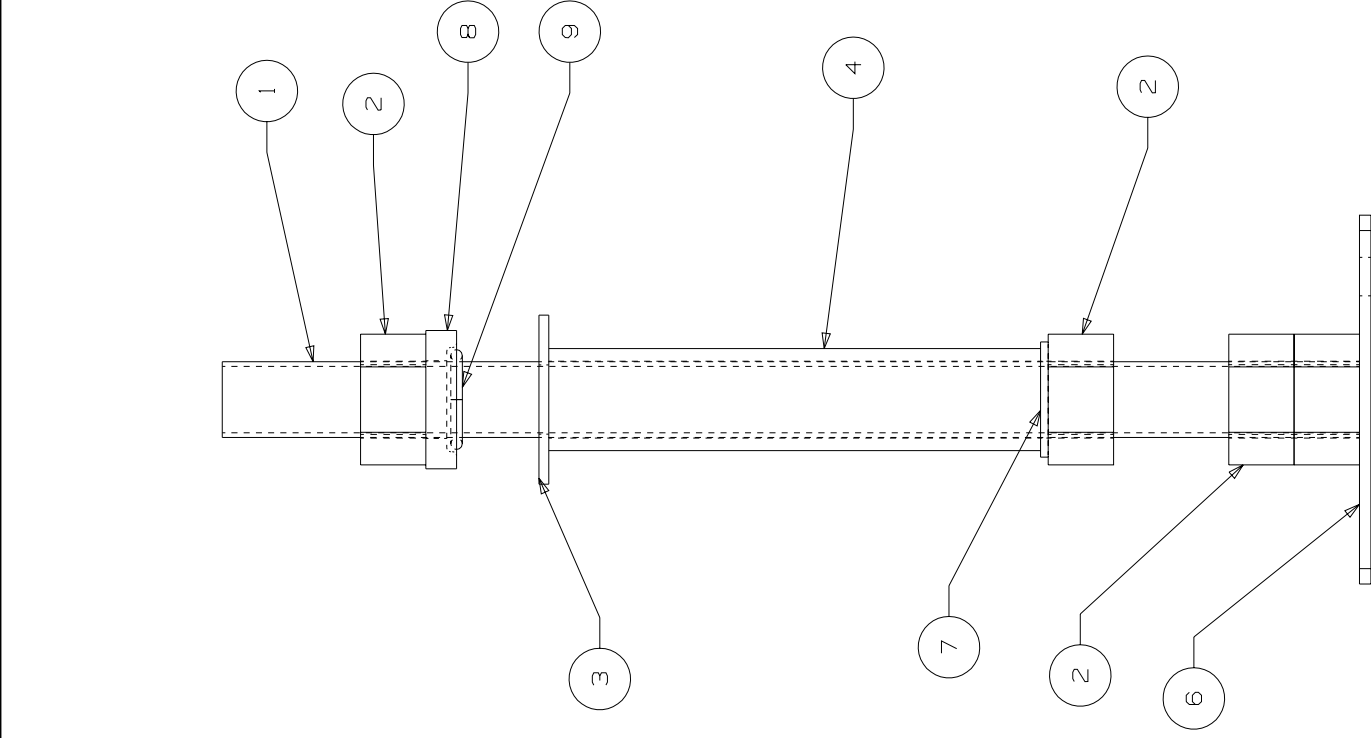


How to Read Parts List

Reference Item Numbers—Items 00A, 00B, 00C, etc., or 00X, 00Y, 00Z, etc., appearing at the top of some parts lists, are for reference and provide:

1. The part number for the entire assembly depicted in the drawing or a major sub-assembly thereof, and/or
 2. The range of machine models this drawing applies to.
- If more than one reference item appears, this usually means this drawing applies to more than one assembly (and thus to more than one range of machines).

Component Item Numbers—For any item on the drawing (e.g., item ①), there may be several corresponding items on the parts list (e.g., 001A, 001B, 001C, etc.) which are similar components on different assemblies. “How Part Is Used In Assembly” identifies which components apply to your machine, by listing either the machine model, or the reference item number from the top of the parts list (e.g., 00A, 00B, 00C, etc.), or a particular characteristic (e.g., bronze or stainless steel), or special ordering information, such as a repair kit number.



Parts List—Tunnel Feet

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		A62 01800A	*TUNNEL FEET ASSY 1+1/4 2/MOD	
B		A62 01800B	TUNNEL FEET 1+1/4 2/MOD 3H CAN	+3" HIGH CAN
			-----COMPONENTS-----	
A	1	17R125A15K	STUD=DRIVEBASEADS 1+1/4X15.5	
B	1	17R125A18K	ROD=1.25X-8UNX18.5 ALLTHRD. ZN	+3" HIGH CAN
all	2	15G261	HVHNUT 1+1/4-8UNC2B ZINC GR2H	
all	3	15U442	FLATWASH 1.875ODX1.25IDX.125TH	
all	4	5N1E05AG40	NPT NIP 1.25X5 PE DEB GALSTLS4	
all	5	15U425	LOCKWASHER MEDIUM 1+1/4"ZINC P	
all	6	W6 20401S	FOOT=CBW MOUNT FLAT	
all	7	15U440	FLATWASH(USS STD) 1+1/8" STLHD	
all	8	06 20344A	TUNNEL FEET WASHER	
all	9	60C124	ORING 1.25 ID 3/16CS BN70 #322	

Water and Steam Schematics and Devices

3

Universal Level Box Assembly

BMP960007/96147V
(Sheet 1 of 1)



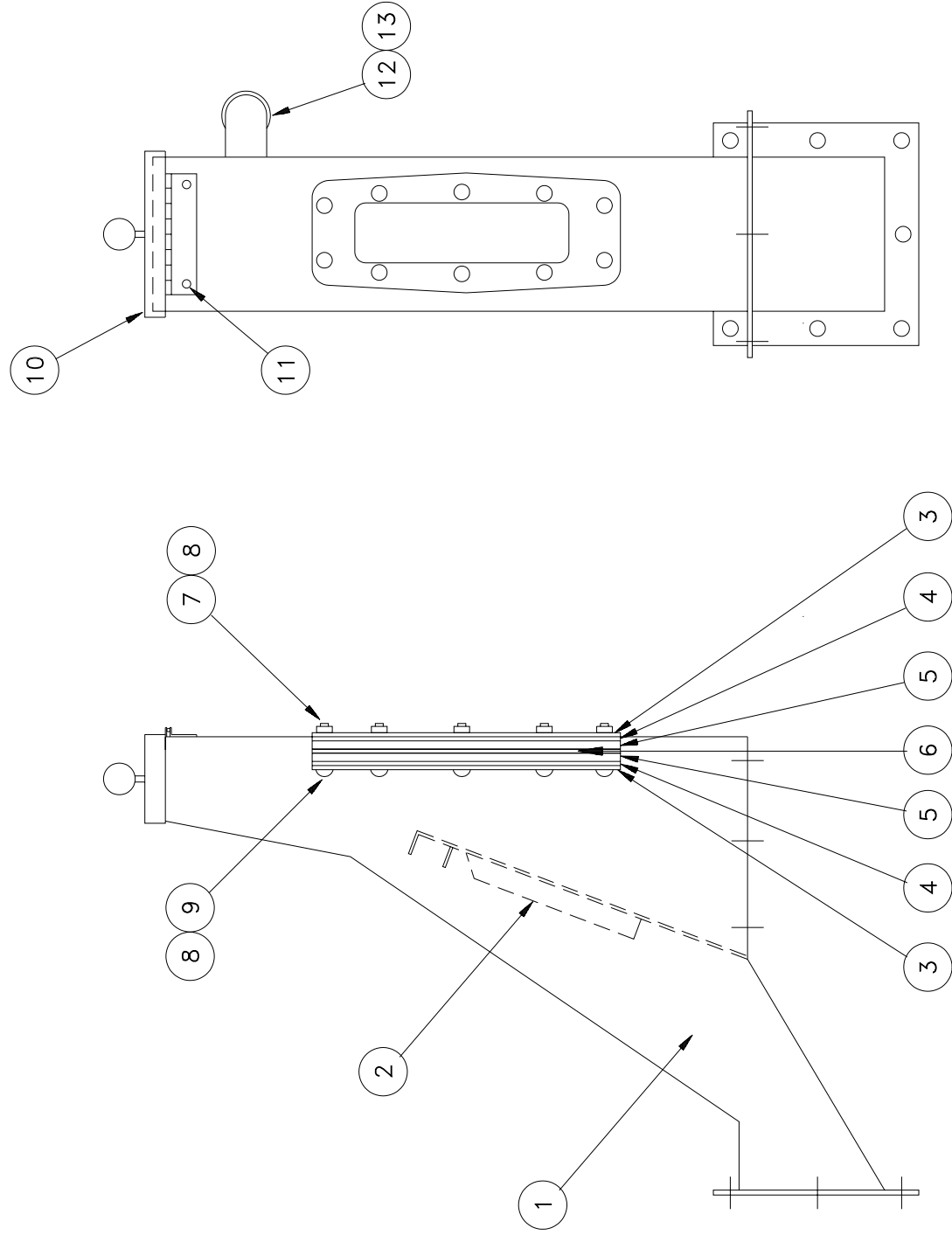
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BMP960007/96147V (1 of 1)

Litho in U.S.A.

Parts List—Universal Level Box 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
	A	A62 02900D	ASSEMBLIES 91136T MKII UNIV LEV BX ASSY-LOAD	
			COMPONENTS	
all	1	W6 20700C	91481D*MKII UNIV LEV BX LOAD WLMT	
all	2	06 20707	93456C ADJUSTABLE WEIR WORKWEAR	
all	3	02 16126	CLAMPRING-SS=LEVEL INDICATOR	
all	4	02 15851D	93123B GASKET LEVEL IND-OUTER DYA	
all	5	02 15852A	92563# GASKET=SIGHT GLASS-INNER 3/3	
all	6	02 15006	83096AGLASS=LEVEL INDICATE 1/42WEHU	
all	7	15K091E	BUTSOKCAPSCR 3/8-16NCX 1" SS18-8	
all	8	24G030N	ROLLED WASHER .379"ID NYLTITE #37W	
all	9	15G206	HEXNUT 3/8-16 UNC2 SS 18-8	
all	10	A62 00600A	94212C*LID ASSY LEVEL BOX BATH EXT	
all	11	15P010	12Z PHILPAN TRDCUTSCRTP10-24X1/2SS	
all	12	06 20545	92297B ADAPTER=SUD DRAIN ELBOW TUBE	
all	13	27A084S	HOSECLAMP 3+9/16-4.5" SS SCR HSS-64	



Flownot Valve Assemblies & Installation

76028,76032,76039 CBW®

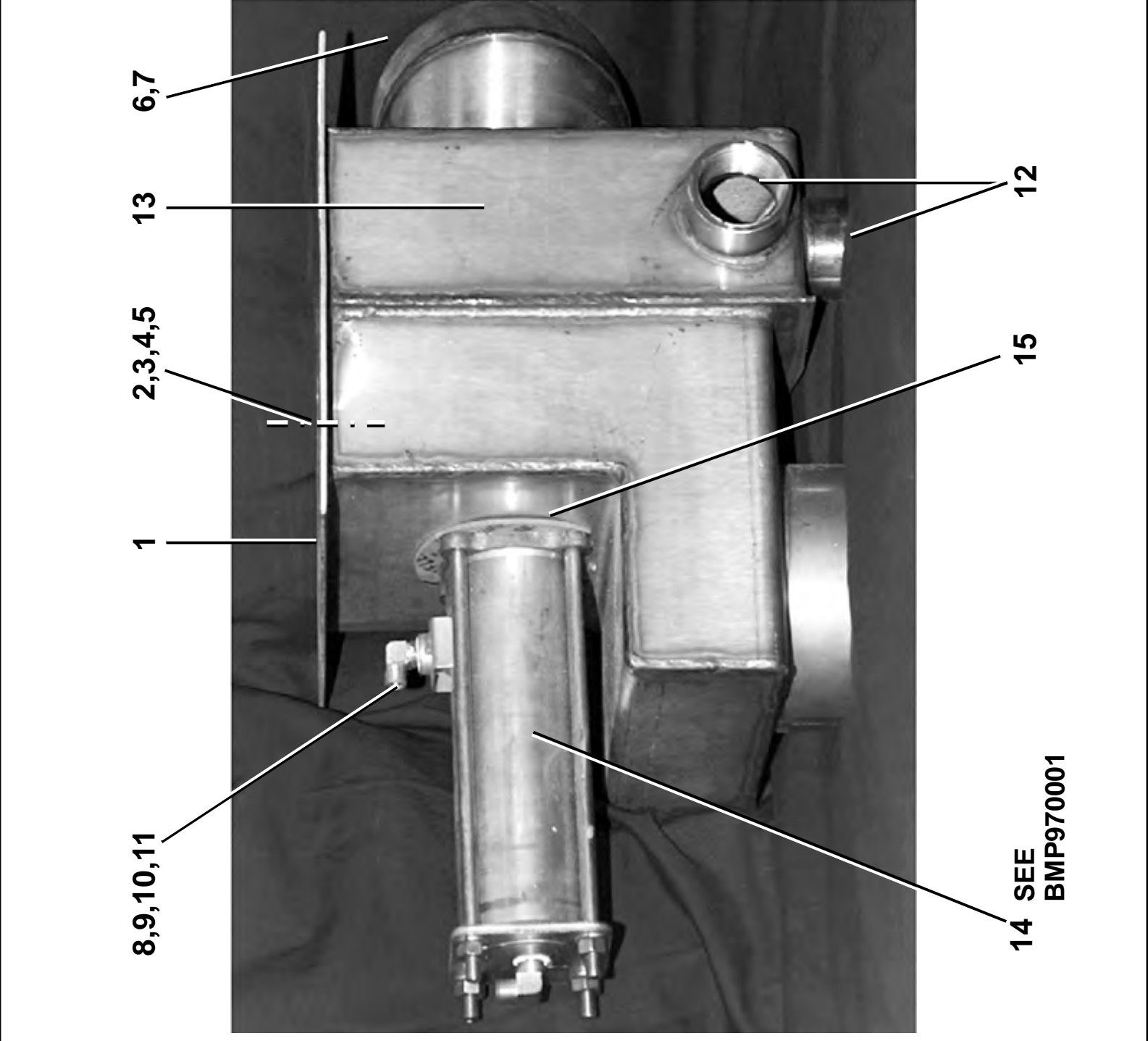


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BMP940115/97041V (1 of 1)

Litho in U.S.A.

BMP940115/97041V
(Sheet 1 of 1)



14 SEE
BMP970001

Parts List—Flownot Valve Assemblies & 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	G64FN001		93000Z*FLOWNOT VALVE AT LOAD INSTLL	76028 FLOW TO LOAD
B	G64FN001A		93000Z FLOWNOT VALVE AT UNLD INSTLL	76028 FLOW TO UNLOAD
C	G64FN004		93000Z*7632 FLOWNOT AT LOAD INSTALL	76032 FLOW TO LOAD
D	G64FN004A		93000Z 7632 FLOWNOT AT UNLD INSTALL	76032 FLOW TO UNLOAD
E	G65FN001		93000Z 7639 FLOWNOT AT UNLOAD INST	76039 FLOW TO UNLOAD
F	G65FN001A		93000Z*7639 FLOWNOT AT LOAD INSTALL	76039 FLOW TO LOAD
G	A64FN001		93517# ASSY=FLOWNOT VALVE AT LOAD	A
H	A64FN001A		93517B ASSY=FLOWNOT VALVE AT UNLD	B
J	A64FN004		93517# ASSY=7632 FLOWNOT AT LOAD	C
K	A64FN004A		93571# ASSY=7632 FLOWNOT AT UNLD	D
L	A65FN001		93517# ASSY=7639 FLOWNOT AT UNLOAD	E
M	A65FN001A		93517# ASSY=7639 FLOWNOT AT LOAD	F
			-----COMPONENTS-----	
A,B,C,D	1	06 20701M	91326BGASKET=UNVSL DYE LEVELBOX	
E,F	1	06 50092	93083C 7639=FLOWNOT VLV. LEVBX GSKT	
all	2	15K146	HEX CAP SCR 1/2-13 UNC2 X 1 SS18-8	
all	3	15U310	LOKWASHER REGULAR 1/2 SS18-8	
all	4	15G234B	HEXNUT 1/2-13UNC2B BRASS	
all	5	24G032N	ROLLED WASHER .50ID NYLTITE #50W	
A,B	6	60E312A95	HOSE=5"ID X 9.5"LG GATES 75W;4175EC	
C,D	6	60E312A75	02Z HOSE 5"IDX7.5"LG GATES75W4175EC	
E,F	6	60E319A08K	HOSE=6"ID X 8.5"LG GATES #4175-0902	
A,B,C,D	7	27A086S	HOSECLAMP 3+1/8-6"SSSCR#HSS88	
E,F	7	27A083	HOSECLAMP 5+1/8-7"CADSCR#HS104	
all	8	60E004TE	04Z 1/4"OD X.170"ID NYLON TUBING *	
all	9	53A059A	NUT 1/4"COMP.HOLYOKE ANDERSON#61A-4	
all	10	53A500	1/4" SLEEVE-DELRIN	
all	11	53A501	TUBEINSERT .170"OD	
all	12	5SP1EDESC	NPT PLUG 1.25 SQCORED GALV CI	
G	13	W6 40168	93461D*7626 FLONOT VALVE WELDMENT	
H	13	W6 40169	91421D*7626 FLONOT VLV TO UNLD-WLMT	
J	13	W6 20701	87391D*FLOW NOT VALVE WLMT	
K	13	W6 20701D	90221D*FLOW NOT VALVE TO UNLOAD-WLD	
L	13	W6 50038	94133D*7639 FLONOT VLV TO UNLD-WLMT	
M	13	W6 50039	94133D*7639 FLONOT VALVE WELDMENT	
G,H,J,K	14	A62 06000	90472U AIR CYL.-FLOW NOT VALVE	
L,M	14	A65AC001	93093T 7639=AIR-CYL FLOWNOT VLV ASY	
all	15	02 18660A	93362B DUMP VALVE AIR CYL GASKET	

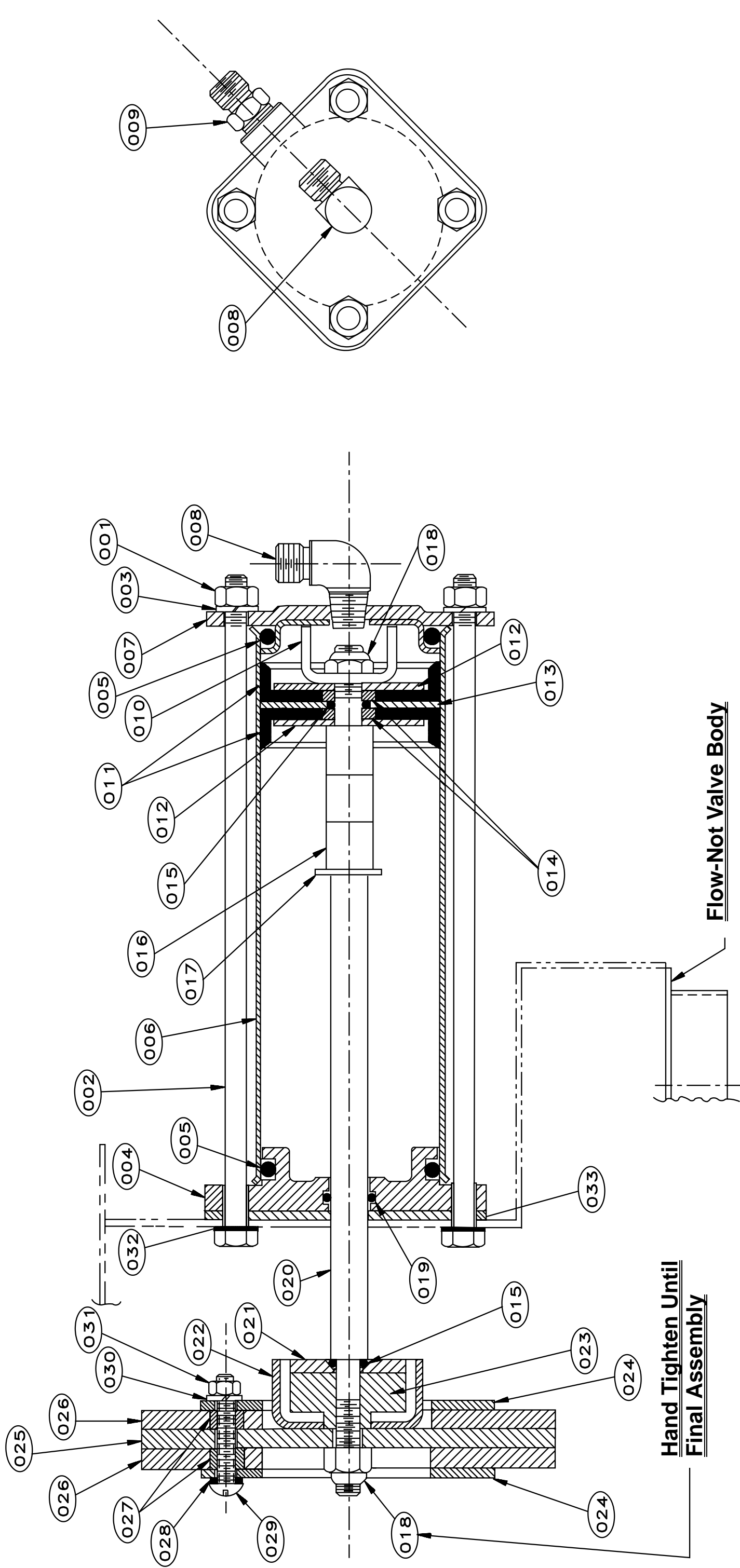
**Air Cylinder Flow Not Valve
76028, 76032, 76039 CBW®**

BMP970001/2002272V
(Sheet 1 of 2)



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

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

Litho in U.S.A.

Parts List—Air Cylinder Flow Not 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.

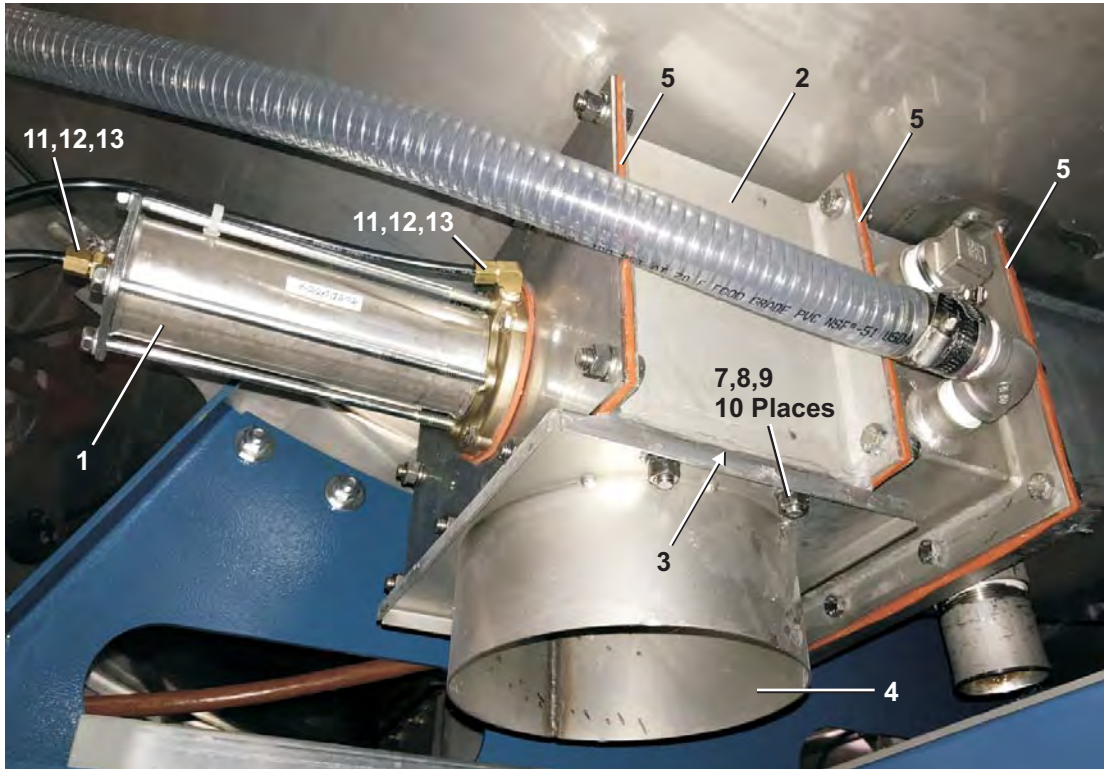
Used In	Item	Part Number	Description	Comments
			-----ASSEMBLIES-----	
A	A62	06000	90472U AIR CYL.-FLOW NOT VALVE	76028CBW (G2,G3) 76032CBW (G1)
B	A65AC001		93093T 7639=AIR-CYL FLOWNOT VLV ASY	76039CBW (G2,G3)
			-----COMPONENTS-----	
all	1	15G186	HEXNUT 5/16-18UNC2 SS18-8	
A	2	W6 20702F	90293B*FLOW NOT VLV=AIR-CYL ROD WLD	
B	2	W6 50081	93093B*7639=AIR CYL ROD WLMT	
all	3	15U205	LOCKWASHER MEDIUM 5/16" 18-8SS	
all	4	06 20702E	91227B FLOW NOT ACTUATOR CYL HEAD	
all	5	60C132	ORING 2"ID 3/16CS BUNA 70 DURO #329	
A	6	W2 18646	93344L*CYLINDER-AIR=DOUBLEACT BRAKE	
B	6	W6 50080A	93083B*7639=CYLINDER-AIR	
all	7	02 02101S	88531B CYLINDER HEAD TAP.HOLE (SS)	
all	8	53A031XB	BODY=MAL90EL 1/4X1/4COMP #269C-4-4B	
all	9	53A500	SLEEVE DELRIN 1/4"OD#60PT-4	
all	10	03 01313S	85506B+STOP=AIRCYL W/2+11/16STR.SS	
all	11	02 02194	93217B PISTONCUP=DUMPVVALVE 2+3/8"	
all	12	02 02085	75161A UP WASHER=2"OD=PISTONCUP	
all	13	02 02105B	92253B 2.38"ACYL BRASS PISCUP WASHR	
all	14	02 02185	79237A WASHER=PISTON CUP COMP LIMIT	
all	15	60C106	ORING 5/16ID 1/16CS BN 70 DURO #011	
all	16	27B34010SS	SPACERROLL .51ID.625L.062T SS	
all	17	15U243S	FLAWASHER 7/8ODX33/64IDX16GA 18-8SS	
all	18	15G220	02Z LTHX THIN LOKNUT 3/8-24 SSNTE	
all	19	60C110	ORING 1/2 ID 3/32CS BN 70 DURO #112	
A	20	06 20702	96426B FLOW NOT VALVE STEM	
B	20	06 50082	93093B 7639=FLOW NOT VALVE STEM	
all	21	02 16021E	94323B WASHER 3/8IDX1.250D DUMPVVAL	
all	22	02 16021D	92632B DUMP VALVE BUMPER RETAINER	
all	23	02 16021C	92051B BUMPER=DUMP VALVE BONNET	
A	24	06 20702A	87391B FLOW NOT VALVE GASKET RET.	

Parts List, cont.—Air Cylinder Flow Not Valve

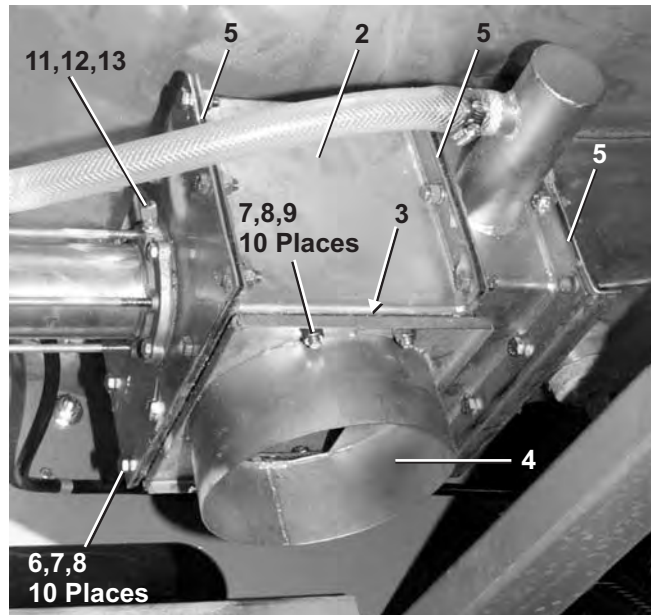
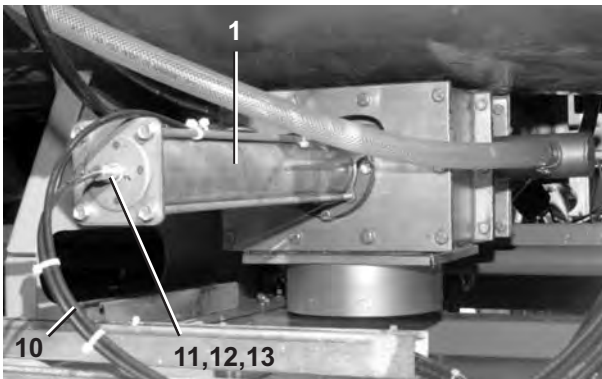
Used In	Item	Part Number	Description	Comments
B	24	06 50083A	93093B 7639=FLOW NOT VLV GSKT RET	
A	25	06 20702B	87391B FLOW NOT VALVE GASKET CUP	
B	25	06 50084	93093B 7639=FLOW NOT VALVE GSKT CUP	
A	26	06 20702C	87391B FLOW NOT VALVE GASKET	
B	26	06 50083	93093B 7639=FLOW NOT VALVE GASKET	
all	27	27B260156S	SPACER SLD.26ID.375OD.156L 316S/S	
all	28	24G020N	ROLLED WASHER .252"ID NYLTITE #25W	
all	29	15N196	PHILRDMACSCR 1/4-20UNC2X1+1/4SS18-8	
all	30	15U181	LOCKWASHER MEDIUM 1/4 SS18-8	
all	31	15G164	01Z HX THIN LOCKNUT NYL1/4-20 SS	
all	32	24G027N	ROLLED WASHER .312"ID NYLTITE #31W	
All	33	02 18660A	DUMP VALVE AIR CYL GASKET	

Dump Valve Installation

76032, 76028, 76039, 92048 Tunnels



76028, 76039, 92048 Tunnels



76032 Tunnels

Dump Valve Installation

76032, 76028, 76039, 92048 Tunnels

Parts List				
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	G64DV001A	N/C 4+1/2X8 DUMP VALVE ASSY	76032 G1 NORMALLY CLOSED
	B	G64DV004	8"DUMPVAL NC SHORT G3	76028G3, 76039G3 & 92048G4 TUNNELS NORMALLY CLOSED- SHORT
-----COMPONENTS-----				
A	1	A64AC001A	N/C DUMP VAL AIR CYL 4+1/2X8	
B	1	A64DV004	BONNET DUMPVAL NC G3	
A	2	W6 40055	*DUMP VALVE BODY WLDT 4+1/2X8	
B	2	W6 40055A	DUMP VALVE WLMT SHORT G3CBW	
A	3	06 40069F	DYE DUMPVALVE ADAPT GASKET G1	
B	3	06 40069J	DUMPVAL ADAPT GASKET G3	
A	4	W6 40076	*STRAIGHT DUMP V.ADAPT WLMT	
B	4	W6 40072	WLMT=DUMP VALVE HOSE CONN ADAPT	
A	5	06 40069E	4-1/2X8 DYE DUMPVALVE GASKET	
B	5	06 40069K	4+1/2 X 8 DUMP VALVE GASKET RED SILICONE	
all	6	15K096	HEXCAPSCR 3/8-16UNC2X1SS18-8	
all	7	15U260	LOCKWASHER MEDIUM 3/8 SS18-8	
all	8	15G206	HEXNUT 3/8-16 UNC2 SS 18-8	
all	9	15K086D	HXCAPSCR 3/8-16 UNC2A X 7/8"	
all	10	15G206	HEXNUT 3/8-16 UNC2 SS 18-8	
all	11	15U260	LOCKWASHER MEDIUM 3/8 SS18-8	
all	12	60E004TE	1/4"OD X.170"ID NYL(BLK)TUBING	
all	13	53A059A	NUT 1/4"BR.HOLYOKE AND #61A-4	
all	14	53A500	SLEEVE DELRIN 1/4"OD#60PT-4	
all	15	53A501	TUBE INSERT .163"OD #63PT-4-40	

CALIBRATING WATER INLETS

APPLICABILITY: All MILNOR CBWs.

WATER INLETS

Water inlets on the CBW function in one of two ways:

1. Constant flow - These inlets remain open so long as Tunnel power is ON and the CBW is not in a hold condition other than levels low. They provide the normal operating water and include:
 - a) Last Module (fresh water)
 - b) Rinse Zone (fresh water)
 - c) Wash Zone (reuse water)
 - d) Trickle Flow to Module 1 (reuse water)
2. Intermittent flow - These only open as required to satisfy special conditions. They are:
 - a) Flush to Load Scoop (reuse water)
 - b) Make-Up Inlet for Reuse Tank (fresh water)
 - c) Optional Flush Enhance (usually same inlet as "Flush to Load Scoop")
 - d) Optional Rinse Enhance (fresh water)
 - e) Optional Wash Enhance (reuse water)
 - f) Optional Fast Fill (fresh water)

CALIBRATING CONSTANT FLOW WATER INLETS

Determine the flow rates required as follows:

Step	Procedure	Example
1.	Determine water required per lb. (or Kg) of goods (i.e.: As recommended by your chemical supplier).	.8 gal/Lb.
2.	Using the design productivity rate of your machine, determine the production rate per minute.	<u>2400 Lb/hr.</u> 60 min/hr = 40 Lb./min.
3.	Determine total water required per minute.	40 Lb. x .8 gal/Lb. = 32 gpm ⁴ .
4.	Per 10% of total into last module.	32 x .1 = 3.2 gpm
5.	Put 90% of total into rinse zone.	32 x .9 = 28.8 gpm
6.	Put 65% of reuse from rinse zone into wash zone. Remainder goes to reuse tank.	28.8 x .65 = 18.72 gpm
7.	Calibrate the trickle flow valve to maintain level in Module 1.	

To calibrate these valves:

1. Energize Tunnel power to open the last module rinse zone and wash zone air operated valves (also starts the flush pump).
2. Adjust the throttling valves on the last module and rinse zone inlets so that the flow meters indicate the previously calculated flow rates.
3. When the water level in the lint filter tank (flow splitter tank) rises sufficiently and the wash zone pump starts supplying water to the wash zone, adjust this inlet to the previously calculated rate.
4. Set the trickle flow valve (manual only) wide open and after the CBW is functioning, throttle this valve back if desired, to the smallest flow rate that will still insure adequate level in Module 1. This inlet does not have a flow meter.

CALIBRATING INTERMITTENT FLOW WATER INLETS

Intermittent flow inlets are used to satisfy a predetermined water level or special condition. For example, the optional Flush Enhance inlet opens to flush Module 1 at mid cycle. This is accomplished by programming on the MILTRON, when and for how long the valve opens.

Although all intermittent flow inlets have throttling valves and some also have flow meters, it is usually preferable to leave throttling valves wide open in order to inject the required quantity as quickly as possible. These inlets can however, be throttled down if conditions such as unusually high water pressure dictate. The valve "On-Time" can usually be determined by observation and a few trial settings. The methods of control for these inlets are as follows:

Inlet Name	Control Device	Programmed On
Flush to Load	Machine Timer 10 (see note)	Display H
Make-up (Reuse tank)	Level Switches on Reuse Tank	(see "WATER LEVEL AND LEVEL SWITCH SETTINGS: elsewhere)
Flush Enhance	Assigned C-Bit	Display L or G
Rinse Enhance	Assigned C-Bit	Display L or G
Wash Enhance	Assigned C-Bit	Display L or G
Fast Fill	Assigned C-Bit	Display L or G

NOTE: Flush to Load must remain on long enough to insure the transfer of all goods into Module 1. See "DISPLAY H..." elsewhere for recommended time code.



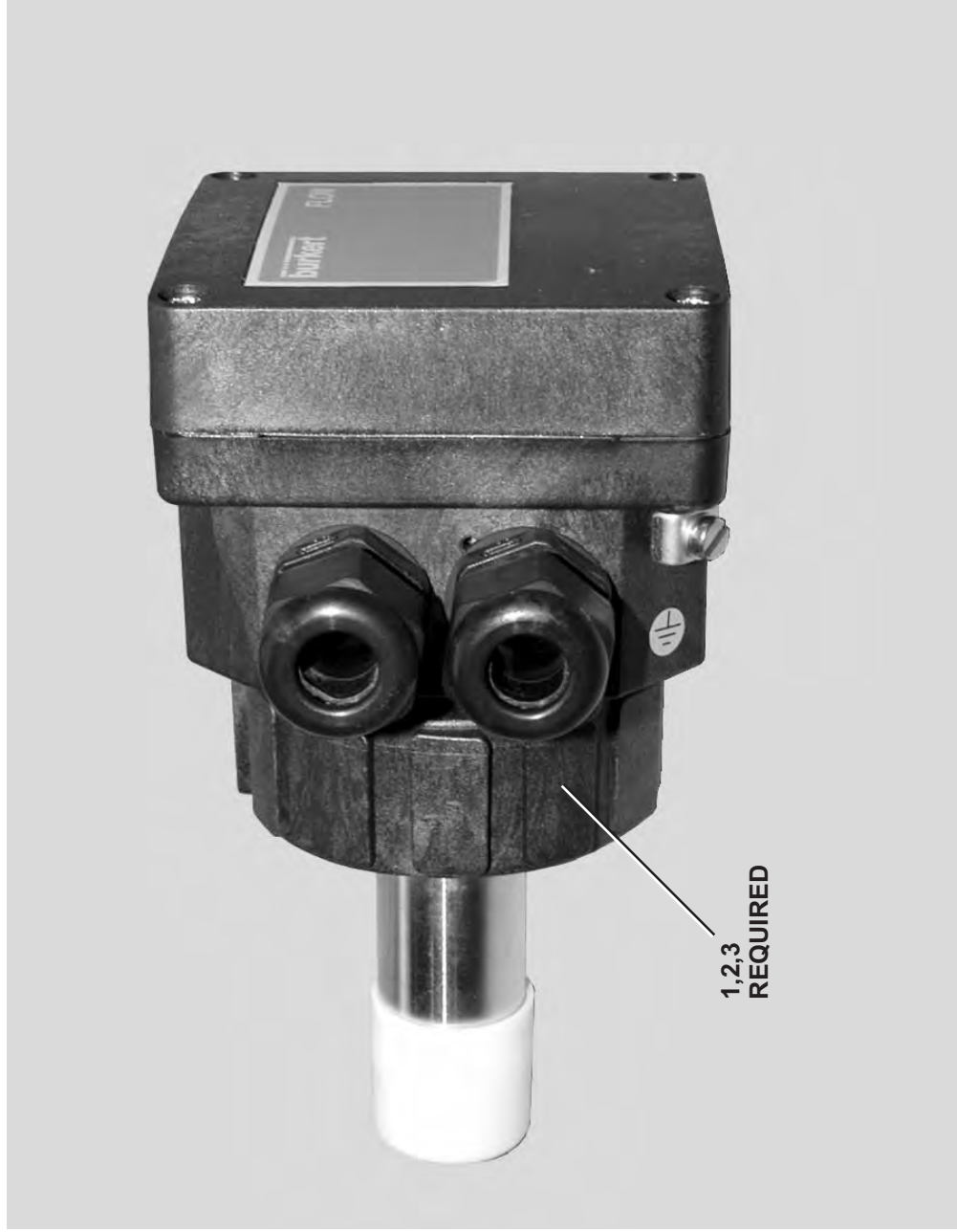
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Litho in U.S.A.

Parts List—Magmeter

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

Used In	Item	Part Number	Description	Comments
			-----ASSEMBLIES-----	
			-----COMPONENTS-----	
all	1	30F580	8041 BLIND UNIT MAG SENSOR	
all	2	30F580A	8025 LOWFLOW WALL-MNT TRANSMIT	
all	3	30F568	MAGMETER FITTING 316SS 1.5" S.S.TEE	



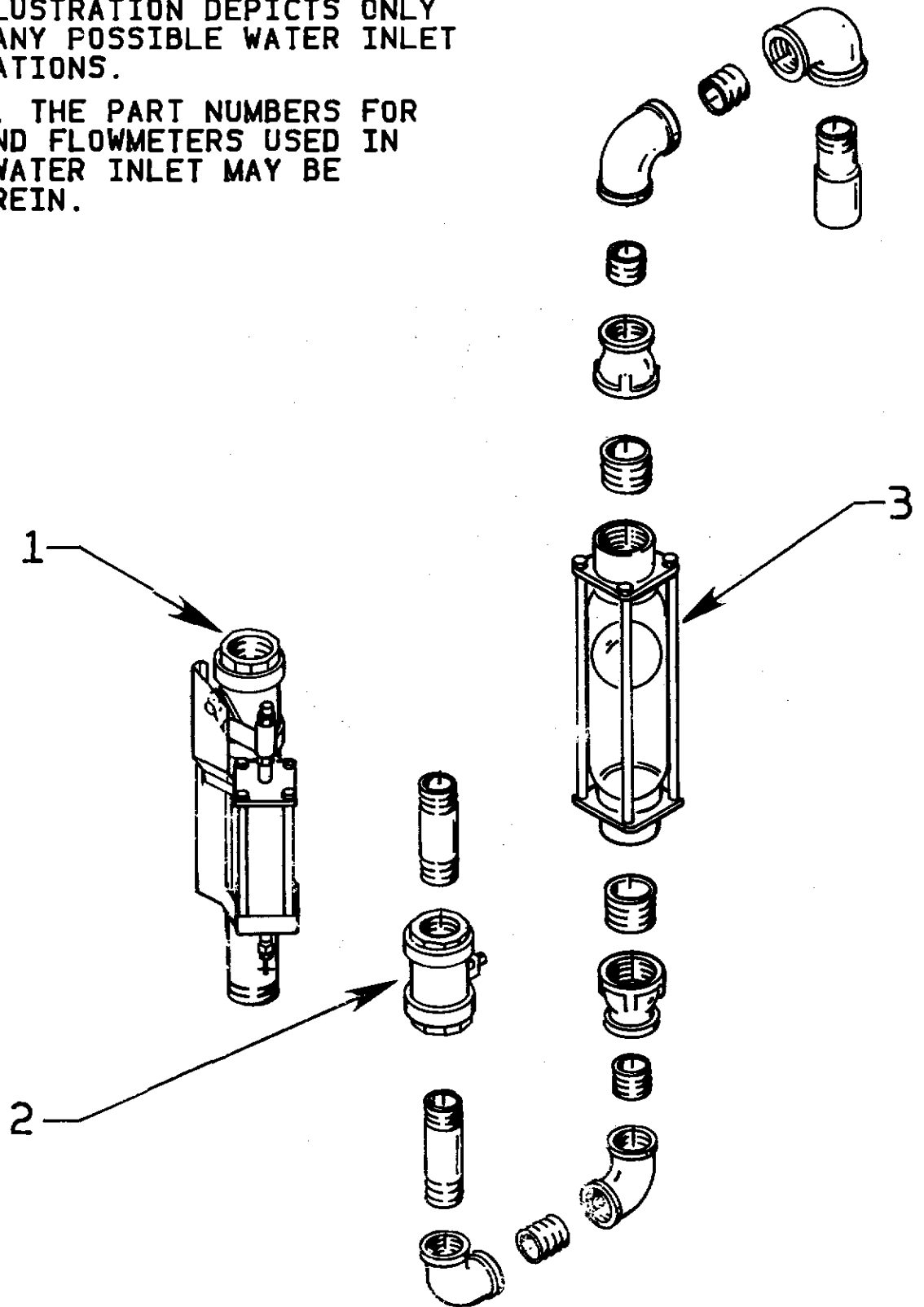


TYPICAL CBW WATER INLET

BMP810065
92491A

THIS ILLUSTRATION DEPICTS ONLY ONE OF MANY POSSIBLE WATER INLET CONFIGURATIONS.

HOWEVER, THE PART NUMBERS FOR VALVES AND FLOWMETERS USED IN ANY CBW WATER INLET MAY BE FOUND HEREIN.



For Typical CBW H20 Inlets

BMP810065R/96127A
(Sheet 1 of 1)



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Parts List—For Typical CBW H20 Inlets

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

Used In	Item	Part Number	Description	Comments
-----ASSEMBLIES-----				
none				
-----COMPONENTS-----				
all	1	96D085BCSR	93513S 1.00WAT BVAL+ACT/BR/NC/ST/RH	
all	1	96D086BCSR	93513S 1.25WAT BVAL+ACT/BR/NC/ST/RH	
all	1	96D086BCSR	93513S 1.25WAT BVAL+ACT/BR/NC/ST/RH	
all	2	96D050A	01Z 3/4"BALLVALVE BRZ WATTS#B6100	
all	2	96D084	01Z BALL VALVE 1" WATTS#B6100 BRZ	
all	2	96D086WEXS	10Z BALVAL1.25BRZWATSB6400SSZ1070SP	
all	2	96D130	01Z 1+1/2" GATE VALVE BRONZE	
all	3	30F125	10Z FLOWMETER MULLER 1.25FNPT 11GPM	11 GPM
all	3	30F201	11Z FLOWMETER MULLER 2"FNPT 45GPM	44 GPM
all	3	30F250	11Z FLOWMETER MULLER 2.5FNPT 90GPM	79 GPM

Watts Ball Valves and Repair Kits



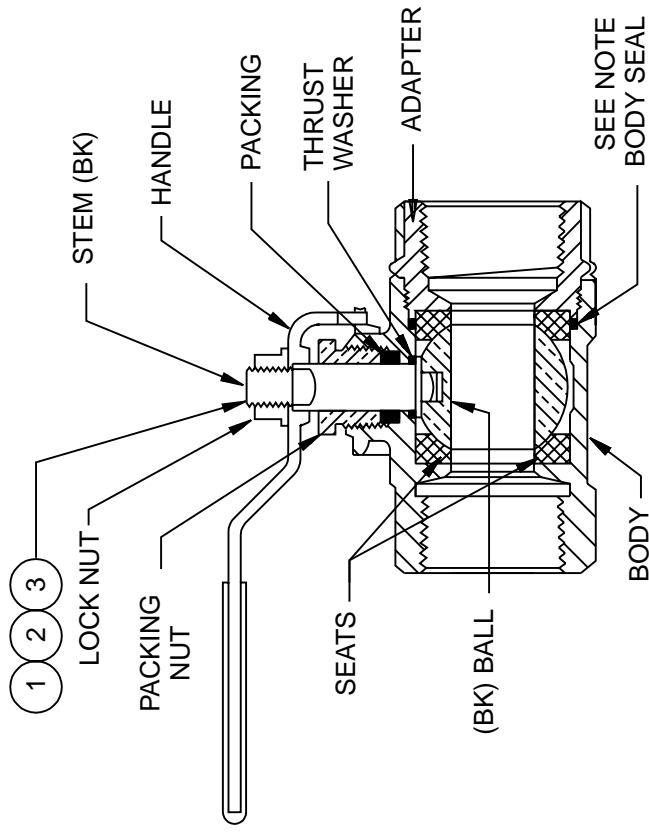
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BMP920007/96067V (1 of 2)

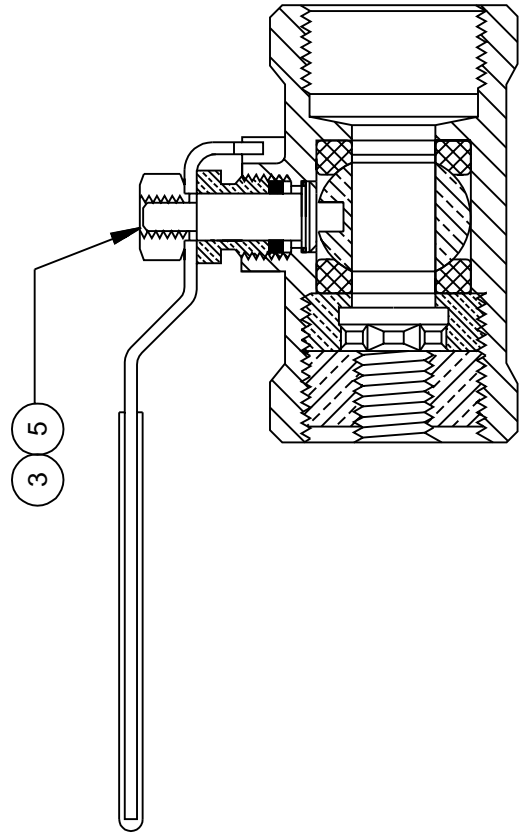
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BMP920007/96067V
(Sheet 1 of 2)

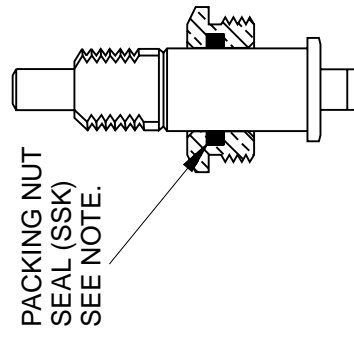
BALL VALVES WITHOUT ACTUATOR PADS FOR MANUAL OPERATION



1/2" BRONZE OR 1/2", 3/4" STAINLESS
NO REPAIR KITS

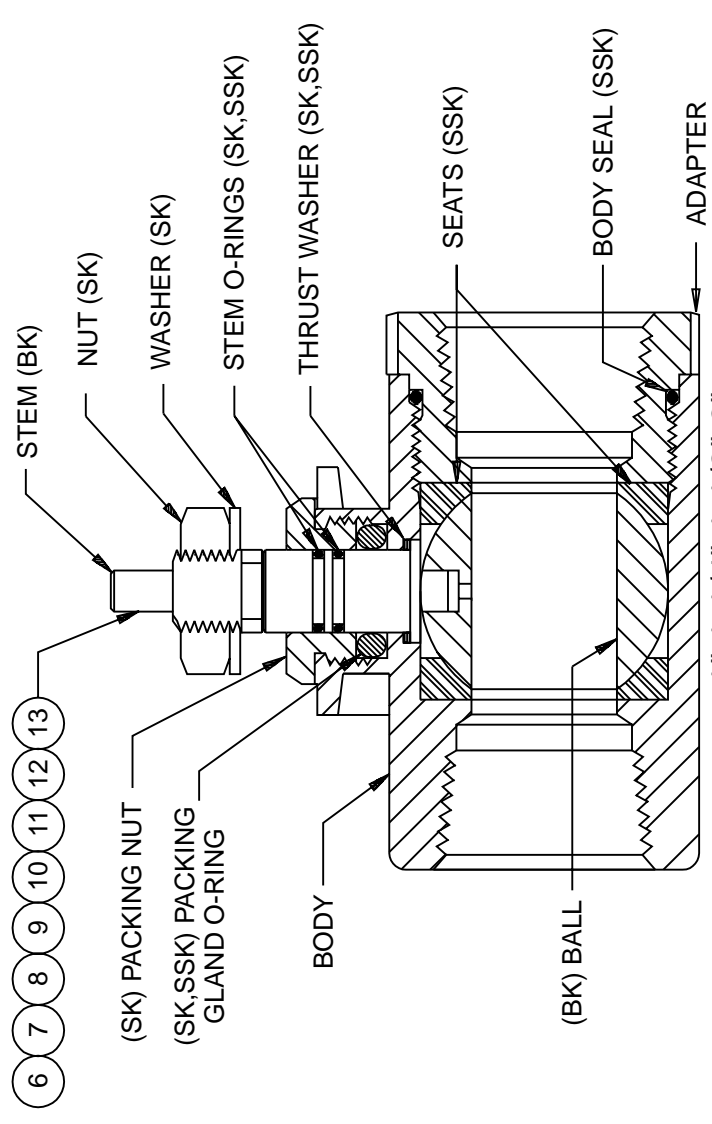


3/4", 1"
BRONZE
NO REPAIR KITS



DETAIL
OLD STYLE STEM

AIR OPERATED BALL VALVES



1", 1-1/4", 1-1/2", 2"
BRONZE & STAINLESS

(For Bracketry and Mounting Hardware, See BMP920005. For Air Cylinders that Operate Watts Ball Valves, See BMP920006.)

HOW TO USE THIS DRAWING:

The ball valves are separated by size, material, and type of operation. Find the cross section which shows your ball valve (example 1-1/2" bronze air operated). See the parts list for the item number which represents your ball valve (1-1/2" bronze air operated would be item 10 on the parts list). For valves that offer repair kits the internal parts are labeled and marked as to which kit they are found in:

- (BK) part of Ball Kit
- (SK) part of Stem Kit
- (SSK) part of Seat/Seal Kit

For the part number of the Seat/Seal Kit for item 10 (1-1/2" bronze air operated valve) see the parts list and look for item 10SSK, likewise the Stem Kit will be 10SK.

NOTE:

AIR OPERATED VALVES: (SSK) kits for air operated ball valves include all parts required to repair either our old style or new style stems. A packing nut seal is provided to repair our old style stems which had a seal in the packing nut (see Detail). Our new style stem uses a double o-ring design.



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BMP920007/96067V (2 of 2)

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

Used In	Item	Part Number	Description	Comments
			ASSEMBLIES	
			none	
			COMPONENTS	
all	1	96D034	04Z BALLVALVE 1/2" WATTS #6400-SS	1/2"BRONZE-MANUAL, NO KITS
all	2	96D040WSS	01Z 1/2" BALLVALVE S/S WATTS#S-8000	1/2"STAINLESS-MANUAL
all	002BK	96V040BK	BALL KIT WATTS #BV4SSA6	
all	002SSK	96V040SSK	01Z REPKIT 1/2"VAL WATTS#3SSK-02-RK	
all	3	96D050A	01Z 3/4"BALLVALVE BRZ WATTS#B6100	3/4"BRONZE-MANUAL, NO KITS
all	4	96D055WSS	01Z 3/4"BALLVALVE S/S WATTS#S-8000	3/4"STAINLESS-MANUAL
all	004BK	96V055BK	BALL & STEM KIT WATTS #4BSK-SSRK	
all	004SSK	96V055SSK	01Z REPKIT 3/4"VAL WATTS#4SSK-02-RK	
all	5	96D084	01Z BALL VALVE 1" WATTS#B6100 BRZ	1" BRONZE-MANUAL , NO KITS
all	6	96D085WEXS	07Z BALVAL 1" BRZ WATTS#B6400SSZ107	1" BRONZE-AIR OPERATED
all	006BK	96V085BK	BALL KIT WATTS #1-BALL-RK-Z107	
all	006SK	96V085SK	02Z STEM KIT 1" WATTS#1-ST-RK-Z107	
all	006SSK	96V085SSK	02Z REPKIT 1"BALVAL#1SSK-02-KK-Z107	
all	7	96D085WSS	07Z BALVAL 1" SS WATTS S8000-Z107	1" STAINLESS-AIR OPERATED
all	007BK	96V085BK	BALL KIT WATTS #1-BALL-RK-Z107	
all	007SK	96V085SK	02Z STEM KIT 1" WATTS#1-ST-RK-Z107	
all	007SSK	96V085SSK	02Z REPKIT 1"BALVAL#1SSK-02-KK-Z107	
all	8	96D086WEXS	08Z BAVAL 1+1/4BRZ WATTS#B6400SSZ107	1-1/4"BRONZE-AIR OPERATED
all	008BK	96V086BK	BALL KIT WATTS #1.25-BALL-RK-Z107	
all	008SK	96V086A7SK	02Z STEMKIT 1.25-1.5-ST-RK-Z107	

Used In	Item	Part Number	Description	Comments
all	008SSK	96V086SSK	02Z REPKIT 1.25BALVALSSK-02-RK-Z107	1-1/4"STAINLESS-AIR OPER.
all	9	96D086WSS	08Z BAVAL 1+1/4"SS WATTS S8000-Z107	
all	009BK	96V086BK	BALL KIT WATTS #1.25-BALL-RK-Z107	
all	009SK	96V086A7SK	02Z STEMKIT 1.25-1.5-ST-RK-Z107	
all	009SSK	96V086SSK	02Z REPKIT 1.25BALVALSSK-02-RK-Z107	
all	10	96D087WEXS	09Z BAVAL 1+1/2BRZ WATTS#B6400SSZ107	1-1/2"BRONZE-AIR OPERATED
all	010BK	96V087BK	BALL KIT WATTS #1.5-BALL-RK-Z107	
all	010SK	96V086A7SK	02Z STEMKIT 1.25-1.5-ST-RK-Z107	
all	010SSK	96V087SSK	02Z REPAIR KIT 1.5" BALL VALVE	
all	11	96D087WSS	08Z BAVAL 1+1/2"SS WATTS S8000-Z107	1-1/2"STAINLESS-AIR OPER.
all	011BK	96V087BK	BALL KIT WATTS #1.5-BALL-RK-Z107	
all	011SK	96V086A7SK	02Z STEMKIT 1.25-1.5-ST-RK-Z107	
all	011SSK	96V087SSK	02Z REPAIR KIT 1.5" BALL VALVE	
all	12	96D088WEXS	09Z BALVAL 2" BRZ WATTS#B6400SSZ107	2"BRONZE-AIR OPERATED
all	012BK	96V088BK	BALL KIT WATTS #2-BALL-RK-Z28	
all	012SK	96V088SK	03Z STEM KIT 2" WATTS#2-ST-RK-Z107	
all	012SSK	96V088SSK	02Z REPKIT 2"VAL WATZSSK-02-RK-Z107	
all	13	96D088WSS	09Z BALVAL 2" SS WATTS S8000-Z107	2"STAINLESS-AIR OPERATED
all	013BK	96V088BK	BALL KIT WATTS #2-BALL-RK-Z28	
all	013SK	96V088SK	03Z STEM KIT 2" WATTS#2-ST-RK-Z107	
all	013SSK	96V088SSK	02Z REPKIT 2"VAL WATZSSK-02-RK-Z107	

Universal Actuators & Mounting Hardware for Watts Ball Valves - New Pivot

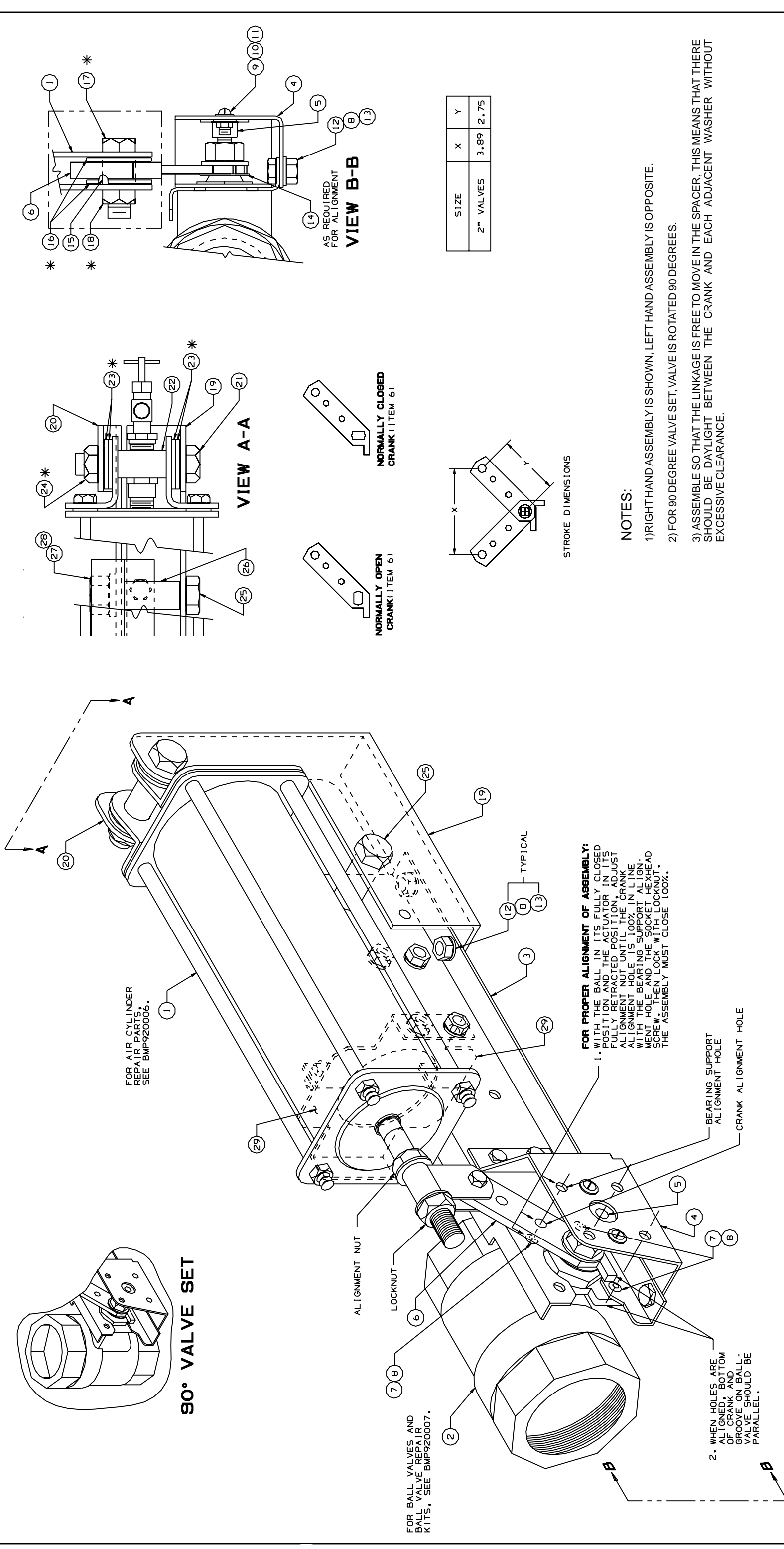
BMP920005/96067V
(Sheet 1 of 3)



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BMP920005/96067V (2 of 3)

BMP920005/96067V
(Sheet 2 of 3)

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Parts List—Actuators & Mounting Hardware for Watts Ball Valves
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-----					
AA	96D085BCSL	92000Z	1.00WAT	BVAL+ACT/BR/NC/ST/LH	
AB	96D085BCSR	93513S	1.00WAT	BVAL+ACT/BR/NC/ST/RH	
AC	96D085BOSL	93513S	1.00WAT	BVAL+ACT/BR/NO/ST/LH	
AD	96D085BOSR	93513S	1.00WAT	BVAL+ACT/BR/NO/ST/RH	
AE	96D085SOSR	92000Z	1.00WAT	BVAL+ACT/SS/NO/ST/RH	
AF	96D085SCSR	92000Z	1.00WAT	BVAL+ACT/SS/NC/ST/RH	
BA	96D086BCSL	93513S	1.25WAT	BVAL+ACT/BR/NC/ST/LH	
BB	96D086BCSR	93513S	1.25WAT	BVAL+ACT/BR/NC/ST/RH	
BC	96D086BOSL	93513S	1.25WAT	BVAL+ACT/BR/NO/ST/LH	
BD	96D086BOSR	93513S	1.25WAT	BVAL+ACT/BR/NO/ST/RH	
BE	96D086SCNR	92000Z	1.25WAT	BVAL+ACT/SS/NC/90/RH	
BF	96D086CSL	92000Z	1.25WAT	BVAL+ACT/SS/NC/ST/LH	
BG	96D086CSR	92000Z	1.25WAT	BVAL+ACT/SS/NC/ST/RH	
BH	96D086SOSL	92000Z	1.25WAT	BVAL+ACT/SS/NO/ST/LH	
BJ	96D086SOSR	92000Z	1.25WAT	BVAL+ACT/SS/NO/ST/RH	
CA	96D087BCSL	93513S	1.50WAT	BVAL+ACT/BR/NC/ST/LH	
CB	96D087BCSR	93513S	1.50WAT	BVAL+ACT/BR/NC/ST/RH	
CC	96D087BOSR	92000Z	1.50WAT	BVAL+ACT/BR/NO/ST/RH	
CD	96D087SCNR	92000Z	1.50WAT	BVAL+ACT/SS/NC/90/RH	
CE	96D087SCSR	92000Z	1.50WAT	BVAL+ACT/SS/NC/ST/RH	
CF	96D087SOSR	92000Z	1.50WAT	BVAL+ACT/SS/NO/ST/RH	
DA	96D088BCSR	92177S	2.00WAT	BVAL+ACT/BR/NC/ST/RH	
DB	96D088BCNR	92177S	2.00WAT	BVAL+ACT/BR/NC/90/RH	
DC	96D088BCSL	92177S	2.00WAT	BVAL+ACT/BR/NC/ST/LH	
DD	96D088BOSR	92177S	2.00WAT	BVAL+ACT/BR/NO/ST/RH	
DE	96D088SCNR	92177S	2.00WAT	BVAL+ACT/SS/NC/90/RH	
DF	96D088CSR	92177S	2.00WAT	BVAL+ACT/SS/NC/ST/RH	
DG	96D088SOSR	92177S	2.00WAT	BVAL+ACT/SS/NO/ST/RH	
DH	96D088BCNL	92177S	2.00WAT	BVAL+ACT/BR/NC/90/LH	
DJ	96D088BOSL	92177S	2.00WAT	BVAL+ACT/BR/NO/ST/LH	
DK	96D088CSL	92177S	2.00WAT	BVAL+ACT/SS/NC/ST/LH	
DL	96D088SOSL	92177S	2.00WAT	BVAL+ACT/SS/NO/ST/LH	
-----COMPONENTS-----					
AA-AD, BA-BD, CA-CC	1	SA 10 056F	92000Z	AIRCYL=2.38ODX2.70STX20.5#CD	
AE-AF, BE-BJ, CD-CF	1	SA 10 056G	92000Z	*AIRCYL=2.38ODX2.70STX20.5#SS	
DA-DD, DH-DJ	1	SA 10 057C	95222D	AIRCYL=3.00DX3.89ST171/176CD	
DE-DG, DK-DL	1	SA 10 057D	95222#	AIRCYL=3.00DX3.89ST171/176SS	
AA-AE AF	2	96D085WEXS	07Z	BALVAL 1" BRZ WATTS#B6400SSZ107	
BA-BD	2	96D085WSS	07Z	BALVAL 1" SS WATTS S8000-Z107	
BE-BJ	2	96D086WEXS	08Z	BAVAL 1+1/4BRZ WATS#B6400SSZ107	
CA-CC	2	96D086WSS	08Z	BAVAL 1+1/4"SS WATTS S8000-Z107	
	2	96D087WEXS	09Z	BAVAL 1+1/2BRZ WATS#B6400SSZ107	
Parts List, cont.—Actuators & Mounting Hardware for Watts Ball Valves					
Used In	Item	Part Number	Description	Comments	
CD-CF	2	96D087WSS	08Z	BAVAL 1+1/2"SS WATTS S8000-Z107	
DA-DD, DH-DJ	2	96D088WEXS	09Z	BALVAL 2" BRZ WATTS#B6400SSZ107	
DE-DG, DK-DL	2	96D088WSS	09Z	BALVAL 2" SS WATTS S8000-Z107	
AA,AC AB,AD,AE, AF	3	03 01634A	94053#	ACTUATOR CHANNL SUPPORT-LEFT	
	3	03 01634	94053C	ACTUATOR CHANNL SUPPORT 1.0"	
BA,BC,BF, BH,CA	3	07 20700L	88512#	ACTUATOR ZEE SUPPORT-LEFT	
BB,BD,BE, BG,BJ,CB, CC,CE,CF	3	07 20700	88512D	ACTUATOR ZEE SUPPORT	
CD	3	03 01633	92651C	ACTUATOR SUPPORT BRKT 1.0"	
DA,DB, DD-DG	3	03 01628	92126D	ACTUATOR ZEE SUP 3"AIRCYL	
DC,DH-DL	3	03 01628L	92126#	ACT ZEE SUP 3" AIRCYL-LEFT	
AA,AC AB,AD-AF, CD	4	03 01632A	90507#	ACTUATOR BEARING SUPPRT-LEFT	
	4	03 01632	90507C	ACTUATOR BEARING SUPPORT-1"	
BA,BC,BF, BH,CA	4	07 20702L	88512#	ACTUATOR BEARING SUPPORT-LFT	
BB,BD,BE, BG,BJ,CB, CC,CE,CF	4	07 20702A	88512C	ACTUATOR BEARING SUPPORT	
DA,DB, DD-DG	4	03 01629	92023C	ACTUATOR BEARING SUPPORT 3	
DC,DH-DL	4	03 01629L	92023#	ACT BEARING SUPPORT 3"-LEFT	
AA-AF,CD BA-BJ, CA-CC,CF, DA-DL	5	54E001PABA	89281B	ASSY=1/4"PRESSBEARING	
	5	54E002PABA	89281B	ASSY=5/16"PRESSBEARING	
AA,AB,AF, CD	6	03 01631	91507B+VALVE	CRANK N.C.WATTS 1.0"	
AC-AE BA,BB,BE, BF,BG,CA, CB,CE	6	03 01631A	88381B	VALVE CRANK N.O.WATTS-1.0"	
	6	07 20703A	91507B	VALVE CRANK N.C.WATTS 1.5"	
BC,BD,BH, BJ	6	07 20703B	88153B	VALVE CRANK N.O.WATTS 1.5"	
DA,DC,DF, DK	6	03 01624B	92061B	CRANK=NC 2"BALVAL .626 STEM	
DB,DD,DE, DG,DH,DJ, DL	6	03 01624C	92061B	CRANK=NO 2"BALVAL .626 STEM	
all except CC,CD	7	15K031	BUTSOKCAPSCR	1/4-20X1/2 SS18-8	
CC,CD	7	15N117	RDMACSCR	10-24UNC2X3/8SS18-8	
all	8	15U181	LOCKWASHER	MEDIUM 1/4 SS18-8	
all	9	15N130	RDMACHSCR	10-24UNC2A X 1/2 SS18-8	
all	10	15U135	FLATWASH#10	.4370DX.203IDX.04TSS188	



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Parts List, cont.—Universal Actuators & Mounting Hardware for Watts Ball Valves

Used In	Item	Part Number	Description	Comments
all	11	15G126	01Z HXLOCKNUT NYLON 10-24 UNC SS NM	
all	12	15N159	HEXCAPSCR 1/4-20UNC2AX7/16 18-8SS	
all	13	15G170	HEXNUT 1/4-20UNC2 SS18-8	
AA-AF, BE, CD, DA-DL	14	07 20703D	89354B WASHER=2.00"WATTS CRANK	
BA-BD, BF-BJ, CA-CC, CE, CF	14	07 20703C	89354B WASHER=1.25-1.50 WATTS CRANK	
all	15	02 15893	92683B SPACER=BALL VALVE CRANK STEM	
all	16	15U188	01Z FLTWASH 1/4 STD COMM SS18-8	
all	17	15N186	HXCAPSCR 1/4-20UNC2X3/4SS18-8	
all	18	15G164	01Z HX THIN LOCKNUT NYL1/4-20 SS	
BA, BB, BE, BJ, CE	19	03 01661A	92271B BRKT=RHT AIR CYL SUPT-S/S	
DA, DB, DD-DG	19	03 01625A	92271B 3" AIR-CYL SPT BRK R-SIDE RT	
DC, DH-DL	19	03 01625B	92271# 3" AIR-CYL SPT BRK R-SIDE LT	
BE, BG, BJ, CE-CF	20	03 01662A	92271B BRKT=LFT AIR CYL SUPT-S/S	
DA, DB, DD-DG	20	03 01625C	92271B 3" AIR-CYL SPT BRK L-SIDE RT	
DC, DH, DJ-DL	20	03 01625D	92271# RIGHT=3"AIR CYL SUPT BRKT	
all	21	15K190S	HXCAPSCR 1/2-13UNC2AX2.5 FLTHRD SS	
all	22	27B24S0K1P	SPACER ROLL.5ID1.75L.062T 304 SS	
all	23	15U318S	FLATWASH 1.12ODX.656IDX.09T 304 SS	
AB, DA-DL	24	15G234NS	HXLOCKNUT NYL 1/2-13UNC2 SS18-8	
all	25	15K180S	HXCAPSCR 1/2-13UNCAX2 18-8SS	
all	26	27B24SSK1F	SPACER ROLL.5ID1.25L.062T S/S	
all	27	15U310	LOKWASHER REGULAR 1/2 SS18-8	
all	28	15G231S	HXFINJAMNUT 1/2-13UNC2B SS18-8	
AA-AF	29	03 01633	92651C ACTUATOR SUPPORT BRKT 1.0"	
BA-BJ	29	07 20771	88407C ACTUATOR SUPPORT BRKT 1.25"	
CA-CF	29	07 20770	88243B ACTUATOR SUPPORT BKT 1+1/2"	
DA-DL	29	03 01626	89473B ACTUATOR SUPPORT BRKT 2"VAL	

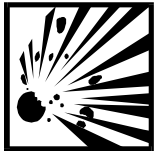
SERVICING AIR CYLINDERS

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

Maintenance procedures require:

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

▲ CAUTION ▲



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

☞ Follow maintenance instructions carefully.

☞ Wear eye protection.

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

1. Replace two diagonally opposite tie bolts with threaded rods and nuts as shown in FIGURE 1.
2. Tighten nuts on the threaded rods until they contact the air cylinder.
3. Remove the other two tie bolts and the nuts, washers, clips, and actuators from the external end of piston stem.

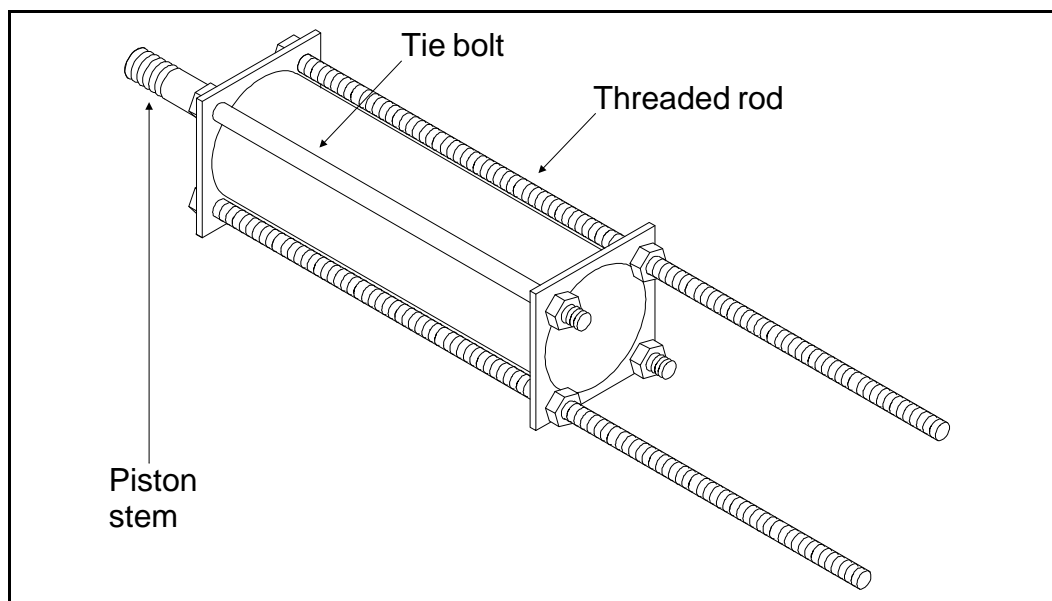


FIGURE 1 (MSSM0130AE)
Using Threaded Rods

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

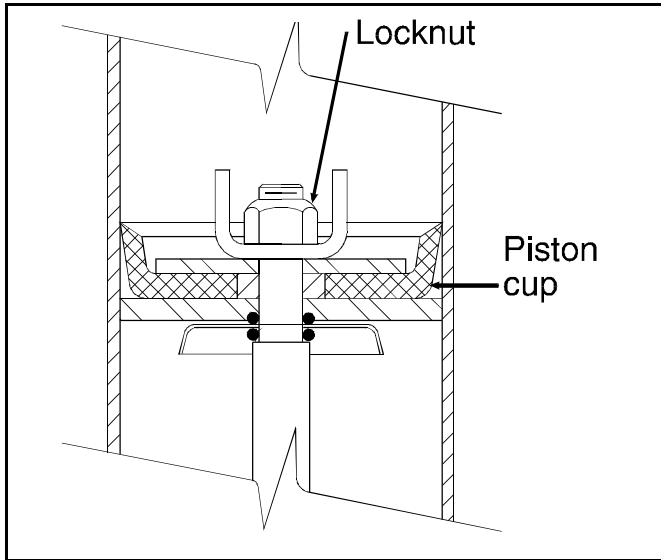


FIGURE 2 (MSSM0130AE)
Correct Piston Cup Shape

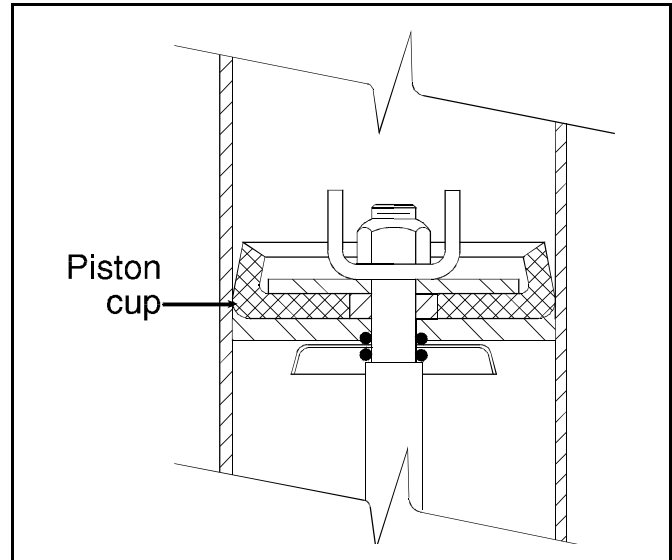


FIGURE 3 (MSSM0130AE)
Distorted Piston Cup Shape

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

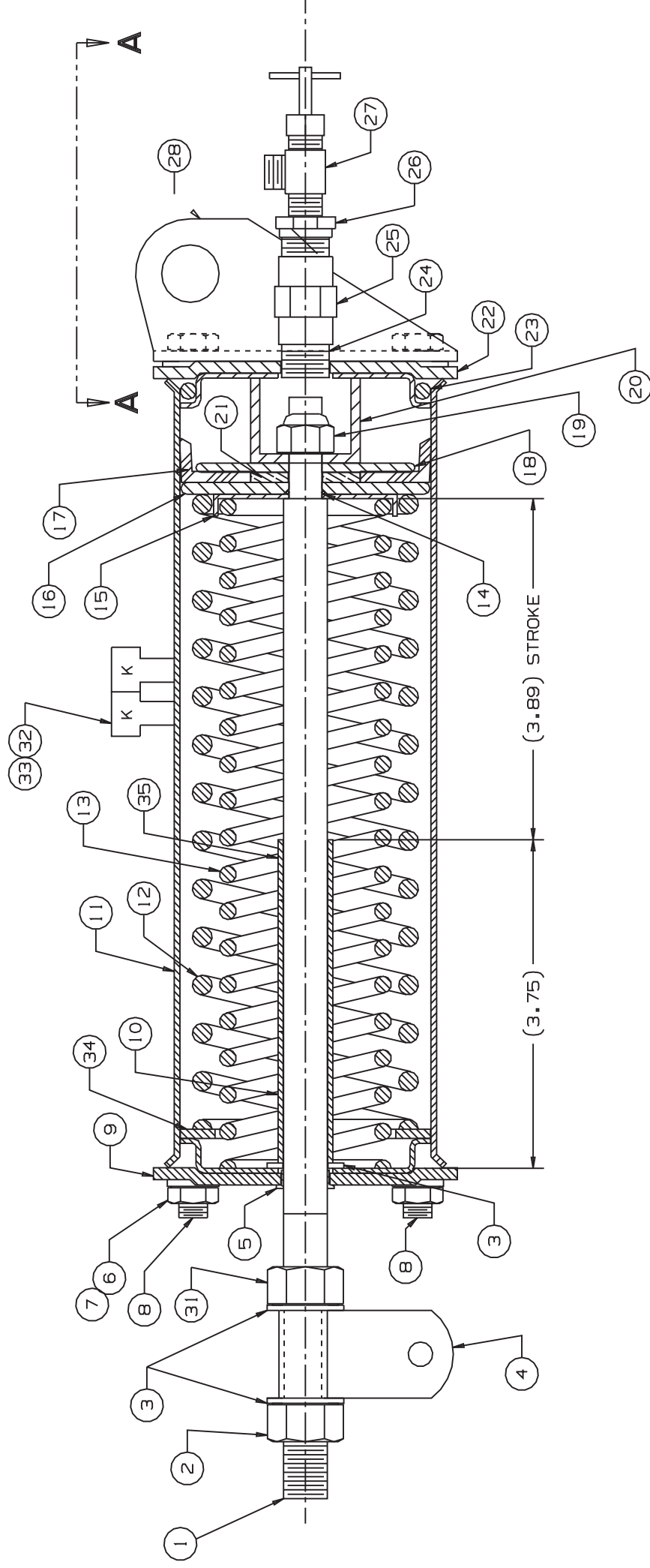
Air Cylinders for 1", 1.25", 1.5" & 2" Watts Ball Valves

BMP920006/2017465B
(Sheet 1 of 2)



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VIEW A-A

NOTES:

1. LUBRICATE SPRINGS WITH A LAYER OF GREASE BUT NOT SO MUCH AS TO CAUSE EXCESS TO LEAK OUT.
2. DO NOT GREASE THE CUP, ITEM 17! DOING SO WOULD BLOCK THE AIR LINES.



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Parts List—Air Cylinders for 2" Watts Ball Valves
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 10 057C	95222D AIRCYL=3.00DX3.89ST171/176CD	FOR 2" BALLVALVES
B		SA 10 057D	95222# AIRCYL=3.00DX3.89ST171/176SS	FOR 2" STAINLESS BALLVALVES
C		SA 10 056F	BRAKEAIRCYL=2.38ODX2.70STX20.5#CD	FOR 1,1.25,1.5 BALLVALVES
D		SA 10 056G	*AIRCYL=2.38ODX2.70STX20.5#SS	FOR 1,1.25,1.5 STAINLESS BALLVALVES
			-----COMPONENTS-----	
A,B	1	03 01615	94191B PISTON STEM 3"AIRCYL	
C,D	1	02 18650	96461B STEM=2 WAY AIRCYLINDER	
all	2	15G234NS	HXLOCKNUT NYL 1/2-13UNC2 SS18-8	
all	3	15U243S	FLAWASHER 7/8ODX33/64IDX16GA 18-8SS	
all	4	03 01209A	92536B STEMCLIP H=1.313 BALVAL S/S	
all	5	54E220	NYLINER 8L2FF BUSHING 1/2X9/16X.140	
A	6	15G191	HXFINJAMNUT 5/16-24UNC2 ZINC GR2	
B,C,D	6	15G190	HEXFINJAMNUT 5/16-18NC2 SS18-8	
A	7	15U210	LOKWASHER MEDIUM 5/16 ZINCPL	
B,C	7	15U205	LOCKWASHER MEDIUM 5/16" 18-8SS	
D	7	15U200S	FLATWASHER US STD 5/16 SS18-8	
A	8	02 10585H	91142# TIE BOLT=5/16-18X10LNG PLTD	
B	8	02 10585G	91142# TIE BOLT=5/16-18X10LG (SS)	
C	8	02 10585E	91142# TIE BOLT=5/16-18X8.25LG PLTD	
D	8	02 10585A	91142# TIE ROD=5/16-18X8+1/4 (SS)	
A	9	03 01623	90351C CYLINDER HEAD 3"AIRCYLINDER	
Bl	9	03 01623A	90351# CYLHEAD 3"AIRCYLINDER-S/S	
C	9	02 02546	87341C CYLHEAD=SLIDESTEM	
D	9	02 02546S	87341# CYLINDER HEAD=SLIDE STEM SS	
all	10	27B32024SS	SPACER ROLL .51IDX.6250DX1.5L STN S	USES 2
A,B	11	03 01621	94266BTUBE 2+7/8 AIR CYLINDER 9"	
C,D	11	02 02068	94266A AIRCYL-STAINLESS=DUMPVALVE	
A,B	12	03 01617C	92133B SPRING=FL11.5SR23.5#MD2.368	
C	12	02 15881	96471# SPRING=BRAKE2.10D11FL15.5#"	
D	12	02 15881A	85504Z SPRING,02 -15881+HEAVY PAINT	
A,B	13	03 01616C	92133B SPRING=FL11.35SR20.5MD1.811	
C	13	02 15880	96471B SPRING=BRAKE1.50D10.3FL17#"	
D	13	02 15880A	85504Z SPRING,02-15880 +HEAVY PAINT	
all	14	60C106	ORING 5/16ID 1/16CS BN 70 DURO #011	
A,B	15	03 01620A	92133B 3"AIR CYL=SPRING RETAINER	

Used In	Item	Part Number	Description	Comments
C,D	15	02 18651	73171A WASHER=2 WAY BRAKE CYL	
A,B	16	X3 01619A	92066# MACH=3"ACYL BRASS PISCUP WSH	
C,D	16	02 02105B	92253B 2.38"ACYL BRASS PISCUP WASHR	
A,B	17	02 19302	93356B PISTON CUP 2+7/8ID CYLINDER	
C,D	17	02 02194	93217B PISTONCUP=DUMPVALVE 2+3/8"	
A,B	18	03 01618	91522B PISTON CUP WASHER 3"AIRCYL	
C,D	18	02 02085	94092B UP WASHER=2"OD=PISTON CUP	
all	19	15G220	02Z LTHX THIN LOKNUT 3/8-24 SSNTE	
A,B,D	20	03 01313S	85506B+STOP=AIRCYL W/2+11/16STR.SS	
C	20	03 01313	70219A STOP=AIR CYL W/2+11/16STROKE	
A,B	21	03 01630	87506B 3"AIRCYL PSTN CUP COMPLMTWSH	
C,D	21	02 02185	79237A WASHER=PISTON CUP COMP LIMIT	
A	22	03 01622	88531# CYL HEAD TAPHOLE 3"AIRCYL SS	
B	22	03 01622A	88531# CYLHEAD TAPHOLE-3"ARCYL S/S	
C	22	02 02101	71334A CYLHEAD W/TAPPED HOLE	
D	22	02 02101S	88531B CYLINDER HEAD TAP HOLE (SS)	
A,Bl	23	60C134	ORING 2.5 ID 3/16CS BN 70 DURO #333	
C,D	23	60C132	ORING 2"IDX3/16CS BUNA70 #32	
all	24	5N0ECLSBE2	NPT NIPPLE 1/4XCLS TBE BRASS 125#	
all	25	5SCCOEBE	NPT COUP 1/4 BRASS 125# #103	
all	26	5SB0E0CBEO	HEXPIPBUSH 1/4 X 1/8 BRASS 125#	
all	27	96H018	NEEDLE VALVE	
A,B	28	03 01627B	92023# LEFT=3"AIR CYL MNTG BRKT	
C	28	03 01660C93231B	BRKT=AIR CYL MONUT LEFT	
D	28	03 01660A	92271B BRKT=AIR CYL MNT LFT-S/S	
A,B	29	03 01627A	92023B RIGHT=3"AIR CYL MNTG BRKT	
C	29	03 01660D	BRKT=AIR CYL MOUNT RIGHT	
D	29	03 01660B	92271# BRKT=AIR CYL MNT RHT-S/S	
all	30	15U200	FLATWASHER(USS STD) 5/16"ZNC PLT	
all	31	15G231S	HXFINJAMNUT 1/2-13UNC2B SS18-8	USES 2
A	32	20L601K	ID TAG NATL#1614 ALUM EMB "K"	USES 2
B	32	20L601E	ID TAG NATL#1614 ALUM EMB "E"	USES 2
CD	32	20L601G	ID TAG NATL#1614 ALUM EMB "G"	USES 2
C	33	20L601F	ID TAG NATL#1614 ALUM EMB "F"	USES 1
D	33	20L601V	ID TAG NATL#1614 ALUM EMB "V"	USES 1
all	34	03 01620E	92136B.WASHER=2.86ODX2.06IDX.105THK	
A,B	35	27B2400K0N	SPCRROLL.5ID.687L.062T SS	USES 1

Steam Inlet and Sparger

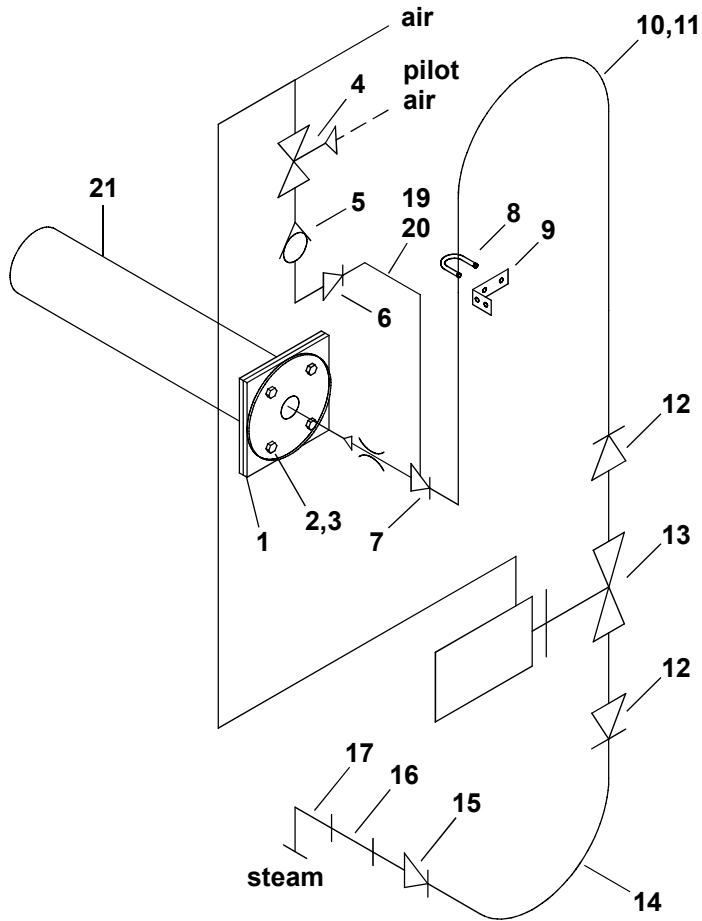
76032 Tunnels

BMP120024/2019416A
(1 / 2)

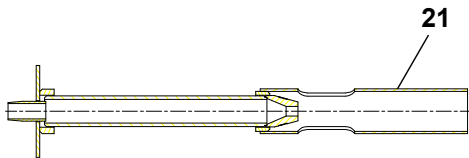


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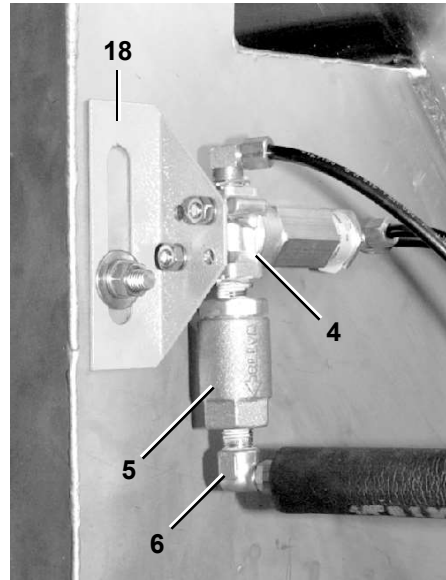
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Steam Schematic



Steam Sparger



Aspirator & Check Valve



**Steam Valve
(76039 G3 Shown)**



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Parts List—Steam Inlet and Sparger

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	A64SV001D	*WLDCBW STM INLT W/37D FLR RT	
	B	A64SV001E	WLDCBW STM INLT W/37D FLR LF	
			-----COMPONENTS-----	
all	1	06 20297C	GASKET=CBW SPRGR INLET FLNG	
all	2	24G030N	ROLLED WASH.379ID NYLTITE 37W	
all	3	15K095A	HEXCAPSCR 3/8-16X1" BRASS	
all	4	96TBC2AA01	1/4" N/C 1WAY AIR-OP VALVE POLYPRO (NO COIL)	
all	5	96DG030	CHECKVLV, 1/4"WATTS-SERIES 600	
all	6	53A016A	AIR RESTRICTER=STEAM CBW	
all	7	52ZL00S003	7/8 TUBFIT-F B+1/8NPT=STEAM	
all	8	27A031A	UBOLT 1+1/4PIPE 3/8-16THD ZINC	
all	9	06 50042P	PAINTED=REINFORCEMENT STEAM BRKT	
all	10	06 40092B	7/8"O.D.304SS STEAM INLET=RT	
all	11	98P450	INSUL.STEAM 7/8"OD SPEEDWRAP	
all	12	52ZK00S001	TUBEFITMALCN7/8X1.25#14-20FTXB	
all	13	96D0011E	1.25"NPTBRZ N/C STEAMVALANGBD	
all	14	06 40093A	7/8 COP STEAM INLET TUBE	
all	15	52ZL00S001	TUBEFITFEMCN7/8 X 3/4#14-GTX-B	
all	16	5N0P02KF42	NPT NIP 3/4X2.5 TBE BLKSTL SK4	
all	17	5SL0PFSC	NPTLNB 90DEGSTRT 3/4BLKSTL3000	
all	18	06 40438	BRK=STEAM AIRVAL=ASPIRATOR	
all	19	90A015	COPPERTUBE 1/4"O.D.X.030 X50'E	
all	20	98P505A	INSUL.1/4"IDX3/8"WALLX721TUBE	
all	21	ASS60007A	*ASSY=STM MIXER .5 ORF-21.5"L	



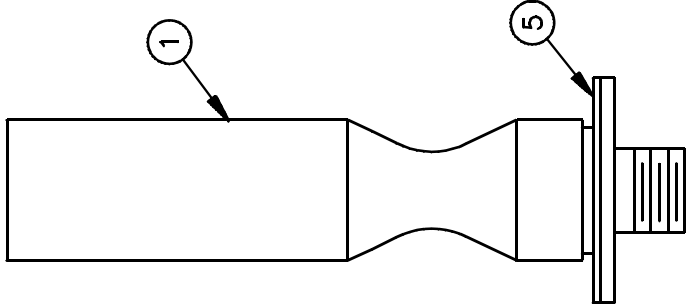
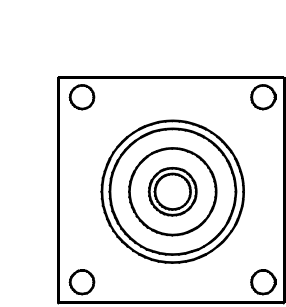
DRAWING

(See other page for parts list,
 if applicable.)

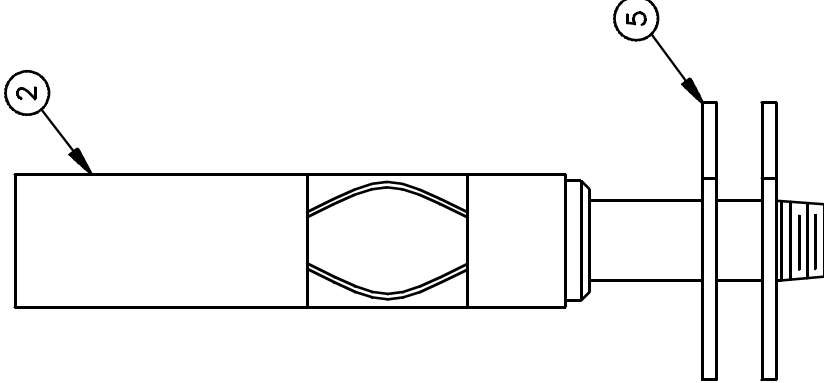
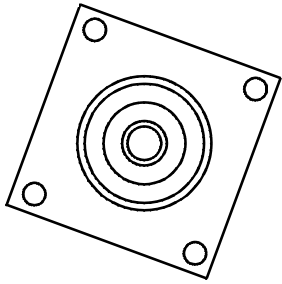
STEAM SPARGER ASSEMBLIES

BMP900001/96132V (Page 1)

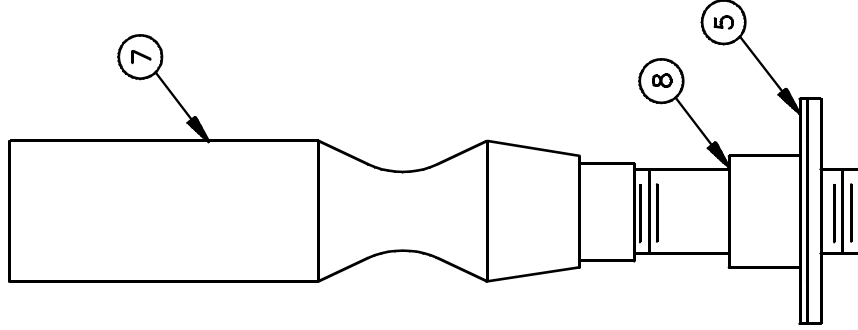
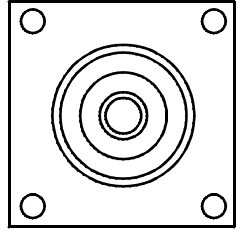
**NOTE: TO DETERMINE
 ASSEMBLY NUMBER
 FOR YOUR MACHINE
 SEE REVERSE SIDE**



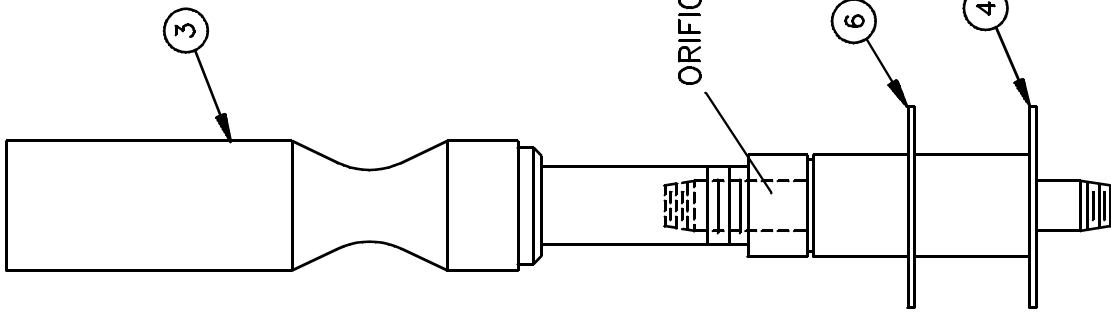
**ASS14001
 ASS25001
 ASS52001
 ASS52001D
 ASS65001**



ASS29001



ASS64001



**ASS60005A - (3/4" ORIFICE)
 ASS60006A - (1/2" ORIFICE)
 ASS60007A - (3/4" ORIFICE)
 ASS60008A - (1/2" ORIFICE)**



PARTS LIST

(See other page for drawing.)

STEAM SPARGER ASSEMBLIES

BMP900001/96132V (Page 2)

HOW PART IS USED IN ASSEMBLY
 (Only if pertinent)

ITEM	PART NUMBER	DESCRIPTION	HOW PART IS USED IN ASSEMBLY (Only if pertinent)
00A	ASS14001	91533@*STM SPARGER 5/8 ORFICE 3621	3621F8P
00B	ASS25001	91533T*52&60 STEAM SPARGER3/4ORFICE	4231+44+6044WP'S;5238WT'S,WP1;7244WP'S,WE1
00C	ASS52001	90092Y*72SGU STEAM SPARGER3/4ORFICE	7244DBN,WTL,WTN
00D	ASS52001D	900921*72TILT/DYE/DAN ST.SPARG 3/4OR	7244SP2,SP3
00E	ASS29001	90206D*6044DA3 ST.SPARGER 3/4ORFICE	6044D3A
00F	ASS64001	902061*6442 STEAM SPARGER 3/4ORFICE	6442BTL,BTN,BHP,TTL,TTN
00FF	ASS64001A	94277#*ASSY 2PART 6442 STM SPARGER	USED ON 00F-CONTAINS ITEMS 3-4 ONLY
00G	ASS65001	92000Z ASSY=SPARGER 3/4ORFICE TPIPE	6446E6N,J6N 7258J5N
00H	ASS60005A	92612T*ASSY=STM MIXER .5 ORF-24.5"L	CBW .5" ORFICE 24.5"L
00I	ASS60006A	92612#*ASSY=STM MIXER .75 ORF-24.5L	CBW .75" ORFICE 24.5"L
00J	ASS60007A	92612T*ASSY=STM MIXER .5 ORF-21.5"L	CBW .5" ORFICE 21.5"L
00K	ASS60008A	92612#*ASSY=STM MIXER .75 ORF-21.5L	CBW .75" ORFICE 21.5"L
001A	W2 14628A	95496#*WLM=STM SPARGER .63 ORF-12"L	00A
001B	W3 64566B	95496C*WLM=STM SPARGER .75 ORF-12"L	00B-00D,00G
002	W2 19565A	92637Y*WLM=STM SPARGER .75 ORF-15"L	00E
003	W3 64564	94277D*PART1=2PART 6442 STM SPARGER	00F
004	W3 64564A	94277#*PART2=2PART 6442 STM SPARGER	00F
005	02 11369D	95191B GASKET STEAM FLANGE MTG DYE ***** END OF PARTS LIST *****	00A-00G

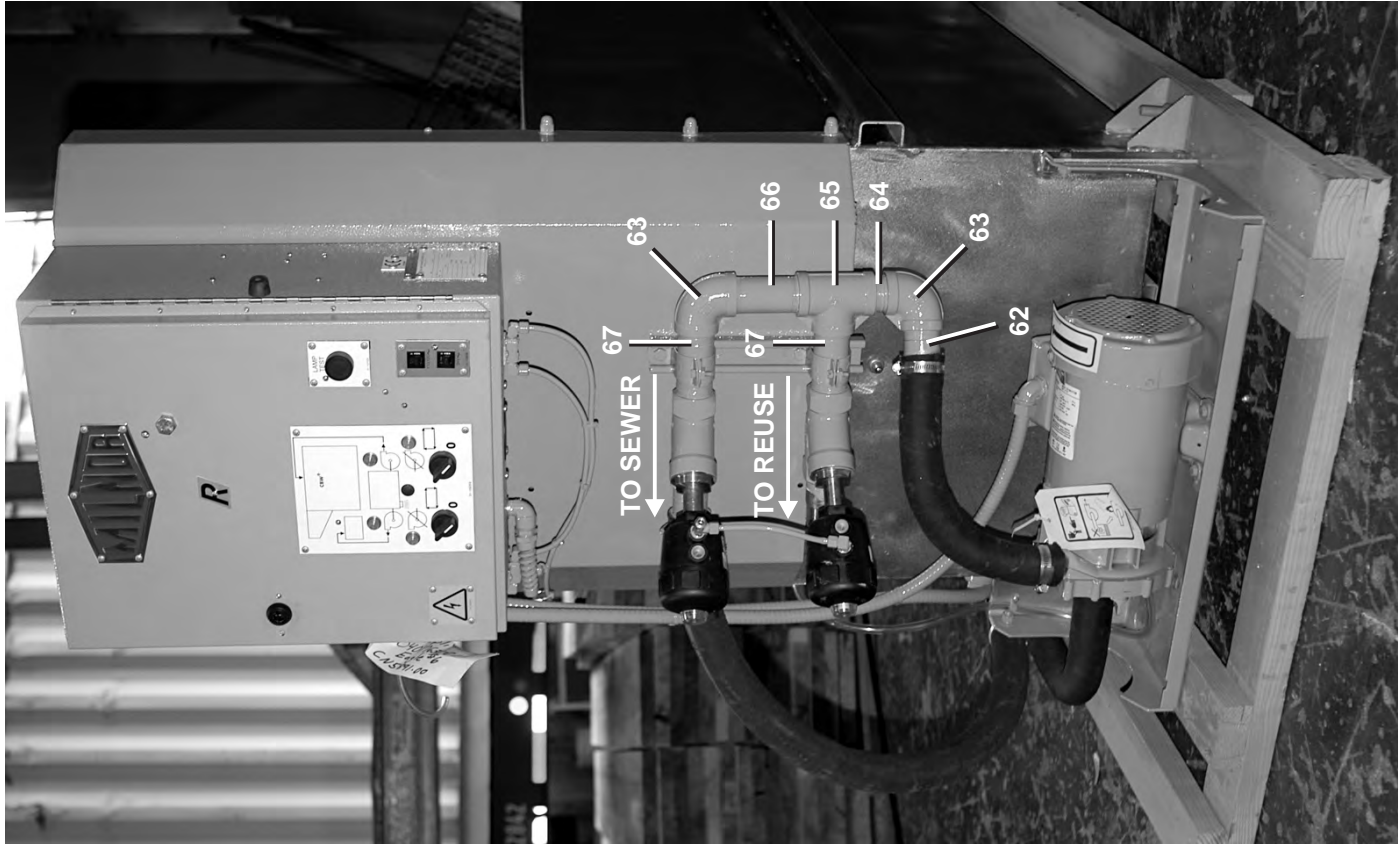
Flow Splitter
G3 Tunnels

BMP070005/2007064B
(Sheet 1 of 6)



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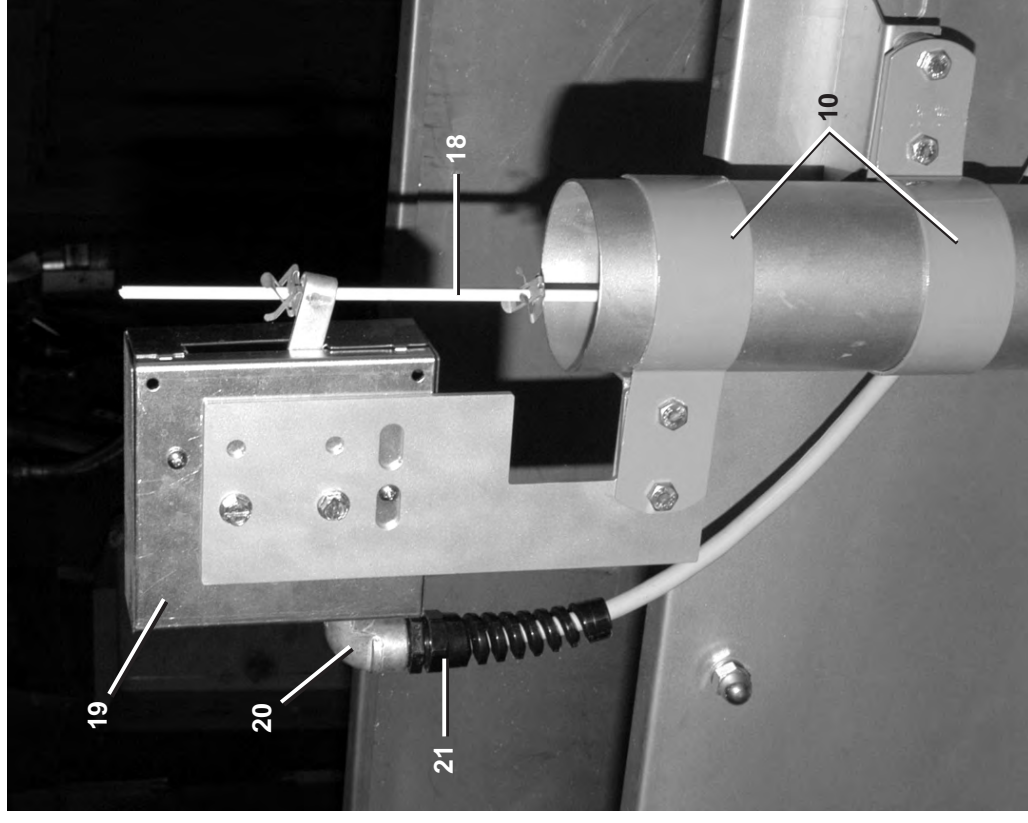
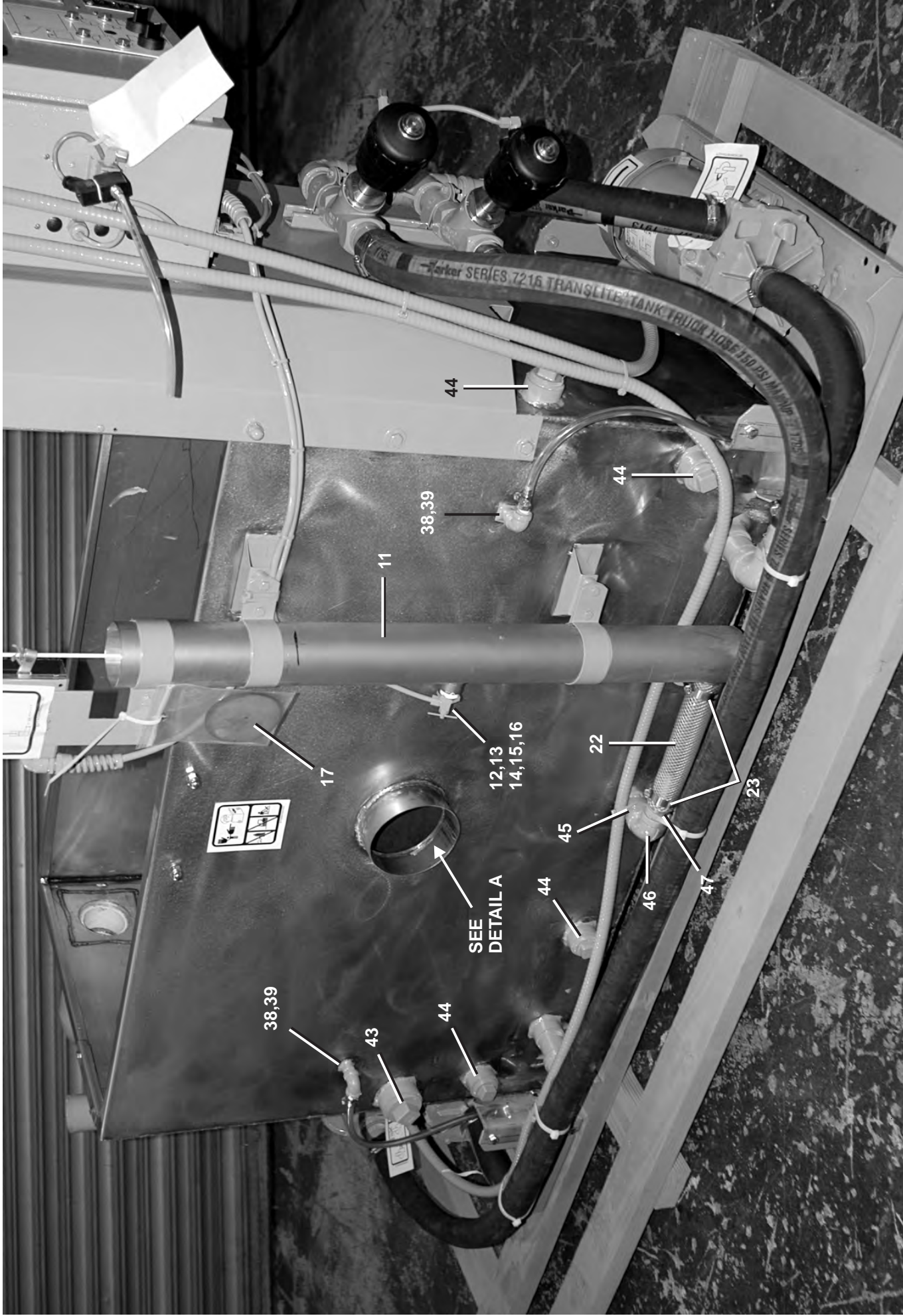
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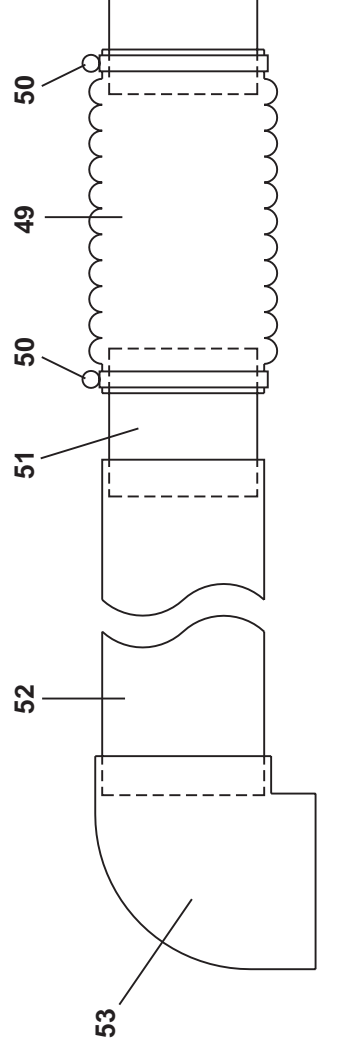
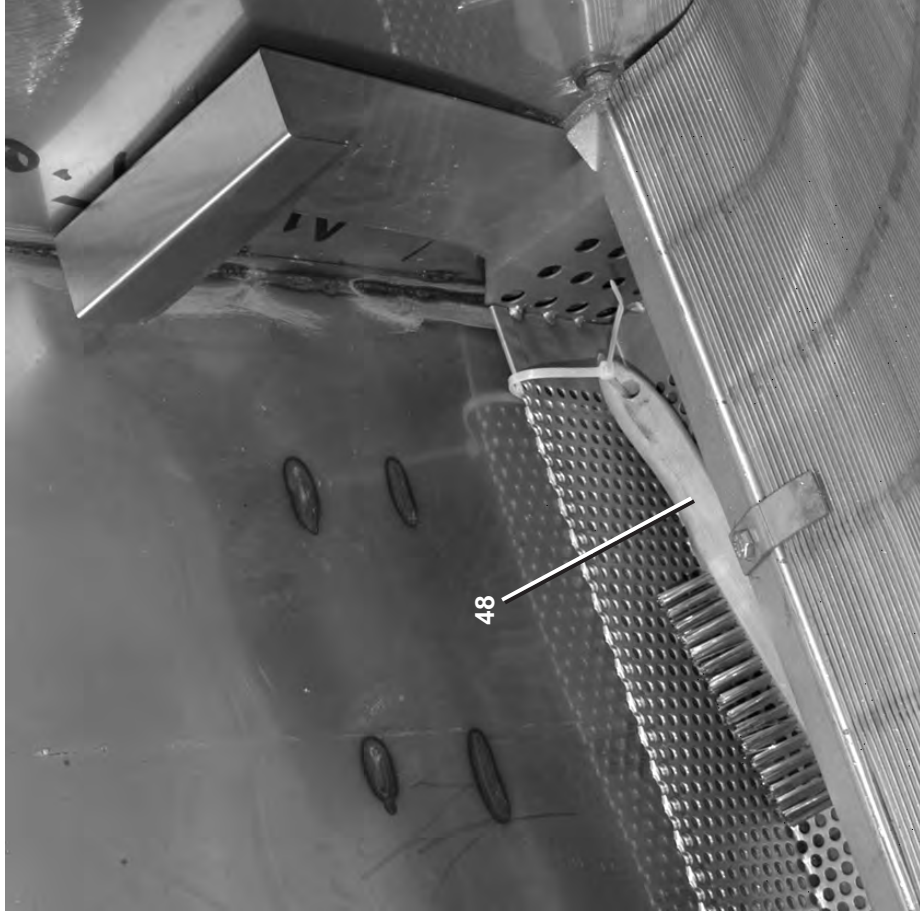




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**DETAIL A: FLOWSPLITTER 5" INLET PIPING
PROVIDED**



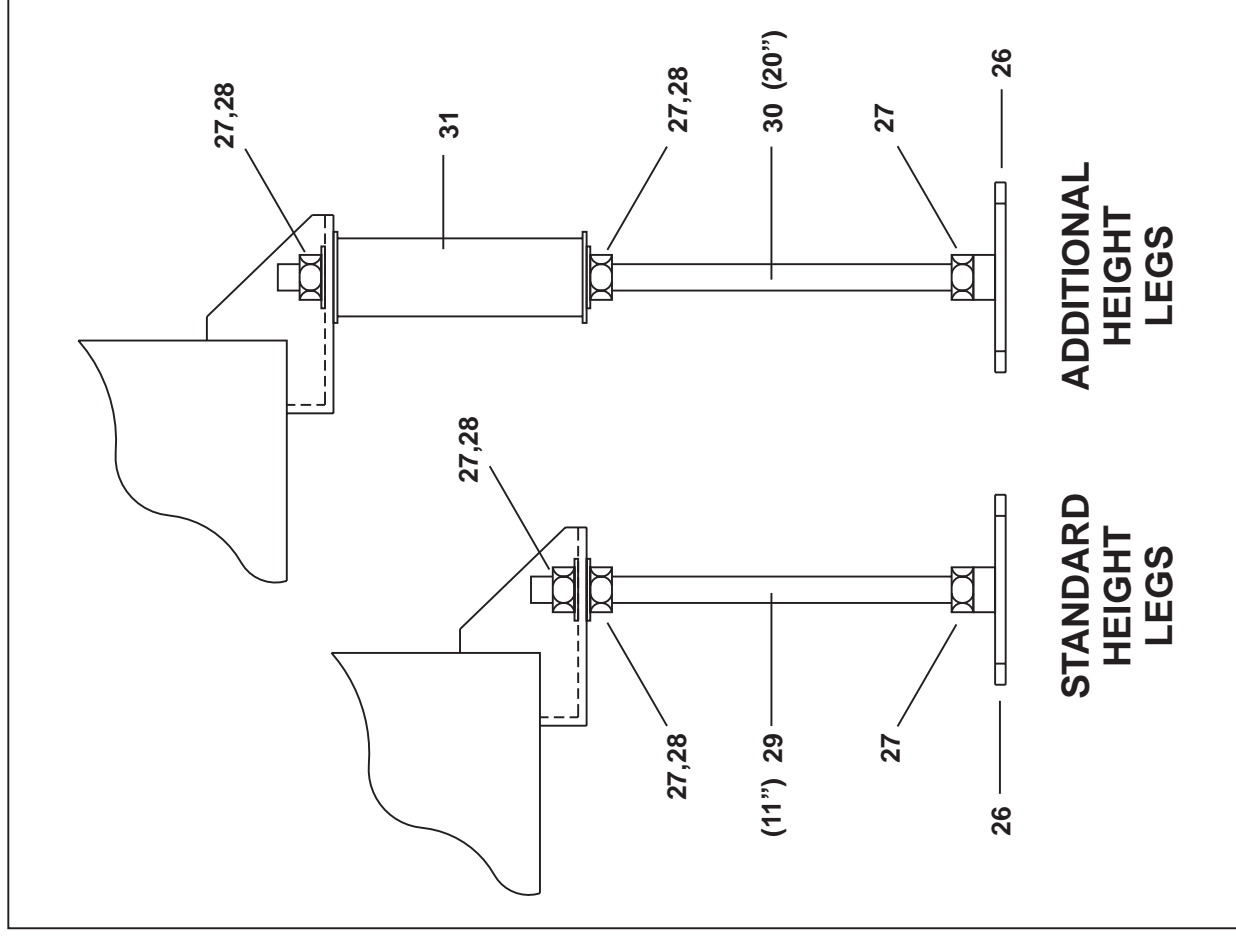
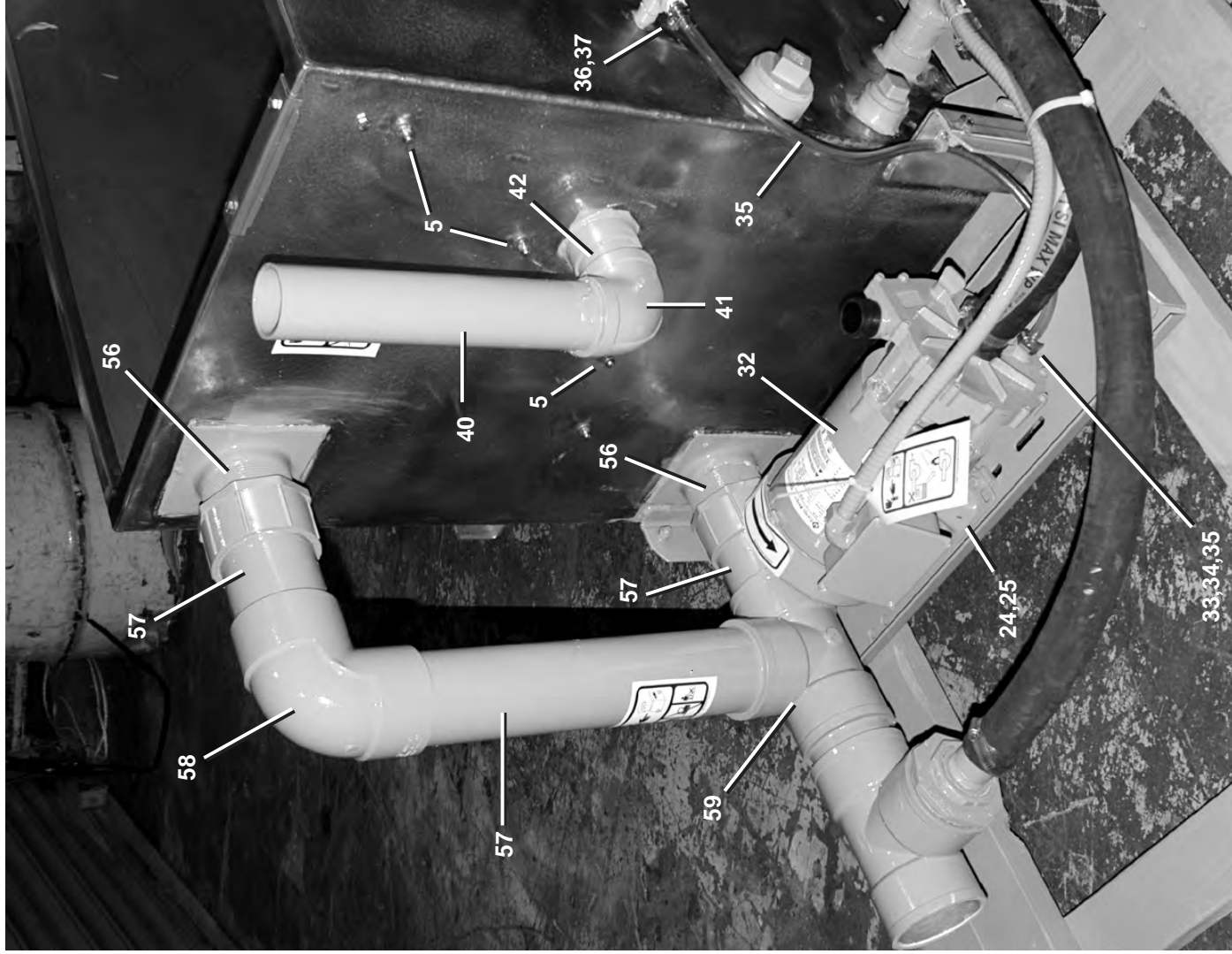
Flow Splitter
G3 Tunnels

BMP070005/2007064B
(Sheet 4 of 6)



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Used In	Item	Part Number	Description	Comments
			-----ASSEMBLIES-----	
	A	G62 03900L	WDGE WIRE INST D WIDE LNT TK	
	B	A62 03900L	WDGE WIRE ASSY D WIDE LNT TK	
	C	A67LS003	33.25" LEVEL SWITCH ASSY	
	D	G67OF001	FLOWPLIT/LIFTER OVERFLOW PIPE	
	E	G67SW004	ITEMS SHIP W/ G3 FLOWSPLITTER	
	F	A67FP001A	G3 FLW/SPLT/LIFT PUMP INST S/S	
	G	A64CP004	1.5HP BURKS/LOW VOLT PIPE ASSY	
	H	G64FT002	INST=CBW FLOWSPLT ADJ LEG	
	J	G67WV020C	LDI INLET G3 CRANE PUMP G3	
	K	G67WV020S	LD1 INLET VALVE G3 ALL S/S	
			-----COMPONENTS-----	
all	1	06 20402E	+LINT TANK ELEC BOX MNTNG BRT	
all	2	06 20402G	LINT TNK ELEC BOX BRKT COVER	
all	3	W6 70101	WELDED 48" LINT TANK	
all	4	06 20404L	48" LINT TANK FILTER HOLDER	
all	5	06 20403H	ROD=DBL WIDTH LINT TANK SUPT	
all	6	06 20404B	SCREEN=48" LINT WEDGE WIRE	
all	7	W6 20452A	*WLNT=DOUBLE WIDTH LINT TRAY	
all	8	06 20404M	BUBBLE BREAKER LINT TANK	
all	9	06 20503	48"WEDGE WIRE SUPORT GUSSET	
all	10	02 15642S	CLAMP=3"FLOAT CHAMBER DAS	
all	11	W2 14432A	* FLOAT-TUBE L=33.25"	
all	12	5SB0K0CBEO	NPTHEXBUSH 1/2X1/8 BRASS 125#	
all	13	96H018	ANGLE NEEDLE VLV 1/4" X 1/8MP	
all	14	53A059A	NUT 1/4"BR.HOLYOKE AND #61A-4	
all	15	53A501	TUBE INSERT .163"OD #63PT-4-40	
all	16	53A500	SLEEVE DELRIN 1/4"OD#60PT-4	
all	17	02 14432	FLOAT CHAMBR BLOW DWN TOP	
all	18	SA 02 011	*FLOAT ASSY L=25"-STD LEVEL	
all	19	ELL000MK2	*WATER LEV SW ASSY: 1 UP+ 1LO	
all	20	12M036L	1/2" 90-DEG SHORT ELLS	
all	21	12M043A	FLX STRAIN PIGTAIL .197-.348	
all	22	60E013	TYGON TUBING 1"IDX1.25"OD	

Parts List, cont.—Flow Splitter				
Used In	Item	Part Number	Description	Comments
all	23	27A090S	HOSECLAMP 13/16-1.5"SS#64016B	
all	24	06 20402L	PUMP MOUNTING BRACKET LNT TK	
all	25	06 20730	SPACER = MOTOR TO BRKT	
all	26	W6 20401T	FOOT=FLAT FLO SPLITTER	
all	27	15G238	HXNUT 5/8-11UNC2B SAE ZINC GR2	
all	28	15U314	FLATWASHER(USS STD) 5/8" ZNC P	
all	29	17R024A	THREADED ROD 5/8-11X11" ZINC P	
all	30	17R024AB	THREADED ROD 5/8-11X20" ZINCPL	
all	31	W6 20401N	*WLMT=LEG SUPT FLOW SPLITTER	
all	32	27E956M96	1.5HP 3P PMP 240/420/480 5/6C	STANDARD PUMP
all	32	27E933A96	1.5X2-6 PUMP W/3HP 3P TEFC MTR	HIGH PRESSURE PUMP
all	33	06 20395	1/4 HOSBARB X 1/4 TURN FITTING	
all	34	60C121A	ORING 1/2 ID X 1/8CS BUNA #206	
all	35	60E005D	TUBING 1/4"IDX7/16"OD EXCELLON	
all	36	27A042	HOSECLAMP 7/32-5/8SS+305 SCR.	
all	37	51E506S	HOSESTEM 316SS 1/4"HBXMP #RN22	
all	40	5N2A12AS41	NPT NIPPLE 2X12 TOE 304SS SK40	STAINLESS STEEL
all	40	5N2A12AP82	NPT NIPPLE 2X12 TBE PVC SK80	PVC
all	41	5SL2ASFA	NPT ELBOW 90DEG 2" 304SS 150#	STAINLESS STEEL
all	41	5SL2AP8A	NPTELB90DEG 2"PVC SH80 FPTXFPT	PVC
all	42	5N2A03AS42	NPT NIPPLE 2X3 TBE 304SS SK40	STAINLESS STEEL
all	42	5N2A03AP82	NPT NIPPLE 2X3 TBE PVC SK80	PVC
all	43	5SP2ASFSC	NPT PLUG 2" SQ CORED 304SS	
all	44	5SP1ESFSS	NPT PLUG 1.25 SQ SOLID 304SS	
all	45	5N1ACLSS42	NPT NIP 1XCLS TBE 304SS SK 40	
all	46	5SL1ASFA	NPT ELBOW 90DEG 1" 304SS 150#	
all	47	5N1A03KS41	NPT NIP 1X3.5 TOE 304SS SK40	
all	48	98L115T	BRUSH SCRATCHSHOEHDLE S/S WIRE	
all	49	60E312A18A	5" I.D. X 18" LONG GATES 75W 41	
all	50	27A086	HOSECLAMP 3+1/8-6"CADSCR#HS-88	
all	51	5KC3AP4	SOK COUP 3" PVC SK40	
all	52	51LB3AN36A	NIPPLE PIPE 3"X36" NO THD PVC	
all	53	5KL3AP4A	SOK ELBOW 90DEG 3" PVC SCH40	



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Parts List—Flow Splitter

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

Used In	Item	Part Number	Description	Comments
all	54	60E099	HOSE1.5"WIREINSERT#7216-TRANS	STANDARD PUMP
all	54	60E255	HOSE 2" WATER CORRUGATED(V50)	HIGH PRESSURE PUMP
all	55	27A065S	HOSECLAMP 1.56"-2.5"SSSCR#32	STANDARD PUMP
all	55	27A074S	HOSECLAMP 2+1/16-3"SSSCR#64040	HIGH PRESSURE PUMP
all	56	51AB3AN3AM	ADAPTER MALE 3" SXM PVC SCH40	
all	57	5P3AP4EN	3" SCH 40 PVC PIPE BE *	
all	58	5KL3AP4A	SOK ELBOW 90DEG 3" PVC SCH40	
all	59	5K3AP4A	SOKTEE 3" PVC SCH40	
all	60	96D086WE	ANGBODVLV 1.25"NC H2O BRZ	STANDARD PUMP
all	60	96D086WESS	ANGBODVLV 1.25"N/C H2O BURK SS	HIGH PRESSURE PUMP
all	61	96D086WEA	ANGBODVLV 1.25"NO H2O BRZ	STANDARD PUMP
all	61	96D086WEST	ANGBODVLV 1.25"N/O H2O BURK SS	HIGH PRESSURE PUMP
all	62	51E098ASS	KINGREDNIP1.5IDX1.25MP#RST2015	
all	63	5SL1ESFA	NPT ELB 90DEG 1.25 304SS 150#	
all	64	5N1ECLSS42	NPT NIP 1.25XCLS TBE 304SS S40	
all	65	5S1ESFA	NPT TEE 1.25" 304SS 150#	
all	66	5N1E04AS42	NPT NIP 1.25X4 TBE 304SS SK40	
all	67	5N1E03AS42	NPT NIP 1.25X3 TBE 304SS SK40	
all	68	60E099	HOSE1.5"WIREINSERT#7216-TRANS	STANDARD PUMP
all	68	60E255	HOSE 2" WATER CORRUGATED(V50)	HIGH PRESSURE PUMP
all	69	02 16306	CLAMP=1+1/2" PIPE	STANDARD PUMP
all	69	27A074S	HOSECLAMP 2+1/16-3"SSSCR#64040	HIGH PRESSURE PUMP

Chemical Supply Devices

4

Calibrating Chemical Supply Inlets

Every supply inlet to the CBW is equipped with two shut-off valves and a sampling valve, for testing and maintenance purposes (see figure). When set for normal operation, both shut-off valves should be fully open. Do not attempt to use these as throttling valves as flow rates should not be adjusted.

The quantity of chemical injected is adjusted by varying the length of time the solenoid valve remains open (C-Bit On-Time). All supply inlet solenoid valves are controlled by C-Bits and programmed on Display L (Display L or G beginning with Mark 6 software).

To calibrate a supply valve:

1. With the CBW stopped, close the shut-off valve to the module and open the sampling valve fully. Be sure the shut-off valve from the supply source is fully open.
2. Take several sample quantities from the sampling valve in a measuring bucket. This is accomplished by commanding the valve ON for various durations, using Display E (see “Calibration and Testing . . .” elsewhere). Begin with short durations of a few seconds so as not to overflow the bucket.
3. Average these samples to determine the flow rate for the valve. Use the results of this calculation to determine the On-Time needed for each formula (to inject the quantity recommended by the chemical supplier).
4. Return the shut-off and sampling valves to their normal position.

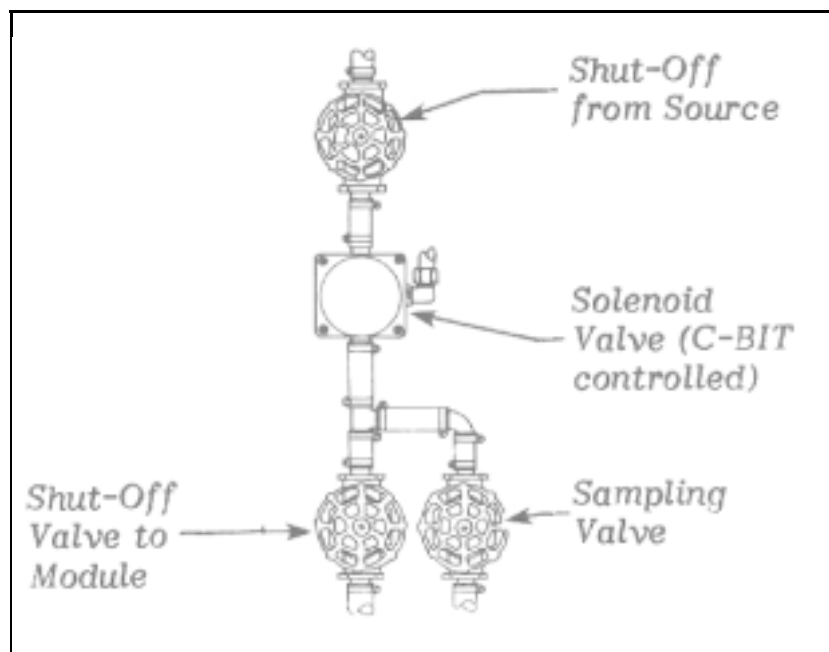
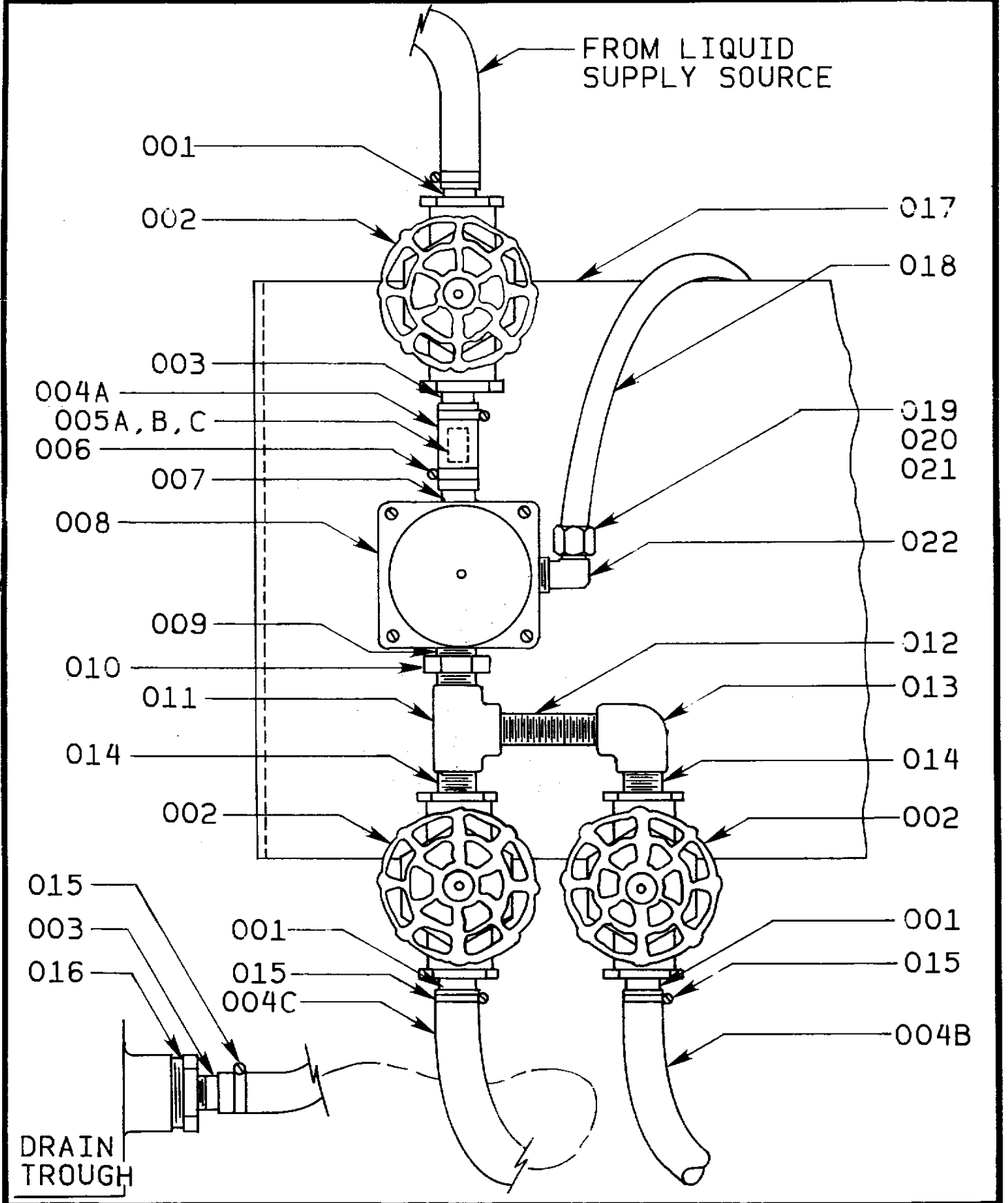


FIGURE 1 (MSSMD418AE)
Chemical Supply Inlet



CENTRAL LIQUID SUPPLY VALVE ASSEMBLY - CBW

BMP820069
83072B



Valve Assembly - Central Liquid

BMP820069R/85206A
(Sheet 1 of 2)

Supply CBW®



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Parts List—Value Assembly - Central Liquid

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	A62 04200B	85187C*LIQ.SUP.DIAPH.TEF.VALVE	
	B	G62 02900	89516C INST.LIQ.SUP.VALVE TFE	
-----COMPONENTS-----				
all	1	51E510PB	HOSE ADAPT 5/8HX1/2NPT HD POLYETHL	
all	2	96D045P	GLB VAL 1/2"CELCON BADG.# 900W-1091	
all	3	51E509PB	HOSE ADAPT 1/2HX1/2NPT HD POLYETHL	
all	4	60E006C	01Z TUBING PVC NYL REINF.5IDX.750D*	.250 L.F. REQUIRED
all	4	60E006C	01Z TUBING PVC NYL REINF.5IDX.750D*	.500 L.F. REQUIRED
all	4	60E006C	01Z TUBING PVC NYL REINF.5IDX.750D*	4.333 L.F. REQUIRED
all	5	06 20407	82341# ORIFICE.250"LIQ.SUP.TUBE	CHOOSE SIZE
all	5	06 20408	82341# ORIFICE.187"LIQ.SUP.TUBE	IN FIELD FOR
all	5	06 20409	82341B ORIFICE.125"LIQ.SUP.TUBE	PROPER FLOW RATE.
all	6	27A040	02Z HOSE CLAMP 5/16-7/8 SS SCR	
all	7	51E509PA	HOSE ADAPT 1/2HX3/8NPT HD POLYETHL	
all	8	96N100A	13Z APH VAL 3/8" N/C PVDF/TEFLN	
all	9	5N0G01KP81	NPT NIPPLE 3/8X1.5 TOE PVC S80	
all	10	5KB0K0GP81	SOK BUSH 1/2X3/8 PVC SK80	
all	11	5K0KP4A	SOKTEE 1/2" PVC SCH40	
all	12	5N0K02AP80	NIPPLE 1/2X2 NO THRDS PE PVC SK80	
all	13	5KL0KP4A	SOK ELBOW 90DEG 1/2" PVC SCH40	
all	14	5N0K02AP81	NPT NIPPLE 1/2X2 TOE PVC SK80	
all	15	27A057	HOSECLAMP, 7/16"-1" CADSCREW #HS-8	
all	16	5SB1A0KNFO	NPTHEXBUSH 1X1/2 GALMAL 150#	
all	17	06 20268B	90156D BRKT -WATER+FLOW METER INLET	
all	18	60E004TE	04Z 1/4"OD X.170"ID NYLON TUBING *	
all	19	53A500	1/4" SLEEVE-DELTRIN	
all	20	53A501	TUBEINSERT .170"OD	
all	21	53A059A	NUT 1/4"COMP.HOLYOKE ANDERSON#61A-4	
all	22	53A031B	BODY-MAL90ELL1/4X1/8COMPPH#269C-42B	



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Parts List, cont.—Value Assembly - Central Liquid

Used In	Item	Part Number	Description	Comments
all	23	20C014S	PIPE SEALANT-PST-W/TEF 250CC #56765	
all	24	20C006N	PRIMER LOCQUIC-N 60Z #76456	

Control and Sensing Assemblies

5

Miltron Cabinet

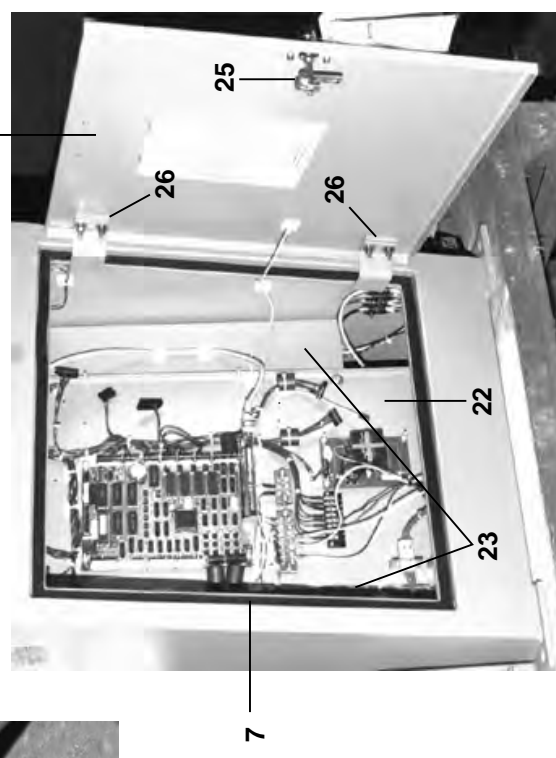
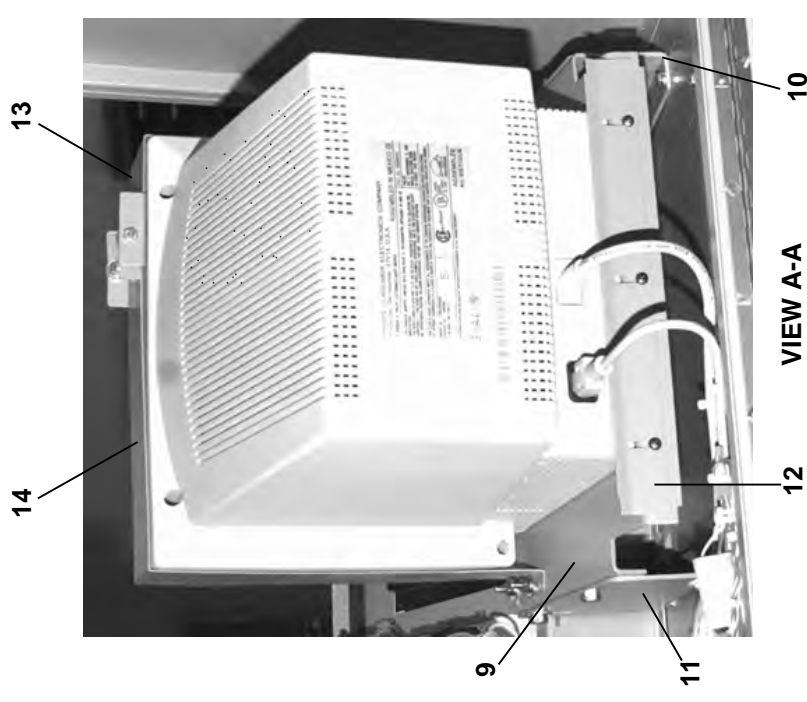
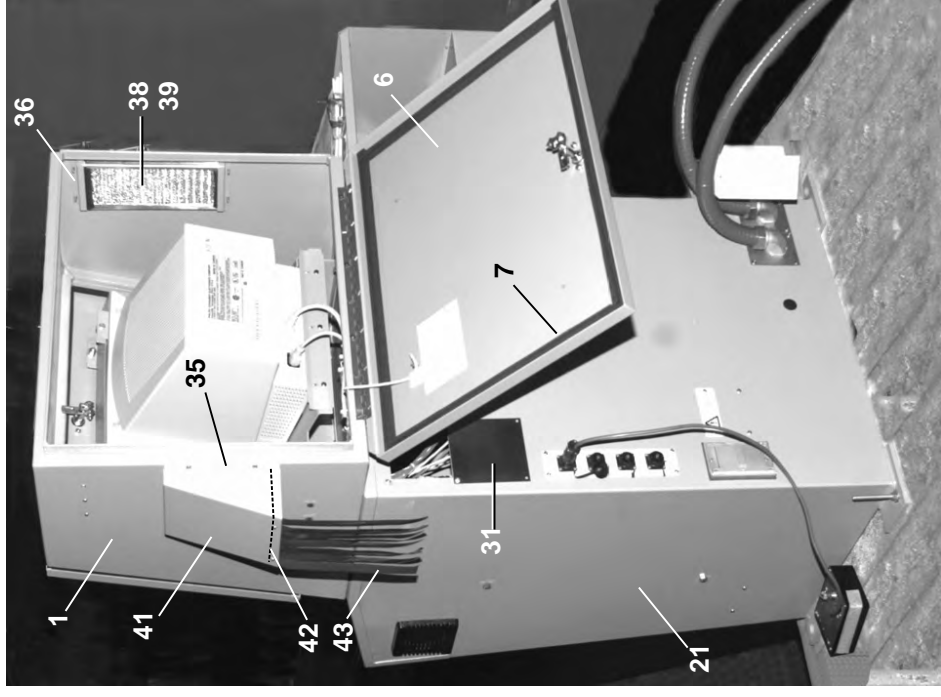
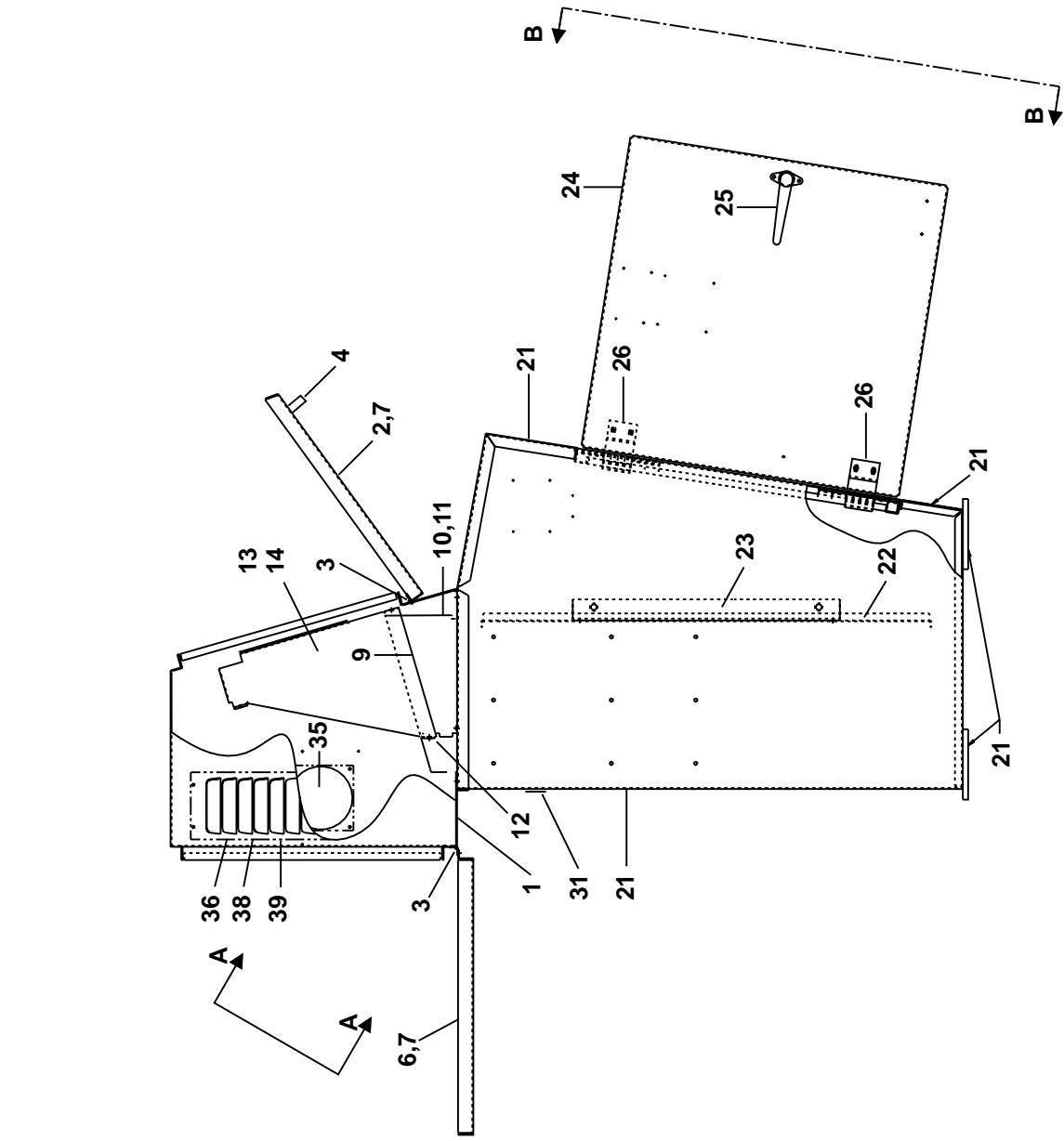
BMP960003/96143V
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Parts List—Miltron Cabinet

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	ECM000191	94346E ENCL:MK8 MILTRON W/14"VGA MN	
			-----COMPONENTS-----	
all	1	W3 E2026U	94307E*WLDMNT:MK8 CBW/VGA MONITOR	
all	2	W3 D18265	94346#*DRWLDMNT:18X26X1 MK8 VGA FNT	
all	3	X2 18682A	84151B HINGE=MK2 DIVCYL RELTRAY	
all	4	27A012KS	87491N L HAND W/LOC, S LTCH & MTHDW	
all	6	W3 D20265	94346#*DRWDMNT:MK8 CBW/VGA MNT R/R	
all	7	60A006A	01Z NEO RUBBER STRIP 1/4X1 CLSCCELL*	
all	9	03 BC1611	95073C BRKT=MK8 VGA MNTR SUPT MILTR	
all	10	03 BL851	95073B BRKT=LF BASE SUPT MILTRON	
all	11	03 BL851A	95073B BRKT=RT BASE SUPT MILTRON	
all	12	03 BF1401	95073B PLATE=MONITR RR STOP BEL/MIL	
all	13	03 BL1243	95073C STRAP=LF VGA MNTR HLD-DN MIL	
all	14	03 BL1211	95073C STRAP=RT VGA MNTR HLD-DN MIL	
all	21	W3 E26365	94307E*WELDMNT:M8 SER MILTRON CONS	
all	22	03 BC1325	90411D+PLATE:M8 MILTRON BACKPLATE	
all	23	03 BL6195	94306D BRKT:MK8 MILTRON BCKPLT MTG	
all	24	W3 D22235	95017#*DRWELDMNT:MK8 CBW CON-BOTTOM	
all	25	27A012ALKS	87491N*L HAND W/LOC, S LTCH & MTHDW	
all	26	02 18858B	93476B HINGE STAND OFF=MILTRON CONS	
all	31	03 CF5X5D	85272B COVER=M6 42 DYE PRESS PANEL	
all	35	13AF100A37	FAN 92CFM115V60 ETRI#141LS-2282-010	
all	36	03 BU1X5	88506C+BRKT:VARIABLE SPD AIR FILTER	
all	38	13D002	88506C ALUM FILT 4 11/16X9 11/16	
all	39	03 FF510D	90502B POLYESTR FILTER CUT4.75X9.75	
all	41	W6 20263	94356#*WELDMNT=AIR DEFLECTOR=CB	
all	42	06 20263A	84105B GUARD=AIR DEFLECTOR	
all	43	69C156P	HULAS-BLUE FLUTTERS-60' EA=60'ROLL	

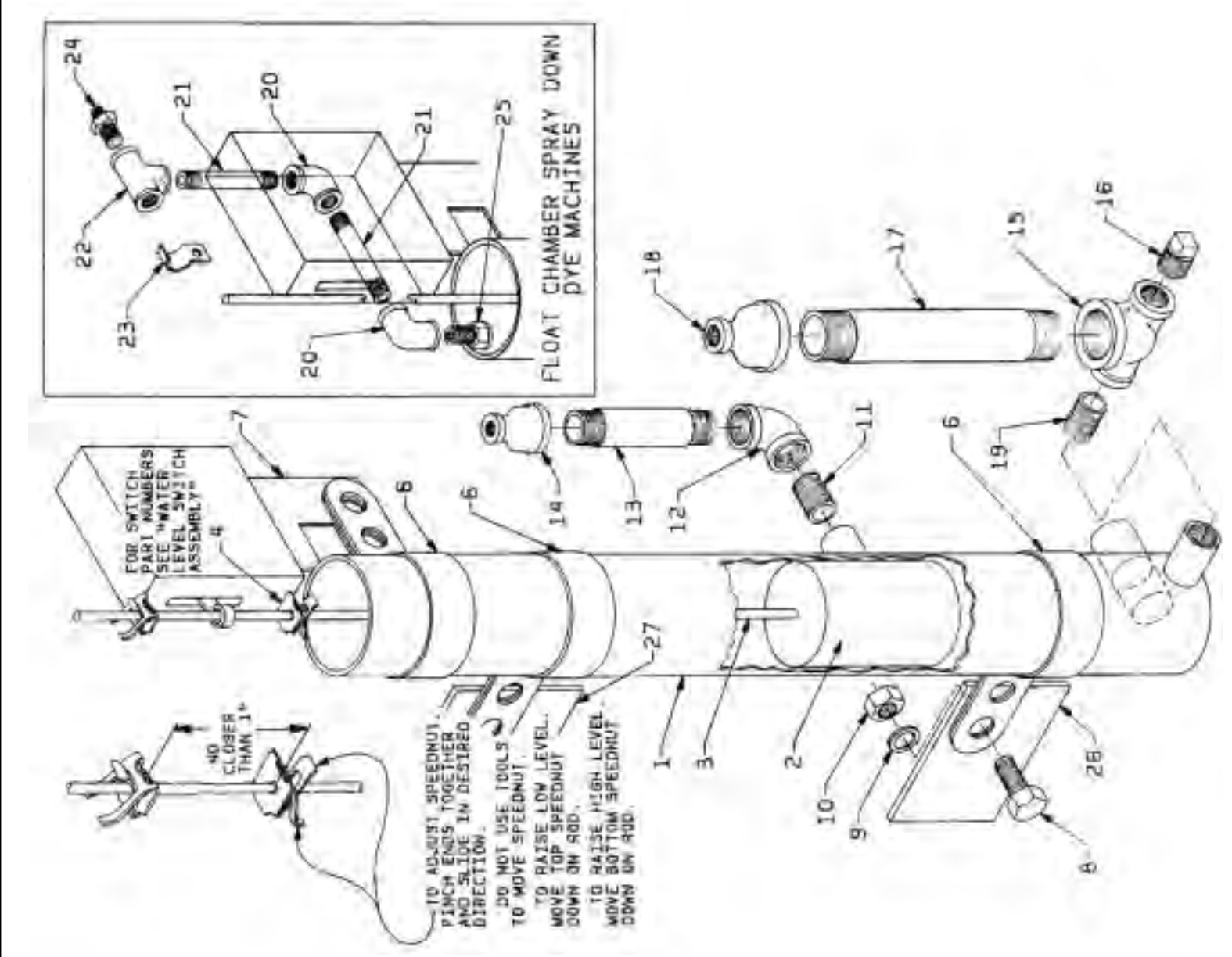
Water Level Float Chamber

BMP810111/2003262V
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Parts List—Water Level Float Chamber
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		A03 03100	FLOAT CHMBR ASSY=8.25"CLDCON	DYE TANKS
B		ALL11001	*FLOAT CHAMBER INSTAL=4226QHE	4832,4836
C		A14 07200C	\$ ASSY=FLOAT SPRAY 42DAZ	3621CPE,BWP
D		ALL48001	*FLOAT CHAMBER ASSY 4832-36	4231,4244
E		AD 14 046	*FLOAT CHMBR INSTAL=35#+60#W	4226Q
F		AD 15 047	FLOAT CHMBR 25.25ASY=42+72WE	6044
G		ALL11000	*FLOAT CHMBR 33.25ASSY=4226Q	7244
H		G28 18700A	FLOAT CHAMBER 25.25 INST=60"	5238
I		G36 07500A	FLOAT CHAMBER 25.25 INST=72"	6446
J		G25 02600A	FLOAT CHAMBER INSTAL=5238	6446
K		GLL64002	FLOAT CHAMB=FRAME INSTL 64NP	
L		ALL64002	FLT CHAMBR ASSY64NP W/90D 1N	
			-----COMPONENTS-----	
aIL	1	W2 14432	* FLOAT-TUBE L=25.25"	FOR USE WITH REUSE SUMP
aIL	1	X2 14432K	FLOAT CHAMBER 96"LG REUSE	
aIL	1	W2 14432M	*FLOAT CHAMBER=33.25"W/90DIN	
AIL	2	X2 02239	FLOAT=PLAST LVL CONT(SANDED)	TO ORDER SEE ITEMS 30+31
aIL	3	02 02146	LEVEL CONTROL FLOAT ROD=25"L	TO ORDER SEE ITEM 30
aIL	3	02 02146E	LEVEL CONTROL FLOAT ROD=66"L	TO ORDER SEE ITEM 31
aIL	3	02 02146B	COUPLING=FLOAT ROD	FOR USE WITH REUSE SUMP
aIL	4	17N050	10-24 SPEDNUT #C10733-1024-373	TO ORDER SEE ITEMS 30+31
aIL	6	02 15642A	CLAMP-3"FLOAT CHAMBERED	
aIL	7	02 15097C	BRACKET LEVCONT PER PRINT	
aIL	8	15K039	HXCAPSCR 1/4-20UNC2AX3/4 GR5 Z	
aIL	9	15U180	LOCKWASHER MEDIUM 1/4 ZINCPL	
aIL	10	15G165	HXNUT 1/4-20UNC2BSAE ZC GR2	
aIL	11	5N0KCLSG42	NPT NIP 1/2XCLS TBE GALSTLSK40	
aIL	12	5SLOKNFA	NPTELB 90DEG 1/2 GALMAL 150#	COOLDOWN OPT.
aIL	13	5N0K04AG42	NPT NIP 1/2X4 TBE GALSTL SK40	COOLDOWN OPT
aIL	14	5SR0K0CNF	NPT RED 1/2X1/8 GALMAL 150#	COOLDOWN OPT.
aIL	15	5S0KNFA1A	NPT TEE 1/2X1/2X1" GALMAL 150#	4226,4832,4836,6442
aIL	16	5SP0KGFSS	NPT PLUG 1/2 SOSOLID GALSTL	4226,4832,4836,6442



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Parts List, cont.—Water Level Float Chamber

Parts List, cont.—Water Level Float Chamber									
Used In	Item	Part Number	Description	Comments	Used In	Item	Part Number	Description	Comments
aIl	17	5N1A07AG42	NPT NIP 1X7 TBE GALSTL SK40	4226,4832,4836,6442					
aIl	18	5SR1A0ENF	NPT RED 1X1/4 GALMAL 150#	4226,4832,4836,6442					
aIl	19	5N0KCLSG42	NPT NIP 1/2XCLS TBE GALSTLSK40	4226,4832,4836,6442					
aIl	20	5SLOEBEA	NPTL 90DEG 1/4 BRASS 125#	SPRAY-DOWN /DYE MACHINES					
aIl	21	5N0E03KBE2	NPT NIP 1/4X3.5 TBE BRASS STD	SPRAY-DOWN /DYE MACHINES					
aIl	22	51V015	TEE 1/4 FGDBRASS 101T7-444	SPRAY-DOWN /DYE MACHINES					
aIl	23	12P014KK	CABLE CLMP NONMTL 1/2IDX1/2WID	SPRAY-DOWN /DYE MACHINES					
aIl	24	53A008B	BODYMALECON.25X.25COMP#B68A-4B	SPRAY-DOWN /DYE MACHINES					
aIl	25	27A003	NOZZLE 1/4" BRASS SQUARE PATTE	SPRAY-DOWN /DYE MACHINES					
aIl	26	02 10506	BRACKET-BOTTOM FLOAT=CHAMBER	3016,3621					
aIl	26	02 15663	BRKT=FLOAT CHAMBER MTG	4231,4241,7244					
aIl	26	02 15649	BRKT=FLOAT CHAMBER MTG	6036,6044					
aIl	26	03 25298A	FLOAT CHAMBER BRACK	4832,4836,6442					
ALL	27	02 10505	BRACKET=TOP FLOATCHIMBR+\$8 SU	3016,3621					
aIl	27	02 15649	BRKT=FLOAT CHAMBER MTG	4231,4241,6036, 6044,7244					
aIl	27	08 01065	BRACKET=LEVEL CNTRL MT 90DEG	4226DYA					
aIl	27	03 25298A	FLOAT CHAMBER BRACK	4832,4836,6442					
aIl	30	SA 02 011	*FLOAT ASSY L=25"-STD LEVEL	ITEMS 002,003A,004					
aIl	31	SA 02 011B	*FLOAT ASSY L=66" 42DA+52DYA	ITEMS 002,003B,004					

Water Level Switch Assembly



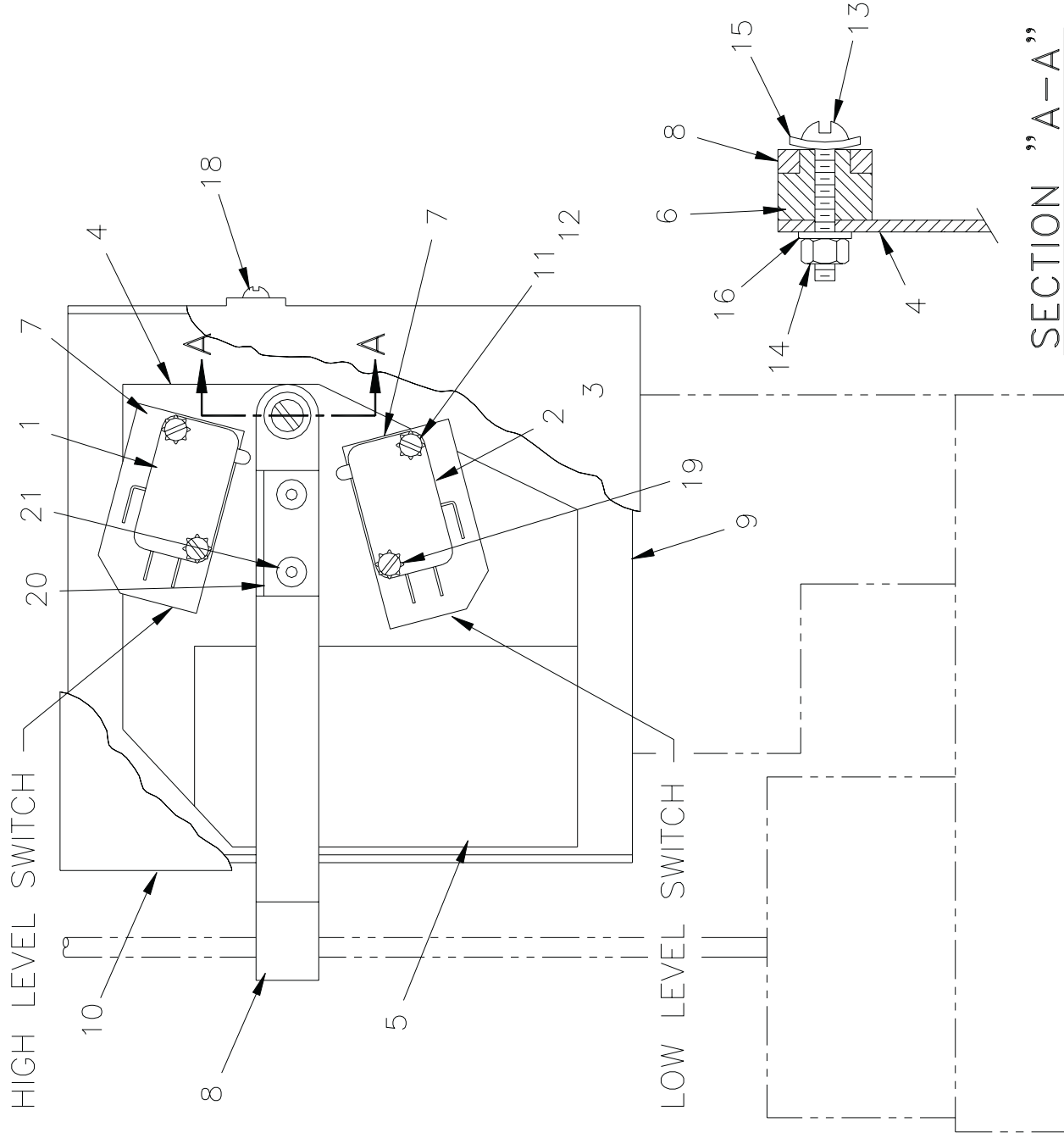
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BMP800186/2002226V
(Sheet 1 of 1)

Notes:

1. Disconnect power at main switch before operating this enclosure.
2. Wiring must not interfere with movement of item 8.
3. To order complete water level switch assembly, see items A-G.
4. When item 20 is used in assembly G, flange will be on top (shown).
When item 20 is used in assembly F, flange will be on bottom.



Parts List—Water Level Switch 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		ELL000MK1	*LIQUOR LEVEL SW ASSY CBW	1 UP + 0 LO
B		ELL000MK2	*WATER LEV SW ASSY: 1 UP+ 1LO	1 UP + 1 LO
C		ELL000MK2A	*CONVEYOR E-STOP ASSY 1UP-1DN	1 UP + 1 LO
D		ELL000MK2S	*MK2 WATER LEVE SWITCH ASSYSS	1 UP + 1 LO SS
E		ELL000MK3	WATER LEV SW ASSY:0 UP +1 LO	0 UP + 1 LO
F		ELL000MK4	*WATER LEV SW ASSY:1 UP +2 LO	1 UP +2 LO
G		ELL000MK5	\$WATER LEV SW:2UP +1LO	2 UP + 1 LO
-----COMPONENTS-----				
1	A-D,F-G	09R014A	MINI-SW SPDT STAKON #V15G1C26K	
2	B-G	09R014A	MINI-SW SPDT STAKON #V15G1C26K	
3	F-G	09R014WS	MICROSW SPDT STAKON V3-2101-D8	
4	004-C,E-G	02 02150M	SW MOUNTPLATE=LEVCONT ZINCPL	
4	D only	02 02150S	PLATE=SWITCH MNT LEVEL S/S	
5	all	01 10227	LABEL=WATER LEVEL SWITCH ASMB	
6	all	02 02152	BUSHING=FLOAT LEVER	
7	all	02 02164	INSULATION=V3-1 MICROSWITCH	
8	all	02 02190	FLOATLEVER=LEVEL SW	
9	A-C-E-G	02 02553	BASE=LEVEL CONTROL	
9	D only	02 02553S	BASE=LEVEL CONTROL ENCL S/S	
10	A-B-E-G	02 02554	COVER=LEVEL CONTROL-PLTD	
10	C only	02 02554A	COVER=CONVEYOR E-STOP-PLATED	
10	D only	02 02554S	WATER LEVEL CONTROL ENCL S/S	
11	all	15N019	RDMACSCR 4-40UNC2AX5/8 ZINC GR	
12	all	15U021	LOKWASH EXTTOOTH #4 (US STD) ZI	
13	A-C-E-G	15N055	RDMACHSCR 6-32UNC2AX5/8 ZINC G	
14	A-C-E-G	15G070	HXMACHSCRNUT 6-32UNC2B ZINC GR	
14	D	15G075	HEX MACH SCREW NUT 6-32UNC2 S	
15	all	15U060	FLAT WASHER#6 ANSI TYPEB BRASS	
16	A-C,E-G	15U100	LOKWASHER MEDIUM #6 ZINCPL	
16	D only	15U102	LOKWASHER MEDIUM #6 SS18-8	
17	A-C,E-G	15P105	TRDCUT-F PANHD 8-32X5/8 NIKSTL	
17	D only	15P103	TRDCUT-F RDHDSLOT 8-32UNCX1/2	
18	all	15P100	#8 X 3/8 PHILPANHD TYPE B SMS	
19	F-G only	15N021	RDMACSCR 4-40 UNC2X1 ZINC PLT	
20	F-G only	03 01462C	ANGLE=H20 LEVEL ACTUATOR	
21	F-G only	15J051	POPRIVET 1/8DIAX.265 LONG S/S	

SECTION "A-A"

WHY AND HOW TO SET THE MANUAL, MINIMUM PRESSURE THROTTLING VALVE WHEN ITT MARLOW PUMPS ARE USED ON THE CBW[®]

NOTE: As of this writing, pumps manufactured by Milnor are furnished with new CBW's. The ITT Marlow 1 1/2 x 1 1/2 pump, which this section applies to, is only found on older CBW's, but may also be furnished as a replacement pump for these older machines. The manual, minimum pressure throttling valve and pressure gage described herein, are only needed and used with the ITT Marlow pump, not the Milnor pump.

Why It Is Necessary for Certain Centrifugal Pumps To Pump against a Minimum Outlet Pressure

Certain centrifugal pumps require a minimum outlet pressure to pump against, otherwise the pump may "cavitate." Cavitation occurs when the outlet pressure is so low that the pump actually tries to suck a greater quantity of water into the pump than can pass smoothly through the pump body. This causes momentary "bubbles" of vacuum to form inside the pump. The vacuum bubbles then collapse or "implode," causing serious mechanical damage to the pump.

Cavitation causes the pump to make a chattering or rattling sound. The sound (and the phenomenon) disappears with sufficient outlet pressure.

Cavitation-damaged pumps are not covered by warranty.

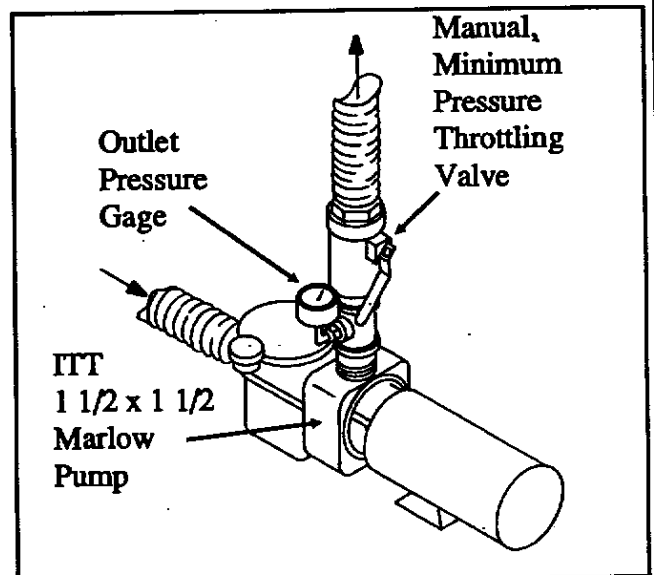


FIGURE 1 (MSSM0906AE)
ITT Marlow Pump for CBW System

How To Set the Manual Minimum Pressure Throttling Valve

The manual throttling valve must be set to the pressures given in the table below while the pump is delivering its maximum flow rate. This means that, for example, if the pump is supplying water from a flow splitter to a wash zone with a wash zone flow enhance feature, both the normal water inlet valve and the enhanced flow water inlet valve must be open with the vernier valve(s) set to the maximum flow that will be actually used in service. Moreover, because different installations have different amounts of outlet pressure depending upon the total length of pipe, number of elbows, etc., in the discharge piping, the valve must be set with all the down-stream piping installed exactly as the pump will be actually used in service.

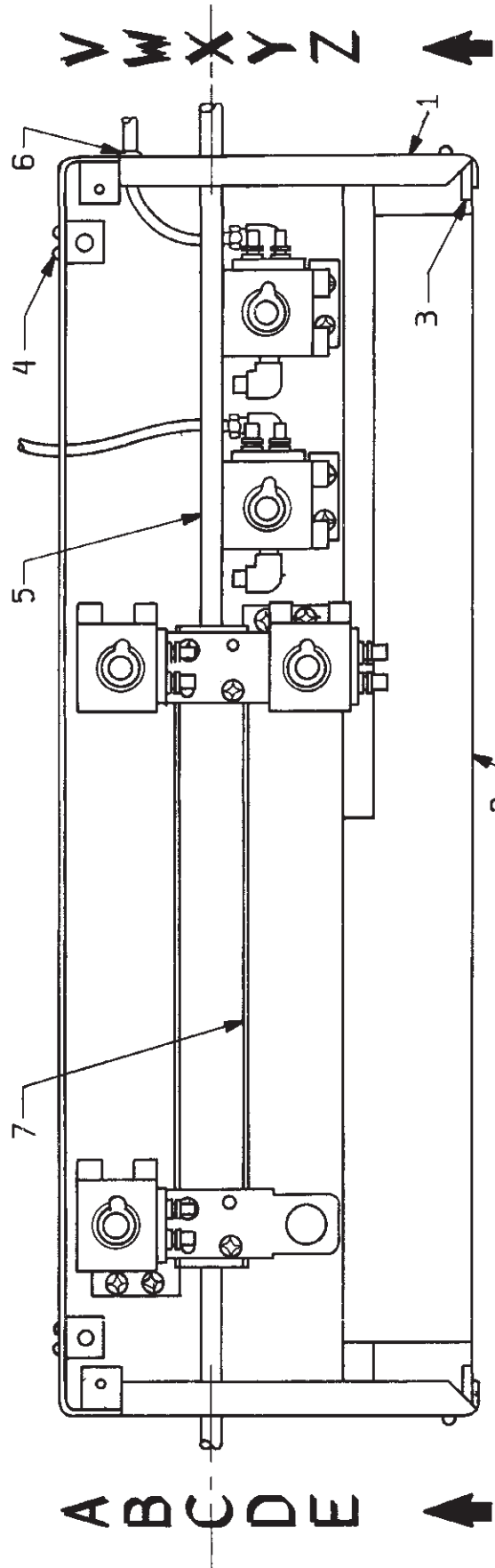
What Pressures to Use

ELECTRICAL POWER FREQUENCY	MINIMUM OPERATING PRESSURE
50 HZ	10 PSI (0.7 KG/CM ²)
60 HZ	15 PSI (1.1 KG/CM ²)



UNIVERSAL AIRVALVE BOX ASSEMBLY

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83457C

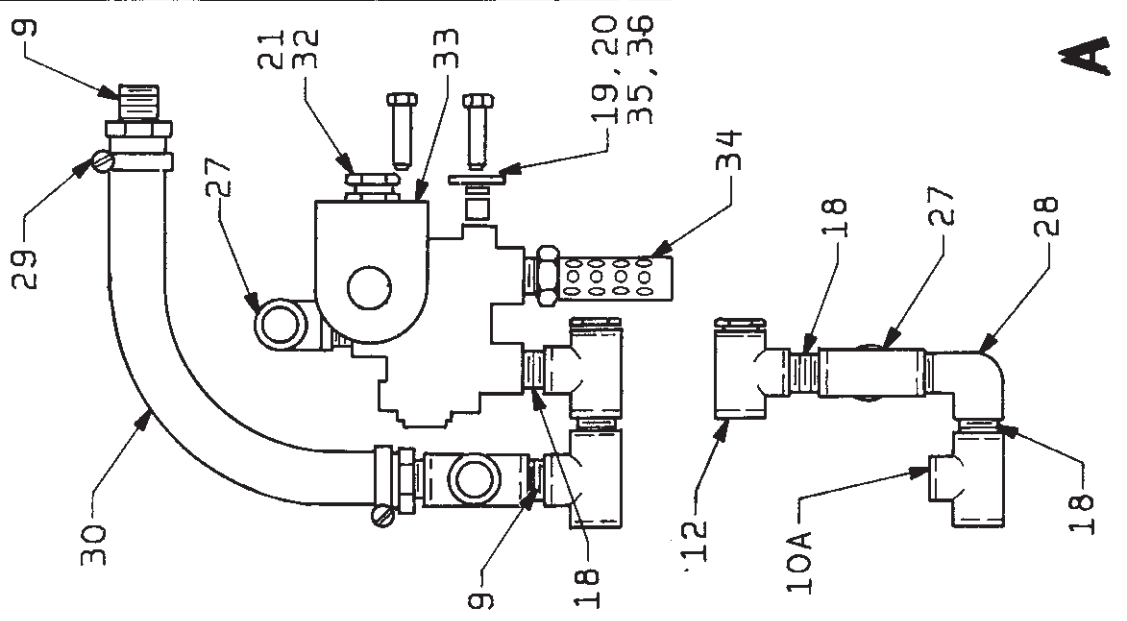


A B C D E

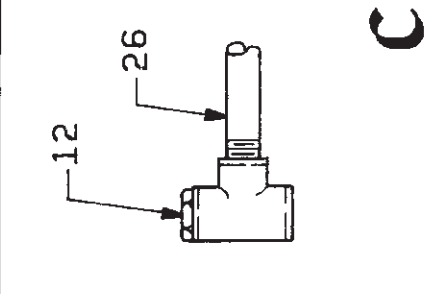
V W X Y Z

DETAILS A-E SHOW SOME POSSIBLE CONFIGURATIONS ON THIS END OF THE AIRVALVE BOX.

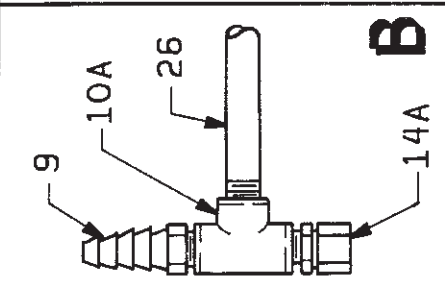
DETAILS V-Z SHOW SOME POSSIBLE CONFIGURATIONS ON THIS END OF THE AIRVALVE BOX.



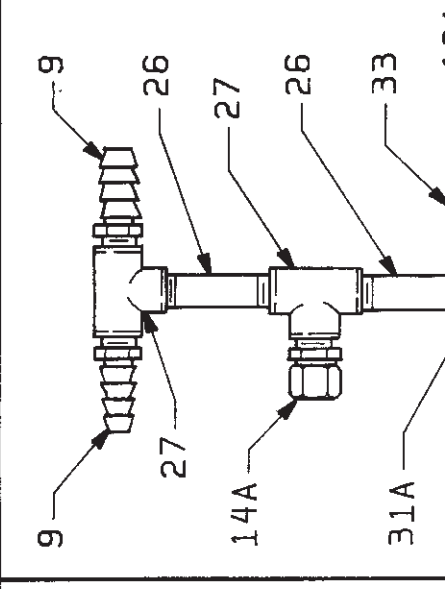
A



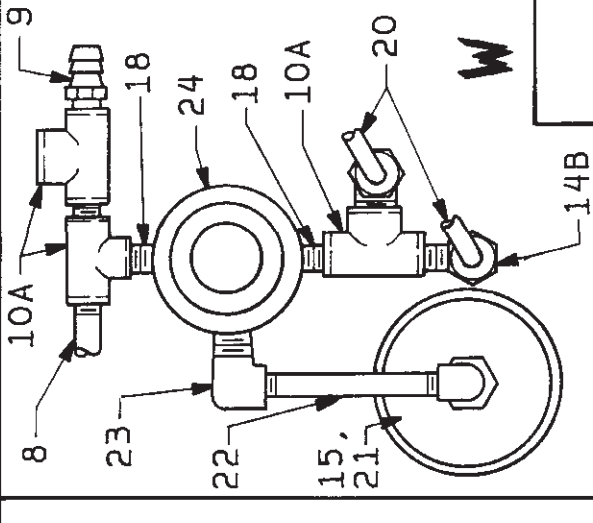
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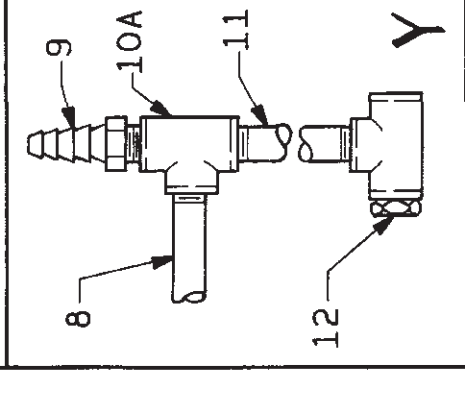
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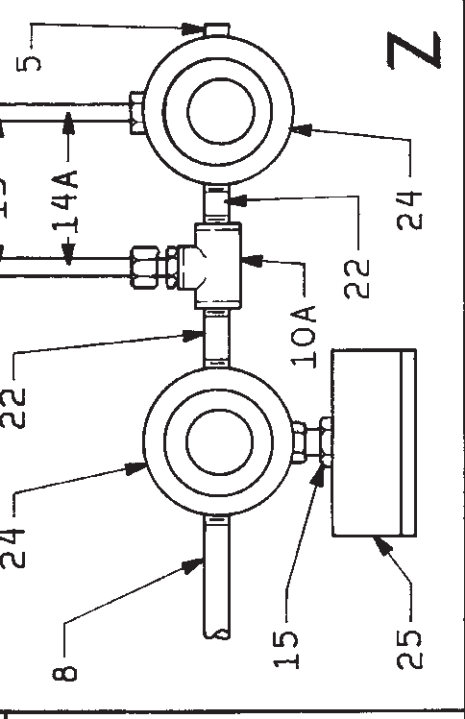
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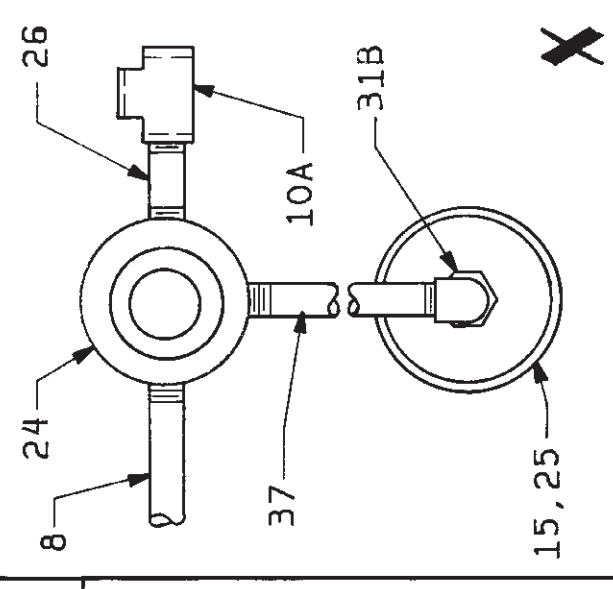
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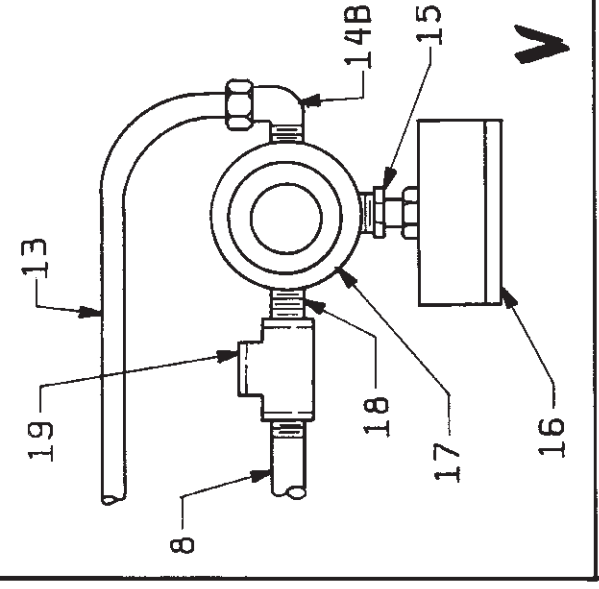
Y



Z



X



V

P/L UNIVERSAL AIRVALVE BOX

BMP780088R/93046N
(Sheet 1 of 2)



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Parts List—P/L UNIVERSAL AIRVALVE 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-----				
none				
-----COMPONENTS-----				
	1	03 01180A	84232D ENCL=AIR VALVE FORMED	
all	2	03 01180B	84136B PLATE=BOTTOM AIRVALVE BOX	
all	3	17C051	01Z RECP BKT #2 FAST CAMLOCK	
all	4	15J051	01Z POPRIVET 1/8DIA X.265 LONG S/S	
all	5	51P013	PLUG HXCNTRSUNK 1/4"BRASS	
all	6	12P1AHSB	SNAPBUSH.437MHX.312 T=1/8HEYCO#2043	
all	7	X3 01507A	88462# MANIFOLD BLOCK MACH 12PORTS	
all	8	5N0E11ABE2	NPT NIPPLE 1/4X11 TBE BRASS 125#	
all	9	51E507	HOSESTEM BRASS 1/4 MPTX1/2 HOSE I.D	
all	10	51V015	03Z TEE PIPE 1/4"FGDBRASS101-T7-444	52DRA+DYA ONLY
all	10	5SX0EBF	NPT CROSS 1/4" BRASS 150# 2205P-4	52WE1;60;72;WE2+WE3
all	11	5N0E05KB42	NPT NIPPLE 1/4X5.5 TBE BRASS STD	
all	12	51T020	STRAINER-T 1/4"ANCHOR #101ST-4	
all	13	60E004TE	04Z 1/4"OD X.170"ID NYLON TUBING *	
all	14	53A008B	BODY=BRMALCON 1/4X1/4COMP W#B68X4X4	52DRA+DYA ONLY
all	14	53A031XB	BODY=MAL90EL 1/4X1/4COMP #269C-4-4B	52WE1;60;72;WE2+WE3
all	15	5SB0E0CBEO	HEXPIPBUSH 1/4 X 1/8 BRASS 125#	
all	16	30N100	07Z PRESSGUAGE 1/8"BACKCONN 0-30PSI	60;72;WE3 ONLY
all	16	30N101	08Z PRESSGAUGE 1/8"BACKCONN 0-60PSI	60;72;WE2 ONLY
all	17	96J019BE	78486T*PRESSURE REG=EPOXY SET 28PSI	
all	18	5N0ECLSBE2	NPT NIPPLE 1/4XCLS TBE BRASS 125#	
all	19	15U185	FLATWASHER(USS STD) 1/4" ZNC PLT	
all	20	02 10456	65025A BUSHING=SENSDEV PIVOTPIN	
all	21	12K005	01Z 1/2 CONDUIT NIPL-CHASE"LONG TYP	
all	22	5N0E02ABE2	NPT NIPPLE 1/4X2TBE BRASS 125#	
all	23	5SLOCBEC	NPT ELBOW 90DEG STRT 1/8"BRASS 125#	



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Parts List, cont.—P/L UNIVERSAL AIRVALVE BOX

Used In	Item	Part Number	Description	Comments
all	24	96J019E	1/4"PRESSREG2-50PSI #R07-200-RNEA	
all	25	30N095	03Z PRESSGAUGE 1/8"BACKCONN 0-15PS1	
all	26	5N0E03KBE2	NPT NIPPLE 1/4X3.5 TBE BRASS 125#	
all	27	5S0EBEA0G	NPT TEE 1/4X1/4X3/8 BRASS 125#	
all	28	5SL0EBEC	NPT ELBOW 90DEG STRT 1/4" BRASS 125	
all	29	27A090	HOSECLAMP,11/16-1.5" CADSCR HS-16	
all	30	60E085	07Z H0SE WATER 1/2" DAY 7192-50250*	
all	31	5SB0G0EDE0	NPTHEXBUSH 3/8X1/4 GALCI 125#	
all	31	5SL0EBEA	NPT ELBOW 90DEG 1/4" BRASS 125#	(USED ON 52 DRA ONLY)
all	32	12K070	1/2" CONDUIT LOCKNUT PECO #201J	
all	33	96TCC3AA71	04Z 3/8" N/C 3WAY 240V50/60C VALVE	
all	34	27A005	MUFFLER 3/8" ALLIED #B38 "BANTAM"	
all	35	15K039	HXCAPSCR 1/4-20UNC2AX3/4 GR5 ZNC/CD	
all	36	15U180	LOCKWASHER MEDIUM 1/4 ZINCPL	
all	37	5N0E07AB42	NPT NIPPLE 1/4X7 TBE BRASS STD	

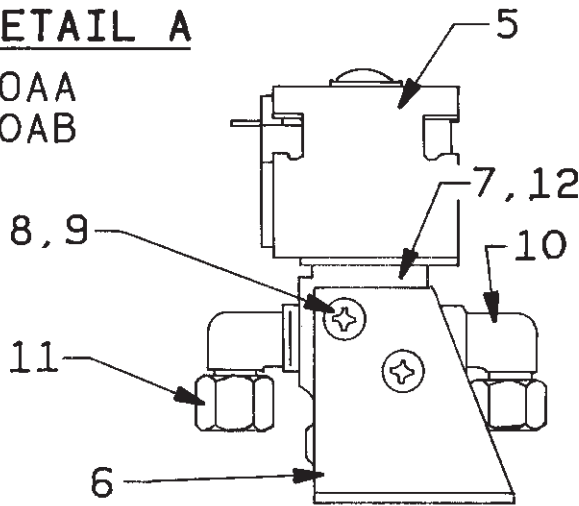


AIR VALVES & MOUNTING HARDWARE

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83457B

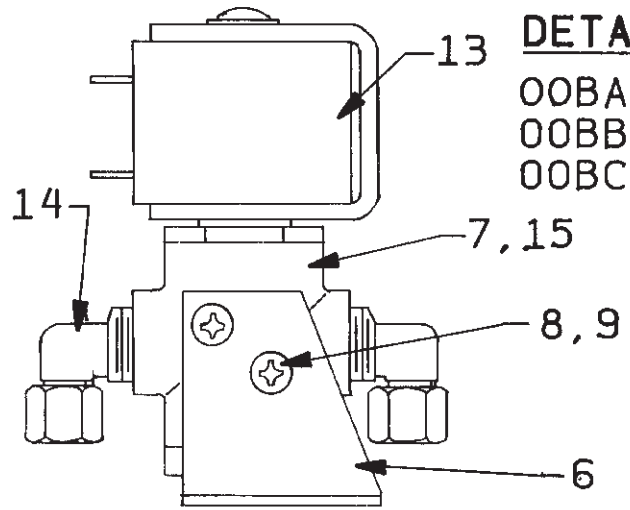
DETAIL A

00AA
00AB



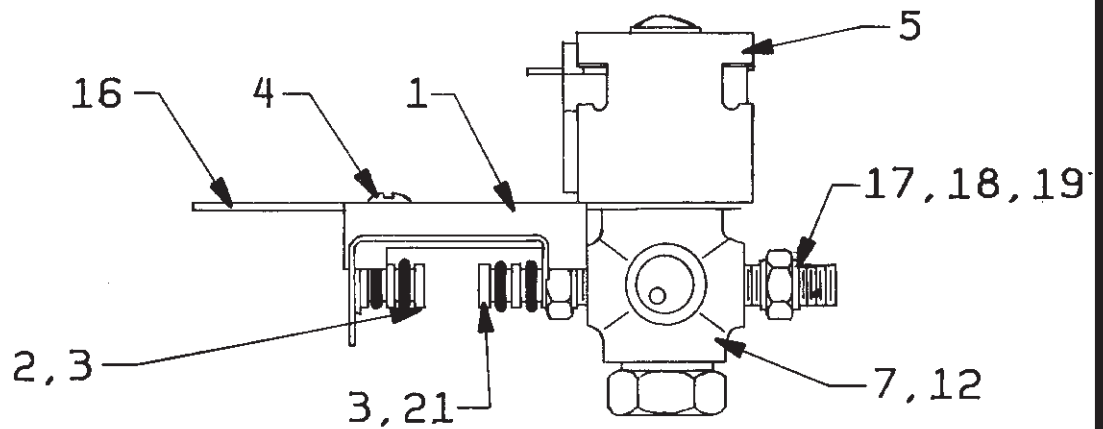
DETAIL B

00BA
00BB
00BC



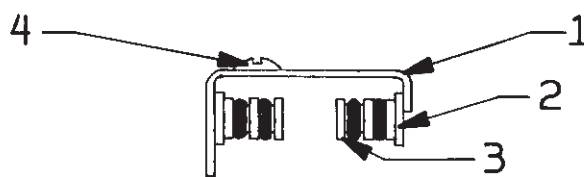
DETAIL C

00CA
00CB
00CC



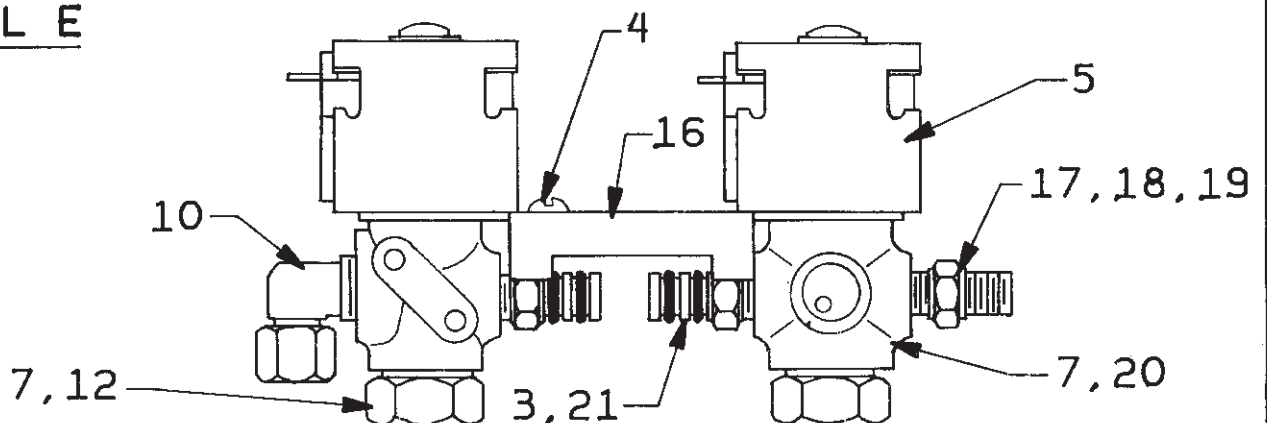
DETAIL D

00DA



DETAIL E

00EA
00EB
00EC
00ED
00EE
00EF



Air Valves & Mounting Hardware

BMP780087R/18462A
(Sheet 1 of 2)



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Parts List—Air Valves & Mounting Hardware

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-----				
	AA	AVA030537	78173S ONE 1/8 AIRVALVE REG.AIR120V	
	AB	AVA030571	84386S ONE 1/8 AIRVALVE REG.AIR240V	
	BA	AVA030324	79066S1/4"NC24V ASCO AIRVAL+MTG HWD	
	BB	AVA030337	79066S1/4"NC120VASCO AIRVAL+MTG HWD	
	BC	AVA030371	79066S1/4"NC240VASCO AIRVAL+MTG HWD	
	CA	AVA030224	78173S1/8"NC24V ASCO AIRVAL+MTG HWD	
	CB	AVA030237	84386S1/8"NC120VASCO AIRVAL+MTG HWD	
	CC	AVA030271	84386S1/8"NC240VASCO AIRVAL+MTG HWD	
	DA	AVA0304	78136# TWO PLUGS+MTG HWD	
	EA	AVA030124	78173S TWO 1/8"AIRVALVE+MTG HWD 24V	
	EB	AVA030124A	78182S TWO 1/8AIRVAL+MTG HWD 1-NO	
	EC	AVA030137	82183S TWO 1/8 AIRVALVE+MTG HWD120V	
	ED	AVA030137A	78182S TWO 1/8AIRVAL+MTG HWD 1-NO	
	EE	AVA030171	78173S TWO 1/8"AIRVALVE+MTG HWD240V	
	EF	AVA030171A	78182S TWO 1/8AIRVAL+MTG HWD 1-NO	
-----COMPONENTS-----				
	all	1	03 01524	79177B CHANNEL=PLUG HOLDER
	all	2	03 01509	77362A PLUG=MANIFOLD PORTS
	all	3	60C105	ORING 1/4 ID 1/16CS BN 70 DURO #010 05Z
	all	4	15P105	TRDCUT-F PANHD 8-32X5/8 NIKSTL
	AA,CB,EC, ED	5	96T1001A37	SOLENOID 120V50/60C ASCO#260283-002
	AB,CC,EE, EF	5	96R300B02	COIL 220/50SFT-240/60SFT#162-919-26
	EA,EB,CA	5	96T1001A24	SOLENOID 24V50/60C ASCO#260283-001
	all	6	03 01182B	78036B ANGLE=SUPPORT AIR VALVE
	all	7	03 01538	86053B CHANNEL=OIL SHIELD-1/8AIRVAL
	all	8	15P101B	TRDCUT-F PANHD 8-32X3/8
	all	9	15U120	LOCKWASHER MEDIUM #8 ZINCPL
	all	10	53A031B	BODY-MAL90ELL1/4X1/8COMP#269C-42B
	AB only	11	53A032	MAL90ELL 5/16X1/8POLYFLO #169P-5-2
	all	12	96R300AAM	78183L*NC VALVEBODY+HARDWARE
	BA only	13	96T1002A24	SOLENOID 24V50/60C ASCO#260283-005
	BB only	13	96T1002A37	SOLENOID 120V50/60C ASCO#260283-006
	BC only	13	96T1002A71	SOLENOID 240V50/60C ASCO#260283-007
	all	14	53A031XB	BODY=MAL90EL 1/4X1/4COMP #269C-4-4B



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Parts List, cont.—Air Valves & Mounting Hardware

Used In	Item	Part Number	Description	Comments
all	15	96V350	1/4" VALVEBODY ASCO #UFTX8320A89	
all	16	03 01523	85096C BRKT=LOCK AIR VALVE	
all	17	53A005B	BODY=MALECONN 1/4X1/8COMP #B68A-4A	
all	18	53A059	SLEEVE 1/4" COMP IMP #60F BRASS	
all	19	53A059A	NUT 1/4"COMP.HOLYOKE ANDERSON#61A-4	
EB,EC,EF	20	96R300ABM	78183@*NO VALVEBODY+HARDWARE	
all	21	03 01508	77362A FITTING-SCREW 7/16 HEX	

3-Way Pilot Valves

BMP900032/91182V
(Sheet 1 of 1)



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BMP900032/91182V (1 of 1)

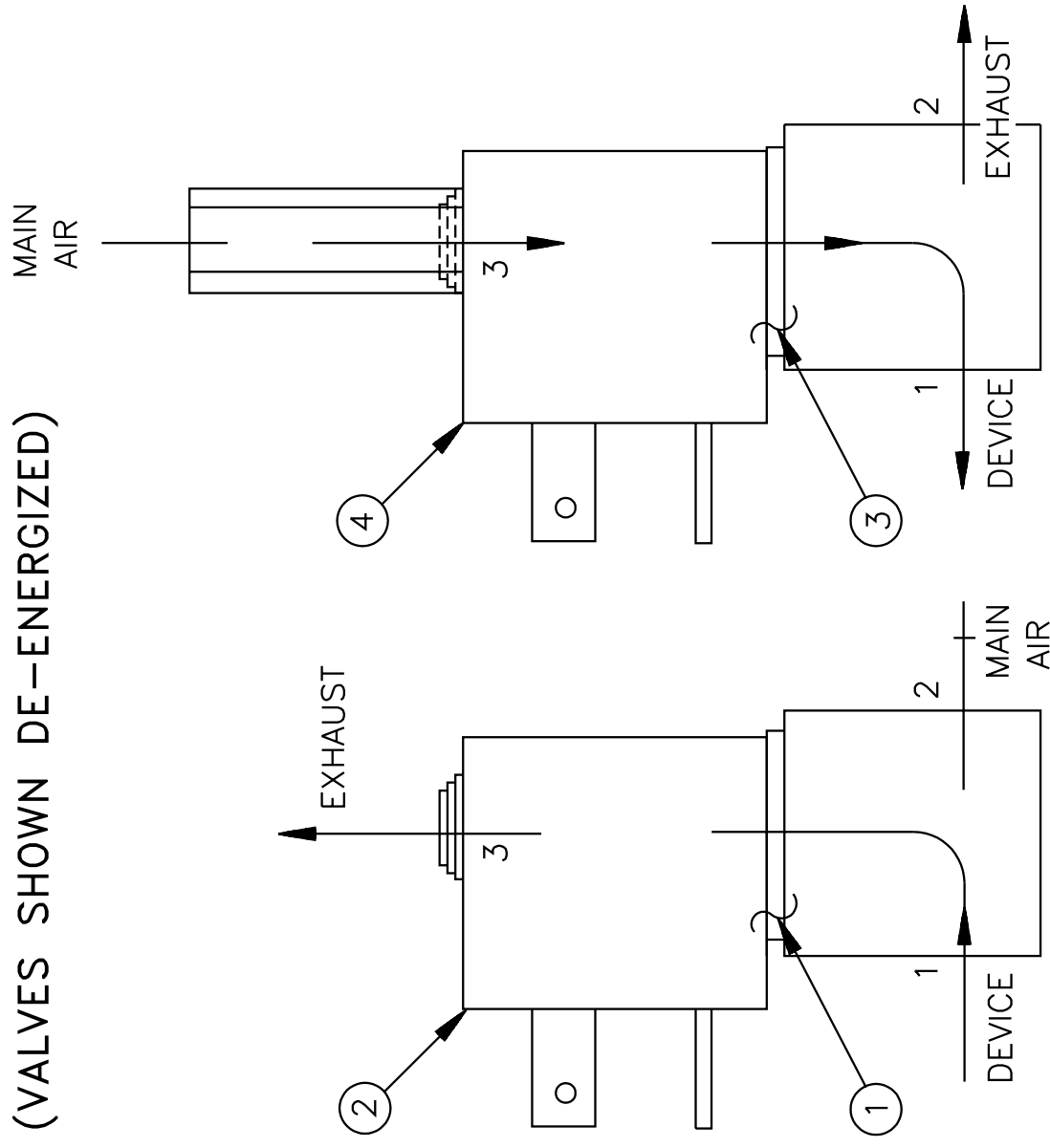
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(VALVES SHOWN DE-ENERGIZED)

Parts List—3-Way Pilot Valves

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

Used In	Item	Part Number	Description	Comments
			ASSEMBLIES	
			none	
			COMPONENTS	
all	1	96R301A37	05Z 1/8" AIRPILOT 3W NC 120V50/60	
all	1	96R301A24	06Z 1/8" AIRPILOT 3W NC 24V50/60	
all	3	96R302A37	06Z 1/8" AIRPILOT 3W NO 120V50/60	
all	3	96R302A24	07Z 1/8" AIRPILOT 3W NO 24V50/60	



NORMALLY
CLOSED

NORMALLY
OPEN

FOR REPAIR OR REPLACEMENT PARTS FOR PILOT VALVES
USED ON WASHER EXTRACTORS GENERALLY PRIOR TO
JUNE 1, 1985, SEE BMP701359.

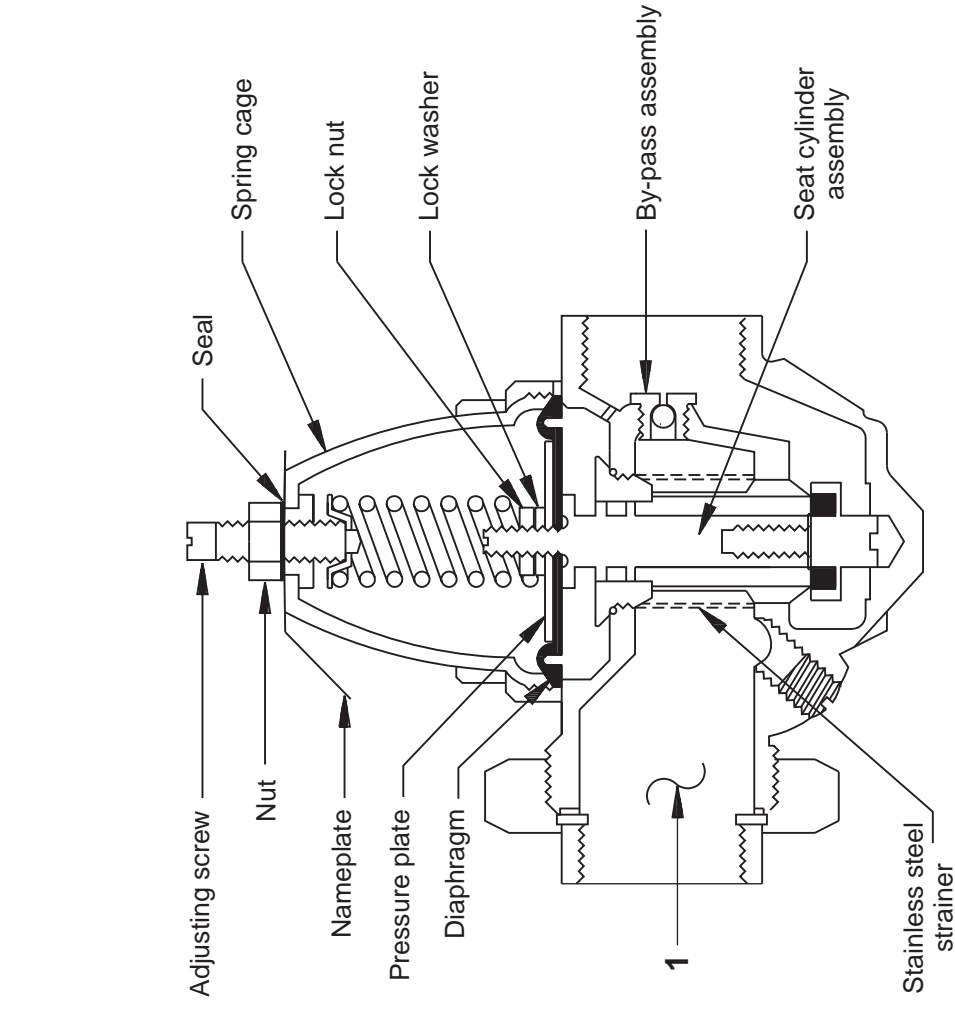
Pressure Regulators

BMP900031/2011276B
(1 / 2)



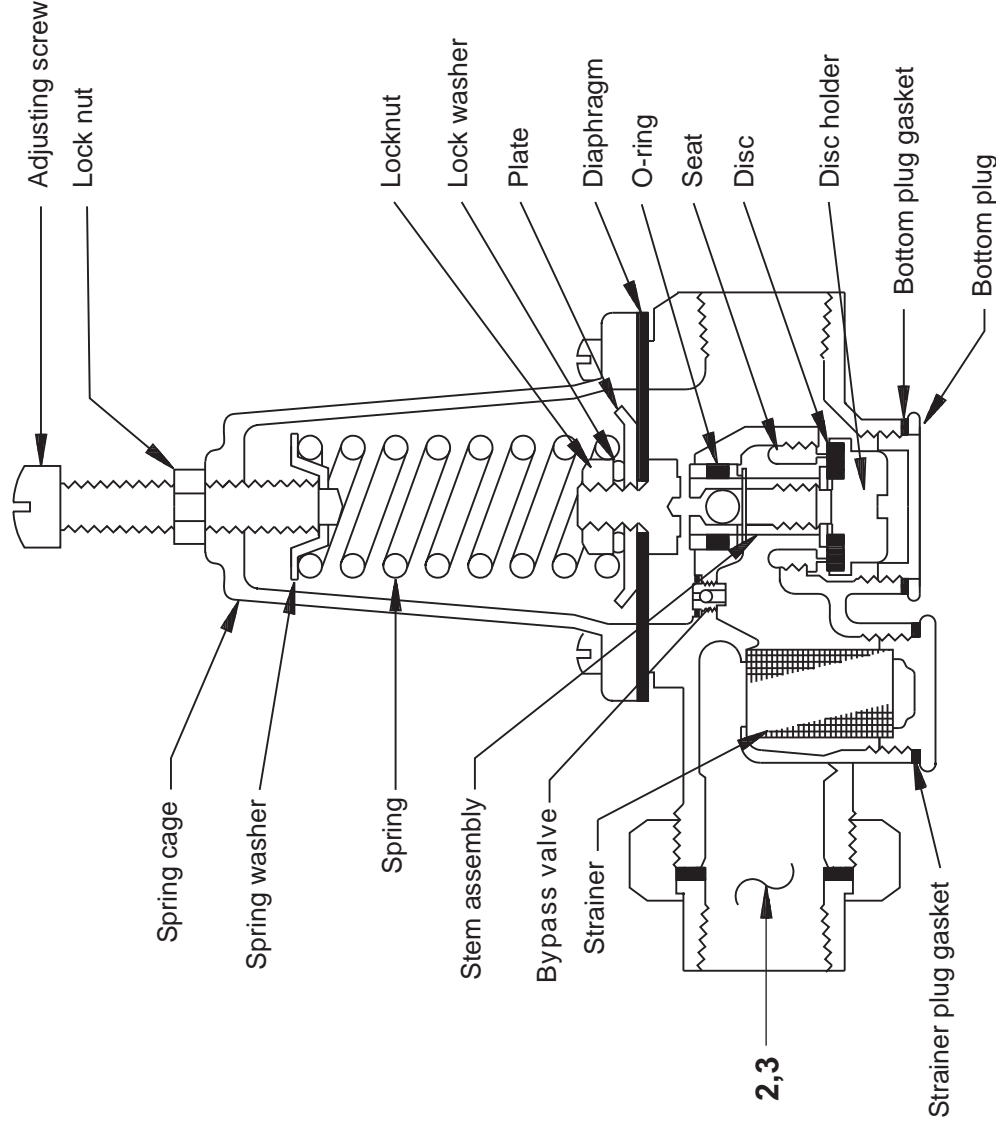
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To clean:

1. Remove spring cage and all parts above diaphragm.
2. Loosen and remove diaphragm lock nut, lock washer, pressure plate, and diaphragm from valve stem.
3. Unscrew seat cylinder from body and remove entire assembly.
4. Open gate valve to flush out collected sediment.



To clean :

1. Remove bottom plug and gasket.
2. Loosen disc holder with screwdriver or socket wrench.
3. Inspect disc and clean.
4. Seat can be removed, if necessary, with an allen wrench or socket wrench.
5. Unscrew and remove adjusting screw, check nut, and spring cage screws. Lift off spring cage, spring washer and adjusting spring.
6. Loosen and remove lock nut, lock washer, plate, and diaphragm.
7. Lift stem assembly upwards to remove from body.
8. To reassemble valve follow above instructions in reverse. Tighten or loosen adjusting screw for the required pressure of 28 P.S.I.



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Parts List—Pressure Regulators

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-----				
	1	96J030FF	01Z 1/2"PRESS REG SET 28# FEM X FEM	1/2" REGULATOR 3621V ONLY
	2	96J030D	01Z 1/2" PRESREGULTR SET 28# FEM-UN	1/2" REGULATORS ALL OTHER MODELS
	3	96J031D	01Z 3/4" PRESREGULTR SET 28# FEM-UN	3/4" REGULATORS