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Service—

64046, 72046, and 72058 ExN, JxN Washer-Extractors

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

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

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for MAP64E6NAE/2011356A

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ABOUT THIS MANUAL

Scope—This instruction manual is intended to provide preventive maintenance procedures, service procedures and mechanical parts identification for all Milnor® 64046, 72046 and 72058 suspended washer-extractors. Measurements are in common US and metric units unless otherwise noted. Always use new fasteners when replacing or repairing parts.

See the appropriate installation manual for facility requirements and machine installation procedures. See the appropriate programming, operating, and troubleshooting manual for information on the control system. See the schematic manual for electrical parts identification and electrical troubleshooting.

Manual Number/Date Code (When To Discard or Save)—The manual number/date code is located on the inside front cover, upper right corner just above the manual name. Whenever the manual is reprinted with new information, part of this number changes. **If the *date code* after the "/" changes, the new version applies to all machines covered by the old version, but is improved— thus the old version can be discarded. If the *manual number* before the "/" changes, the new manual covers only new machines.** Example: Discard MATMODELAE/8739**C**V when MATMODELAE/8739**D**V is received (minor improvements). Also, discard MATMODELAE/87**39D**V when MATMODELAE/87**46A**V is received (major improvements). But keep MATMODEL**A**E/8746FV when MATMODEL**B**E/8815AV is received, since the new manual no longer applies to machines originally shipped with the old manual.

Documents and Change Bars—The individual documents comprising this manual use the same revision criteria as the manual. Text documents also display change bars. Example: When sectionMSOP0599AE/9135**B**V becomes MSOP0599AE/9135**C**V, change bars with the letter "C" appear next to all changes for this revision. For a major rewrite (e.g., MSOP0599AE/92**26A**V), all change bars are deleted.

For Assistance—Please call:

Pellerin Milnor Corporation
Attn: Service Department
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Phone:(504) 467-9591
Fax:(504) 467-9777

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, FOB our factory. We retain the right to require inspection of the parts claimed defective in our factory prior to repairing or replacing same. We will not be responsible, or in any way liable, for unauthorized repairs or service to our equipment, and this warranty shall be void if the equipment is 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.

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BIUUUD19 (Published) Book specs- Dates: 20081231 / 20081231 / 20081231 Lang: ENG01 Applic: UUU

How to Get the Necessary Repair Components

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

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

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

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

To write to the Milnor factory:

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

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

— End of BIUUUD19 —

Section 1

Service and Maintenance

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

Safety—Tilting Washer-Extractors

1. General Safety Requirements—Vital Information for Management Personnel [Document BIUUUS04]

Incorrect installation, neglected preventive maintenance, abuse, and/or improper repairs, or changes to the machine can cause unsafe operation and personal injuries, such as multiple fractures, amputations, or death. The owner or his selected representative (owner/user) is responsible for understanding and ensuring the proper operation and maintenance of the machine. The owner/user must familiarize himself with the contents of all machine instruction manuals. The owner/user should direct any questions about these instructions to a Milnor® dealer or the Milnor® Service department.

Most regulatory authorities (including OSHA in the USA and CE in Europe) hold the owner/user ultimately responsible for maintaining a safe working environment. Therefore, the owner/user must do or ensure the following:

- recognize all foreseeable safety hazards within his facility and take actions to protect his personnel, equipment, and facility;
- work equipment is suitable, properly adapted, can be used without risks to health or safety, and is adequately maintained;
- where specific hazards are likely to be involved, access to the equipment is restricted to those employees given the task of using it;
- only specifically designated workers carry out repairs, modifications, maintenance, or servicing;
- information, instruction, and training is provided;
- workers and/or their representatives are consulted.

Work equipment must comply with the requirements listed below. The owner/user must verify that installation and maintenance of equipment is performed in such a way as to support these requirements:

- control devices must be visible, identifiable, and marked; be located outside dangerous zones; and not give rise to a hazard due to unintentional operation;
- control systems must be safe and breakdown/damage must not result in danger;
- work equipment is to be stabilized;
- protection against rupture or disintegration of work equipment;
- guarding, to prevent access to danger zones or to stop movements of dangerous parts before the danger zones are reached. Guards to be robust; not give rise to any additional hazards; not be easily removed or rendered inoperative; situated at a sufficient distance from the danger zone; not restrict view of operating cycle; allow fitting, replacing, or maintenance by restricting access to relevant area and without removal of guard/protection device;
- suitable lighting for working and maintenance areas;
- maintenance to be possible when work equipment is shut down. If not possible, then protection measures to be carried out outside danger zones;
- work equipment must be appropriate for preventing the risk of fire or overheating; discharges of gas, dust, liquid, vapor, other substances; explosion of the equipment or substances in it.

1.1. **Laundry Facility**—Provide a supporting floor that is strong and rigid enough to support–with a reasonable safety factor and without undue or objectionable deflection–the weight of the fully loaded machine and the forces transmitted by it during operation. Provide sufficient clearance for machine movement. Provide any safety guards, fences, restraints, devices, and verbal and/or posted restrictions necessary to prevent personnel, machines, or other moving machinery from accessing the machine or its path. Provide adequate ventilation to carry away heat and vapors. Ensure service connections to installed machines meet local and national safety standards, especially regarding the electrical disconnect (see the National Electric Code). Prominently post safety information, including signs showing the source of electrical disconnect.

1.2. **Personnel**—Inform personnel about hazard avoidance and the importance of care and common sense. Provide personnel with the safety and operating instructions that apply to them. Verify that personnel use proper safety and operating procedures. Verify that personnel understand and abide by the warnings on the machine and precautions in the instruction manuals.

1.3. **Safety Devices**—Ensure that no one eliminates or disables any safety device on the machine or in the facility. Do not allow machine to be used with any missing guard, cover, panel or door. Service any failing or malfunctioning device before operating the machine.

1.4. **Hazard Information**—Important information on hazards is provided on the machine safety placards, in the Safety Guide, and throughout the other machine manuals. **Placards must be kept clean so that the information is not obscured. They must be replaced immediately if lost or damaged. The Safety Guide and other machine manuals must be available at all times to the appropriate personnel.** See the machine service manual for safety placard part numbers. Contact the Milnor Parts department for replacement placards or manuals.

1.5. **Maintenance**—Ensure the machine is inspected and serviced in accordance with the norms of good practice and with the preventive maintenance schedule. Replace belts, pulleys, brake shoes/disks, clutch plates/tires, rollers, seals, alignment guides, etc. before they are severely worn. Immediately investigate any evidence of impending failure and make needed repairs (e.g., cylinder, shell, or frame cracks; drive components such as motors, gear boxes, bearings, etc., whining, grinding, smoking, or becoming abnormally hot; bending or cracking of cylinder, shell, frame, etc.; leaking seals, hoses, valves, etc.) Do not permit service or maintenance by unqualified personnel.

2. Safety Alert Messages—Internal Electrical and Mechanical Hazards [Document BIUUUS11]

The following are instructions about hazards inside the machine and in electrical enclosures.

WARNING 1: Electrocution and Electrical Burn Hazards—Contact with electric power can kill or seriously injure you. Electric power is present inside the cabinetry unless the main machine power disconnect is off.

- Do not unlock or open electric box doors.
- Do not remove guards, covers, or panels.
- Do not reach into the machine housing or frame.
- Keep yourself and others off of machine.
- Know the location of the main machine disconnect and use it in an emergency to remove all electric power from the machine.

WARNING 2: Entangle and Crush Hazards—Contact with moving components normally isolated by guards, covers, and panels, can entangle and crush your limbs. These components move automatically.

- Do not remove guards, covers, or panels.
- Do not reach into the machine housing or frame.
- Keep yourself and others off of machine.
- Know the location of all emergency stop switches, pull cords, and/or kick plates and use them in an emergency to stop machine motion.

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

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

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

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

WARNING 4: Strike and Crush Hazards—Machines with power operated door—The moving door can strike you or crush or pinch your limbs if caught between the door and machine. Some doors move automatically.

- Keep yourself and others clear of movement areas and paths.
- Keep both hands on the controls while operating.
- Do not operate the machine with malfunctioning two-hand manual controls.

WARNING 5: Crush Hazards—Tilting machines only—The machine can crush your body or limbs if you are caught between the tilting housing and a stationary object. Some machines tilt automatically.

- Keep yourself and others clear of movement areas and paths.
- Keep both hands on the controls while operating.
- Do not operate the machine with malfunctioning two-hand manual controls.

WARNING 6: Crush Hazards—Suspended machines only—Spaces between the shell and housing can close and crush or pinch your limbs. The shell moves within the housing during operation.

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

4. Safety Alert Messages—Cylinder and Processing Hazards

[Document BIUUUS13]

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

DANGER 7: Entangle and Sever Hazards—Contact with goods being processed can cause the goods to wrap around your body or limbs and dismember you. The goods are normally isolated by the locked cylinder door.

- Do not attempt to open the door or reach into the cylinder until the cylinder is stopped.
- Do not touch goods inside or hanging partially outside the turning cylinder.
- Do not operate the machine with a malfunctioning door interlock.
- Open pocket machines only—Do not jog the cylinder and pull the goods at the same time.
- Open pocket machines only—Keep yourself and others clear of cylinder and goods during jogging operation.
- Do not operate the machine with malfunctioning two-hand manual controls.
- Know the location of all emergency stop switches, pull cords, and/or kick plates and use them in an emergency to stop machine motion.
- Know the location of the main machine disconnect and use it in an emergency to remove all electric power from the machine.

WARNING 8: Crush Hazards—Contact with the turning cylinder can crush your limbs. The cylinder will repel any object you try to stop it with, possibly causing the object to strike or stab you. The turning cylinder is normally isolated by the locked cylinder door.

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

WARNING 9: 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 10: Explosion and Fire Hazards—Flammable substances can explode or ignite in the cylinder, drain trough, or sewer. The machine is designed for washing with water, not any other solvent. Processing can cause solvent-containing goods to give off flammable vapors.

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

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

5.1. Damage and Malfunction Hazards

5.1.1. Hazards Resulting from Inoperative Safety Devices

DANGER 11: Entangle and Sever Hazards—Cylinder door interlock—Operating the machine with a malfunctioning door interlock can permit opening the door when the cylinder is turning and/or starting the cycle with the door open, exposing the turning cylinder.

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

WARNING 12: 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 13: Electrocution and Electrical Burn Hazards—Electric box doors—Operating the machine with any electric box door unlocked can expose high voltage conductors inside the box.

- Do not unlock or open electric box doors.

WARNING 14: 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.

WARNING 15: Crush Hazards—Down limit switches (machines with front and rear tilt cylinders)—Failure of both front or both rear limit switches allows the seated tilt wheels on a tilted machine to lift from their cradles. The housing will fall and lunge forward or rearward.

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

5.1.2. Hazards Resulting from Damaged Mechanical Devices

WARNING 16: Multiple Hazards—Operating a damaged machine can kill or injure personnel, further damage or destroy the machine, damage property, and/or void the warranty.

- Do not operate a damaged or malfunctioning machine. Request authorized service.

WARNING 17: Explosion Hazards—Cylinder—A damaged cylinder can rip apart during extraction, puncturing the shell and discharging metal fragments at high speed.

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

WARNING 18: Explosion Hazards—Clutch and speed switch (multiple motor machines)—A damaged clutch or speed switch can permit the low speed motor to engage during extract. This will over-speed the motor and pulleys and can cause them to rip apart, discharging metal fragments at high speed.

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

5.2. Careless Use Hazards

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

WARNING 19: Multiple Hazards—Careless operator actions can kill or injure personnel, damage or destroy the machine, damage property, and/or void the warranty.

- Do not tamper with or disable any safety device or operate the machine with a malfunctioning safety device. Request authorized service.
- Do not operate a damaged or malfunctioning machine. Request authorized service.
- Do not attempt unauthorized servicing, repairs, or modification.

- Do not use the machine in any manner contrary to the factory instructions.
- Use the machine only for its customary and intended purpose.
- Understand the consequences of operating manually.

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

WARNING 20: Electrocution and Electrical Burn Hazards—Contact with electric power can kill or seriously injure you. Electric power is present inside the cabinetry unless the main machine power disconnect is off.

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

WARNING 21: 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 22: Crush Hazards—Tilting machines only—The machine housing will crush your body or limbs if it descends or falls while you are under it. Housing can descend with power off or on. Manual operation of tilting valves overrides safety interlocks. Improper operation of manual tilting valves may cause the housing to descend.

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

WARNING 23: Crush Hazards—Tilting machines with front and rear tilt cylinders—The housing will fall and lunge forward or rearward if the tilt wheels on the non-tilted end lift out of their cradles, even with safety supports in place.

- Understand the consequences of operating manually.

WARNING 24: Confined Space Hazards—Confinement in the cylinder can kill or injure you. Hazards include but are not limited to panic, burns, poisoning, suffocation, heat prostration, biological contamination, electrocution, and crushing.

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

— End of BIUUUS27 —

How To Use the Safety Stands on E-Style, Hydraulic-tilting Washer-extractors

These machines are provided with four safety stands—two short (which also serve as shipping brackets) and two long— (painted red) for maintenance. After the shell is tilted to the needed position, the appropriate stands are placed under the tilt frame front cross brace. Use the safety stands to perform maintenance on the machine while the shell is raised. Use the long or the short stands as appropriate for the maintenance to be performed.

WARNING 1: Crush Hazard—The safety stands provide protection against the un-powered drifting down of the shell during maintenance in the event of a leak in the hydraulic system.

- Never work **under** the raised shell unless both safety stands are installed and power is locked out/tagged out. Do not work **near** the raised shell with power on unless both safety stands are installed.
- Install these safety components using the procedure prescribed in this document.
- Maintain these safety components in good condition.
- Designate a convenient, secure area to stow these safety components when not in use.

Figure 1: Safety Stands for E-Style, Hydraulic-tilting Washer-extractors (not J2N models)

Install the safety stands as follows:

1. At the controls, tilt the machine as in normal operation. Tilt up only as far as needed to insert the stands securely.
2. Referring to the figure, place the safety stands (long or short, as appropriate) onto their mounting studs on the tilt base. Refer to the safety stands parts drawing for a more detailed depiction of the installed stands. Always use both stands.
3. Bolt each safety stand to the tilt base (four 1/2" bolts per stand).
4. See caution statement **2** below. At the controls, carefully lower the shell just until it is resting on the stands.

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

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

5. Lock out/tag out power to the machine.

— End of BIUUUS06 —

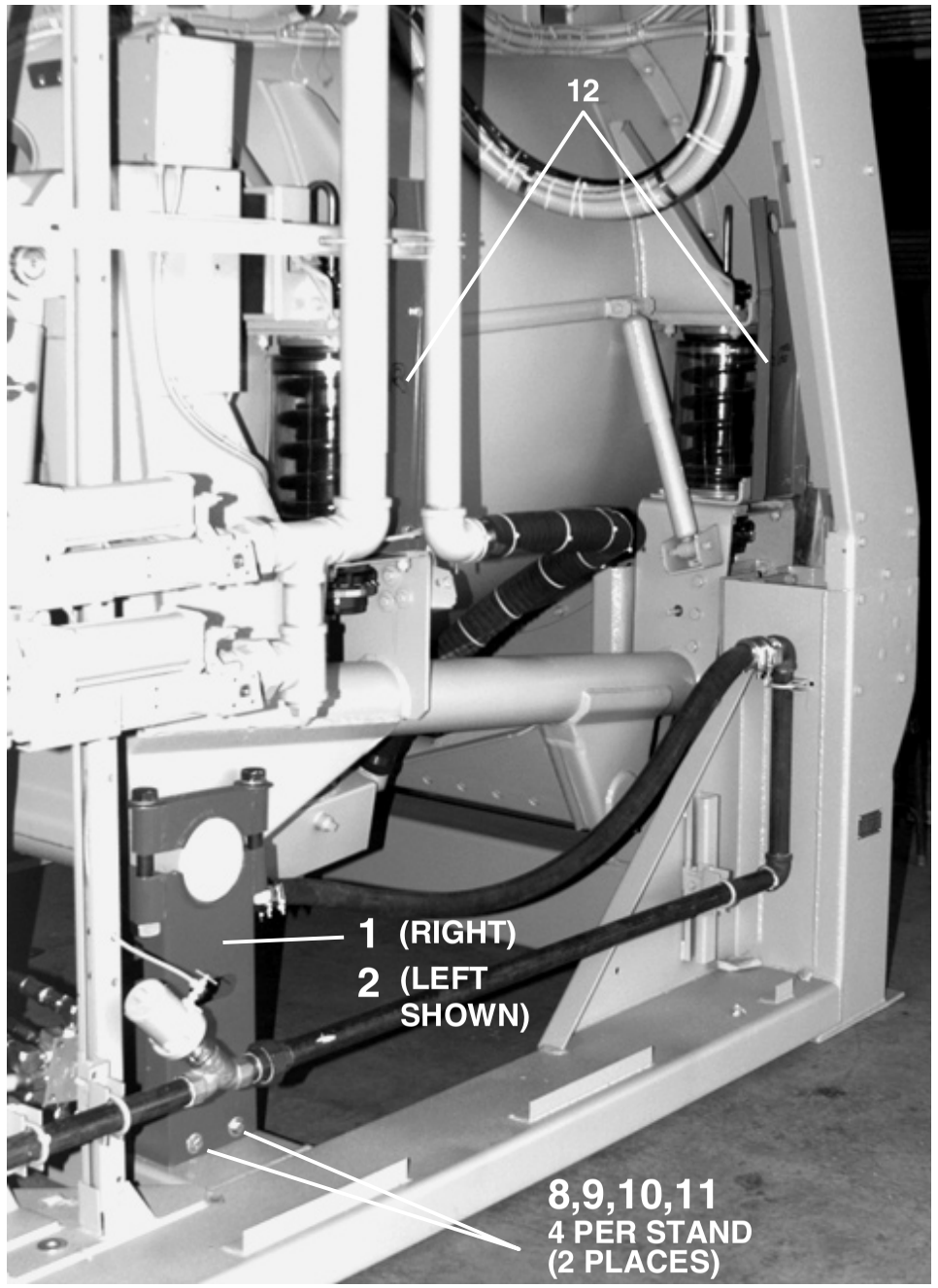
Installation Shipping Brackets

64046E6N/J6N/D6N 72046E5N/J5N 72058D5N/J5N

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

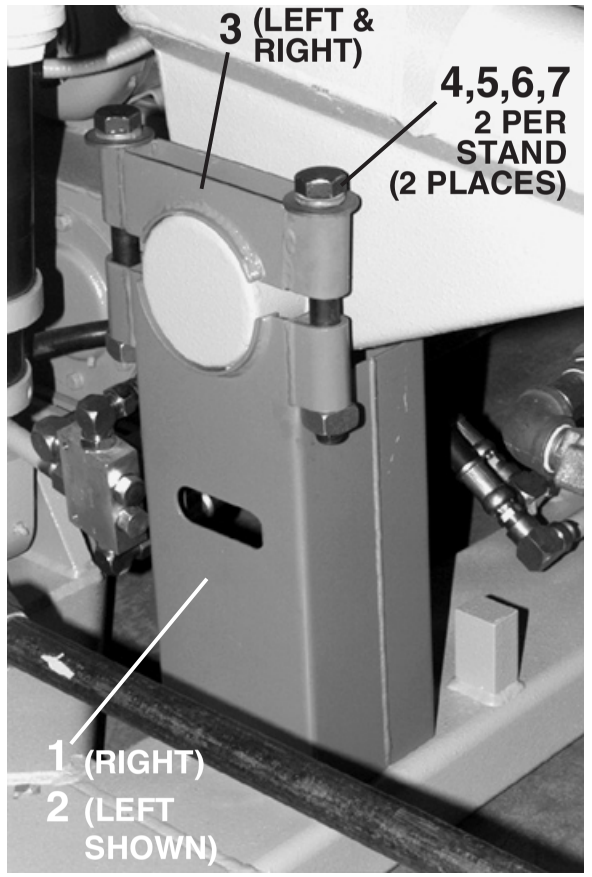
BMP930041/98357V (1 of 2)

Litho in U.S.A.

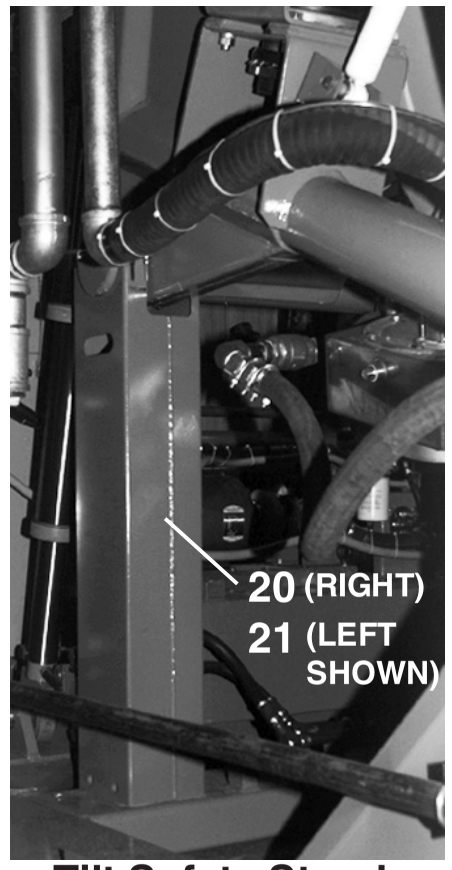


Note:
Tighten all bolts with an impact wrench before shipping.

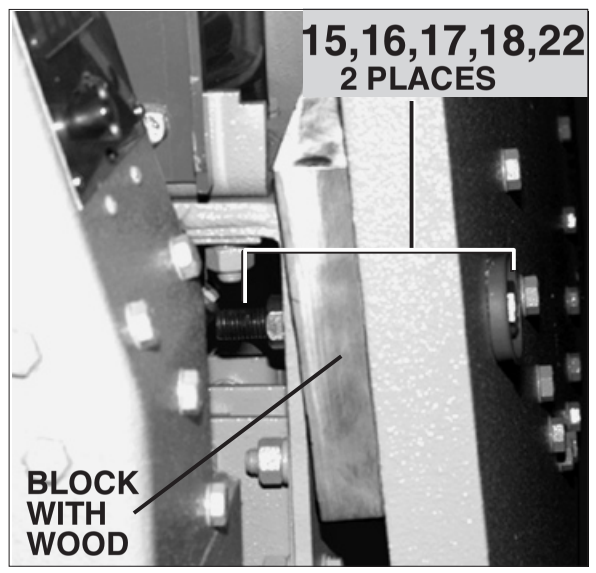
Isolator Shipping Brackets



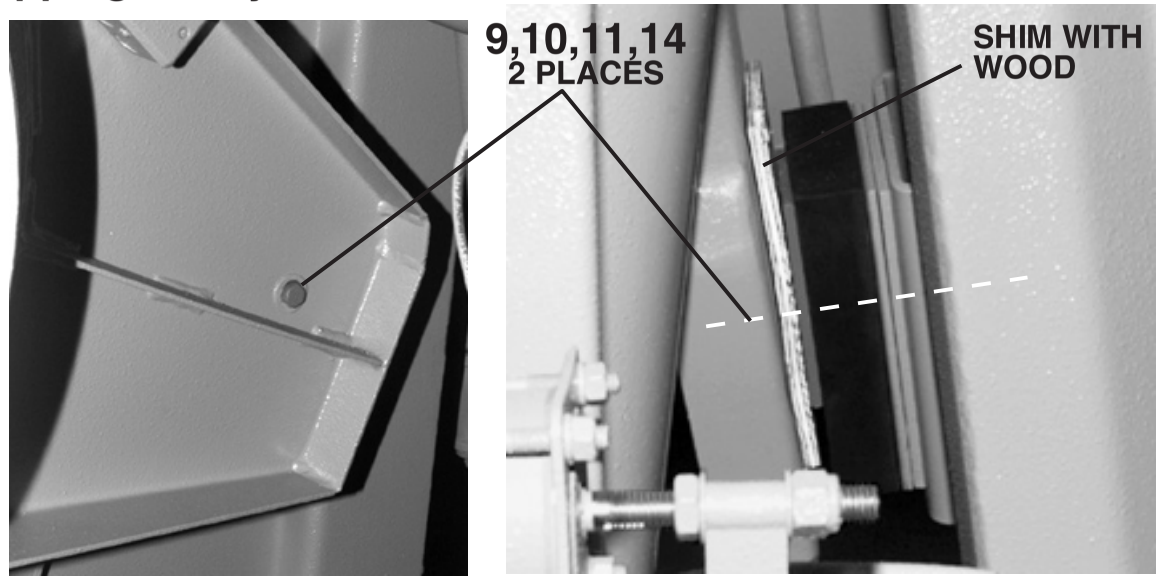
Shipping Safety Stands



Tilt Safety Stands



Shellfront locking bolts



Shellback locking bolts through tilt stops

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

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Parts List—Installation Shipping Brackets

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	GSB65001	93473B INST=SAFTY STANDS + SHIPBRKT	6446E6N,J6N,D6N
	B	GSB58001	93000Z INST=SAFTY-STAND+SHIPBKS	7246E5N,J5N 7258D5N,J5N
			----------COMPONENTS----------	
all	1	W3 65226D	94243C*WELD=RT SAFTY STND RUN MD2	
all	2	W3 65226E	94243#*WELD=LT SAFTY STND RUN MD2	
all	3	W3 65229	92803C*WLMT=UPPER SAFTY STND RUN	
all	4	15K301	HXCAPSCR 1-8 X 9 GRADE 5	
all	5	15U390P	FLATWASHER(USS STD) 1" ZNC PLT	
all	6	15U400	LOCKWASHER MEDIUM 1" ZINCPL	
all	7	15G255A	SQNUT 1-8UNC2B SAE ZINC GR2	
all	8	15K147	HXCAPSCR 1/2-13UNC2X1 GR5 ZINC	
all	9	15U280	01Z FL+WASHER(USS STD)1/2 ZNC PL+D	
all	10	15U300	LOKWASHER REGULAR 1/2 ZINC PLT	
all	11	15G230	HXNUT 1/2-13UNC2B SAE ZINC GR2	
A	12	05 58230B	94468C ISO SHIP BRKT W/PICKUP	
B	12	05 58230C	96451C ISO SHIP BRKT W/PICKUP MD2	
all	14	15D119	HXTAPSCR 1/2-13X4 GR5 ZNC FULLTHRD	
all	15	15K235GA	HEXCAPSCREW 3/4-10X6.5" BLACK	
all	16	15U340	LOCKWASH MEDIUM 3/4 ZINCPL	
all	17	15U320	FLATWASHER(USS STD) 3/4" UNPLT	
all	18	15G240	HXNUT 3/4-10UNC2B SAE ZINC GR2	
all	20	W3 65226F	94243D*WELD=RT SAFTY STND UNLD MD2	
all	21	W3 65226G	94243#*WELD=LT SAFTY STND UNLD MD2	
all	22	51P060E	PLUGCAPTAPERD NOTHDPLAS.#68	

About the Forces Transmitted by Milnor® Washer-extractors

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

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

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

1. Rigid Machines

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

2. Flexibly-mounted Machines

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

3. How Strong and Rigid?

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

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

Figure 1: How Rotating Forces Act on the Foundation

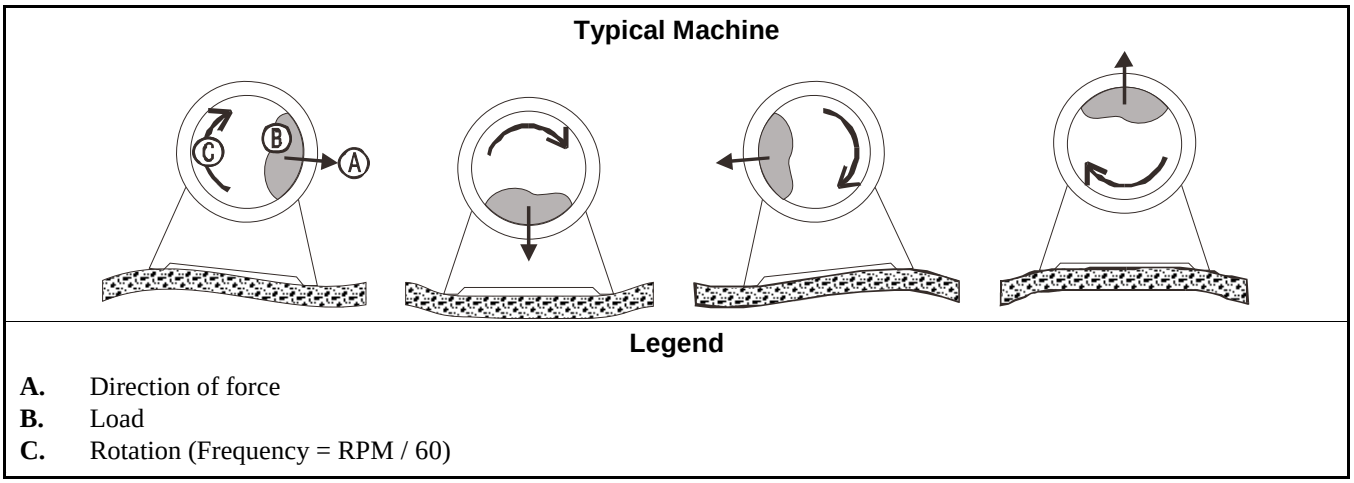


Figure 1 above is intended to depict both on-grade and above-grade installations and is equally applicable to flexibly-mounted washer-extractors, as well as to rigid models installed either directly on a floor slab or on a foundation poured integrally with the slab. Current machine data is available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

— End of BIWUUI02 —

Glossary of Tag Illustrations— Suspended Washer-Extractors

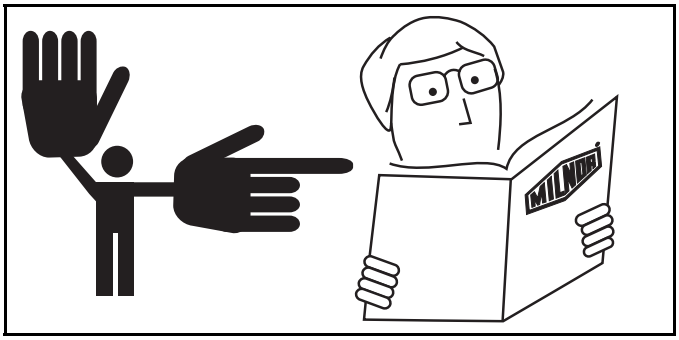
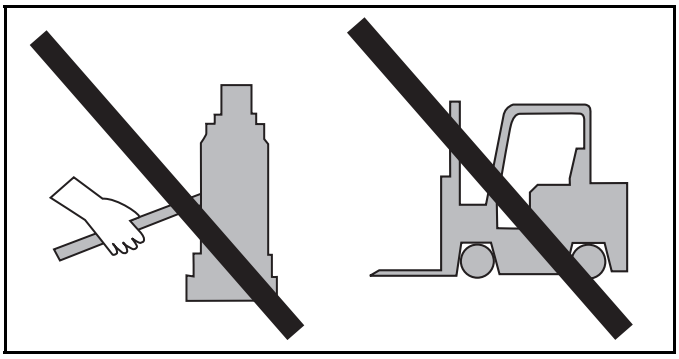
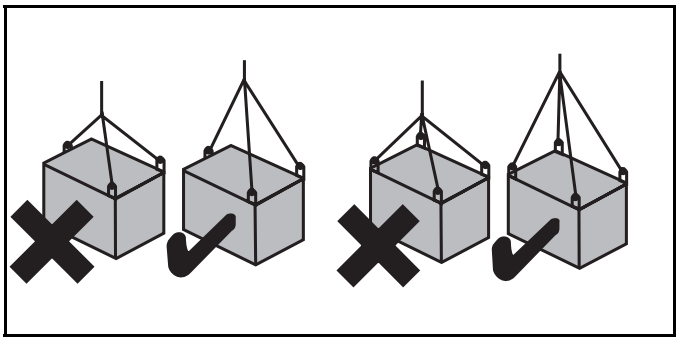
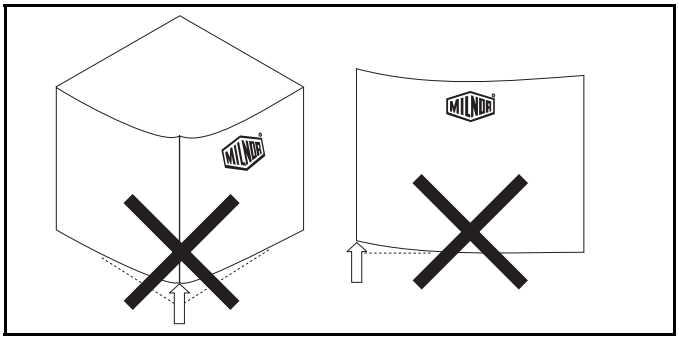
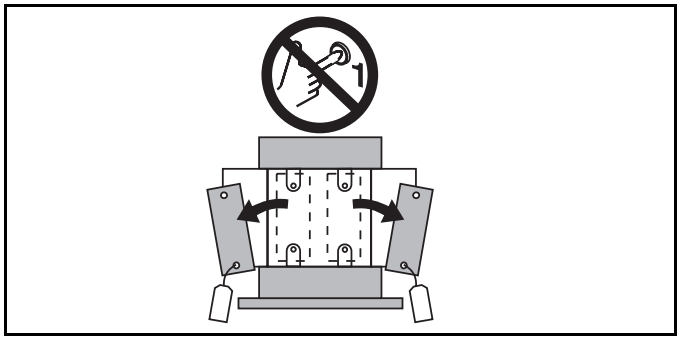
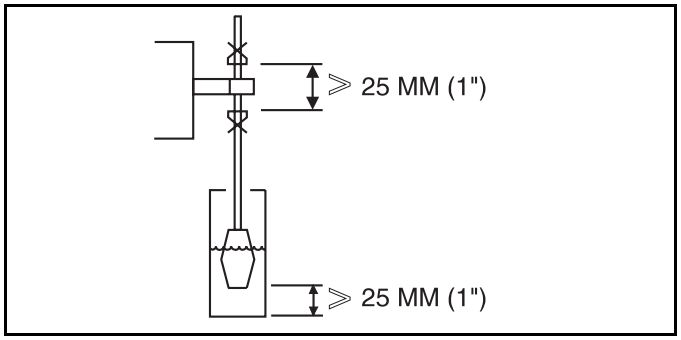
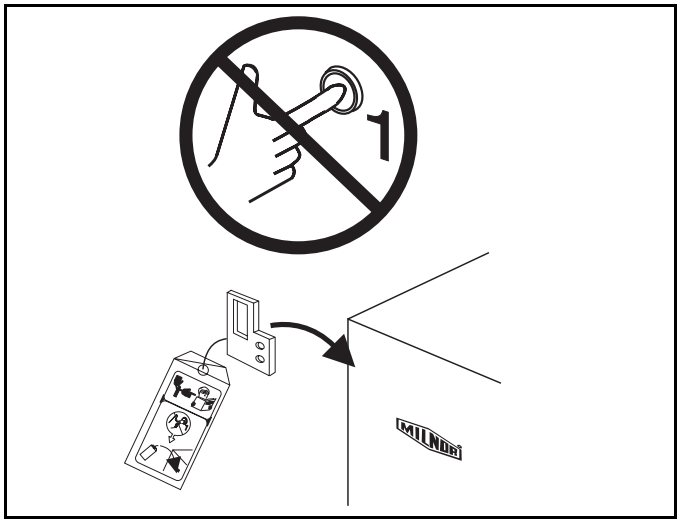
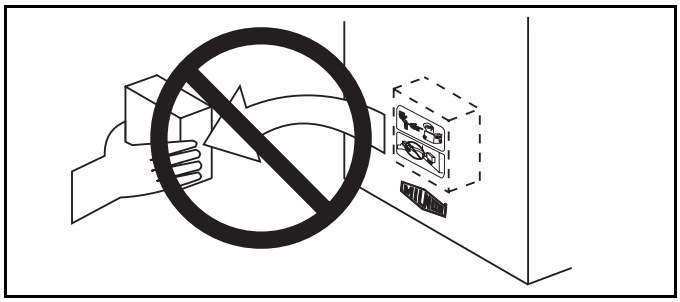
Illustration	Explanation
	Stop! Read the manual first for complete instructions before continuing.
	Do not jack the machine here. Do not lift the machine here.
	Use three point or four point lifting as determined by the lifting eyes furnished. Rig the load using lifting cables of sufficient size and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

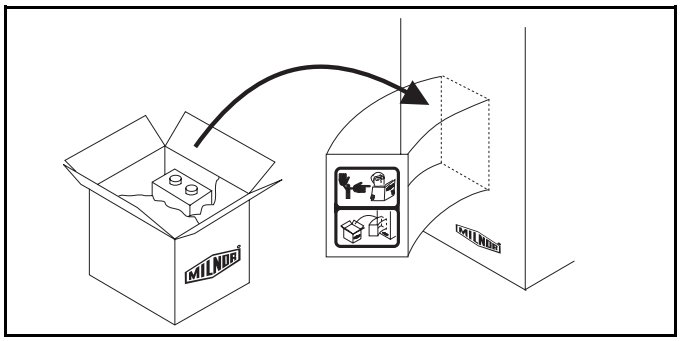
Illustration	Explanation
	Do not start this machine until the packing materials, lifting brackets, etc. with this tag attached or behind this panel are removed. These materials are painted red. Safety stands or brackets (also painted red) may be provided with this machine. Do not discard safety stands or brackets
	Do not step or stand on this machine part.
	Maintain a 25 mm. (1") minimum clearance between float clips. Set "low level" so that the bottom of the float is always at least 25mm (1") above the bottom of the float tube.
	This motor or pump should rotate in the direction of the arrow.



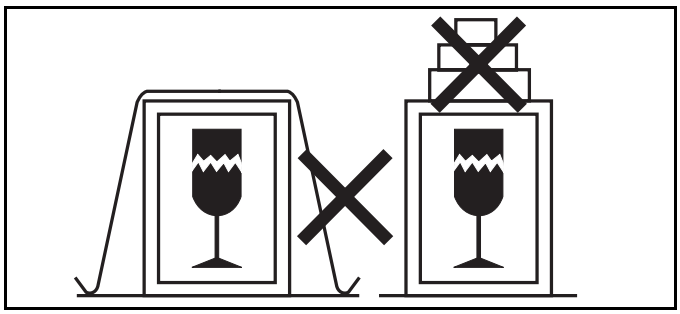
Do not start this machine until the part with this tag is installed on the machine.



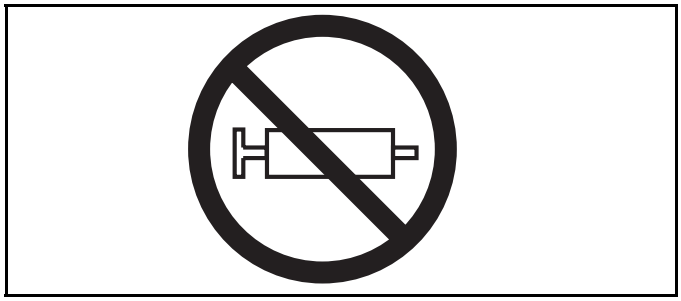
Do not remove this component from the machine.



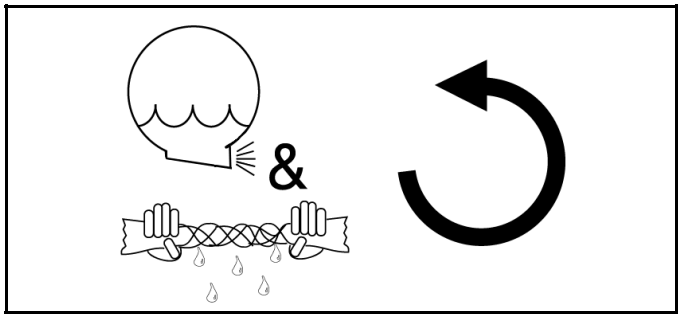
Install the appropriate part here before operating the machine.



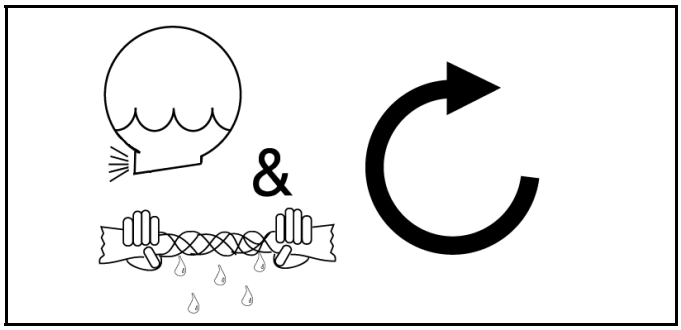
Do not strap or chain over box



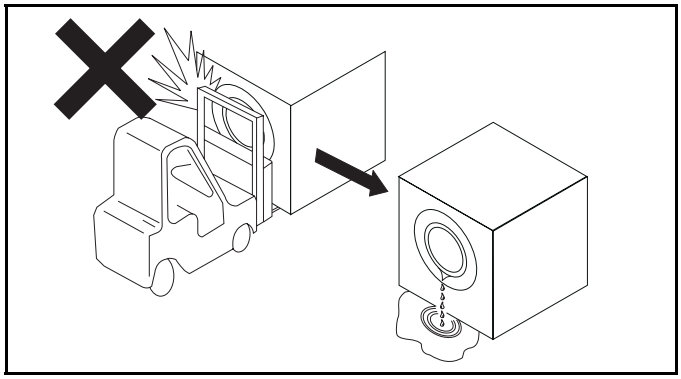
Do not pump grease here.



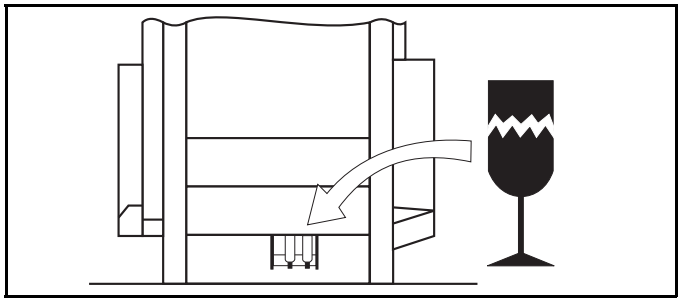
During drain and extract, the cylinder must rotate counterclockwise when viewed from here (rear of machine).



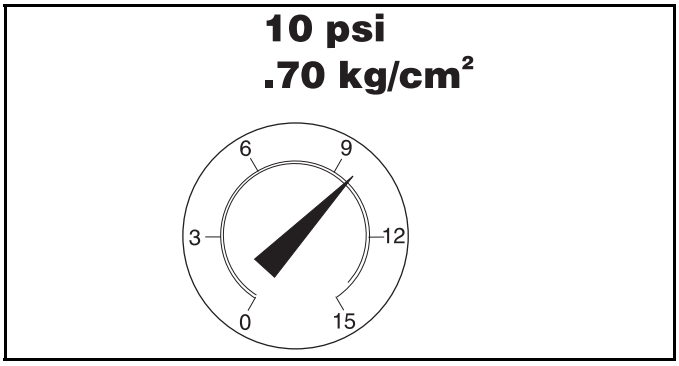
During drain and extract, the cylinder must rotate clockwise when viewed from here (front of machine).



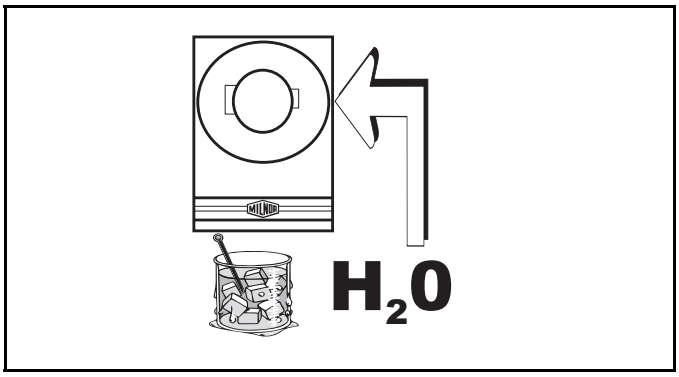
Do not strike shell front of washer-extractors during fork lifting. Striking shell front will cause door to leak.



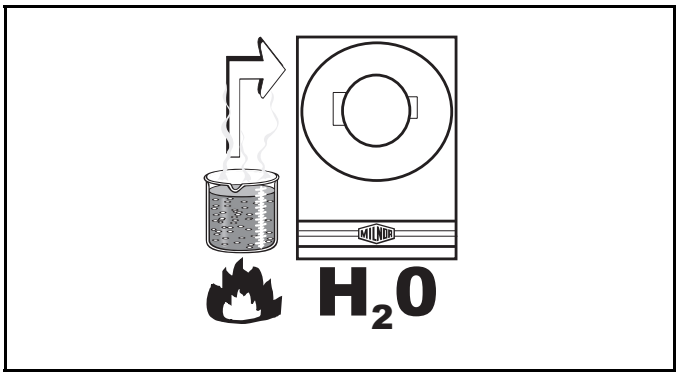
Brake assembly under machine is fragile. Forklift blades should only be placed under main structural beams



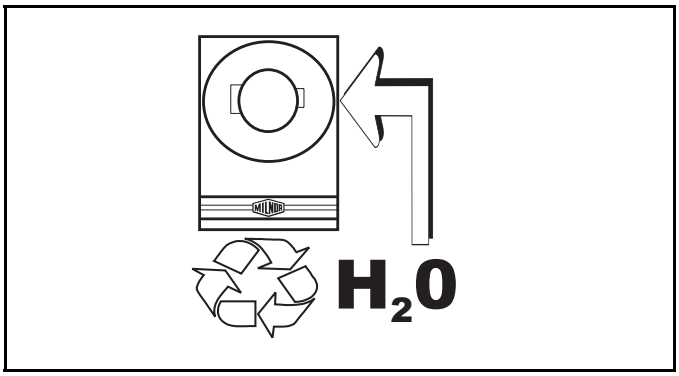
Set main bearing air pad gauge at 10 psi (.70 kg/cm^2), 64" and 72" ExN and JxN models only.
Set disc brake air gauge at 10 psi (.70 kg/cm^2), 64" and 72" ExN and JxN models only.



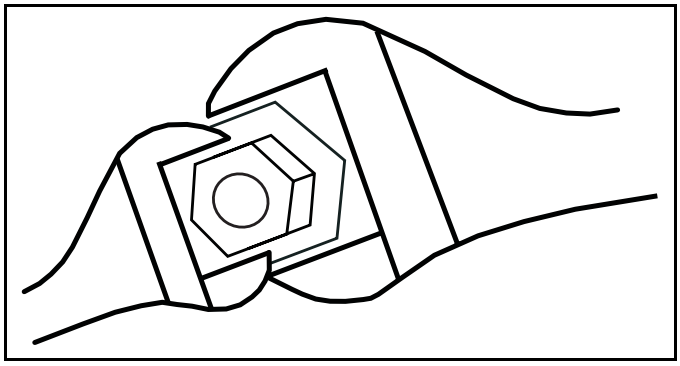
Make cold water connection here.



Make hot water connection here.



Make third (reuse) water connection here.



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

Avoiding Damage From Allied Remote Chemical Delivery Systems

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

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

Figure 1: Pumped Chemical Inlets on CBW Batch Washer

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

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

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

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

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

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

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

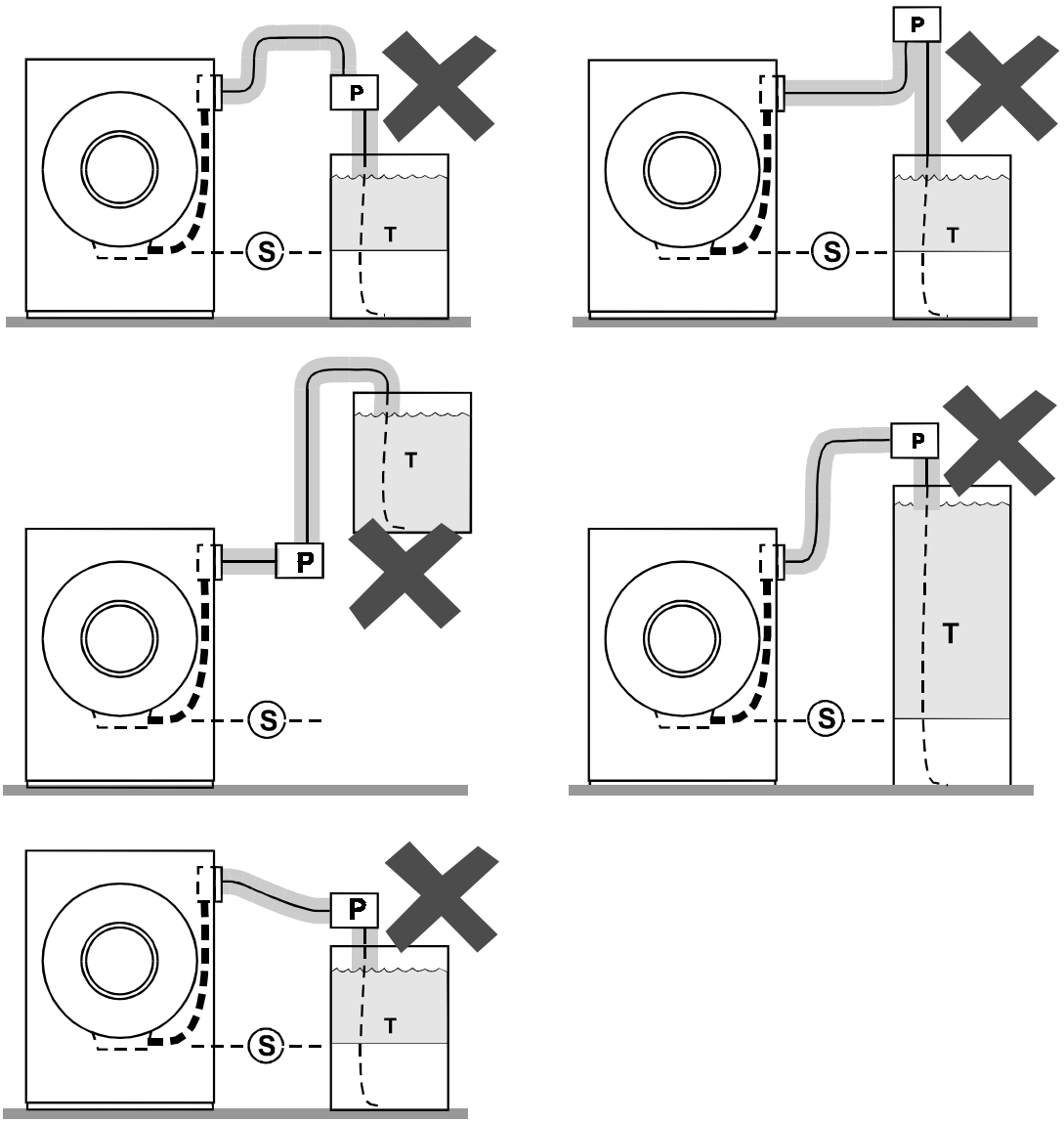
2. Requirements for Chemical Systems Used With Milnor Machines

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

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

Figure 2: Siphoning From the Chemical Tank into the Machine

Examples

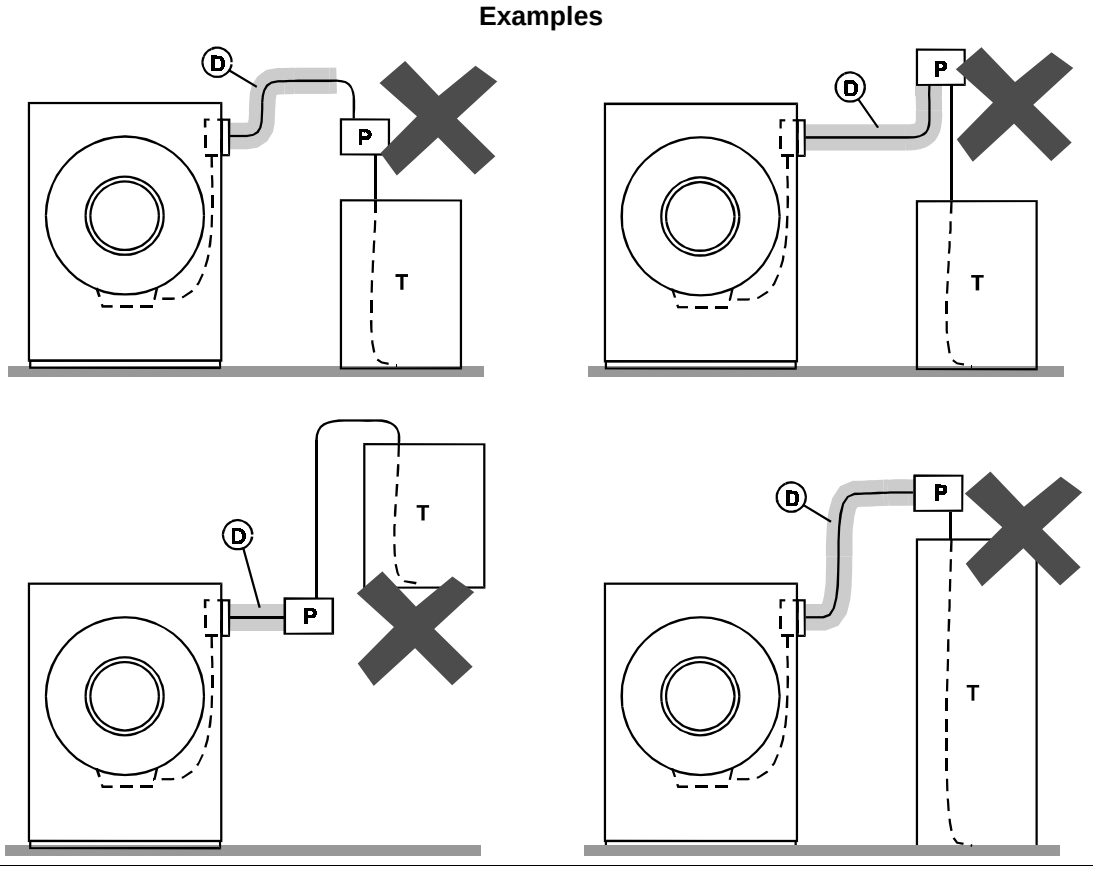


Legend

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

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

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



Legend

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

3. Design and Installation Recommendations

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

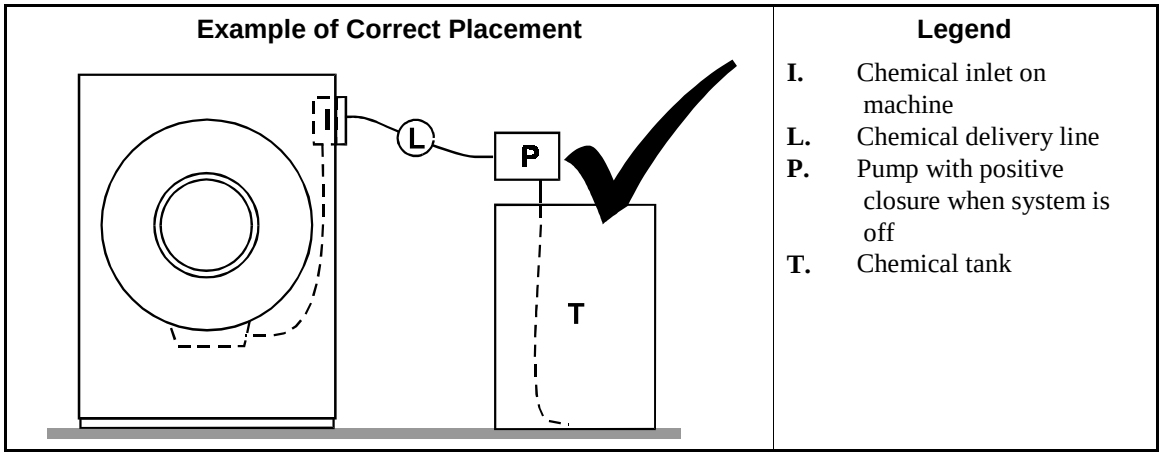
3.1. Siphoning: Positively close the line.—If the pump does not provide positive closure when the system is off, employ a shutoff valve in the line to serve this purpose.

3.2. Siphoning: Break the siphon.—Provide an air gap or vacuum breaker in the chemical delivery line. This must be located above the "full" line of the tank.

3.3. Dribbling: Flush the entire chemical delivery line.—If any concentrated chemical that remains in the injection line between the pump and the machine is free to flow into the machine, employ a system that flushes the entire line between the pump and the injection point with fresh water after each injection.

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

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



4. Guarding Against Leaks

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

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

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

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

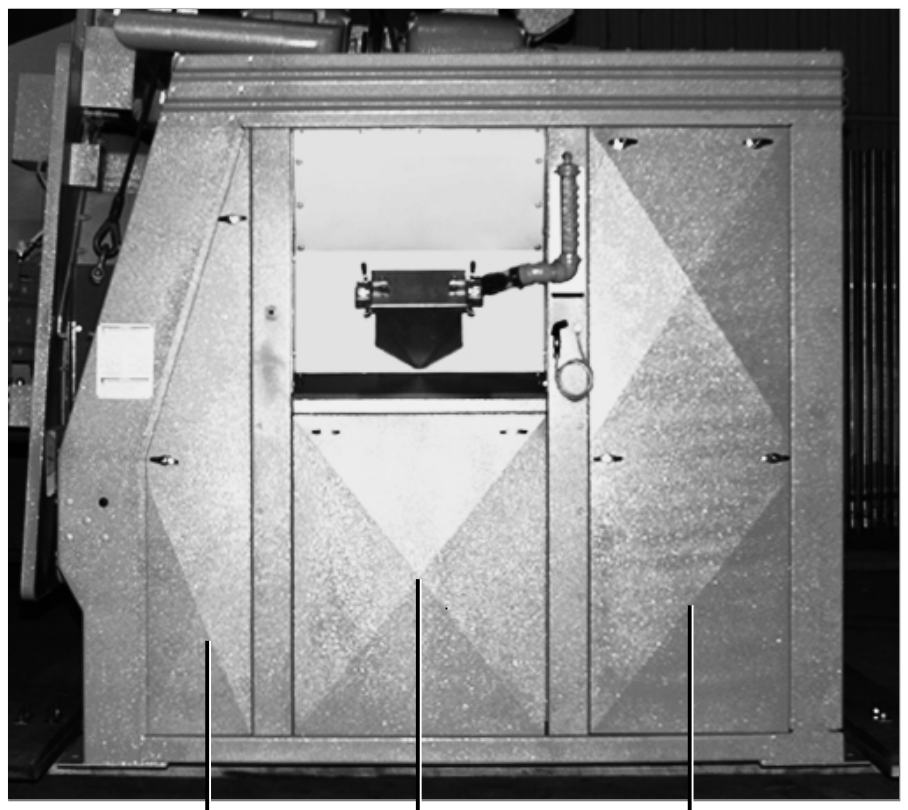
— End of BIWUUI03 —

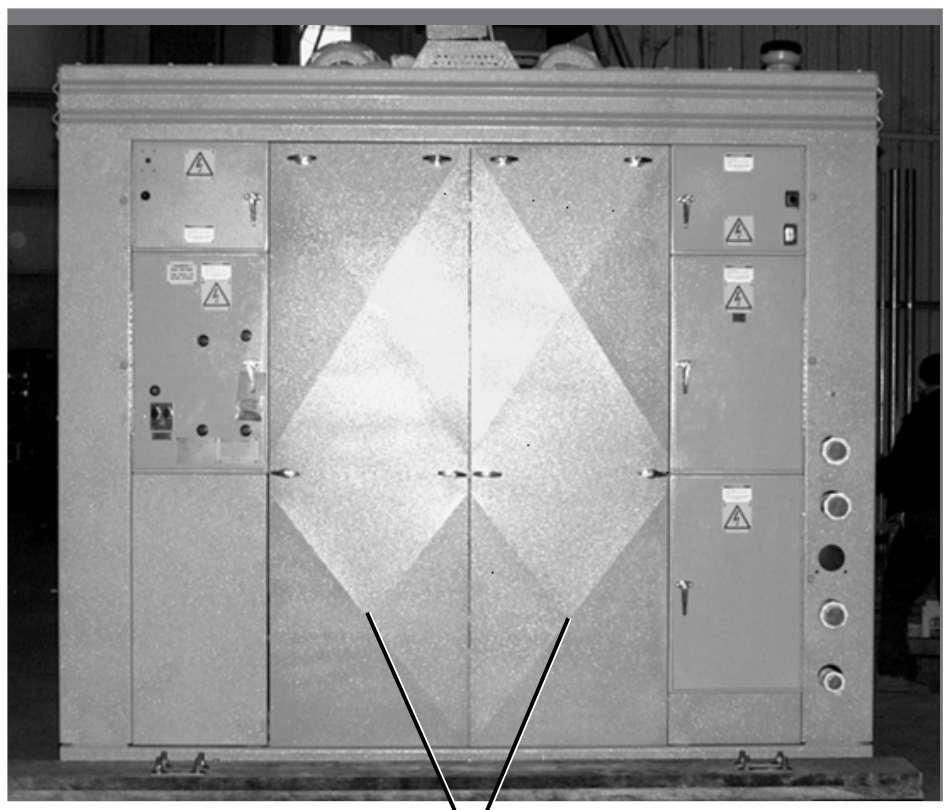
Installation Cosmetic Covers

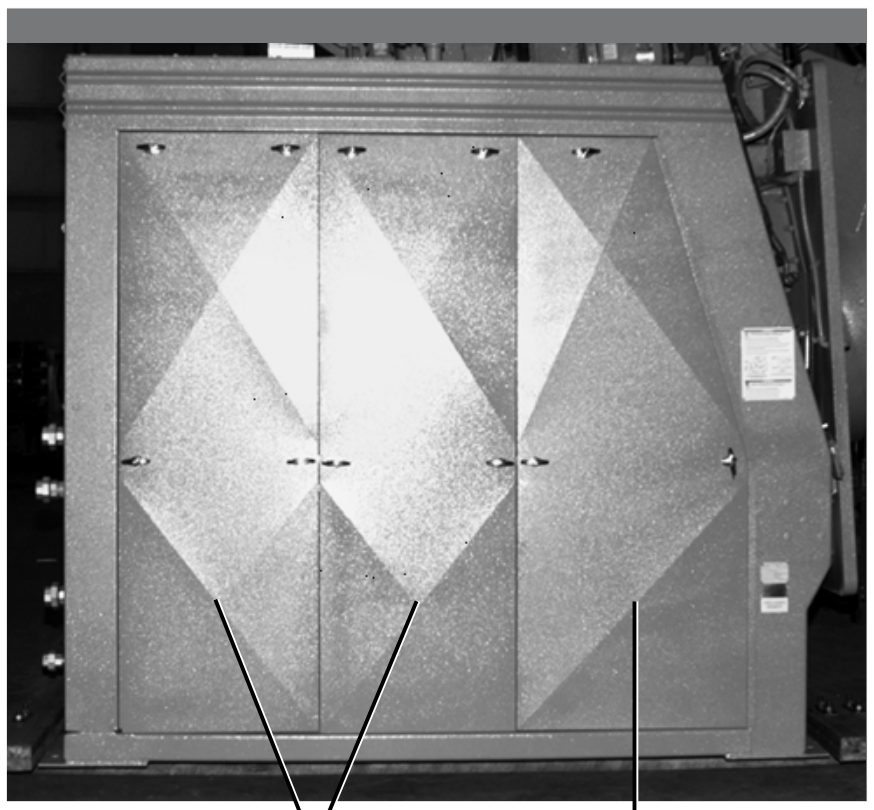
64046E6N/J6N/D6N 72046E5N/JN 72058J2N/J5N

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

Litho in U.S.A.







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

Litho in U.S.A.

Parts List—Installation Cosmetic Covers

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

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	GGS65001N	94000Z INST=COSMETIC COVER 6446 N-T	6446E6N NEW PIVOT
	B	GGS46001N	94000Z ASSY=COSMETIC COVERS 72 N-T	7246E5N,J5N,J2N STONE
	C	GGS58001	93000Z INST=COSMETIC COVER	7258D5N,J5N
			----------COMPONENTS----------	
A,B	1	AGS65009	94000Z ASSY=FRONT LEFT COVER NEWPIV	
C	1	AGS58002	94000Z ASSY=FRONT LEFT COVER	
all	2	AGS65003	92000Z ASSY=SIDE OR REAR COVER	
A	3	AGS65004	92000Z ASSY=LOWER SUPPLY COVER	
B,C	3	AGS58004	94000Z ASSY=LOWER SUPPLY COVER	
A,B	4	AGS65010	94000Z ASSY=FRONT RITE COVER NEWPIV	
C	4	AGS58005	94000Z ASSY=FRONT RIGHT CV W/SUPPLY	

Lubrication and Preventive Maintenance For 64" and 72"ExN and JxN Models

Follow these schedules, instructions and precautions to achieve optimum performance and service life from your Milnor ™washer-extractors and comply with warranty requirements.

1. Required Equipment

Maintenance procedures require a hand operated grease gun and the specified lubricants.

2. Lubrication Precautions [Document BIUUUM01]

CAUTION 1: Machine Damage Hazard—Improper lubrication can damage machine components and cause the machine to malfunction.

- Do not mix petroleum and synthetic based lubricants.
- Do not use an unspecified lubricant without consulting the lubricant manufacturer.
- Do not apply grease with a pneumatic grease gun. Use only a hand-operated grease gun.
- Do not over-lubricate.
- Always clean grease fittings before adding grease. Clean off excess grease.
- Ensure that lubricants do not drip onto belts, brake shoes or drums.

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.

- Lock out and tag out power at the main machine disconnect before servicing, or in accordance with factory service procedures.
- Do not service machine unless qualified and authorized.

2.1. Pumping Grease—Pump grease slowly, taking 10-12 seconds to complete each stroke. A grease gun can build up extremely high pressure which will force seals out of position and cause them to leak.

2.2. Grease Quantity—Apply the quantity of grease called for in the checklist. Over-lubrication can be as damaging as under-lubrication. Where quantities are stated in strokes, one stroke of the grease gun is assumed to provide .0624 fluid oz. (1.77 grams) (by volume) of grease. Therefore, one fluid ounce (28.3 grams) of grease would be provided by 16 stokes of the grease gun. Determine the flow rate of your grease gun by pumping one ounce into a calibrated container. If fewer than 16 stokes are required, all quantities in strokes in the chart should be reduced accordingly, and if more than 16 strokes are required, the number of strokes should be increased. Before starting lubrication, make sure your grease gun is working and that you get a full charge of grease with every stroke.

2.3. Lubricant Specifications—Lubricant specifications are provided in the preventive maintenance checklist. Lubricants should be purchased locally. If a specified lubricant is not available locally, it is permissible to substitute a product that has been specified as equivalent by the lubricant manufacturer. If you cannot obtain either the specified lubricant or a valid equivalent locally, contact the Milnor Service Department for assistance.

3. Specified Lubricants

Table 1: Lubricants Table

Assembly	Components	Specifications
Bearing housing	Seals and bearings	Shell Alvania EP or equivalent
Hydraulics	Shell pivot grease fittings, hydraulic cylinder grease fittings, pump	Shell Alvania EP or equivalent
	Hydraulic fluid reservoir	Shell Tellus 68 or equivalent
Motors	Motor bearings	Use Shell Alvania EP or equivalent.
Gear reducer	Gear reducer	Shell Morlina 220
Braking	Brake reservoir	DOT 3 brake fluid or equivalent
Isolators (Figure 4)	Isolator bodies	10W30 (ISO 30-100) motor oil or equivalent
Load door	Locking latches	Door-ease stick lubricant or equivalent
	Gears and hinges	Shell Alvania EP or equivalent

4. Greasing Bearings and Seals

DANGER 3: Entangle and Crush Hazards—Guards, covers, and panels—Operating the machine with any guard, cover, or panel removed exposes moving components.

- Power is ON and cylinder is turning during the following procedure. Permit only qualified maintenance personnel to perform this procedure.

Grease seals and main bearing as follows:

1. Locate the seal and bearing grease fittings (Figure 1, item 9).
2. Place the machine in a wash step.
3. With the cylinder turning, grease the seals and bearings as called for on the “Preventive Maintenance Checklist” and “Lubrication Precautions.”

5. Maintenance Checklist

Table 2: Preventive Maintenance Checklist

Components		Action	Frequency (hours of operation)	Figure Number
Pulleys and Belts	Pulley condition and alignment (See Note 1)	Check sheaves for wear and alignment	Monthly (167 hours)	Figure 1
	Belts	Check for wear, replace if required		
Gear Reducer, Motors and Drive Components	Drive gear reducer (if so equipped)	Check level at plug, add oil as required	Semiannually (1000 hours)	
		Change oil (drain valve below)	Annually (2000 hours)	
	Centrifugal switch (if so equipped)	Check brushes for wear, replace as required	Monthly (167 hours)	
	Jack shaft (if so equipped) See Note 2	0.19 ounces (5.31 grams) (three strokes) at two locations	Monthly (167 hours)	
	Motor(s)	See "BALDOR MOTOR MAINTENANCE...MSSM0274AE" in this manual.		
	Air clutch quick release valve (if so equipped)	Change internal diaphragm	Annually (2000 hours)	
Bearing Housing	Front bearing grease fitting (Note 2)	Slowly grease: 0.62 ounces (17.7 grams), ten strokes at one location	Monthly (167 hours)	
	Rear bearing grease fitting (Note 2)	Slowly grease: 0.31 ounces (8.8 grams), five strokes at one location		
	Seal grease fitting (except J2N)	Slowly grease: 0.19 ounces (5.31 grams), three strokes at one location		
	J2N seal grease fitting	Slowly grease: 0.19 ounces (5.31 grams), three strokes at one location	Weekly (40 hours)	
	Main bearing air pad gauge	Verify pressure: 10 psi (0.70 kg/sq.cm)	Monthly (167 hours)	
	Water seals and leak-offs	See "Flushing water seals and leak-offs...MSSM0271AE" in this manual	Semiannually (1000 hours)	
Brake Components	Reservoir (if so equipped)	Check levels, add fluids if required	Monthly (167 hours)	Figure 2
	Pad/Shoes	Check for wear, replace if required		
Hydraulic Components	Hydraulic cylinders	Slowly grease: 0.12 ounces (3.54 grams) (two strokes) at two locations	Monthly (167 hours)	Figure 1

Components		Action	Frequency (hours of operation)	Figure Number
	Shell pivot	Slowly grease: 0.12 ounces (3.54 grams) (two strokes) at two locations	Monthly (167 hours)	
	Shell stop(s)	Check for wear, replace if required	Semiannually (1000 hours)	
	Line pressure (E6N and J5N machines)	Check pressure while machine is tilting to the load position 900-1000 PSI (62-69 bar) E6N and J5N machines	Daily (8 hours)	Figure 3
	Filter	Replace	Semiannually (1000 hours)	
	Filter pressure	Check pressure while machine is tilting to the load position 30-60 PSI (2-4 bar)	Daily	
	Pump motor	Slowly grease: 0.12 ounces (3.54 grams) (two strokes) at two locations	Semiannually (1000 hours)	
	All hoses/couplings	Check for leaks, cracks and bulges	Monthly (167 hours)	
	Reservoir level	Check level with machine tilted to the load position. Add if below black mark on gauge	Daily (8 hours)	
		Have oil tested by a reputable testing facility. Tests should include viscosity, the presence of insolubles, acid number and spectrographic wear analysis. Retain or replace oil as advised by the testing facility.	Annually (2000 hours of operation)	
Shocks and Isolators	Isolators	Check oil level	Quarterly (500 hours)	Figure 4
		Replace oil	Annually (2000 hours)	
	Shocks	Check for leaks, replace as required (four locations)	Semiannually (1000 hours)	
	Isolator cushions	Check cushions for cracks and deterioration (eight locations)	Monthly (167 hours)	
Doors	Gears	Lubricate	Monthly (167 hours)	Figure 5
	Hinges	0.12 ounces (3.54 grams) (two strokes) at three locations		
	Locking latches	Lubricate (two locations)		
Water	Cooldown water adjustment	Adjust as required	Monthly (167 hours)	Figure 6
Water	Water pressure regulator	Check water pressure (28 PSI) when there is no flow of flushing or balancing water	Monthly (167 hours)	Figure 7

Components		Action	Frequency (hours of operation)	Figure Number
Inverter	Enclosure, screen and fan	Vacuum out enclosure, clean screen and verify fan operation	Weekly (40 hours)	Figure 8
	Inverter vents	Vacuum out vents		Figure 9
Recirculation (if so equipped)	All recirculation hoses and couplings	Check for leaks, cracks and bulges	Monthly (167 hours)	Figure 10
	Door hose	Replace door hose every 6 months or 840 hours, whichever occurs first.	Semiannually	

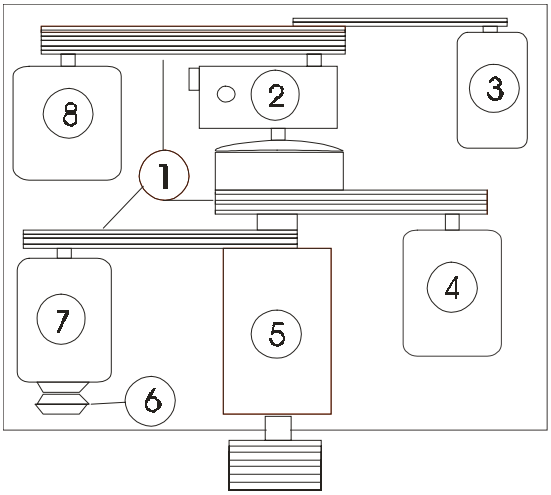
Note 1: See "Tensioning and Aligning Main Drive Belts...BIIEUM01" in this manual.

Note 2: Main bearings and jack shaft bearings (if equipped) are pre-packed with lubricant at the factory. Do not grease for 30 days. Some grease will ooze out of the grease relief fittings during the first month of operation and every time the bearings are re-lubricated. These fittings avoid overheating by permitting excessive grease to escape. The escaping lubricant does not have to been replaced. Bearings run hot enough to be uncomfortably warm to the touch. This is normal.

6. Maintenance Points

Figure 1: Motor Platform, Hydraulic Cylinder, Shell and Suspension Maintenance Points

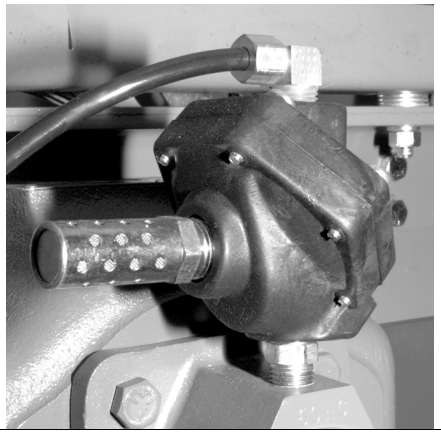
Motor Platform (four motor platform shown)



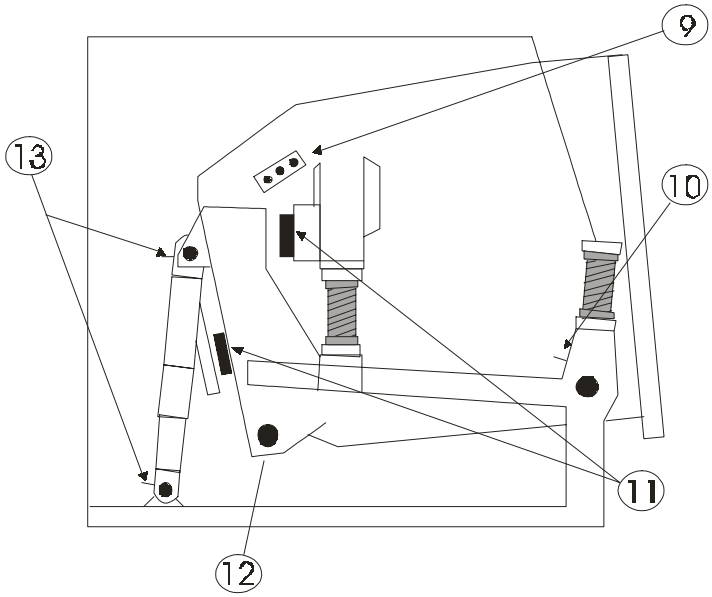
Legend

1. Check pulley sheaves and belts for wear and alignment
2. Gear reducer level plug (drain below)
3. Drain motor grease points
4. Low extract motor grease points
5. Jack shaft grease fittings (Note 2)
6. Centrifugal switch (if so equipped)
7. High extract motor grease fittings
8. Wash motor grease fittings
9. Seal and bearing grease fittings
10. Shell pivot grease fittings (two locations)
11. ExN and J5N shell stops (four locations)
12. J2N shell stop (if equipped)
13. Hydraulic cylinder grease fittings

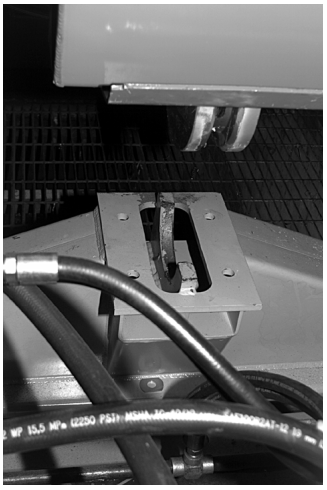
Air Clutch Quick Release Air Valve (if equipped)



Hydraulic Cylinder and Shell Maintenance Points



J2N Shell Stop



Main Bearing Air Pad

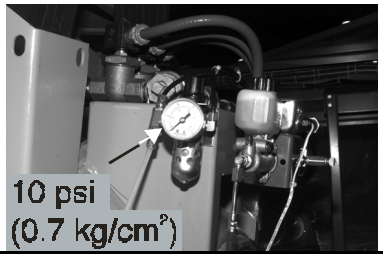


Figure 2: Brake Components

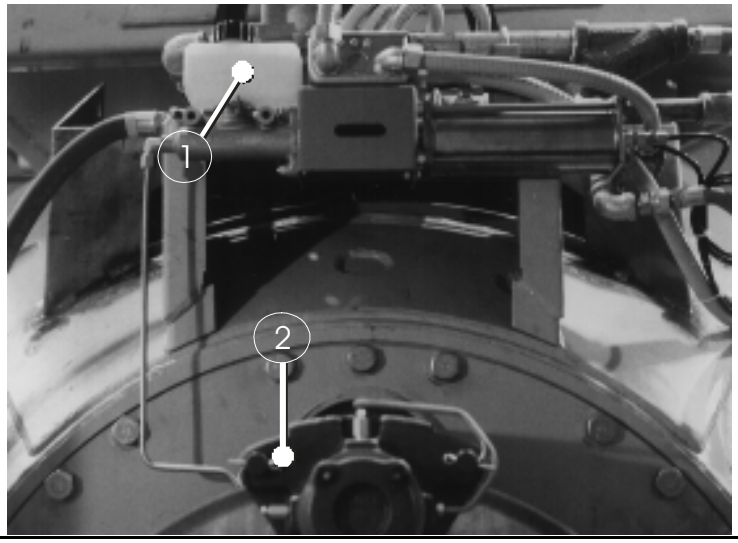
Brake Reservoir and Pads (E6N and J5N machines only)	Legend
	**1.** Brake reservoir **2.** Brake pads

Figure 3: Hydraulic System Maintenance Points

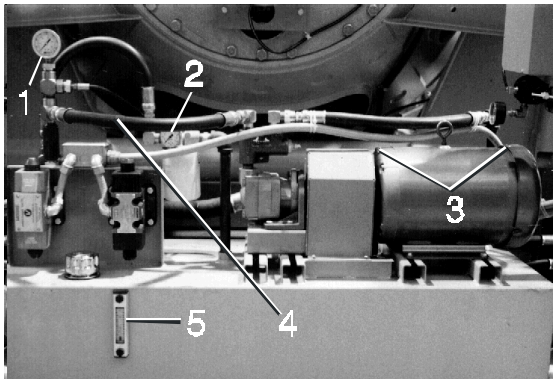
E6N and J5N Hydraulic System	J2N Hydraulic System	Legend
		**1.** Line pressure gauge (E6N and J5N) **2.** Filter and filter pressure gauge **3.** Pump grease fittings (two locations) **4.** Hoses and couplings (throughout machine) **5.** Reservoir level

Figure 4: Isolators and Shocks

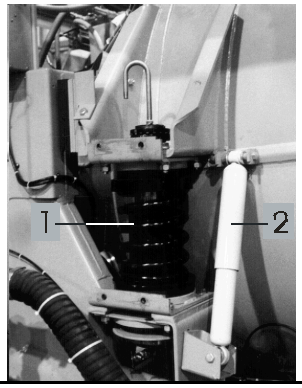
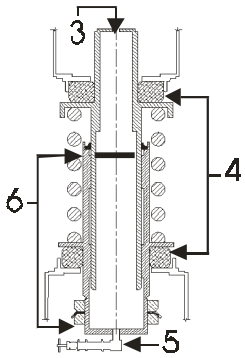
E6N and J5N Isolators and Shocks	Isolator Details	Legend
		**1.** Isolators (four locations) **2.** Shocks (four locations) **3.** Remove vent and check or add oil here **4.** Cushions (8 locations) **5.** Drain **6.** Oil Level 11-12" (279-305) above bottom of isolator

Figure 5: Door Maintenance Points

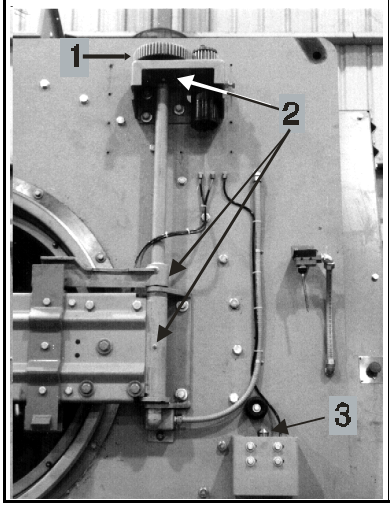
Gears, hinge and locking latches	Legend
	**1.** Gears **2.** Hinge grease fittings (three locations) **3.** Locking latches (two locations)

Figure 6: Cooldown Vernier Valve

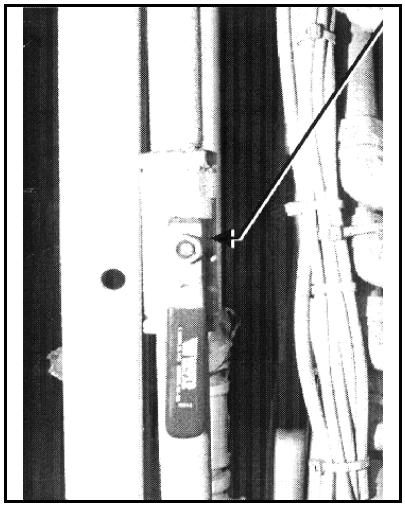


Figure 7: Water Pressure Adjustment

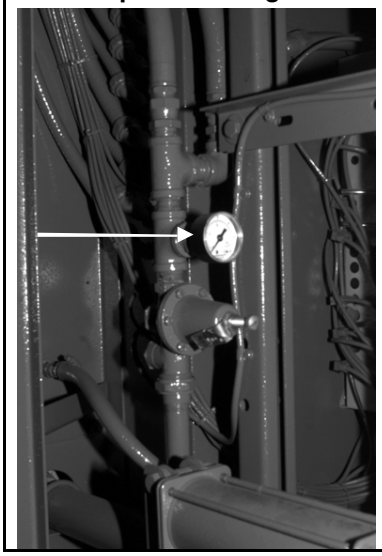
Water pressure regulator	Legend
	**Use hot water if it is available.** Set pressure regulator for 28 psi when there is no flow of flushing or balancing water.

Figure 8: Inverter Enclosure, Screen and Fan

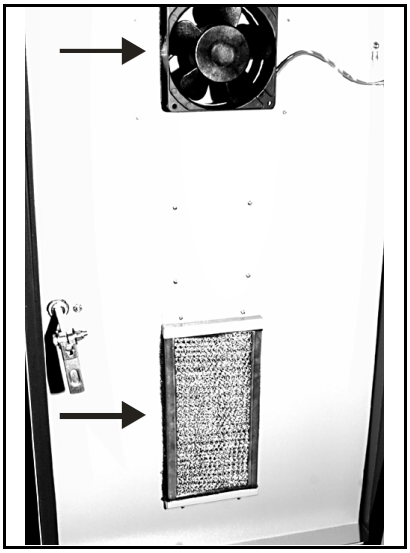


Figure 9: Inverter Vents

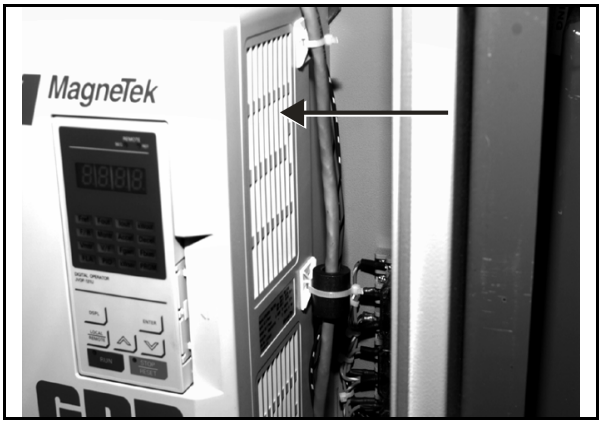
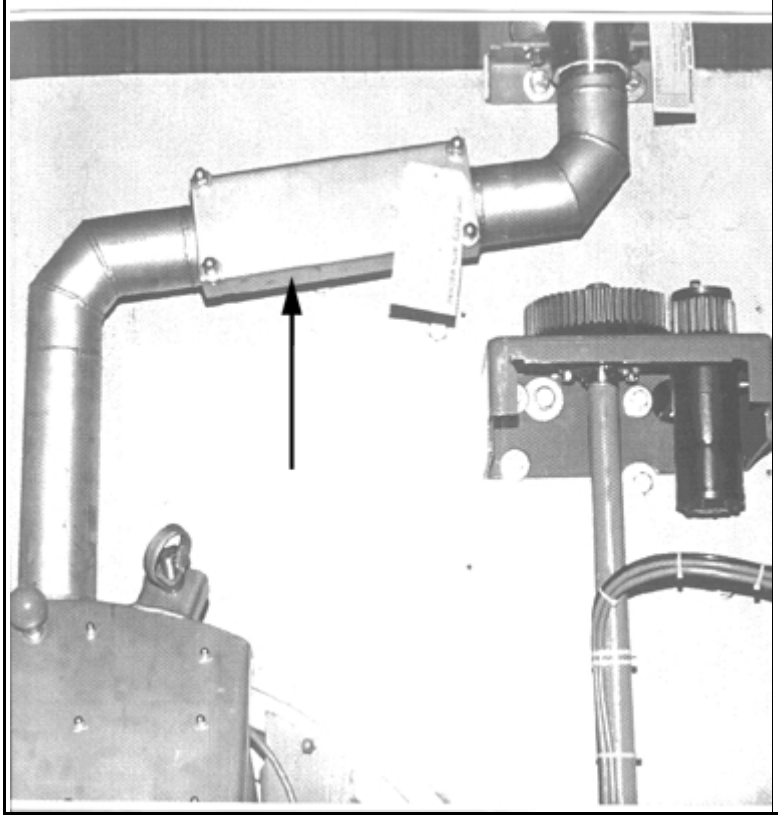


Figure 10: Recirculation Equipped Machines

Recirculation hoses	Legend
	The hose behind this plate must be replaced every 6 months or 840 hours of operation. A weak hose can burst, causing hot bath liquor to spray onto personnel, scalding them.

— End of BIIEAM01 —

Tensioning and Aligning Main Drive Belts on 64" and 72" ExN and JxN Washer-Extractors

Check belt tension and main drive pulley alignment whenever the main drive belts are replaced or tensioned. Also check belt tension and alignment whenever the drive base is moved or when called for in the preventive maintenance checklist. Determine the type of belts fitted to the machine then refer to either “Setting Belt Tension...with Individual Main Drive Belts” or “Setting Belt Tension...with Banded Main Drive Belts.” After setting the belt tension, see “Aligning The Main Drive Pulleys (Both Belt Types)” for alignment information.

Check tension for new belts according to the following schedule:

- After 24 hours of operation (three eight-hour shifts)
- After 80 hours of operation (ten eight-hour shifts)
- After 160 hours of operation (twenty eight-hour shifts)

Note 1: Do not refer to instruction sheet provided with the tension testing tool. Use this instruction instead.

Note 2: All belts are not alike. Certain belts are better suited to certain applications. Consequently, it is always best to purchase replacement belts from the original manufacturer of the equipment. Alternatively, purchase the exact style and type of belts with which the machine was originally equipped. If you were not satisfied with the life of the original set, you should ask the factory if a better belt has been developed for the specific application.

1. Setting Belt Tension on Machines Equipped with Individual Main Drive Belts

These machines use the “belt tension gauge method” for tensioning the main drive belts. This method requires a belt tension testing tool and straight edge.

Use the tension gauge to set belt tension as follows:

1. Move upper O-ring on tension testing tool to uppermost position (resting against bottom edge of sliding cap).
2. Determine belt deflection for the tested belt (see Table A for the setting).
3. Move lower O-ring to the correct setting (inches or centimeters) on scale. Read the bottom edge of the O-ring.
4. Place a straight edge along the top edge (pulley to pulley) of the belt to be tested. Depress the tension testing tool by sliding the cap against the middle of the belt span until the bottom edge of the lower O-ring aligns with the straight edge as shown in (Figure 1).
5. Read the top of the upper O-ring position and determine if it is within specified range.
   - See specifications in the “Individual belt initial tension” column for belts that have never been used.
   - See specifications in the “Individual belt final tension” column for belts that have been in use for more than 24 hours (three eight-hour shifts).
6. If reading is below specified range, belt must be tightened. If reading is above specified range, belt must be loosened. Adjust belt and repeat Steps 1 through 5 until tension is within specified range

Figure 1: Testing Belt Tension (Individual Belts)

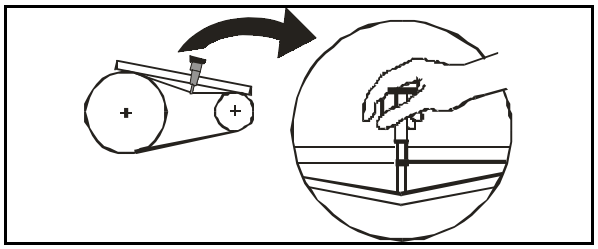


Table 1: Table A - ExN and JxN Main Drive Belt Tension

Belts	Belt deflection inches (mm)	Hertz	Individual belt initial tension pounds (kilograms)	Individual belt final tension pounds (kilograms)
Final stage	3/4" (19)	All	17 - 20 (7.7 - 9.1)	13 - 16 (5.9 - 7.2)

2. Setting Belt Tension on Machines Equipped with Banded Main Drive Belt

These machines use the “belt elongation method” for tensioning the main drive belts. This method requires a tape measure and either “Table B - 64" ExN and JxN Main Drive Belt Tension (Banded Belts)” or “Table C - 72" ExN and JxN Main Drive Belt Tension (Banded Belts),” depending on the machine type.

1. Accurately measure the outer diameter of the belt. Call this measurement L1. Look up L1 in Table B for 64" machines or Table C for 72" machines. Find the corresponding “Banded Belt Tension Length.” Tie a string to this length.
2. Install belt.
3. Fit string to the outer diameter of both pulleys.
4. Slowly raise motor platform until string is tight.

Table 2: Table B - 64" ExN and JxN Main Drive Tension (Banded Belts)

L1 inches (mm)	Multiplier	Tensioned Length inches (mm)
149 (3784.6)	1.007	150.04 (3811.0)
149.3 (3792.2)		150.29 (3817.4)
149.5 (3797.3)		150.55 (3824.0))
149.8 (3804.9)		150.80 (3830.3)
150 (3810.0)		151.05 (3836.7)
150.3 (3817.6)		151.30 (3843.0)
150.5 (3822.7)		151.55 (3849.4)
150.8 (3830.3)		151.81 (3856.0)
151 (3835.4)		152.06 (3862.3)
151.3 (3843.0)		152.31 (3868.7)
151.5 (3848.1)		152.56 (3875.0)
151.8 (3855.7)		152.81 (3881.4)
152 (3860.8)		153.06 (3887.7)
152.3 (3868.4)		153.32 (3894.3)
152.5 (3873.5)		153.57 (3900.7)
152.8 (3881.1)		153.82 (3907.0)
153 (3886.2)		154.07 (3913.4)
153.3 (3893.8)		154.32 (3919.7)
153.5 (3898.9)		154.57 (3926.1)
153.8 (3906.5)		154.83 (3932.7)
154 (3911.6)		155.08 (3939.0)
154.3 (3919.2)		155.33 (3945.4)
154.5 (3924.3)		155.58 (3951.7)

Table 3: Table C - 72" ExN and JxN Main Drive Belt Tension (Banded Belts)

Banded Belt Tension		
L1 inches (mm)	Multiplier	Tensioned Length inches (mm)
163.5 (4152.9)	1.007	164.64 (4181.9)
163.75 (4159.2)		164.90 (4188.5)
164 (4165.6)		165.15 (4194.8)
164.25 (4172.0)		165.40 (4201.2)
164.5 (4178.3)		165.65 (4207.5)
164.75 (4184.7)		165.90 (4213.9)
165 (4191)		166.16 (4220.5)
165.25 (4197.4)		166.41 (4228.8)
165.5 (4203.7)		166.66 (4233.2)
165.75 (4210.1)		166.91 (4239.5)
166 (4216.4)		167.16 (4245.9)
166.25 (4222.8)		167.41 (4252.5)
166.50 (4229.1)		167.67 (4258.8)
166.75 (4235.4)		167.92 (4265.2)
167.00 (4241.8)		168.17 (4271.5)
167.25 (4284.2)		168.42 (4277.9)
167.50 (4254.5)		168.67 (4284.2)
167.75 (4260.9)		168.92 (4290.6)
168.00 (4267.2)		169.18 (4297.2)
168.25 (4273.6)		169.43 (4303.5)
168.50 (4279.9)		169.68 (4309.9)
168.75 (4286.3)		169.93 (4316.2)
169.00 (4292.6)		170.18 (4322.6)
169.25 (4298.9)		170.43 (4328.9)
169.50 (4305.3)		170.69 (4335.5)
169.75 (4311.6)		170.94 (4341.9)
170.00 (4318.0)		171.19 (4348.2)
170.25 (4325.4)		171.44 (4354.6)
170.50 (4330.7)		171.69 (4361.0)
170.75 (4337.0)		171.95 (4367.5)
171.00 (4343.4)		172.20 (4373.9)
171.25 (4349.8)		172.45 (4380.2)

3. Aligning The Main Drive Pulleys (Both Belt Types)

Correct pulley alignment is critical to maximize the main drive belt life. Pulley alignment must be checked whenever any of the main drive components (motors, pulleys, or belts) are adjusted or

replaced. Also check pulley alignment whenever excessive amounts of belt wear and dust are noticed (a small amount of belt dust is normal).

Required tools: laser level (available at many local hardwear stores), ruler and tape measure.

We recommend the use of laser levels since these have proven to yield much greater accuracy in pulley alignment than older methods of alignment which utilize string. Use a laser level to align pulleys as follows:

1. Determine the distance between the levels edge and the laser emitter lens. Place the level on a flat surface. Hold a ruler upright to the beam and note where the beam hits the ruler (Figure 5).
2. If the machine is a tilting model, tilt the machine so that the main bearing shaft face is perpendicular to the floor (Figure 2). Hold the level vertically on the main bearing shaft face to check for plumb. If the bearing shaft face is plumb, then the main bearing shaft pulley is plumb.
3. Check the plumb on the motor pulley. If the motor pulley is not plumb, then shim motor platform between the hinge and the motor base (Figure 3).
4. Once both pulleys are plumb, check the pulley to pulley alignment as follows:
    - Place the laser on the face of the small motor pulley (Figure 5).
    - Check at the 2, 4, 8 and 10 o'clock points on the outer edge of the large pulley (Figure 5). This measurement must equal the laser emitter lens to levels edge distance (measured in step 1), plus or minus 1/16th of an inch. The closer the alignment is to ideal, the longer the belt life.
    - The small motor pulley can be aligned with the big pulley by either of two methods. Either move the small motor pulley on the shaft or loosen the hinge side bolts and adjust the drive base threaded rod closest to the front of the machine (Figure 4).
    - If the hinge bolts are loosened, be sure to coat the bolt threads with Loctite 242 before tightening.

Figure 2: Identifing the Main Bearing Shaft Face

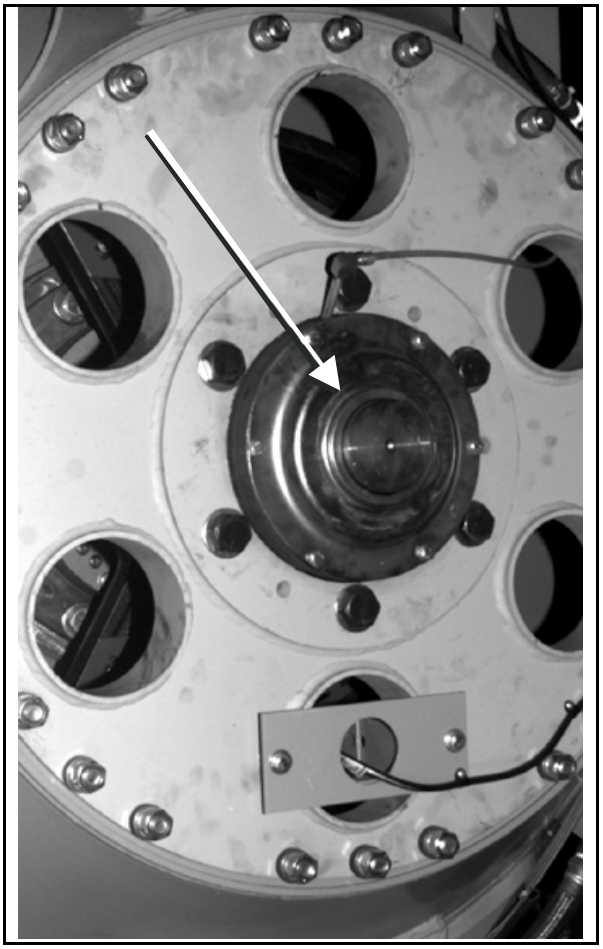


Figure 3: Shim Motor Platform to Plumb Motor Pulley

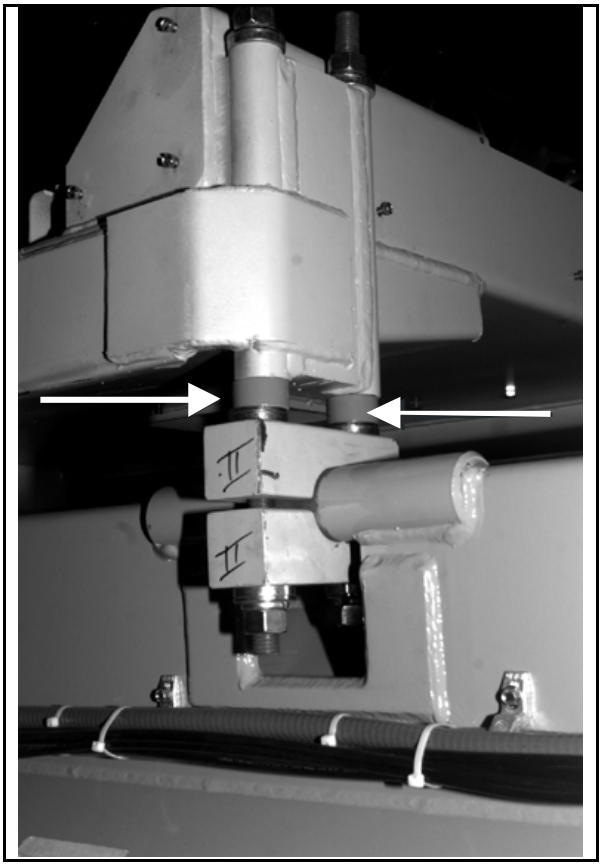


Figure 4: Second Method of Adjusting Pully Alignment

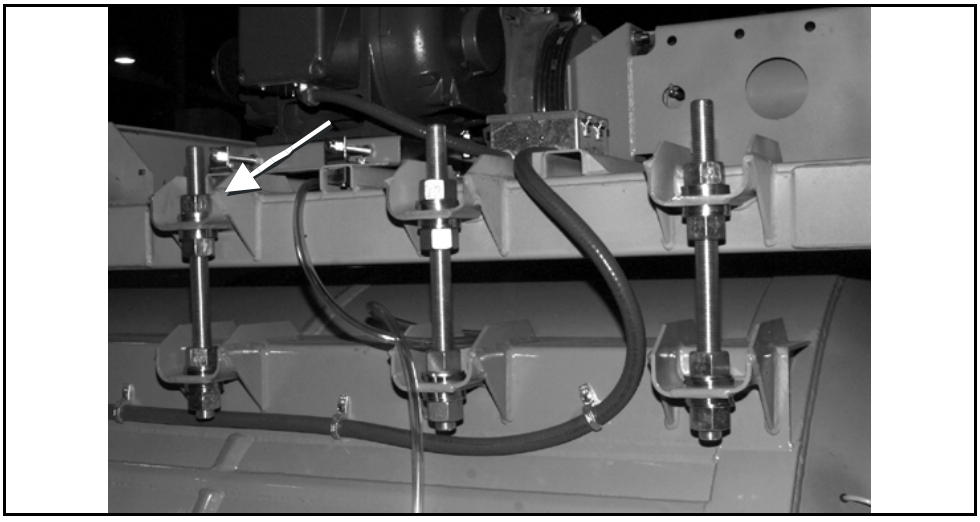
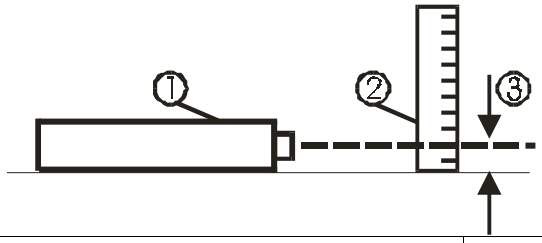


Figure 5: Pulley Alignment

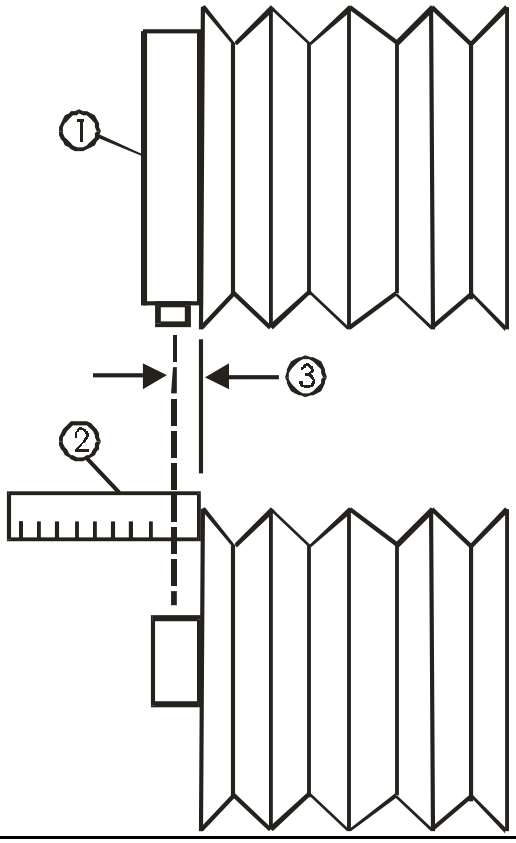
Deterring the distance between the emitter lens and the level base



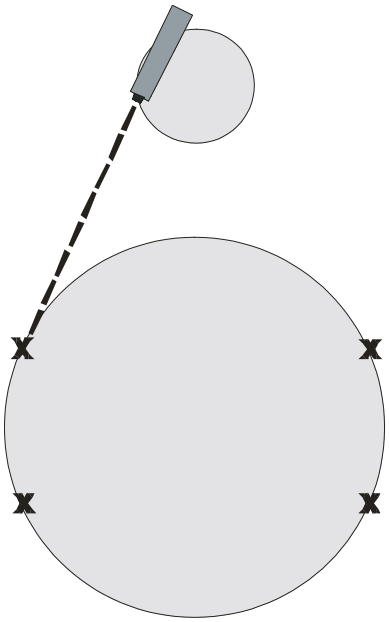
Legend

1. Laser level
2. Ruler
3. Laser emitter to level distance

How to align pulleys



Measuring pulley to pulley alignment in four places



— End of BIIEUM01 —

FLUSHING WATER SEALS AND LEAK - OFFS IN 52" AND LARGER WASHER-EXTRACTORS

DANGER: ENTANGLE AND CRUSH HAZARD

Contact with moving components normally isolated by guards, covers, and panels, can entangle and crush your limbs. These components move automatically.

- ☞ **Do not service unless qualified and authorized.**
- ☞ **Lock OFF and tag out power at the wall disconnect before servicing, or in accordance with factory service procedures.**

Required Kits—This procedure requires bulb pump kit (p/n KZ5CP00100), one gallon (3.8 liters) of mineral spirits, a hand operated grease pump, and the specified lubricants.

Background Information—The grease filled bearing housings for 52 inch and larger machines are supplied with two water seals and a grease seal as shown in FIGURES 1 and 2. Bath liquor is prevented from entering the bearings by two water seals separated by grease filled cavity (FIGURE 2). Any water leaking past the water seals is drained by the leak-off cavity. The grease seal retains the grease in the housing. The seal grease cavity and the leak-off cavity can become clogged with lint and debris, resulting in seal and bearing failure. Every six months, flush out these cavities with mineral spirits, as described within. Normally, flushing is done less often than greasing. However, whenever flushing is due, it should be done just prior to greasing, during the same maintenance session.

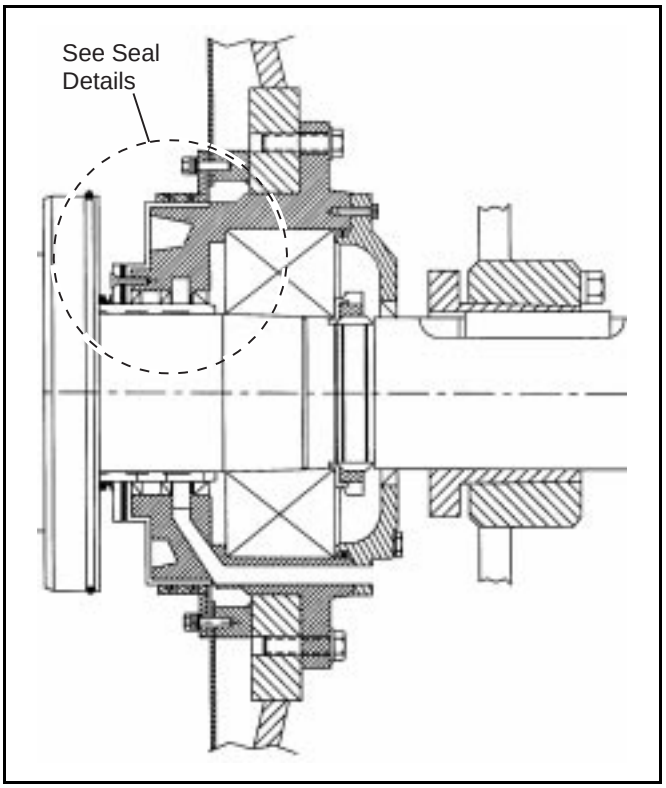


FIGURE 1 (MSSM0271AE) — Typical Bearing Housing for 52 through 72 Washer-Extractors

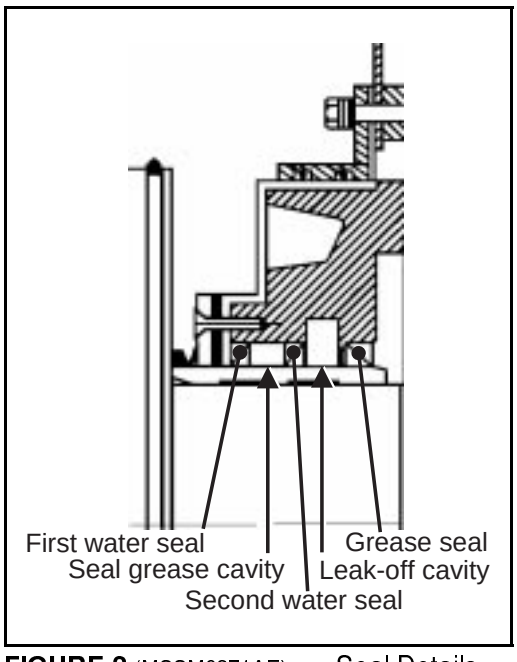


FIGURE 2 (MSSM0271AE) — Seal Details

NOTICE: BEARING DAMAGE HAZARD

BEARING DAMAGE HAZARD—Bearings will quickly burn up if grease is contaminated by mineral spirits.

- ☞ **DO NOT attempt to force mineral spirits into the bearing housing. If mineral spirits do not flow easily through the seal cavity grease relief and leak-off, ream out grease relief and leak-off drain.**
- ☞ **DO NOT attempt to flush the main or rear bearing.**

Flushing the Seal Grease Cavity—Before beginning, study the main bearing assembly drawing in the service manual to identify inlets, connections, reliefs, and leak-offs.

1. Locate the tubing running from the seal cavity grease point to the bearing housing (FIGURE 3). Disconnect this tubing at the bearing housing.
2. Install the bulb pump.
3. Remove the seal cavity grease relief fitting (if so equipped) to prevent the mineral spirits and contaminated grease from being pushed back into the shell under the first water seal. FIGURE 4 shows the internal passage from the seal cavity grease inlet to the seal grease cavity (FIGURE 2) and the internal seal cavity relief passage from the seal grease cavity to the grease relief fitting (if so equipped) on the housing.
4. Flush until the mineral spirits dripping from the seal cavity grease relief are clear (approximately two quarts - 1.9 liters).
5. Re-install seal cavity grease tubing and grease relief fitting (if so equipped).

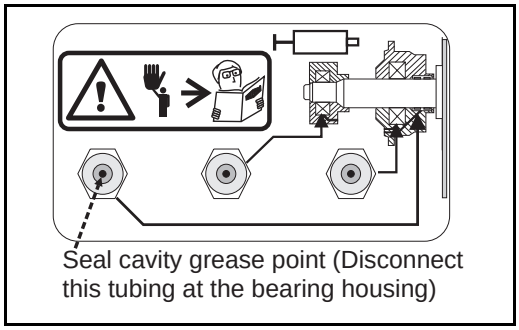


FIGURE 3 (MSSM0271AE) — Identifing the Seal Cavity Grease Point

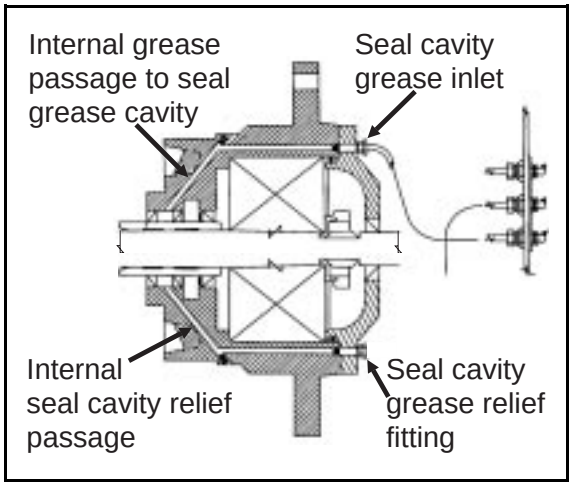


FIGURE 4 (MSSM0271AE) — Internal Seal Grease Cavity Passage and Relief

Flushing the Leak-off Cavity

1. Remove the vented plug at the flushing connection and install the bulb pump.
2. Pump approximately two quarts (1.9 liters) of mineral spirits into the flushing connection until the spirits flow easily out of the leak-off drains. FIGURE 5 shows the internal passage from the flushing connection, through the leak-off cavity, and the internal drain to the exterior of the housing.
3. After flushing, replace the vented plug, then see "Greasing Seals and Bearings" in the Preventive Maintenance section.

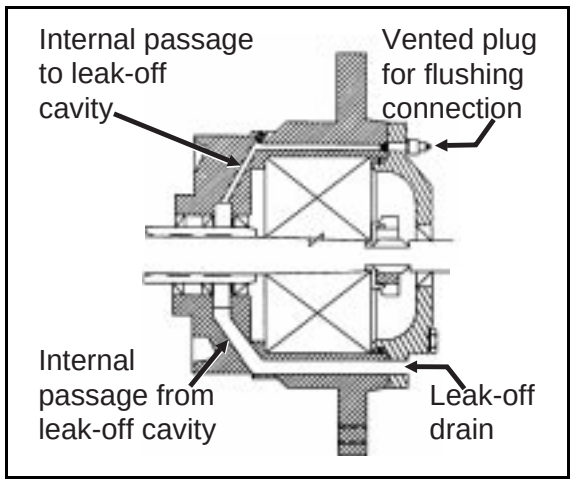


FIGURE 5 (MSSM0271AE) — Internal Flushing Passage and Leak-off

BIUUUM03 (Published) Book specs- Dates: 20071029 / 20071029 / 20071029 Lang: ENG01 Applic: UUU

Motor Preventive Maintenance

This document replaces document MSSM0274AE and applies to grease-lubricated motors used on Milnor products. Service motors in accordance with any brand-specific maintenance instructions posted on the motor or provided with your machine. Otherwise, follow the procedures in this document.

WARNING 1: Multiple 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. 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.
- Lockout/tagout power at the wall disconnect switch before servicing or in accordance with these procedures.

1. Routine Maintenance Needed

Inspect and clean motors approximately every 500 operating hours or every three months, whichever comes first. Lubricate motors at the intervals called for in Section 2. Test a motor if it shows any sign of malfunction.

1.1. Inspect and Clean—Keep the exterior of the motor free of dirt, oil, grease, water, etc. Contaminates blocking ventilation will cause overheating and early motor failure.

1.2. Lubricate—Frequency, quantity, type and application method are all important. These are explained in the remainder of this document.

1.3. Test and Repair—If a motor experiences frequent overload trips or inverter faults, verify that all electrical connections are tight. If the condition persists, check the motor and winding insulation integrity using a “megger” (low resistance ohmmeter), or have the motor tested by a reliable motor shop. If a motor produces smoke or a burning smell, but does not immediately fail, shut it down and check for dirt or grease accumulation within the motor frame, which can block air flow and short out electrical conductors. Disassemble the motor as required to thoroughly remove the contaminates.

2. Determining Motor-specific Lubrication Frequency and Quantity

1. Look up the frame size and RPM on the motor data plate. Example from Figure 1:

   Frame size = 215T, RPM = 1725

2. Look up the standard lubrication interval in Table 1. Example based on above:

   Standard lubrication interval = 12,000 hours

3. Choose the appropriate service severity rating and multiplier from Table 2. Example based on an ambient temperature of 102°F (39°C) and a moderately corrosive atmosphere:

   Service severity rating = severe, Multiplier = 0.5

4. Calculate the actual lubrication interval. Example based on above:

12,000 x 0.5 = ***6,000 hours***

Where:
12,000 is the standard lubrication interval
0.5 is the severity of service multiplier

5. Determine from Table 3, the amount of grease to apply to the motor bearings, based on the frame size range. Adjust for a smaller bearing size if necessary. Example based on above:

Grease volume = ***0.16 ounces (4.7 grams)***
Grease gun strokes = ***2.5***

Figure 1: Typical Motor Data Plate

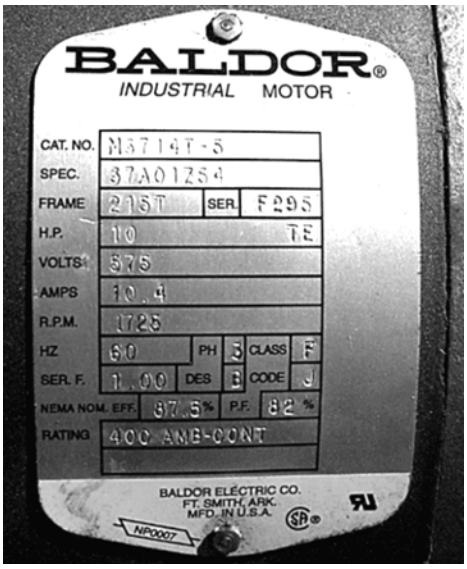


Table 1: Lubrication Interval for Standard Severity of Service

NEMA (IEC) Frame Size Range		Same or Closest Higher RPM Rating			
		3600 RPM	1800 RPM	1200 RPM	900 RPM
Up to 215 (132)		5500 hours	12000 hours	18000 hours	22000 hours
254 to 286 (160 - 180)		3600 hours	9500 hours	15000 hours	18000 hours
324 to 365 (200 - 225)		2200 hours	7400 hours	12000 hours	15000 hours
404 to 5000 (280 - 315)	6313 or 6314 bearings	2200 hours	3500 hours	7400 hours	10500 hours
	roller bearings	1100 hours	1750 hours	3700 hours	5250 hours

Table 2: Determining the Service Severity Rating and Multiplier

Considerations (any non-"Standard" condition raises rating)			Service Severity Rating	Multiplier
Maximum Ambient Temperature	Or Atmospheric Contamination	Or Bearing Type		
104°F (40°C)	Clean, little corrosion	Deep groove ball	Standard	1.0
122°F (50°C)	Moderate dirt, corrosion	Ball thrust, roller	Severe	0.5
>122°F (>50°C)	Much dirt, abrasive dust, corrosion	n.a.	Extreme	0.1

Table 3: Determining Grease Quantity (total for all bearings in the motor)

NEMA (IEC) Frame Size Range	Largest Bearing Size in Range			Grease Volume if Largest Bearing Size**		Grease Gun Strokes*
	Bearing Category	Outside Diameter (mm)	Width (mm)	(ounces)	(grams)	
Up to 215 (132)	**6307**	**80**	**21**	0.16	4.7	2.5
254 to 286 (160 - 180)	**6311**	**120**	**29**	0.32	9.1	5
324 to 365 (200 - 225)	**6313**	**140**	**33**	0.43	12.2	7
404 to 5000 (280 - 315)	**NU322**	**240**	**50**	1.11	31.5	18
*** Based on .0624 fluid ounces (1.77 grams) per stroke. To check your grease gun, pump grease into a small measured container. 16 strokes should provide 1 ounce (28 grams).**						
**** This is the quantity for the motor (both bearings). Reduce grease quantity proportionately for smaller bearings.**						

3. Grease Types and Application Procedures

Table 4: Grease Type Based on Severity of Service

Rating from Table 2	Grease Type
Standard	Shell Dolium R, Chevron SRI, or equivalent
Severe	
Extreme	Darmex 707 or equivalent

CAUTION 2: Damage and Malfunction Risks—Poor greasing procedures such as introducing contamination or forcing grease into motor windings can damage the motor. Allowing grease to drip onto components such as brake or clutch surfaces can cause the machine to malfunction.

- Clean grease fittings before greasing.
- Apply proper grease quantity.
- Use only a hand-operated (not a pneumatic) grease gun and pump grease slowly (10 seconds per stroke or slower).
- Keep machinery clean.

Apply grease as follows:

1. Lockout/tagout machine power at the external disconnect switch.
2. Clean grease fittings.
3. If the motor has a grease outlet plug, remove it.
4. Add recommended amount of grease. Stop immediately if new grease appears around motor shaft or grease outlet plug.
5. If the motor has a grease outlet plug, replace it.

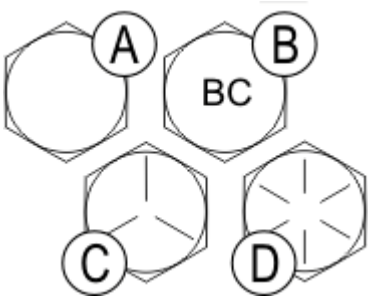
— End of BIUUUM03 —

BIUUUM04 (Published) Book specs- Dates: 20080506 / 20080506 / 20080506 Lang: ENG01 Applic: UUU

Fastener Torque Requirements

Torque requirements for other fasteners are specified in the specific document which describes the assembly. **If fastener torque specifications or threadlocking compound requirements in an assembly document vary from the specifications in this document, use the assembly document.**

Figure 1: Common Bolts Used in Milnor Equipment

Bolt Head Identifying Marks	Legend
	**A.** SAE Grades 1 and 2, ASTM A307, and stainless steel **B.** ASTM A354 Grade BC **C.** SAE Grade 5, ASTM A449 **D.** SAE Grade 8 and ASTM A354 BD

1. Torque Values

The tables below list the standard size, grade, threadlocking compound, and torque requirements for fasteners commonly used on Milnor® equipment.

Note 1: Data derived from Pellerin Milnor® Corporation "Bolt Torque Specification" (bolt_torque_milnor.xls/2002096).

1.1. Carbon Steel Fasteners

1.1.1. Without Threadlocking Compound

Table 1: Torque Values for Dry Fasteners 5/16-inch and Smaller

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

Table 2: Torque Values for Dry Fasteners Larger Than 5/16-inch

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

Table 3: Torque Values for Plated Fasteners 5/16-inch and Smaller

	Bolt Grade							
	Grade 2		Grade 5		Grade 8		Grade BC	
Bolt Size	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

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

1.1.2. With Threadlocking Compound

Table 5: Threadlocking Compound Selection by Bolt Size

	Bolt Size			
LocTite Product	1/4"	1/4" – 5/8"	5/8" – 7/8"	1" +
LocTite 222	OK			
LocTite 242		OK		
LocTite 262			OK	
LocTite 272			High temperature	
LocTite 277				OK

Table 6: Torque Values for Applications of LocTite 222

	Bolt Grade							
	Grade 2		Grade 5		Grade 8		Grade BC	
Bolt Size	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 for Applications of LocTite 242

	Bolt Grade							
	Grade 2		Grade 5		Grade 8		Grade BC	
Bolt Size	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 for Applications of LocTite 262

	Bolt Grade							
	Grade 2		Grade 5		Grade 8		Grade BC	
Bolt Size	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 for Applications of LocTite 272 (High Temperature)

	Bolt Grade							
	Grade 2		Grade 5		Grade 8		Grade BC	
Bolt Size	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 for Applications of LocTite 277

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

1.2. Stainless Steel Fasteners

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

	316 Stainless		18-8 Stainless		18-8 Stainless with Loctite 767	
Nominal Bolt Size	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

Bolt Size	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 1: Fire Hazard—Some solvents and primer products are flammable.

- Use in a well ventilated area.
- Do not use flammable products near ignition sources.

1. Clean all threads with a wire brush, a tap, or a die.
2. Degrease the fasteners and the mating threads with a cleaning solvent. Wipe the parts dry.

   Note 2: LocTite 7649 Primer N™ will remove grease from parts, but it costs more than a standard organic or petroleum solvent.

3. Prime the fasteners and the mating threads with LocTite 7649 Primer N™ or equal. Allow the primer to dry for at least one minute.

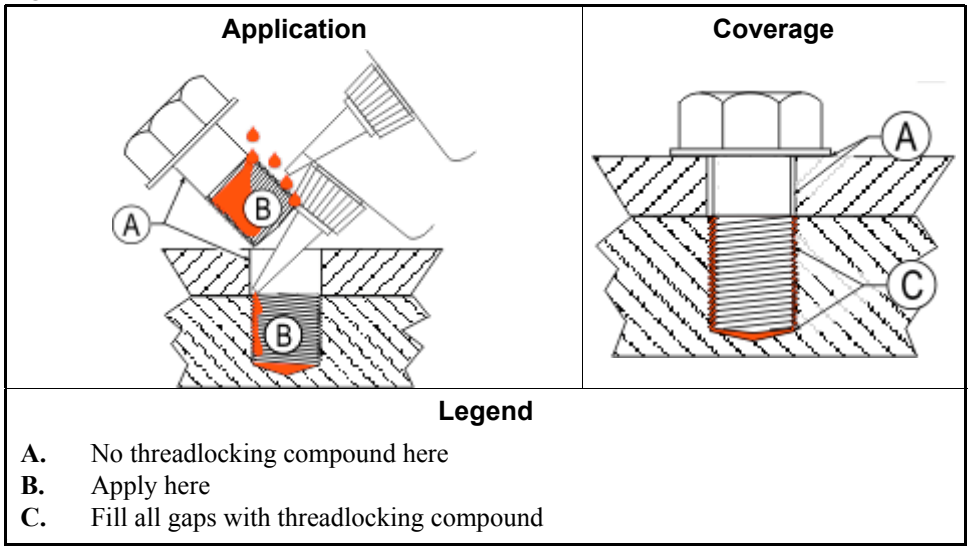
3. Application of Threadlocking Compound

CAUTION 2: Malfunction Hazard—Improper application of threadlocking compounds may result in fasteners becoming loose from impact, heat, or vibration. Loose fasteners can cause the equipment to malfunction.

- Read and follow the threadlocking compound manufacturer's instructions and warnings.

Apply threadlocking compound to the thread engagement areas of fasteners and mating threads only.

Figure 2: Blind Hole



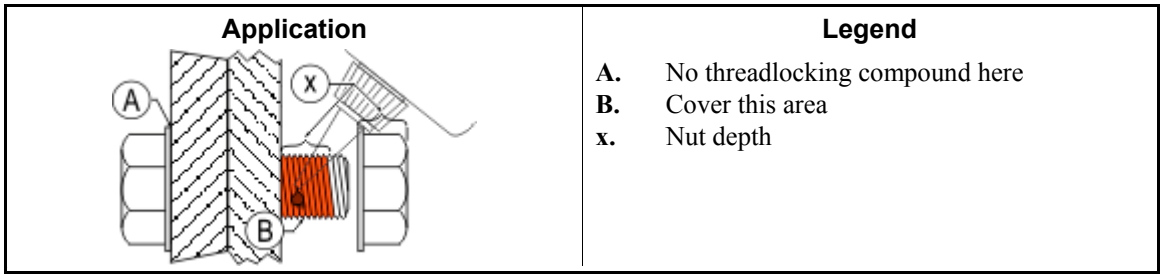
3.1. Blind Holes

1. Apply several drops of threadlocking compound down the female threads to the bottom of the hole.
2. Apply several drops of threadlocking compound to the bolt.
3. Tighten bolt to value shown in the appropriate table (Table 5 through Table 11).

3.2. Through Holes

1. Insert bolt through assembly.
2. Apply several drops of threadlocking compound to the bolt thread area that will engage the nut.
3. Tighten bolt to value shown in the appropriate table (Table 5 through Table 11).

Figure 3: Through Hole

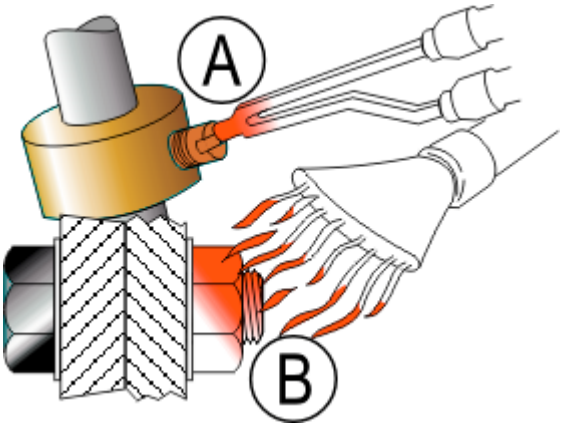


3.3. Disassembly—For low-strength and medium-strength products, disassemble with hand tools.

For high-strength products, apply localized heat for five minutes. Disassemble with hand tools while the parts are still hot.

Figure 4: Disassembly

Use Localized Heat



Legend

A. Soldering gun heating small fastener
B. Torch heating large fastener

— End of BIUUUM04 —

Section 2

Bearing Assemblies

REPLACING BEARING HOUSING ON ExN AND JxN MODELS

Special Items Required

We recommend having the following items on hand before replacing a bearing housing; a replacement bearing housing, the rear bearing and seal kit (in case the rear bearing is worn or is damaged during removal), bearing fixture kit K65 0001 (containing a cylinder and trolley fixture), hydraulic pulling kit PK10 0010A or an equivalent hydraulic pump and NPT pipe fittings, Loctite 242 or equivalent, Loctite primer or equivalent. This procedure only covers bearing replacement. Due to the exacting internal tolerances bearing housings require, we do not recommend that you re-build the bearing housing, but suggest that it be returned to Milnor for re-building or exchange.

Approximate Component Weights

Component	Pounds	Kilograms
Cylinder	1200	550
Bearing housing	1000	450
Pulley	330	150

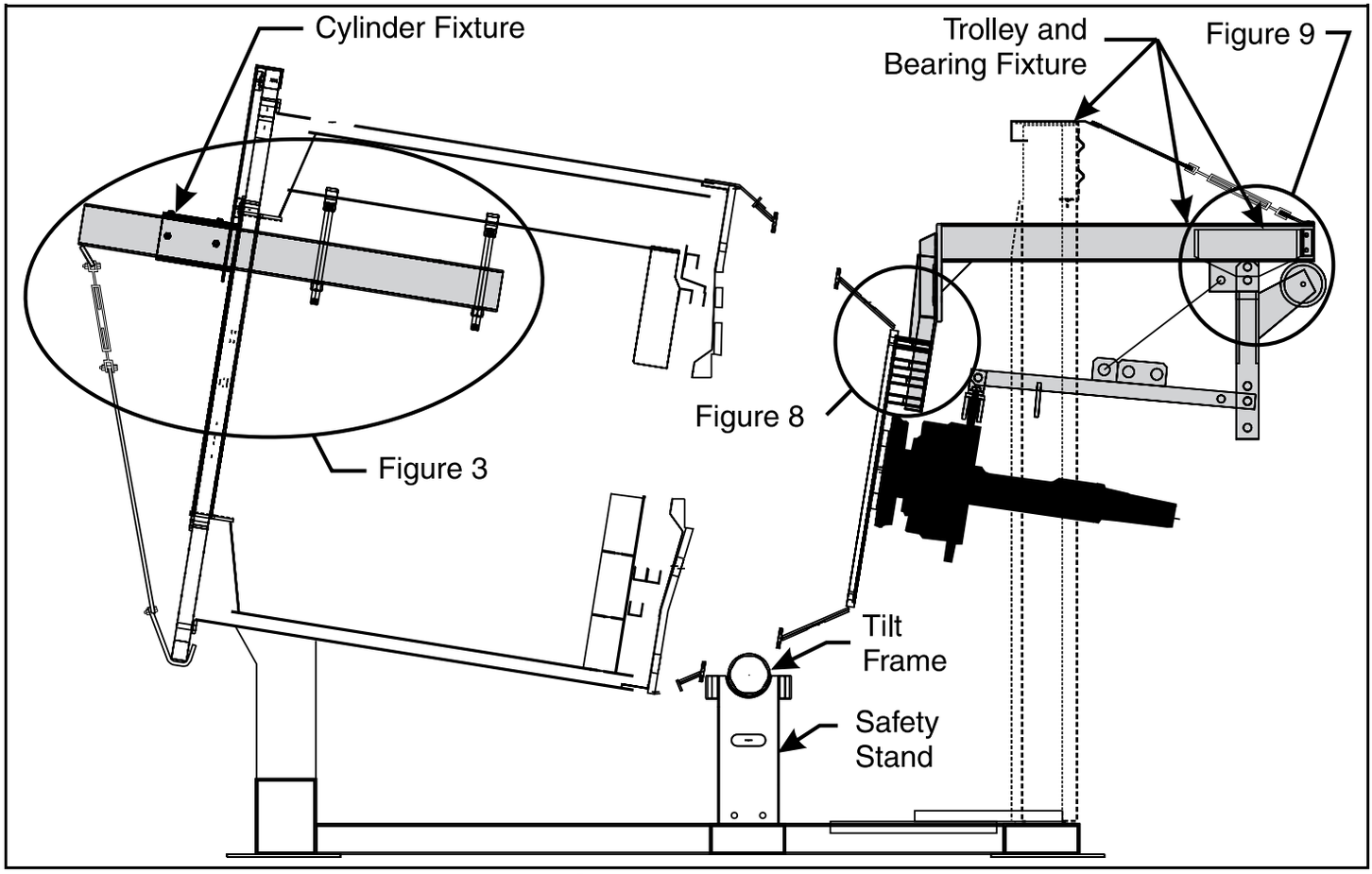


FIGURE 1 (MSSMA430AE)
Overview of Bearing Housing Removal Kit in Use

Removing the Rear Bearing and Front Bearing Housing

⚠ DANGER ⚠

ENTANGLE AND CRUSH HAZARD—Machine components can entangle and crush body parts.

- ☞ **Permit only qualified maintenance personnel to perform these procedures.**
- ☞ **Install safety stands.**
- ☞ **Lock OFF and tag out power at the wall disconnect before proceeding.**

Preparation—Referring to FIGURE 2, lower the motor platform to loosen the final drive belts. Do not move the top nut as it is a reference when retightening belts. Disconnect hydraulic hoses and remove tank. Also remove brake cover, caliper, and disk. Secure the caliper out of the way.

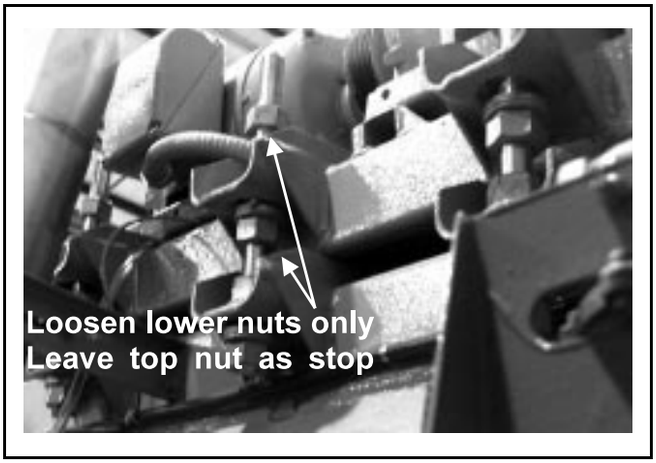


FIGURE 2 (MSSMA430AE)
Motor Platform

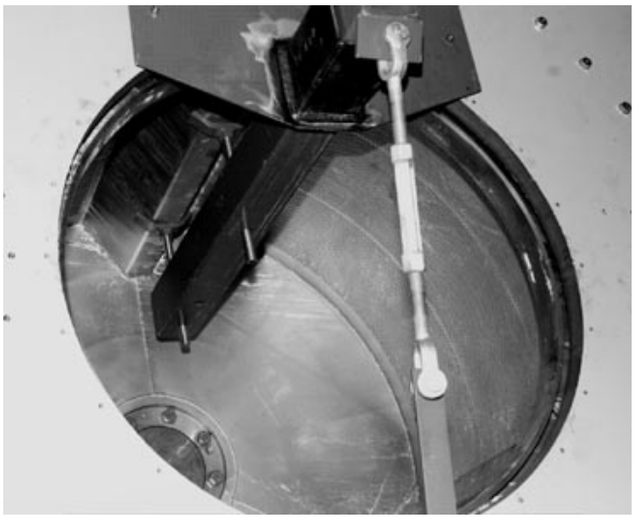


FIGURE 3 (MSSMA430AE)
Cylinder Fixture showing Y-Bolts and Turnbuckle

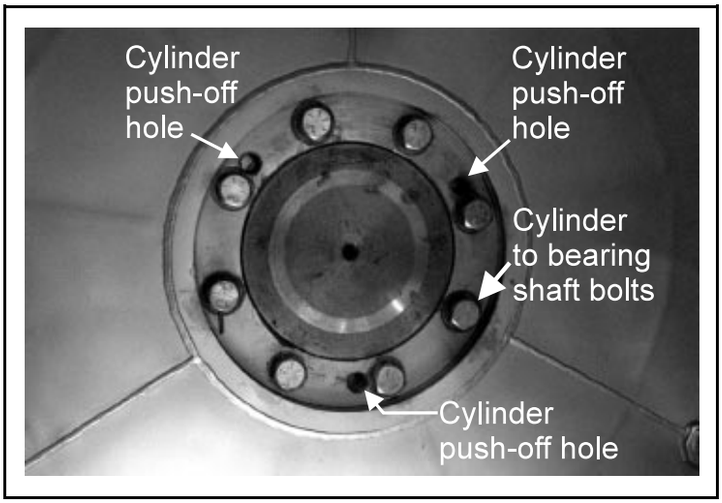


FIGURE 4 (MSSMA430AE)
Cylinder to Bearing Shaft Bolts and Cylinder Push-off Holes

Installing the Cylinder Fixture and Removing the Cylinder Bolts—For ease of re-assembly, the kit includes a cylinder fixture (FIGURES 1 and 3) to align and support the cylinder within the shell after the cylinder-to-bearing bolts are removed.

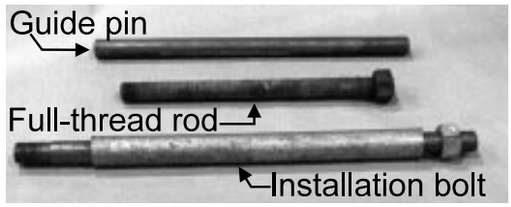


FIGURE 5 (MSSMA430AE)
Identifing Pins, Rods, and Bolts

1. Rotate cylinder by hand so that rib one (stamped on front of rib) is top dead center.
2. Install the cylinder fixture and tighten the lower turnbuckle. Position the Y bolts under rib one and tighten until bolts contact rib (FIGURE 3). Drive wedges between the cylinder and the shell front at eight places then clamp the cylinder to the shell front as shown in FIGURE 11.
3. Remove protective cover in center of the cylinder (5/16 allen wrench). Remove the plastic plugs covering the three cylinder push-off holes (FIGURE 4). Install full-thread rods (FIGURE 5) in the cylinder push-off holes. Only hand-tighten the rods at this time. Remove the cylinder-to-bearing shaft bolts (FIGURE 4).

Removing the Rear Bearing Components and Installing the Trolley

NOTICE

Machine components that are part of the balancing system, (main pully, balancing nozzles, target, and proximity switch) are precisely positioned. Scribe each of these items before removal so that they can be re-installed in the exact position.

NOTE: This procedure requires Kit PK10 0010 containing a hydraulic pump, pump adapter, and NPT fittings or the equivalent.

1. Remove the rear bearing cover, locknut, lockwasher (FIGURE 6), and the proximity switch bracket (FIGURE 7). Pump hydraulic fluid into rear of the shaft to force the inner rear bearing race off the tapered shaft (FIGURE 7). Remove rear grease lines, then unbolt the entire rear plate. Remove rear plate with outer bearing race still attached.

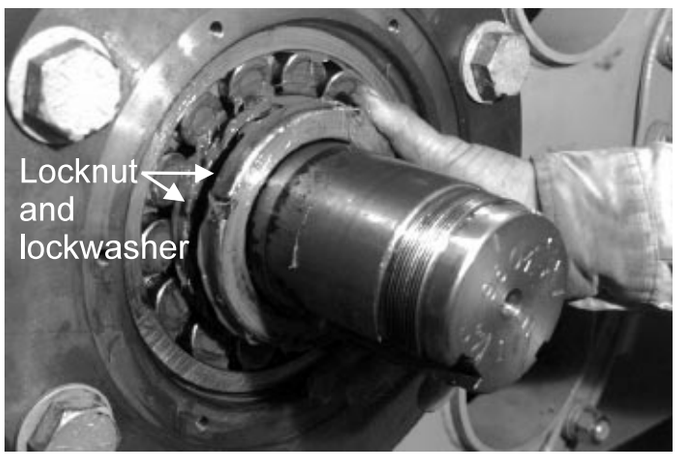


FIGURE 6 (MSSMA430AE)
Rear Bearing Details

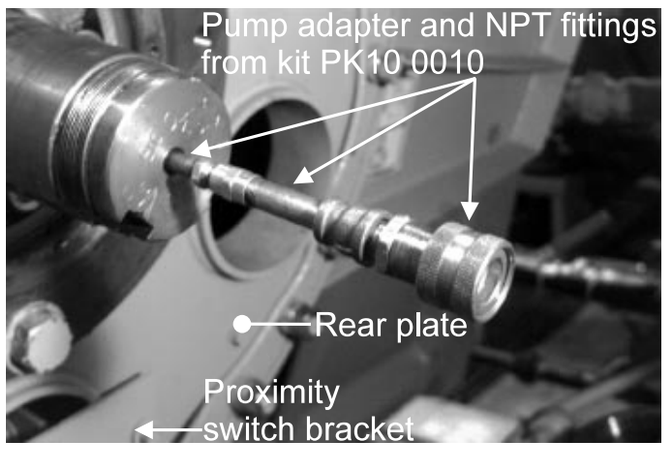


FIGURE 7 (MSSMA430AE)
Removing the Inner Race

FIGURE 8 (MSSMA430AE)
Trolley to Shell

FIGURE 9 (MSSMA430AE)
Trolley and Hoist

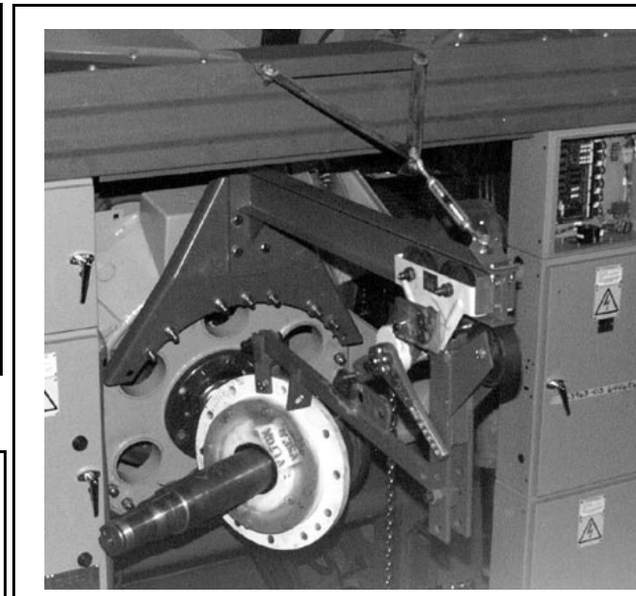


FIGURE 10 (MSSMA430AE)
Trolley and Bearing Fixture in Use

FIGURE 11 (MSSMA430AE)
Cylinder Clamp

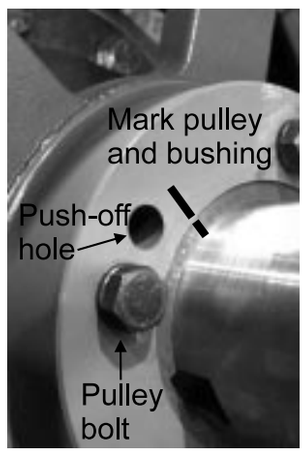


FIGURE 12 (MSSMA430AE)
Pulley Bolts and Push-Offs

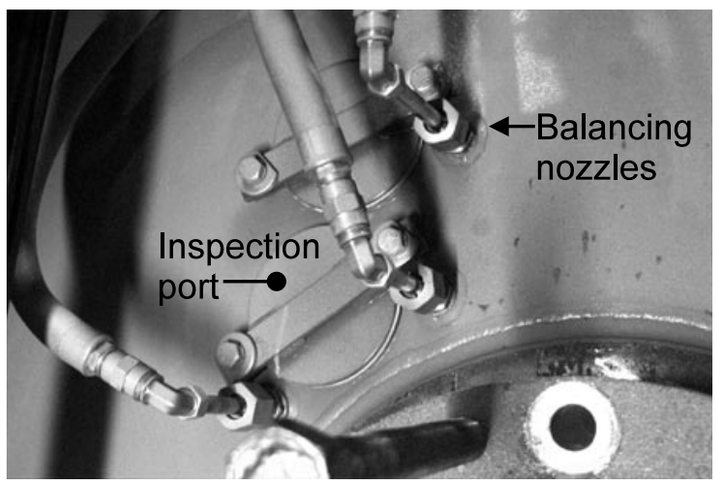


FIGURE 13 (MSSMA430AE)
Balancing Nozzle Inspection Ports

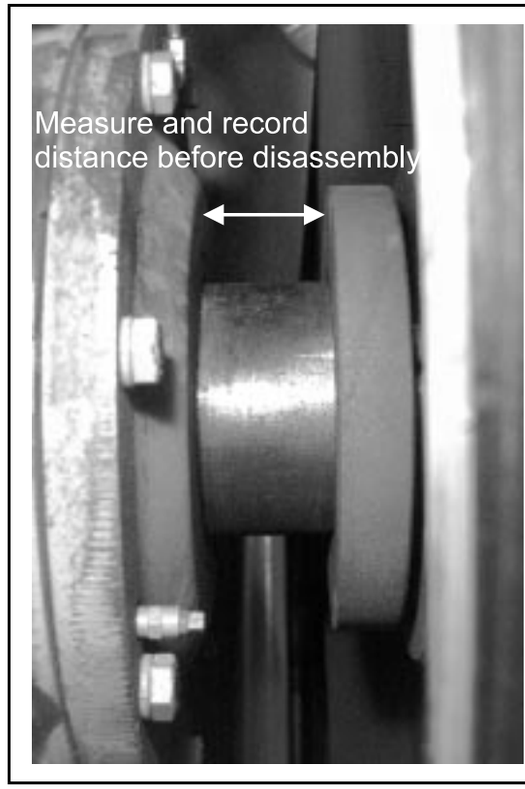


FIGURE 14 (MSSMA430AE)
Measuring from Back of Pulley Bushing to the Bearing Housing

2. Install trolley and bearing fixture (FIGURES 1, 8, 9, and 10).
3. Measure and record the distance from the back of the pulley bushing to the bearing housing (FIGURE 14), then mark or scribe the pulley and bushing joint before removing (FIGURE 12). After re-assembly, the pulley must line up exactly as removed, or the balancing system will not work.
4. Unbolt pulley then remove by threading pulley bolts into push-off holes. Remove bushing and disconnect grease lines from front housing.
5. Loosen each balancing nozzle, then reach through the inspection port (FIGURE 13), and rotate each nozzle down, out of its channel.

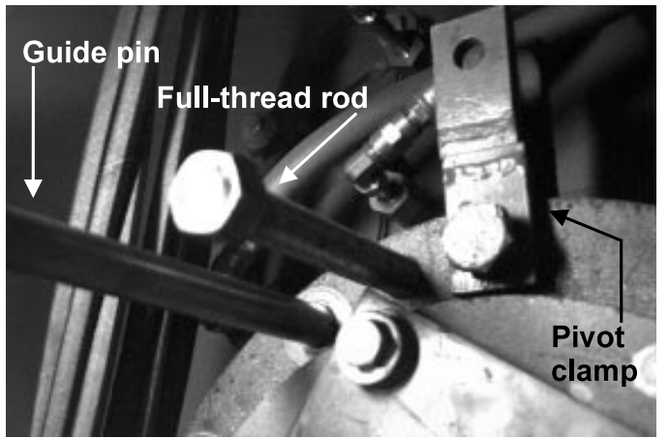


FIGURE 15 (MSSMA430AE)
Removing Housing Using Guide Pins and Full-thread Rods

⚠ DANGER ⚠

ENTANGLE AND CRUSH HAZARD—Bearing housings weigh approximately 1,000 pounds (455 kg.), and if allowed to fall, will crush anyone under it.

- ☞ **Follow procedure carefully.**
- ☞ **Bearing housing removal requires two people.**

6. Remove bearing housing bolts. Replace three of the bearing housing bolts with guide pins (FIGURES 5 and 15). These guide pins support the loosened bearing housing until the pivot clamp (FIGURES 1 and 15) and trolley can be attached. Thread three full-thread rods into the bearing housing push-off holes (FIGURE 15). From inside the cylinder, one person uses the full-thread rods (installed previously), to push the bearing housing out of the shell, while a second person at the rear of the machine uses the bearing housing full-thread rods to pull the bearing housing about one inch out of its mounting ring. **Attach pivot clamp and trolley lifting fixture as soon as possible to ensure that the housing does not drop out of the shell.** Remove the bearing housing and shaft.

FIGURE 16 (MSSMA230AE)
Bearing Setting Fixture

Re-installing the Front Bearing Housing and Rear Bearing

NOTICE

Cleanliness is very important—Foreign material is the most frequent cause of bearing failure.

- ☞ **Remove foreign material from bearing housing before installation.**
- ☞ **Clean hands, tools, and work area before installing bearing housing.**

1. Use trichloroethene and light sanding to remove old Loctite from the cylinder hub and shell back surfaces.
2. Clean mounting surfaces of bearing housing, shaft hub, and rear bearing taper.
3. Replace shell back liner O-rings (FIGURE 17) and coat with grease. Install a new shaft hub O-ring.

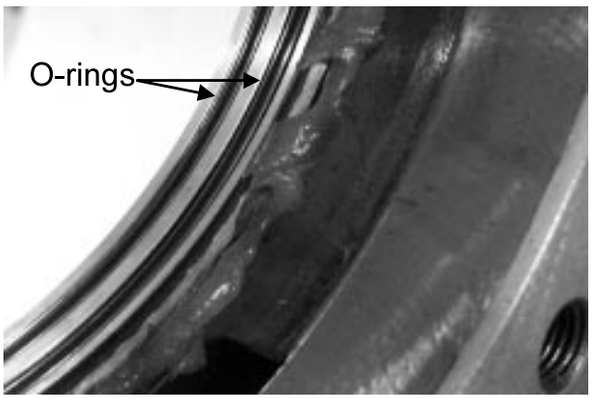


FIGURE 17 (MSSMA430AE)
Shell Back Liner Seal

NOTICE

Loctite cures in one-half hour after mating parts. Make sure you have ample time to install housing before applying.

4. Apply Loctite primer to machine, housing, and shaft hub surfaces. Do not wipe clean. Apply Loctite 242 to primered surfaces.
5. Position housing and shaft in machine. Make sure the bottom of the housing (identified by the cast drain slot) is on the bottom. Leave bearing setting fixture (FIGURE 16) attached until bearing is securely mounted in shell back mounting ring.

⚠ CAUTION ⚠

CYLINDER AND BEARING DAMAGE—the cylinder and main bearing could be ruined if the cylinder contacts shell front while tightening bolts.

- ☞ **Proceed with caution.**

6. Install three guide pins through the bearing housing and into the mounting ring. From inside the cylinder, install three all-thread rods through the cylinder and into the shaft hub to align the cylinder and the shaft. Using the installation bolts (FIGURE 5), draw the housing one eighth-inch (3 mm) into the mounting ring. Tighten the all-thread rods and draw the cylinder one inch (25mm) onto the shaft. Repeat this procedure, tightening the housing one-half inch (13mm) and the cylinder one-half inch (13mm) until both seat firmly. Torque housing and cylinder bolts to 500 foot-pounds (69 Kg/m). Remove bearing setting fixture.

7. Re-assemble the main pulley and grease inlet lines. Locate belts on pulley. Re-install the rear plate. **Install the rear bearing using light taps of a soft mallet to gently drive the bearing into position.**

8. Hand pack the rear bearing with grease by rotating the inner race and rollers out of the outer race and forcing grease into all the rollers, making certain all rollers are covered with grease. Tighten the locknut to the proper internal clearances, using the procedure explained in "How to Adjust Rear Bearing". Remove the cylinder fixture. Re-install the brake assembly and tighten belts.

NOTE: The setting procedure for spherical self-aligning bearings requires greater skill and attention to detail than needed with non-spherical bearings. Visit your local bearing supplier, bring this section with you, and have him demonstrate in detail how to adjust this type of bearing and how to use the feeler gauge to get the proper "reading".

How to Adjust Rear Bearing—Tightening the bearing locknut adjusts the radial internal clearance. Follow these instructions carefully, as this is a precise operation. Setting the internal radial clearance is necessary to:

- Make the best of the bearing anti-frictional values (preventing rapid failure).
- Ensure that the bearing seats tightly on the tapered shaft (this is mandatory).

Before installing the bearing in the housing, stand the new bearing on the outer race on a clean flat surface and align the two rows of rollers with each other (as shown in FIGURE 18). Accurately measure the existing clearance with a feeler gauge between the top rollers and the outer race (shown in FIGURE 19). Make four such measurements and average them. This is the "unmounted radial clearance". Compare the measurements with the unmounted clearance shown below. Do not use bearings that are not within specifications.

Rear Bearing Specifications

Milnor part number	NTN part number	Radial internal clearance inches (millimeters)	
		Unmounted	Mounted
56S22320T	22320BLIKD1C3	.0053 - .0066 (.1350 - .1700)	.0029 - .0043 (.0750 - .1100)
56S22322T	22322BLIKD1C3		.0033 - .0039 (.0850 - .1000)

NOTICE

Keep bearings clean and free from all foreign matter during installation and setting.

These clearances are measured in thousands of an inch - or approximately one tenth as thick as normal automobile breaker point clearances. You must have a good set of thickness gauges to set these bearings properly.

After installing the bearing in the housing, slowly tighten the bearing locknut until the internal clearances fall within the mounted clearance range shown above. Measure clearance near the bottom of the bearing (FIGURE 20), between the outer race and the rollers of both rows. Turn the cylinder after each adjustment to keep all the load from being taken by only one row (although the load would quickly equalize on both rows after the machine has run for

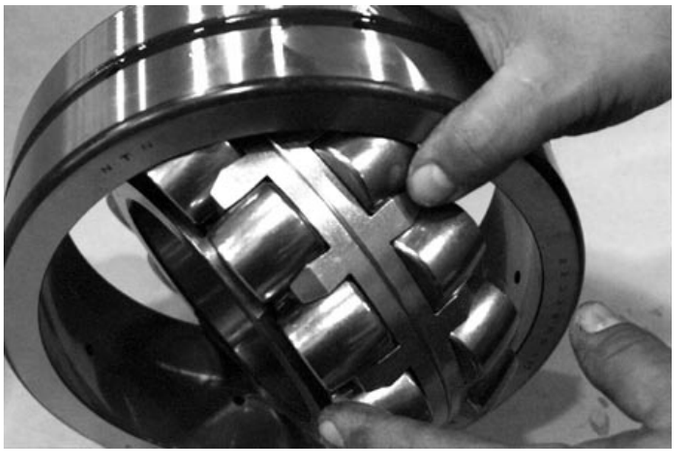


FIGURE 18 (MSSMA430AE)
Aligning the Two Rows of Rollers

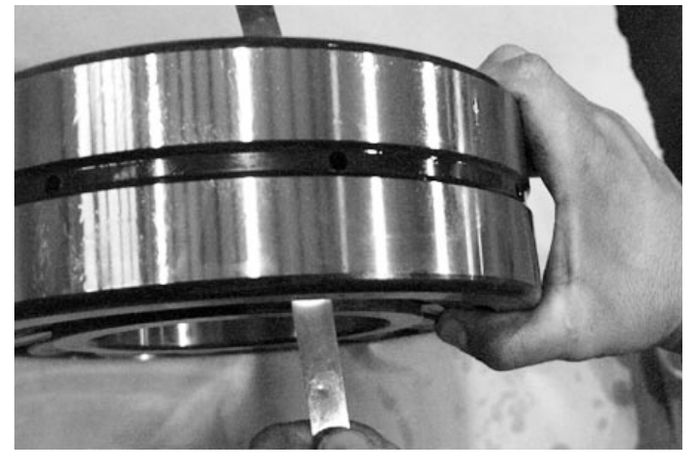


FIGURE 19 (MSSMA430AE)
Determining Unmounted Radial Clearance

only a few moments). If all the load is taken by one row, you will get an erroneous clearance reading. It is, therefore, necessary to use the feeler gauge to measure the clearance on both sets of rollers (shown in FIGURE 21). With the bearing in place on the machine, it is difficult to get a feeler gauge back past the first row of rollers to measure the second, but it must be done.

After the correct internal clearance is set, lock the nut by bending over the matching tabs on the lockwasher. Make sure that all unused tabs on the lockwasher are bent as near the nut as possible so that they will not rub against the bearing roller cage. Check each unused tab individually to ensure this.

FIGURE 20 (MSSMA430AE)
Where to Measure Internal Radial Clearance

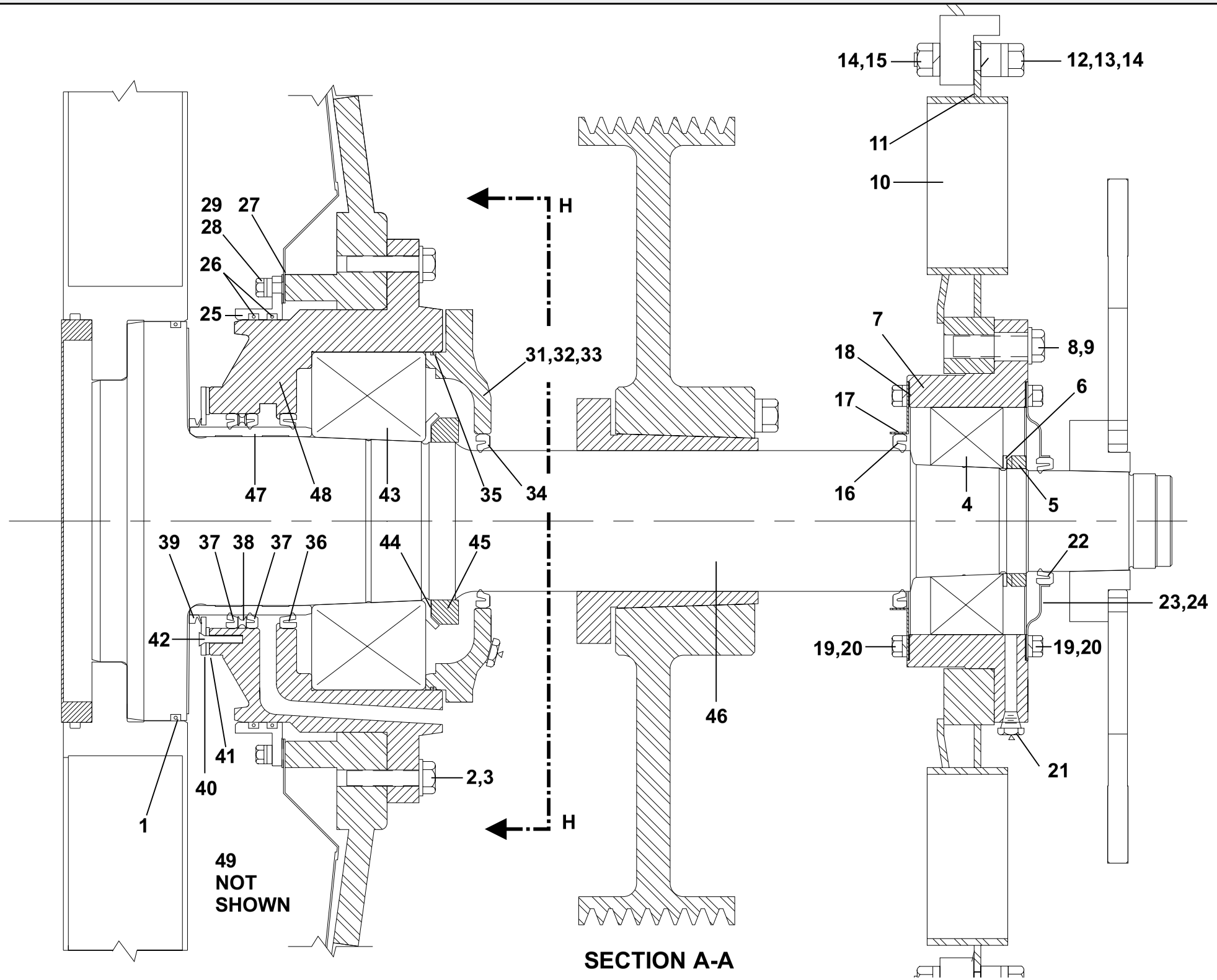
FIGURE 21 (MSSMA430AE)
Determining Internal Radial Clearance

Main Bearing with Air Inject

52038WP1/WTL/WTN, 64046E6N/J6N, 72046E5N/J5N, 72058J5N

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

Litho in U.S.A.



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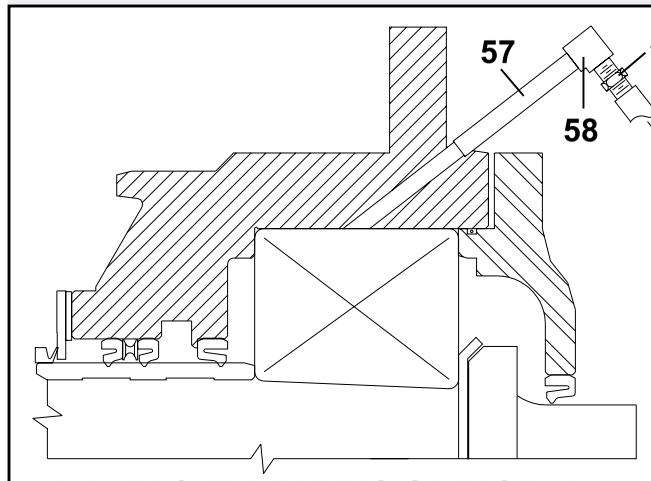
Main Bearing with Air Inject

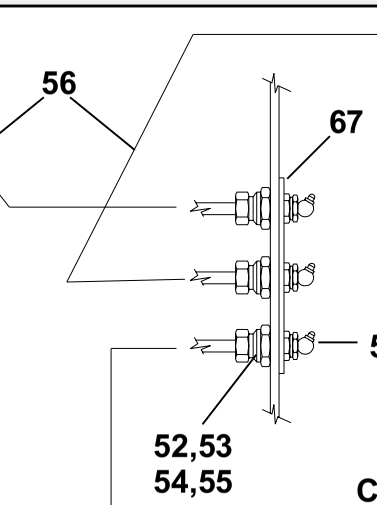
52038WP1/WTL/WTN, 64046E6N/J6N, 72046E5N/J5N, 72058J5N

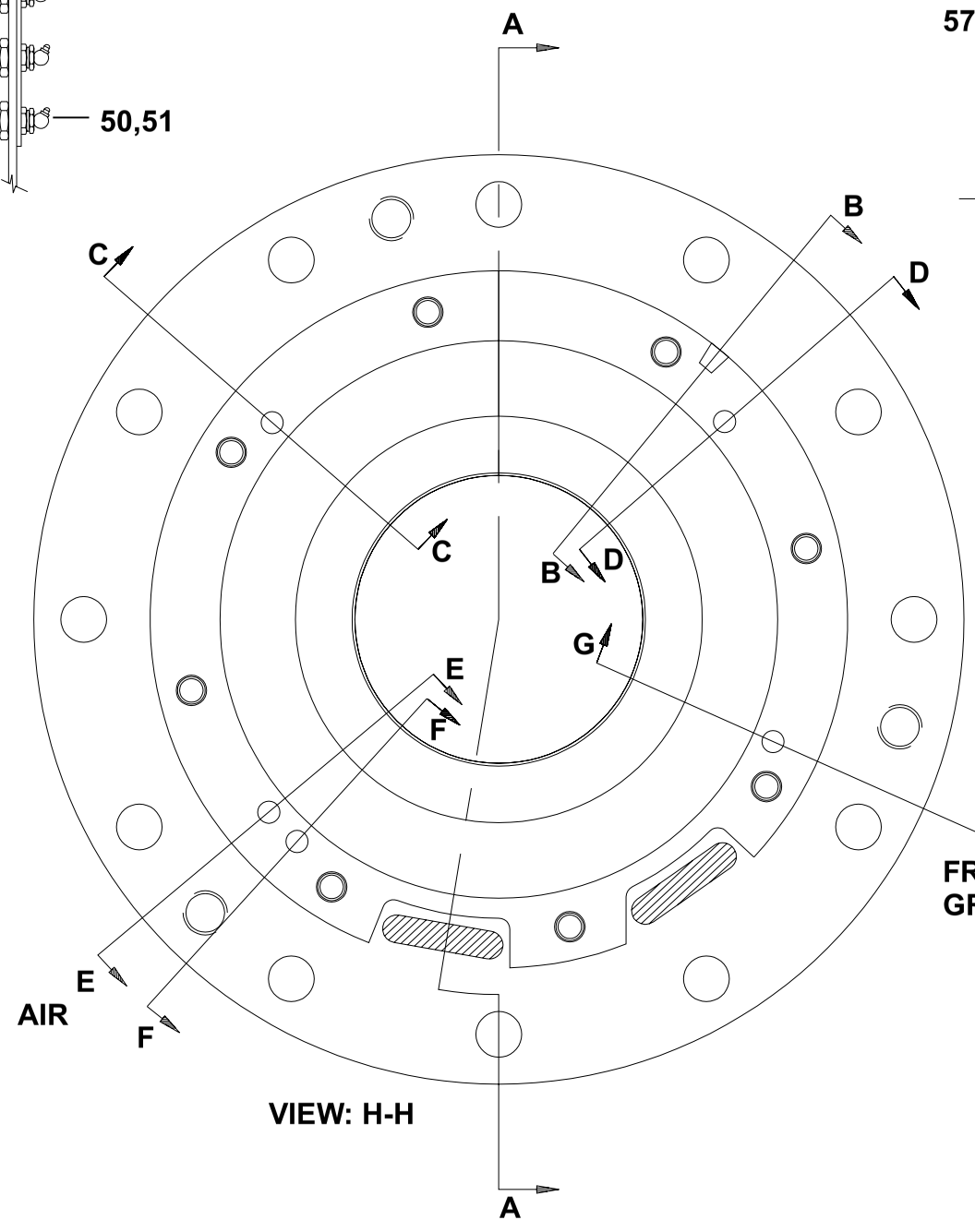
Pellerin Milnor Corporation
P. O. Box 400, Kenner, LA 70063-0400

Litho in U.S.A.

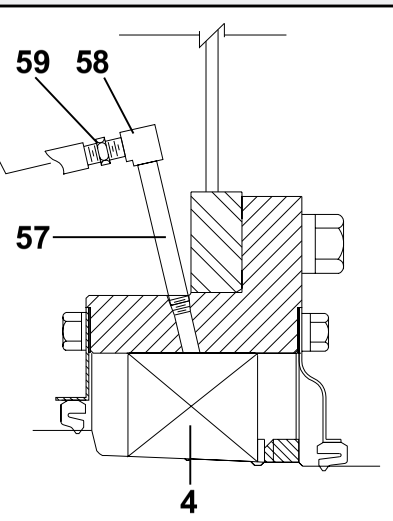


B-B: FRONT BEARING GREASE INLET

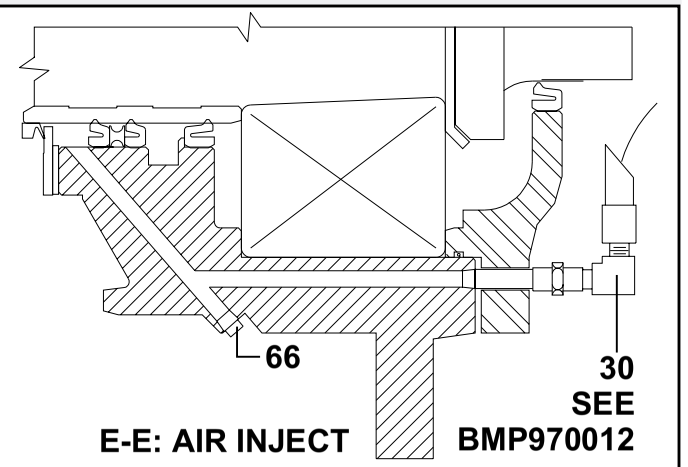




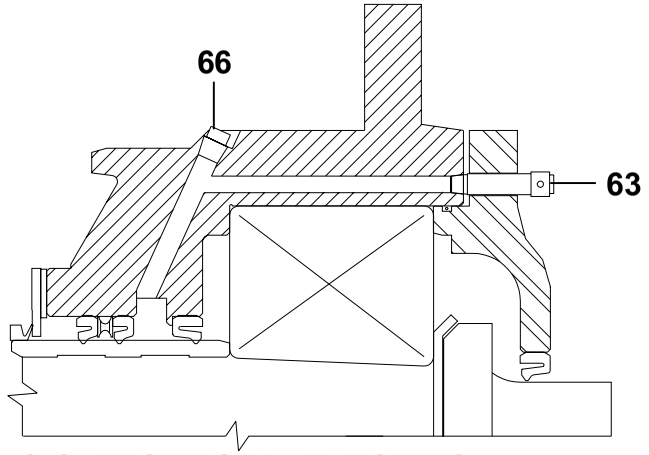
VIEW: H-H



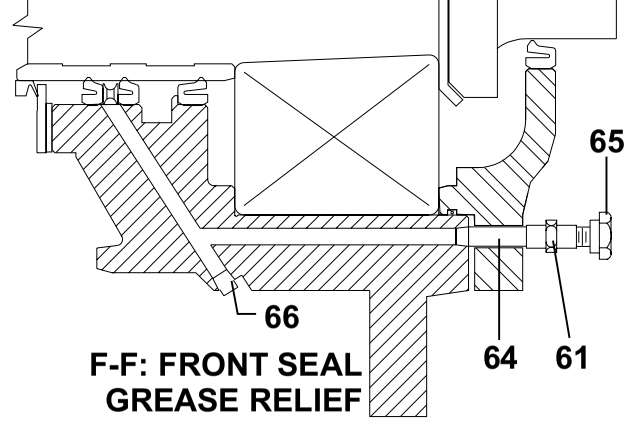
REAR BEARING GREASE INLET



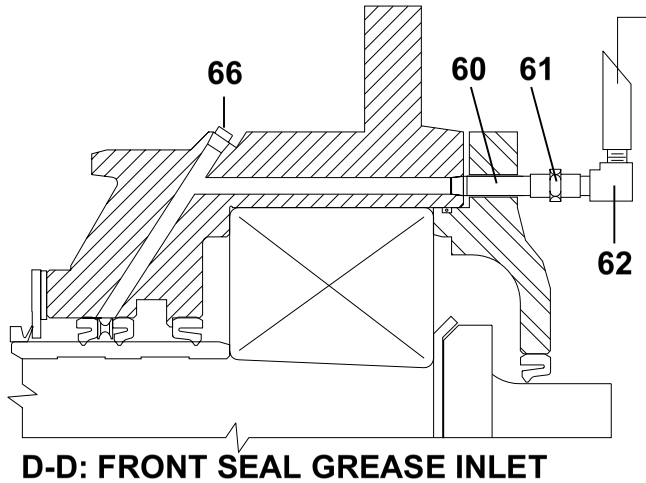
E-E: AIR INJECT



C-C: FRONT SEAL FLUSHING

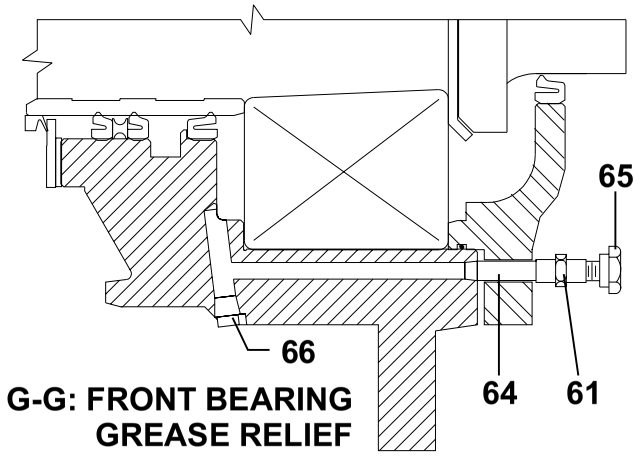


F-F: FRONT SEAL GREASE RELIEF



D-D: FRONT SEAL GREASE INLET

FRONT BEARING GREASE RELIEF



G-G: FRONT BEARING GREASE RELIEF

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

Litho in U.S.A.

Parts List—Main Bearing with Air Inject

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	GBM52002FE	91431D*MAIN BEARING ASSY(BUNA)5238W	52038
	B	GBM52002FV	91431#*MAIN BEARING ASSY(VITON)5238	52038
	C	GBM58003FE	97000Z INST=MAINBRG 64+72 STD W/AIR	64046,72046,72058
	D	GBM58003FV	97000Z INST=MAINBRG 64+72 VIT W/AIR	64046,72046,72058
	E	GBM58003DV	97000Z INST=MAINBRG 64+72 DVI W/AIR	64046,72046,72058
	F	ABN52002FE	96447Z*FRNT BRG ASSY W/VSEAL 5238WE	A
	G	ABN52002FV	96447Z*FRNT BRG ASSY W/VITON 5238WE	B
	H	ABN58003FE	97253Z ASSY=FRNTBRG 64+72 STD W/AIR	C
	J	ABN58003FV	97253Z ASSY=FRNTBRG 64+72 VIT W/AIR	D
	K	ABN58003DV	97253Z ASSY=FRNTBRG 64+72 DVI W/AIR	E
	L	ABM52002FE	96031#*FRNT BRG ASSY W/VSEAL 5238WE	F
	M	ABM52002FV	96031D*FRNT BRG ASSY W/VITON 5238WE	G
	N	ABM58003FE	97253Z*PRTS=FRNTBRG 64+72 STD W/AIR	H
	P	ABM58003FV	97253Z*PRTS=FRNTBRG 64+72 VIT W/AIR	J
	Q	ABM58003DV	97253Z*PRTS=FRNTBRG 64+72 DVI W/AIR	K
			----------COMPONENTS----------	
A-E	1	60C192V	03Z 0RING 15IDX1/4CS VITON #459	
A-E	2	15K236C	09Z HXCPSCR-1-8X2.75 GR8/ZC	
A-E	3	15U393	03ZFLTWASH 1"ZNC DICR	
A-E	4	56S22320T	05Z SPHEROLBRG KOYO#22320RKW33C3FY	
A-E	5	56AHN20	AN20 BEARING LOCKNUT	
A-E	6	56AHW20	W20 BEARING LOCKWASHER	
A-E	7	X3 25108A	92691D REAR BRG HOUSING=FLOATING	
A-E	8	15K236C	09Z HXCPSCR-1-8X2.75 GR8/ZC	
A-E	9	15U393	03ZFLTWASH 1"ZNC DICR	
A,B	10	W5 20056	82061C*PLATE=REAR BNG MOUNT WELD	
C,D,E	10	W3 25228	93016C* PLATE=REAR BRG MOUNT WELD	
A-E	11	17E010	DOWEL PIN 1/2"X 1"(.0002) STD FIN	
A,B	12	15K235AB	HXCAPSCR 3/4-10UNC2AX3"GR8 ZINC PLT	
C,D,E	12	15K235A	03Z HXCPSC 3/4-10X2.5 GR 8	
A-E	13	15U319A	93467B F-WASH=.753IDX13/8ODX1/2"THK	
A-E	14	15U340	LOCKWASH MEDIUM 3/4 ZINCPL	
A-E	15	15G240A	HEXNUT 3/4-10UNC2B SAE GR8 ZINC/CAD	
A-E	16	24S127	06ZSEAL5.25X6.50X.625 JM#7112LUP	
A-E	17	03 25131	73037A SEALHOLDER=REAR BRNG	
A-E	18	03 25137	92627A GASKET=REAR BRG SEAL HOLDER	
A,B	19	15K100	HEXCAPSCR 3/8-16X1+1/4 SS18-8	
C,D,E	19	15K086E	BUTSOKCAPSCR 3/8-16X3/4SS NYPT	
A,B	20	15U255	LOCKWASHER MEDIUM 3/8 ZINCPL	
C,D,E	20	15U250	SEALWASHER 3/8" S/S PARKER #600-430	
A-E	21	54M029	RELIEFFIT 1/8STR ALEMITE 47200	
A-E	22	24S112	03Z SEAL 3.75X4.75X.500 CS/BUNA	
A-E	23	03 25134	73067C SEALHOLDER REAR BRG XTENSION	
A-E	24	03 25137	92627A GASKET=REAR BRG SEAL HOLDER	
A-E	25	Y3 25233	93102# MACH RING=BEARHSG STATICSEAL	
A-E	26	60C192	ORING 15IDX1/4CS BUNA70 #459	
A-E	27	03 25237	92627B GASKET=SEAL MTG RING	
A-E	28	15K100	HEXCAPSCR 3/8-16X1+1/4 SS18-8	
A-E	29	15U250	SEALWASHER 3/8" S/S PARKER #600-430	

Parts List, cont.—Main Bearing with Air Inject

Used In	Item	Part Number	Description	Comments
A-E	30	AIR58003	97000Z AIR INJECT ASSY=BNG HOUSE	
L-Q	31	X3 25107S	98436CMACH=FRBRGCAP=RR LEAKOFF/AIR	
L-Q	32	15K225	05Z HXCPSCR 5/8-11X2+1/2	
L-Q	33	15U315	LOKWASHER MEDIUM 5/8 ZINCPL	
L-Q	34	24S127	06ZSEAL5.25X6.50X.625 JM#7112LUP	
L,N,P,Q	35	60C186	ORING 12.0IDX1/8CS BUNA70 #278	
M	35	60C186V	O-RING 12.0IDX1/8 VITON-N 70 DURO	
L,N	36	24S130	04Z SEAL 7X8X.625 JM#6862 NITRILE	
M,P,Q	36	24S130V	05ZSEAL7.0X8.0X.625 JM#19636LUPV	
L,M.N.P	37	24S130T	SEAL7.0X8.0X.437JM#3892LUPNTRL	
Q	37	24S130TV	SEAL7.0X8.0X.437JM#3892LUPVIT	
L,M,N,P,Q	38	24S130LR	99066CLANTERN RING=7X8X.313	
L,M,N	39	24S131FN	02Z SEAL 6.89-7.28X6.37X.31NTV180A	
M,P	39	24S131FV	03ZSEAL 6.89-7.29X6.38X.31 V180A	
L-Q	40	Y3 25106	97346NV-SEAL COVER 52/72 WE/DYE	
L-Q	41	03 25106G	92627CV-SEALCOVER GASKET (N-8051)	
L-Q	42	15K040A	BUTSOKLOKCAPSCR 1/4-20X3/4 188	
L-Q	43	56S22330T	SPHEROLBRG 22330LBK-C3-W33-C40	
L-Q	44	56AHW30	W30 BEARING LOCKWASHER	
L-Q	45	56AHN30	AN30 BEARING LOCKNUT	
F,G	46	X3 25010A	92367D MAINSHAFT 6.3MAXDIA=72WE1	
H,J,K	46	X3 65057A	97106E MAIN SHAFT-FORGED 7246/58	
L-Q	47	X5 20051A	96256C SLEEVE=SEAL	
F,G,H,J	48	X3 25106S	99056DMACH FRNTBRGH=RR LEAKOFF/AIR	
K	48	Y3 25106T	97291D MACH=DYE BHS W/AIR 64/72	
L,M,N,Q	49	20C008C	112697 THDLK-RMVBL #242-41	
P	49	20C007G	071497 THDLK-RMVBL #242-31	
L-Q	50	54M020	GREASEFIT 30DEG 1611-B ALEMITE	
L-Q	51	5SB0E0CBEO	NPTHEXBUSH 1/4X1/8 BRASS 125#	
L-Q	52	53A007B	BODYFEMCON.25X.25COMP.#B66A-4B	
L-Q	53	53A059A	NUT 1/4"BR.HOLYOKE AND #61A-4	
L-Q	54	53A500	1/4" SLEEVE-DELRIN	
L-Q	55	53A501	TUBEINSERT .170"OD	
L-Q	56	60E004TC	02ZTUBING NYL(NAT)1/4"ODX.17ID *	
L-Q	57	5N0C03AG42	NPT NIP 1/8X3 TBE GALSTL SK40	
L-Q	58	5SL0CBEA	NPTELB 90DEG 1/8 BRASS 125#	
L-Q	59	53A005B	BODYMALCON1/4X1/8COMP #B68A-4A	
L-Q	60	5N0C01KG42	NPT NIP 1/8X1.5 TBE GALSTL S40	
L-Q	61	5SCC0CBE	NPT COUP 1/8 BRASS 125# 103A-A	
L-Q	62	53A031B	BODY-EL90MALE.25X1/8 #269C-42B	
L-Q	63	5SP0CBESSV	NPT PLUG 1/8 SQSLDVENT BRASS	
L-Q	64	5N0C01KG42	NPT NIP 1/8X1.5 TBE GALSTL S40	
L-Q	65	54M029	RELIEFFIT 1/8STR ALEMITE 47200	
L-Q	66	5SP0CBEHS	NPT PLUG 1/8 HXCTRSNK BRASS	
L-Q	67	01 10025X	97263B NPLT:BEARING+SEAL LUB - ISO	

Bearing Installation

72058J2N

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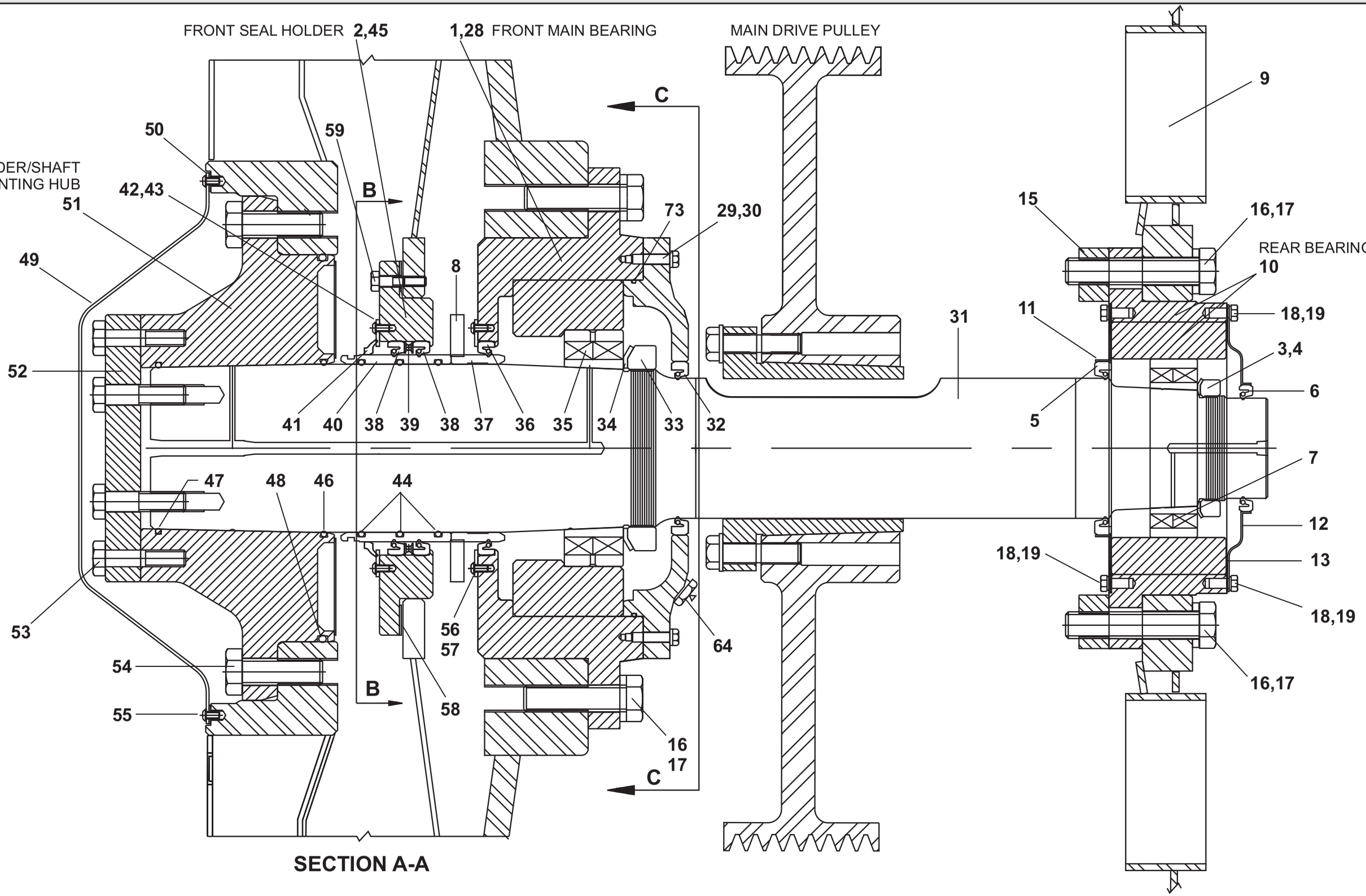
Litho in U.S.A.



Bearing Installation

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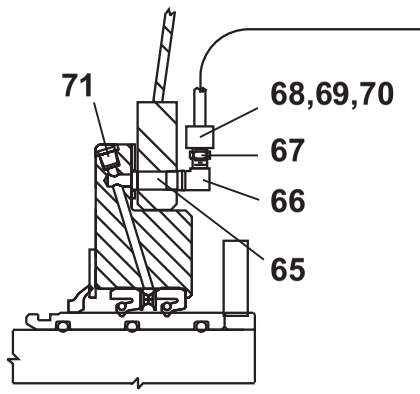
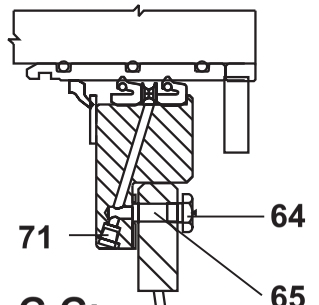


F-F:
GREASE INLET
TO SEALS



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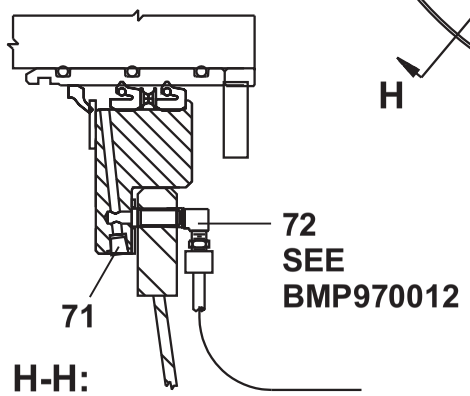
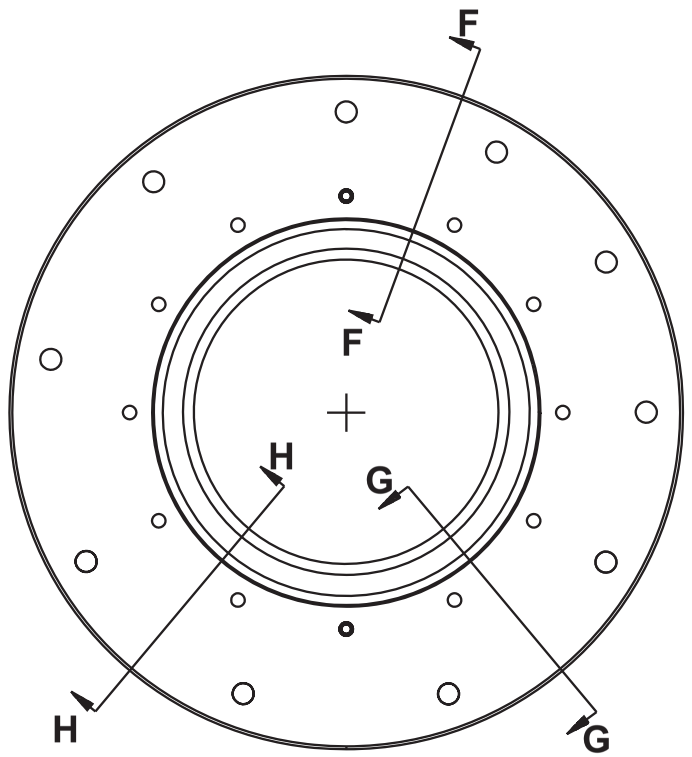
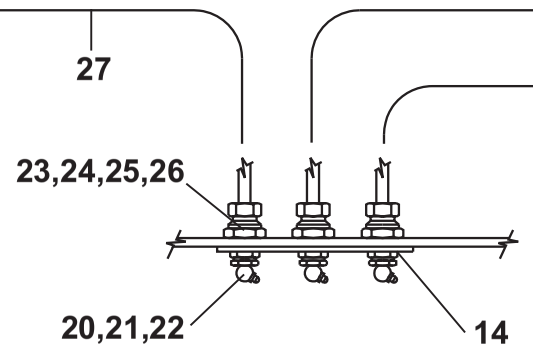
GREASE REFIEF
FOR SEALS

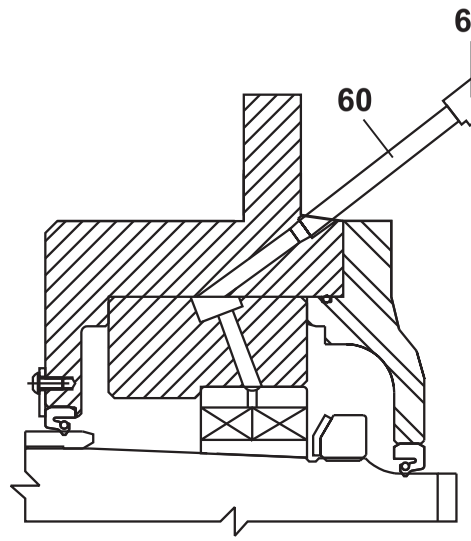


H-H:
FRONT SEAL
AIR INJECT

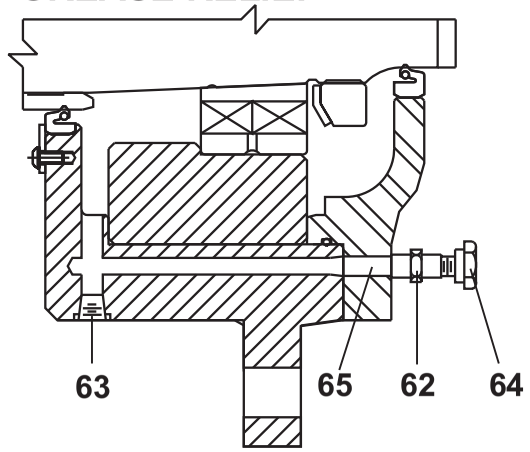


B-B
FRONT SEAL

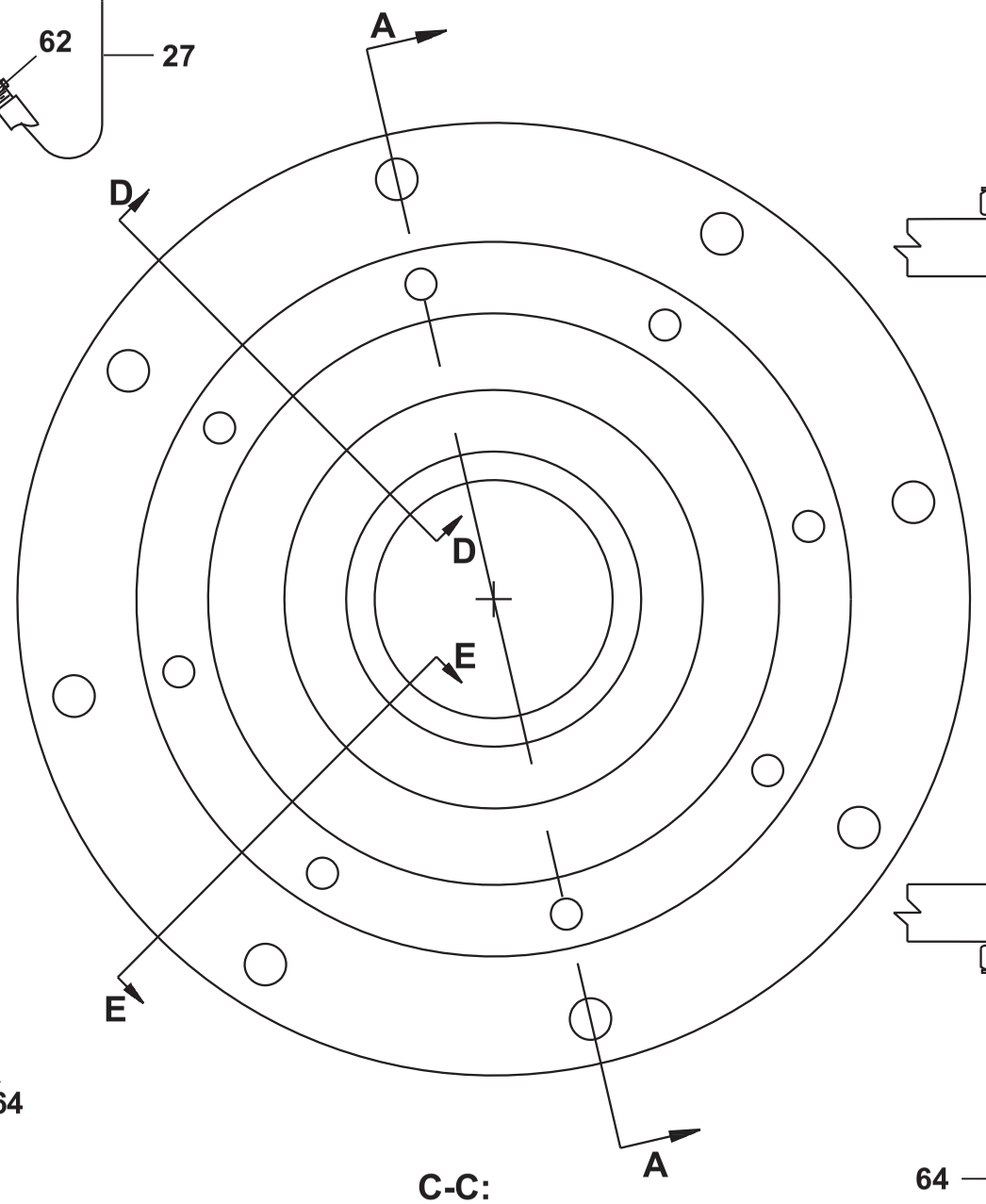




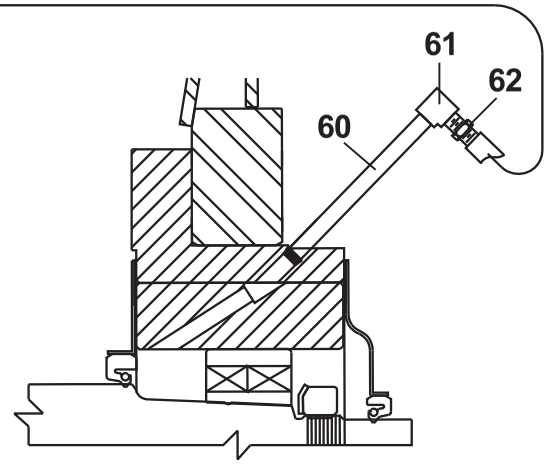
D-D:MAIN BEARING
GREASE INLET



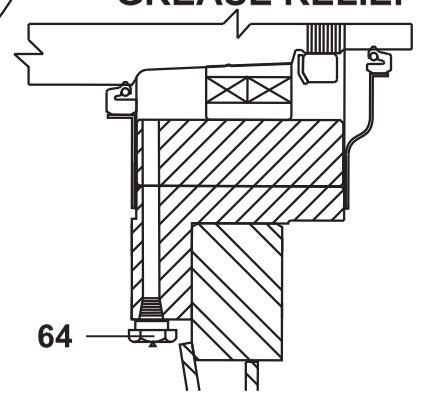
E-E:MAIN BEARING
GREASE RELIEF



C-C:
MAIN BEARING



REAR BEARING
GREASE INLET



REAR BEARING
GREASE RELIEF

Bearing Installation

72058J2N

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Parts List—Bearing 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	GBM58002FV	97000Z INST-MAINBRG-VITON 7258J2	
	B	GBM58002FE	97000Z INST-MAINBRG-BUNA 7258J2	
	C	ABM58001FV	96031Z ASSY=FRNT BRG 7258J2N	00A,00B
	D	ASB58001FV	97000Z ASSY=SEAL-VITON W/FT REMOVE	00A
	E	ASB58001FE	97000Z ASSY=SEAL-BUNA W/FTREMOVE	00B
	F	GSC58501	94000Z INST=SHELL+CYLINDER 7258J2N	
----------COMPONENTS----------				
A,B	1	ABM58001FV	96031Z ASSY=FRNT BRG 7258J2N	
A	2	ASB58001FV	97000Z ASSY=SEAL-VITON W/FT REMOVE	
B	2	ASB58001FE	97000Z ASSY=SEAL-BUNA W/FTREMOVE	
all	3	56AHN20	AN20 BEARING LOCKNUT	
all	4	56AHW20	W20 BEARING LOCKWASHER	
all	5	24S127	06ZSEAL5.25X6.50X.625 JM#7112LUP	
all	6	24S112	03Z SEAL 3.75X4.75X.500 CS/BUNA	
all	7	56S23022T	SPHEROLBRG SKF#23022CCK/C3/W33	
all	8	03 60106	97156C SLINGER=BRG FRNT SEALS	
all	9	W3 60100	97282D*WLMT=MAIN MNT RING RR BRG HS	
all	10	Y3 25108D	95386T BRG SLEEVE REAR 7258J2N	
all	11	03 16337	93063C REAR BRG SEALHOLDER 42M7E	
all	12	03 16339	93063C REAR BRG SEALHLDER EXT 42M7E	
all	13	03 16339A	93063B GASKET= REAR BRG HSE SLHLDR	
all	14	01 10025X	97263B NPLT:BEARING+SEAL LUB - ISO	
all	15	X3 60096	97076B DRILL=BOLT RING REAR BRG HS	
all	16	15K236C	09Z HXCPSCR-1-8X2.75 GR8/ZC	
all	17	15U393	03Z FLATWASHER 1"GR 9 ZN DICHR	
all	18	15K083	HXCAPSCR 3/8-16 UNC2AX1/2 GR5 ZNC	
all	19	15U255	LOCKWASHER MEDIUM 3/8 ZINCPL	
all	20	5SB0E0CBEO	NPTHEXBUSH 1/4X1/8 BRASS 125#	
all	21	54M020	GREASEFIT 30DEG 1611-B ALEMITE	
all	22	54M029	RELIEFFIT 1/8STR ALEMITE 47200	
all	23	53A059A	NUT 1/4"BR.HOLYOKE AND #61A-4	
all	24	53A500	1/4" SLEEVE-DELRIN	
all	25	53A501	TUBEINSERT .170"OD	
all	26	53A007B	BODYFEMCON.25X.25COMP#B66A-4B	
all	27	60E004TC	02ZTUBING NYL(NAT)1/4"ODX.17ID *	
all	28	Y3 60090R	97092D ASSY=BRG+SLEV-FRNT REWORK 72	
all	29	15K225	05Z HXCPSCR 5/8-11X2+1/2	
all	30	15U315	LOKWASHER MEDIUM 5/8 ZINCPL	
all	31	X5 58578	97082E MAIN SHAFT 7258J2N	
all	32	24S127	06ZSEAL5.25X6.50X.625 JM#7112LUP	
all	33	56AHN30	AN30 BEARING LOCKNUT	

Parts List, cont.—Bearing Installation

Used In	Item	Part Number	Description	Comments
all	34	56AHW30	W30 BEARING LOCKWASHER	
all	35	56S23030T	SPHEROLBRG SKF#23030CCK/C3/W33	
all	36	24S130	04Z SEAL 7X8X.625 JM#6862 NITRILE	
all	37	X3 60084	97032C SLEEVE=GRS SEAL PRESFIT	
D	38	24S130V	05ZSEAL7.0X8.0X.625 JM#19636LUPV	
E	38	24S130	04Z SEAL 7X8X.625 JM#6862 NITRILE	
all	39	24S130LR	96523C LANTERN RING=7X8X.313	
all	40	X3 60084A	97302C SLEEVE=H2O SEAL ORING	
D	41	24S146V	00Z SEAL 7.0X8.0X.437 TYPE SSW VIT	
E	41	24S146	00Z SEAL 7.0X8.0X.437 TYPE SSW NTRL	
all	42	X3 60088	97057B MACH=EXCLUDER WEAR PLT	
all	43	15K084	85196B TRUSS HXSOK 3/8-16 X 23/32SS	
D	44	60C160DV	O-RING 6.25NDX3/16CSY1TON 70DUR#362	
E	44	60C160DB	O-RING 6.25NDX3/16CSBUNA-N70DUR#362	
all	45	X3 60087	97297D MACH=FRNT SEAL HOLDER	
F	46	60C160DV	O-RING 6.25NDX3/16CSY1TON 70DUR#362	
F	47	60C159X	ORING5.97IDX3/16 VITON 70 #361	
F	48	60C190	ORING 13.9"IDX1/4CS BUNA-N 70 #457	
all	49	X3 60085	97096C DRILL=COVER CYL/SHFT MNT HUB	
all	50	03 60085A	97031B GASKT=CVR CYL/SHT HUB	
all	51	Y3 60082	97167D MACH=CYL/SHFT MNT HUB	
all	52	X3 60089	97123C MACH=WASHER CYL/SHFT MNT HUB	
all	53	15K240D	HEXCAPSCR 3/4-16X3 GR8 ZNC	
all	54	15K235K	02Z HXCAPSCR 1-14X3 GR 8 ZINC	
all	55	15K084	85196B TRUSS HXSOK 3/8-16 X 23/32SS	
all	56	X3 60088	97057B MACH=EXCLUDER WEAR PLT	
all	57	15N188D	HXCAPSCR 1/4-20UNC2X7/8SS18-8	
all	58	03 60087A	97031B GSKT=FRNT SEAL HOLDER	
all	59	15K100	HEXCAPSCR 3/8-16X1+1/4 SS18-8	
all	60	5N0C03AG42	NPT NIP 1/8X3 TBE GALSTL SK40	
all	61	5SL0CBEA	NPTELB 90DEG 1/8 BRASS 125#	
all	62	53A005B	BODYMALCON1/4X1/8COMP #B68A-4A	
all	63	51P013	PLUG HXCNTRSUNK 1/4"BRASS	
all	64	54M029	RELIEFFIT 1/8STR ALEMITE 47200	
all	65	5N0C01KG42	NPT NIP 1/8X1.5 TBE GALSTL S40	
all	66	5SL0CBEA	NPTELB 90DEG 1/8 BRASS 125#	
all	67	5SCC0CBE	NPT COUP 1/8 BRASS 125# 103A-A	
all	68	53A059A	NUT 1/4"BR.HOLYOKE AND #61A-4	
all	69	53A500	1/4" SLEEVE-DELRIN	
all	70	53A501	TUBEINSERT .170"OD	
all	71	5SP0CBEHS	NPT PLUG 1/8 HXCTRSNK BRASS	
all	72	AIR58003	97000Z AIR INJECT ASSY=BNG HOUSE	
all	73	60C186	ORING 12.0IDX1/8CS BUNA-N 70 #278	

Air Inject Assembly

52038WP1/WTL/WTN 64046E6N,J6N 72046E5N/J5N, 72058J5N

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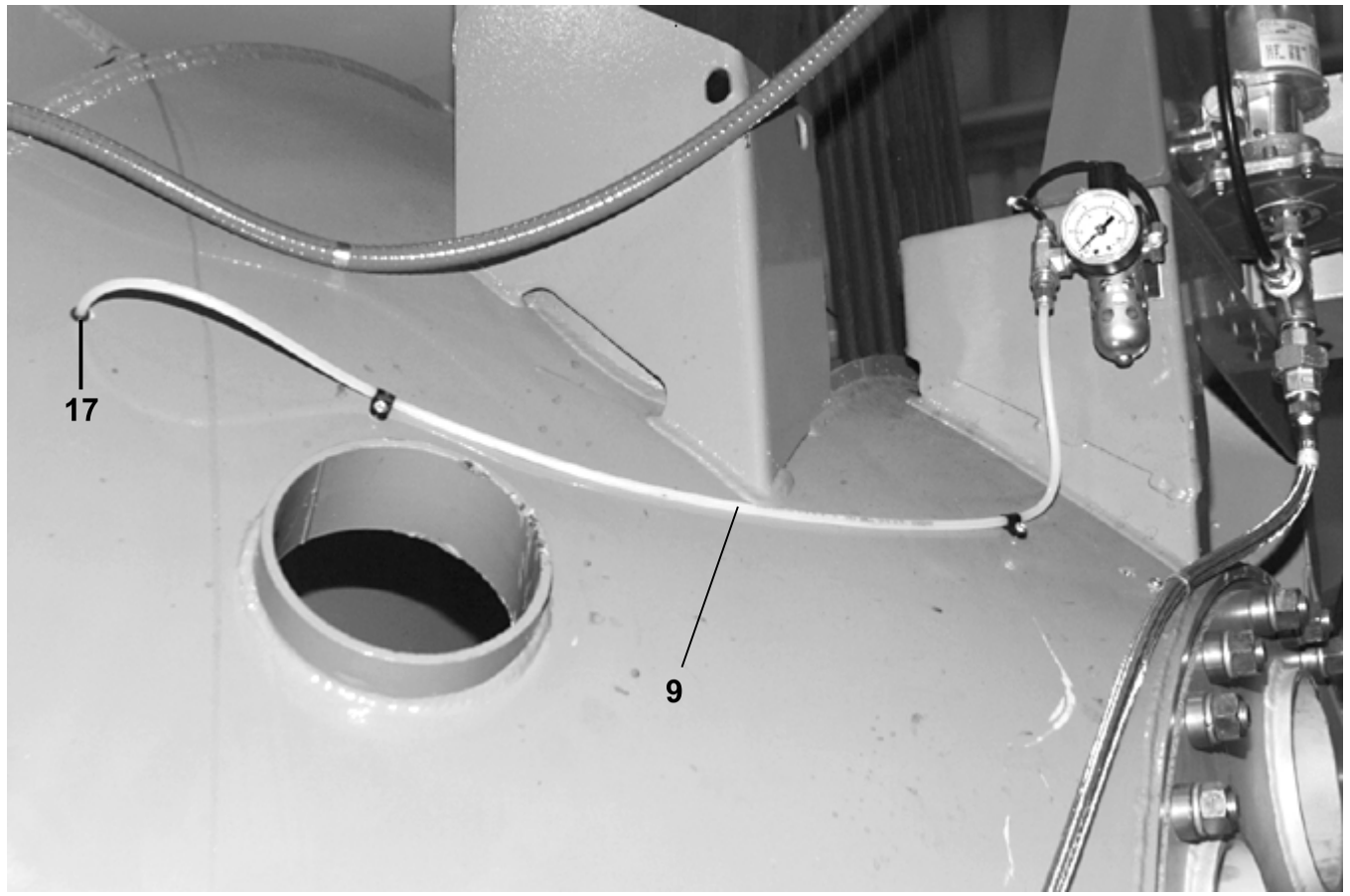
BMP970012/99303V (1 of 2)

Litho in U.S.A.



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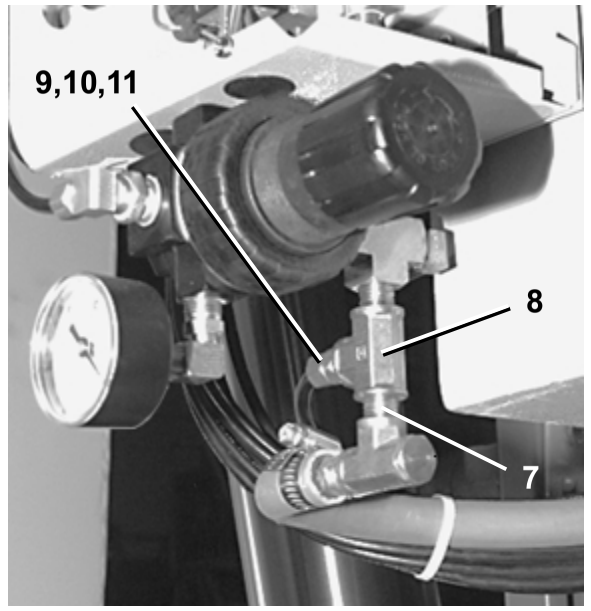
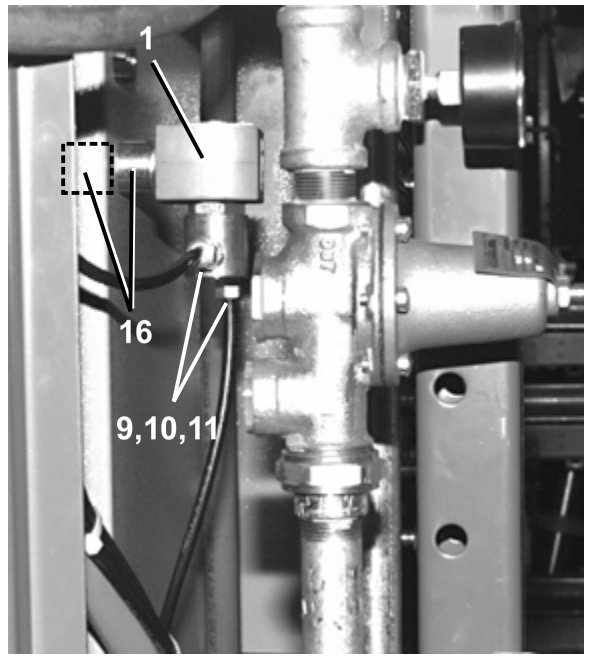
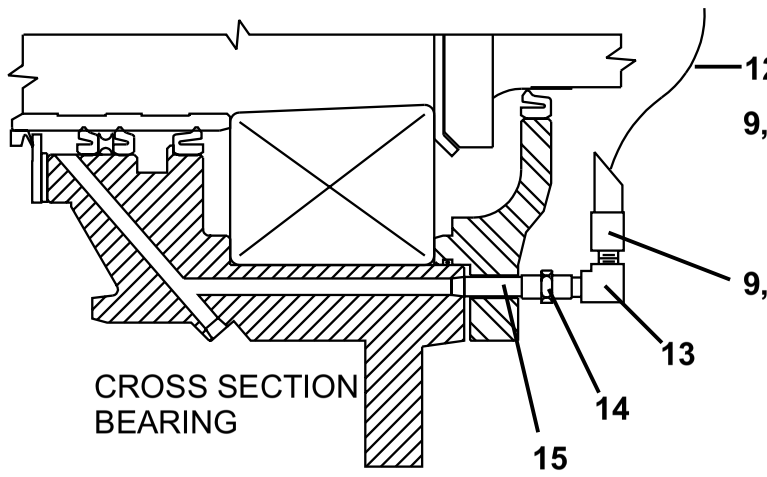
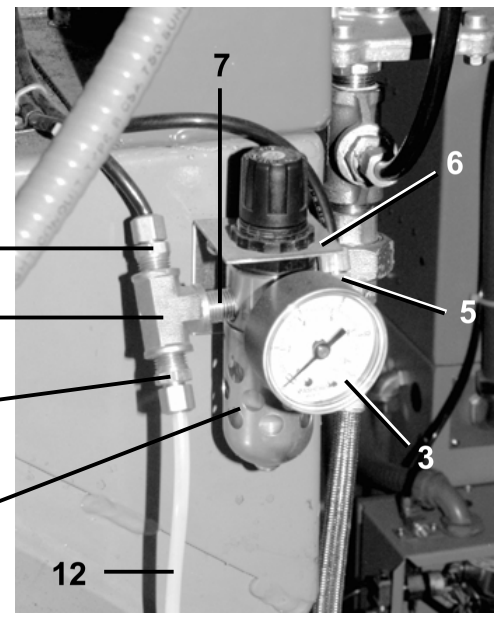


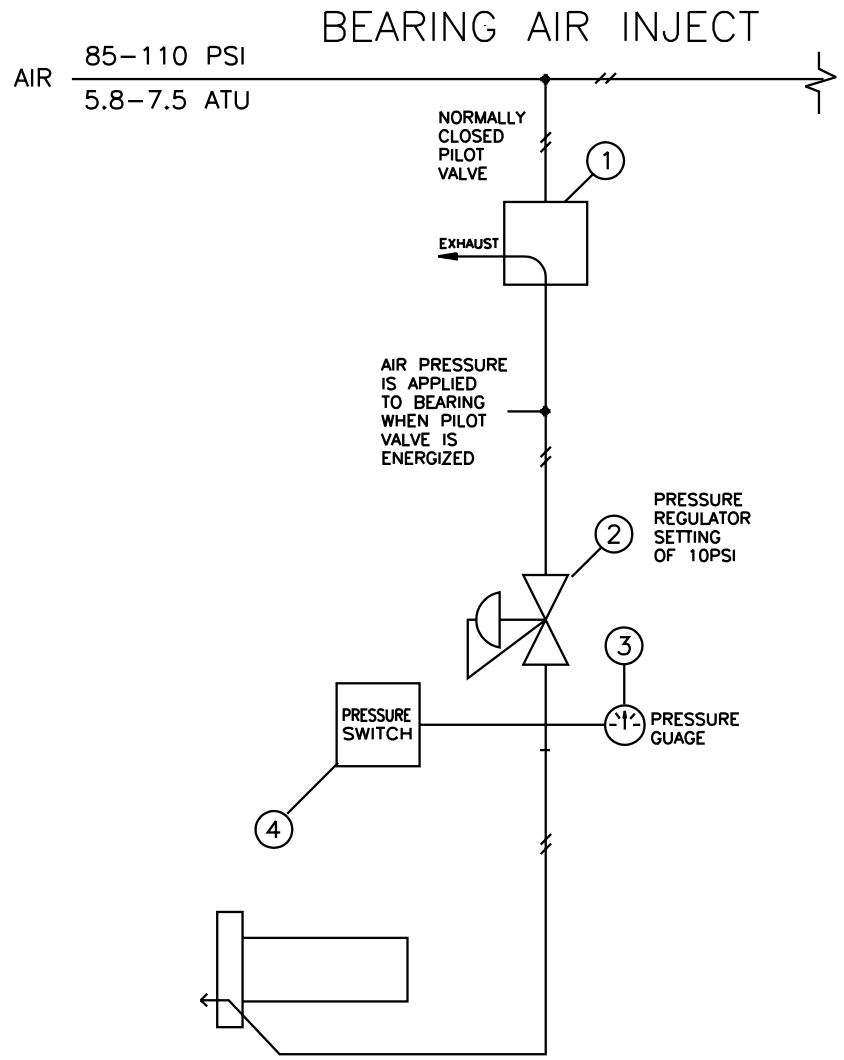
Main Air



Pilot Valve







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Parts List—Air Inject 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	AIR58003	97000Z AIR INJECT ASSY=BNG HOUSE	
			----------COMPONENTS----------	
all	1	96TBC2BA37	04Z 1/4" N/C 2WAY 120V50/60C VALVE	
all	2	96J019G	1/4"FILTERREG 0-60PSI	
all	3	30N095	03ZPRESSGAUGE 1/8"BACKCN.0-15PSI	
all	4	09N082B05	00Z PRESSW NASON CLOSE @ 5 LB	
all	5	53A031XB	BODY-EL90MALE.25X25 #269C-4-4B	
all	6	03 01666	97141B FILTER REG SUPPORT BKT	
all	7	5N0ECLSBE2	NPT NIP 1/4XCLS TBE BRASS 125#	
all	8	51V015	03Z TEE PIPE 1/4"FGDBRASS101-T7-444	
all	9	53A059A	NUT 1/4"BR.HOLYOKE AND #61A-4	
all	10	53A500	1/4" SLEEVE-DELRIN	
all	11	53A501	TUBEINSERT .170"OD	
all	12	60E004TC	02ZTUBING NYL(NAT)1/4"ODX.17ID *	
all	13	53A031B	BODY-EL90MALE.25X1/8 #269C-42B	
all	14	5SCC0CBE	NPT COUP 1/8 BRASS 125# 103A-A	
all	15	5N0C01KG42	NPT NIP 1/8X1.5 TBE GALSTL S40	
all	16	15K005	04Z SKCPSCR 6-32X3/8 SELFOK	
all	17	12P1AGSB	SNAPBUSH 3/8"MH X 1/4" T=1/8	

REPLACING JxN & FxN WATER SEALS

MSSM0275AE/2009443A

Background—JxN models manufactured after June 11, 1997 (97241), & all 68036F5N models are fitted with a new type of bearing housing featuring an easily removable water seal holder and a replaceable shaft sleeve. Two technicians (working with ordinary hand tools from the inside of the machine) can change the water seals and the shaft sleeve. Previously, the entire bearing housing had to be removed.

Buna-N water seals are standard on textile machines due to their superior abrasion resistance qualities. Viton water seals are optional. Viton seals have a somewhat greater resistance to industrial chemicals and are recommended for applications where either the wash liquors or the chemicals contain a small percentage of solvents due to the nature of the goods being processed (e.g., industrial garments).

Preparations—Have the following items on hand before replacing water seals: seal removal kit KFBBSL72J2, and either Buna-N seal kit KFBBSH72J2 or Viton seal kit KFBBSV72J2. This procedure only covers replacing water seals; see MSSMA430AE for bearing removal information. Before beginning, study FIGURE 1 and read through this procedure in order to become familiar with the main bearing components and the seal replacement process.

⚠ DANGER: Entangle and Sever 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 machine unless qualified and authorized.**
- ☞ **Lock off and tag out power at the main machine disconnect before servicing, or in accordance with factory service procedures.**

⚠ DANGER: 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 throughly purged, flushed, drained, cooled, and immobilized.**

⚠ DANGER: 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

- ☞ **Viton seals do not render the machine explosion proof or make it suitable for any type of solvent cleaning process.**
- ☞ **Do not use flammable solvents in processing.**
- ☞ **Laundry-type machines must not be used to process goods containing any significant quantity of flammable solvent that might burn or explode.**
- ☞ **Thoroughly flush all flammable-soiled goods with multiple cold baths before any hot bath. Consult with your local fire department/public safety office and all insurance providers.**

Approximate Component Weights

Component	Pounds	Kilograms
Hub	225	103
Shaft cap fixture	33	15
Seal holder	33	15

Supporting the Cylinder

1. Rotate cylinder by hand so that *rib 1* (rib number stamped on front of rib) is top dead center. Drive wedges between the cylinder and shell front at eight places then clamp the cylinder to the shell front (shown in FIGURE 2).
2. Remove the short bolts that plug the cylinder support weldments and replace with the long bolts included in the kit (FIGURE 3). Tighten each bolt until it contacts the cylinder then tighten an additional quarter turn.
3. Remove cover plate in the center of the cylinder (FIGURE 1).

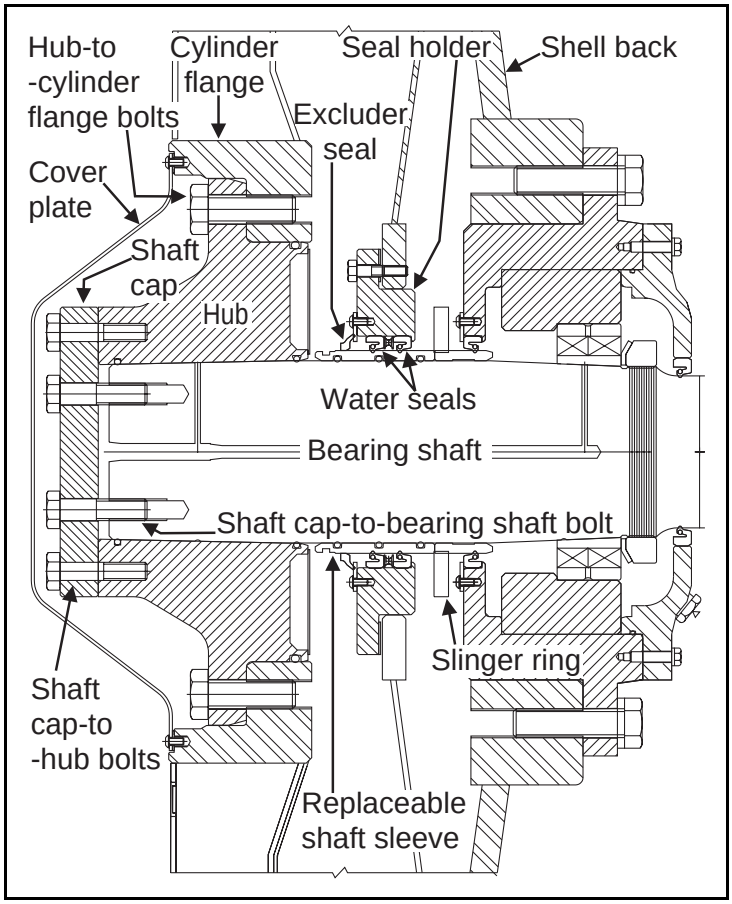

FIGURE 1 (MSSM0275AE)
Overview of Main Bearing Showing Water Seal Components

FIGURE 2 (MSSM0275AE)
Clamping the Cylinder to the Shell Front

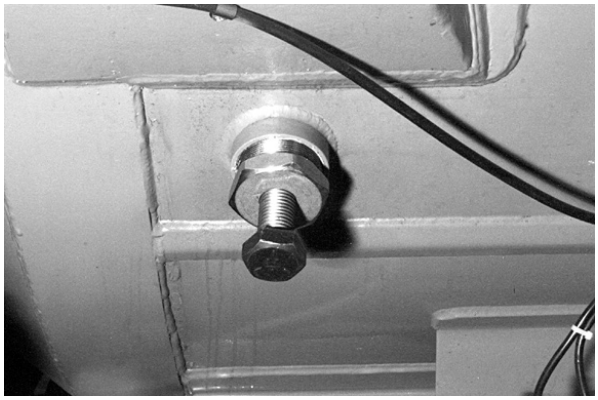

FIGURE 3 (MSSM0275AE)
Cylinder Support Weldment and Long Bolt

WARNING:Crush Hazard

ENTANGLE AND CRUSH HAZARD—Hub weighs approximately 225 pounds (103 kg.), and if allowed to fall, will crush body parts under it.

- ☞ **Follow procedure carefully.**
- ☞ **Hub removal requires two people.**

Removing the Hub

1. Remove three of the *hub-to-cylinder flange bolts (*FIGURE 4) and replace them with *guide pins* (supplied in kit) as shown in FIGURE 6. These *guide pins* support the hub during the seal holder and shaft sleeve replacement procedure. Remove the rest of the *hub-to-cylinder flange* bolts after the *guide pins* are in place.

2. Install two *hub push-off* bolts (FIGURES 4 and 6).

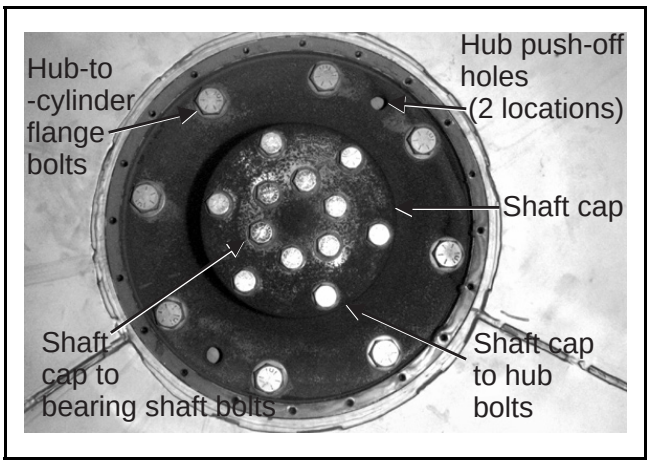

FIGURE 4 (MSSM0275AE)
Identifying Bolts and Shaft Cap

FIGURE 5 (MSSM0275AE)
Shaft Cap Fixture Showing Raised Surface

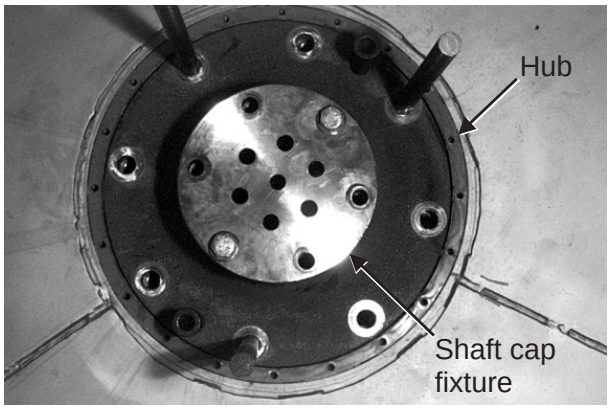

FIGURE 6 (MSSM0275AE)
Guide Pins and Push-off Bolts in Place on Hub

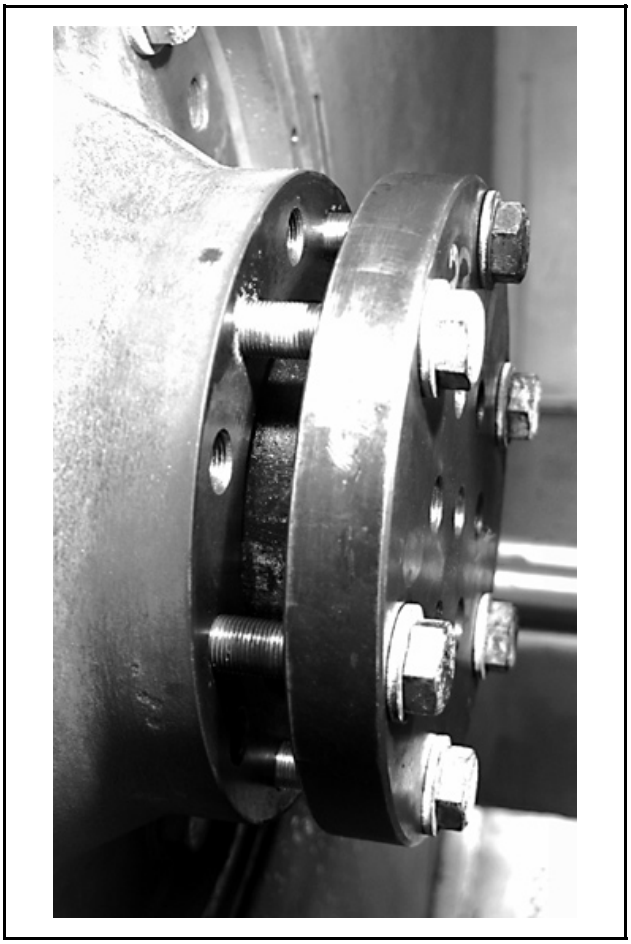

FIGURE 7 (MSSM0275AE)
Shaft Cap Fixture With Push-off Bolts on Hub

3. Remove the *shaft cap* (FIGURE 4) and replace with the *shaft cap fixture* (FIGURE 5) with the raised surface turned inward.

4. Install six *shaft cap fixture* push-off bolts (supplied in the kit), as shown in FIGURE 7. Alternately tighten the *hub push-off bolts* (FIGURE 6) and the *shaft cap fixture push-off bolts* to simultaneously force the hub off both the bearing shaft and the cylinder flange.

5. Carefully and slowly slide hub about 5 inches (127 cm.) out from the *bearing shaft* and *cylinder flange*.

Removing the Seal Holder and Shaft Sleeve

1. With the hub supported in place by the *guide pins*, remove and discard the *excluder seal* (FIGURES 9 and 10).

2. Unbolt and remove *seal holder* (FIGURE 11).

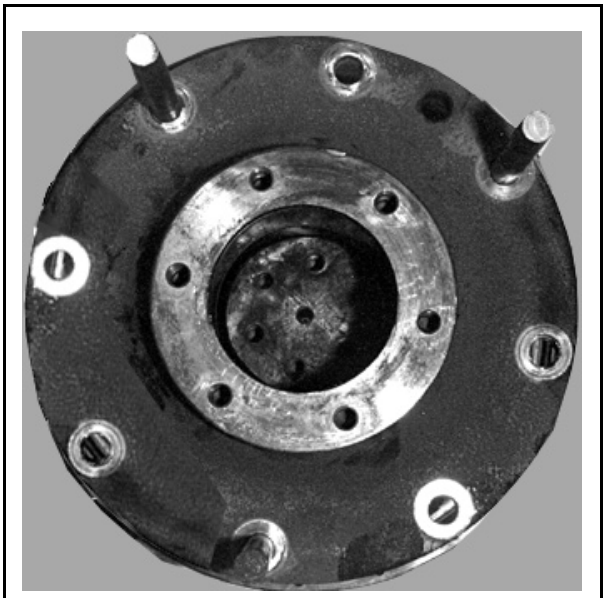

FIGURE 8 (MSSM0275AE)
Shaft Cap Fixture Showing Raised Surface

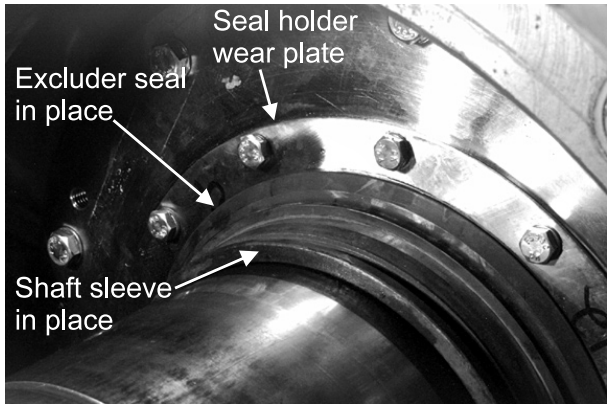

FIGURE 9 (MSSM0275AE)
Excluder Seal in Place

FIGURE 10 (MSSM0275AE)
Excluder Seal

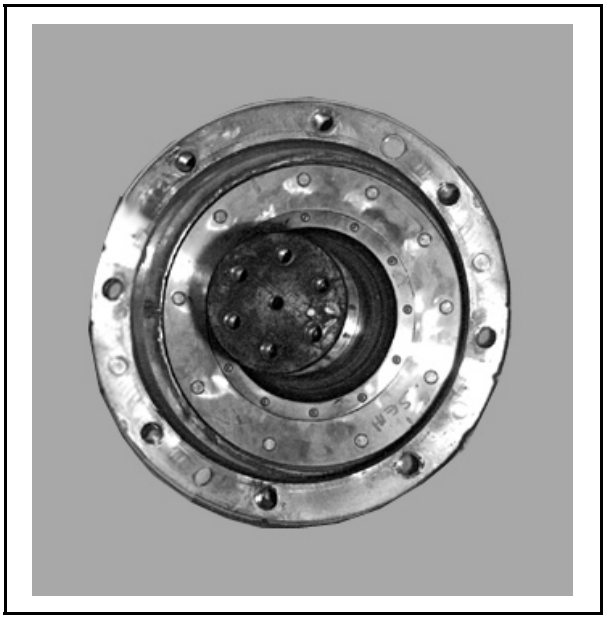

FIGURE 11 (MSSM0275AE)
Identifing the Seal holder

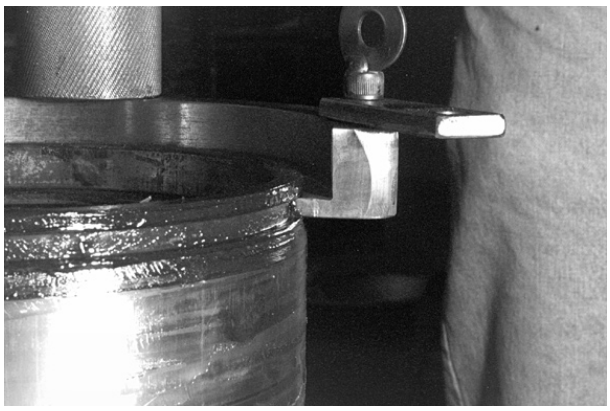

FIGURE 12 (MSSM0275AE)
Shaft Sleeve Tool Details

3. Hook the *shaft sleeve tool* (FIGURES 12 and 13) to the milled groove in the *shaft sleeve*. Using the tool's slide hammers, free the *shaft sleeve* from the shaft and discard.

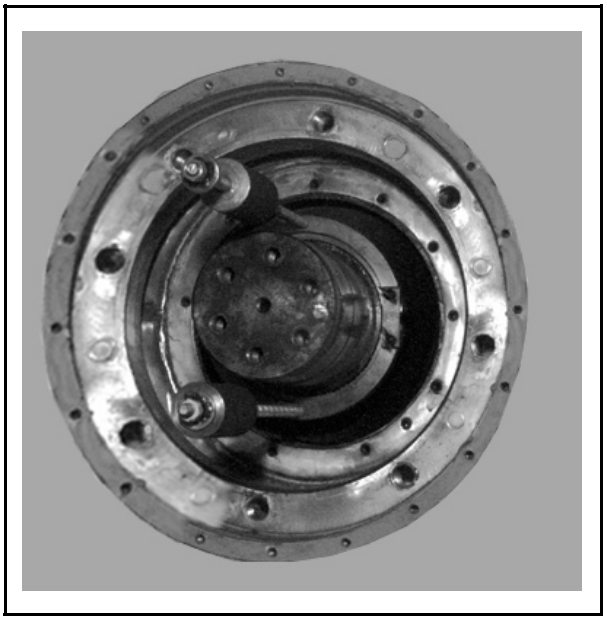

FIGURE 13 (MSSM0275AE)
Shaft Sleeve Tool in Place

Installing the Shaft Sleeve and Seal Holder

1. Clean the bearing shaft. Install the *o-rings* (FIGURE 14) in the new *shaft sleeve*, and the new *water seals* in the *seal holder* (FIGURE 1). If installing a new seal holder wear plate (FIGURE 9), completely coat the underside of the new wear plate liberally with silicon or a similar type gasket material, to ensure that air from the injection system does not leak from the back of the wear plate. Coat the *o-rings* and *water seals* with grease.
2. Add spacers to each *shaft sleeve tool* slide hammer as shown in FIGURE 15. Use slide hammers to gently tap *shaft sleeve* into place.
3. Tape *shim stock* over the groove of the *shaft sleeve* (FIGURE 16) to ensure that the new *water seals* in the *seal holder* stay in position as the *seal holder* is slipped into place.
4. Apply a new gasket to the *seal holder*. Carefully slip the *seal holder* over the *shim stock* and into position. The *seal holder* is drilled in a special pattern and can only be installed one way.

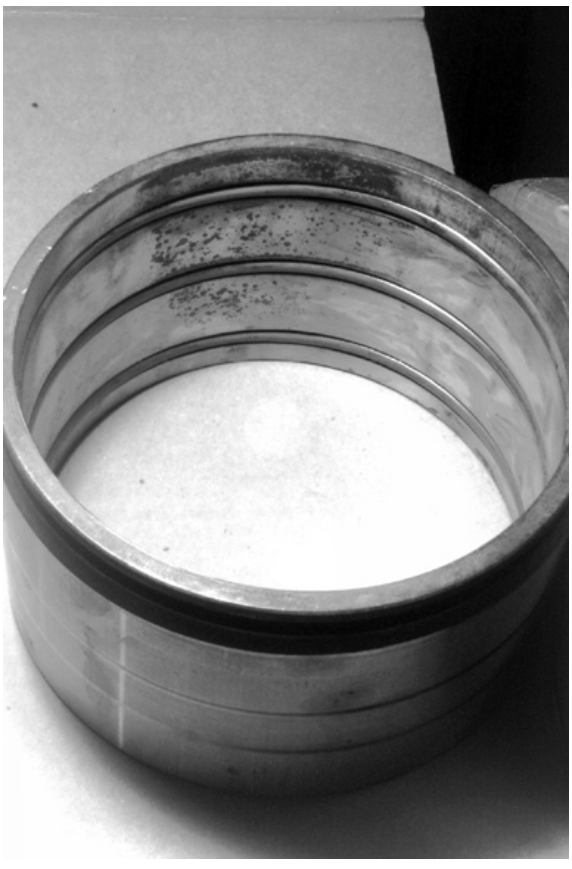

FIGURE 14 (MSSM0275AE)
Shaft Sleeve O-Rings

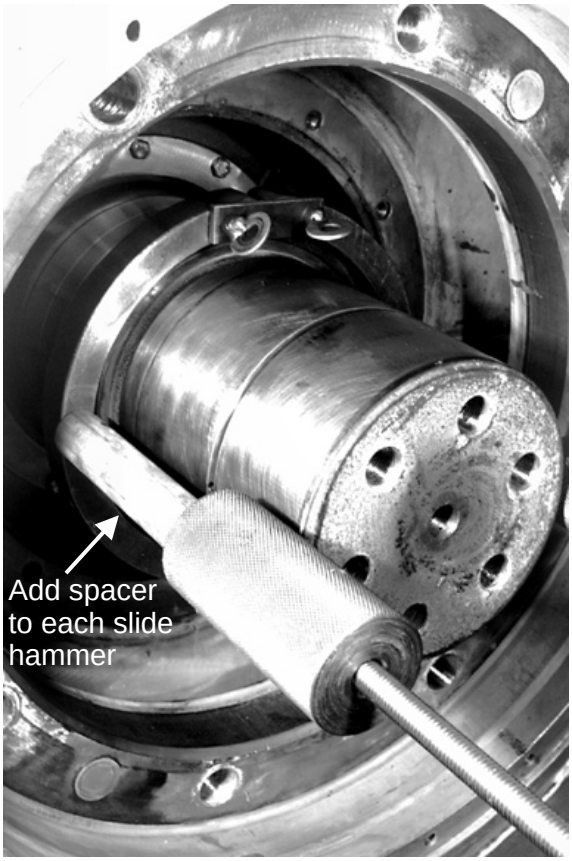

FIGURE 15 (MSSM0275AE)
Using Shaft Sleeve Tool to Install Sleeve

FIGURE 16 (MSSM0275AE)
Shim Stock Covering Edge of Shaft Sleeve
(Slinger ring removed for clarity)

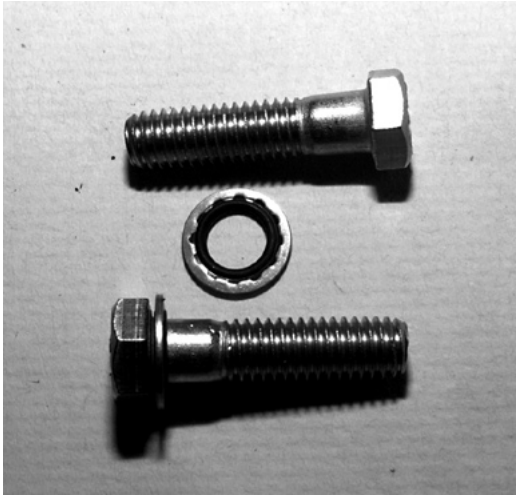

FIGURE 17 (MSSM0275AE)
Seal Holder Bolts and O-ring Washer

5. Place an *o-ring equipped washer* under each bolt (FIGURE 17), apply Loctite 242 to each *seal holder* bolt, then install and torque to specifications. See "MSSM0101CE...FASTENER TORQUE REQUIREMENTS."

Installing the Excluder Seal and Hub

1. Remove clamps and wedges clamping cylinder to shell front. **Do not remove the long bolts supporting the cylinder (FIGURE 3) at this time.**

NOTICE: MACHINE DAMAGE

Cylinder can be bent if components are reinstalled with the clamps and wedges in place.

2. Install the new *excluder seal* flush against the *seal holder* as shown in FIGURE 9. Using Loctite® 404 (or a similar cyanoacrylate based adhesive), tack the base of the *excluder seal* to the *shaft sleeve* in four places.
3. Slowly push the hub into contact with the *bearing shaft* and *cylinder flange*.
4. Install the *shaft cap*. Use several equally spaced bolts to draw the hub onto the *cylinder flange* and *bearing shaft* as shown in FIGURE 18. Remove bolts after the hub is drawn up onto the *bearing shaft*.
5. Apply Loctite 242 to each bolt, then install and torque bolts to specifications in the following order:

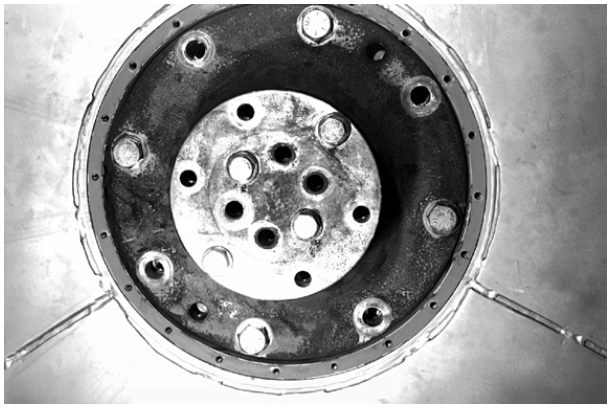

FIGURE 18 (MSSM0275AE)
Drawing Hub into Place

   a. The eight *hub-to-cylinder flange bolts*.
   b. The six *shaft cap-to-hub bolts*.
   c. The six *shaft cap-to-bearing shaft bolts*.

6. Replace the cover plate.
7. Remove the long bolts supporting the cylinder and replace with short bolts.

Section 3

Shell and Door Assemblies

Installation Shellfront

64046E6N/J6N/D6N 72046E5N/J5N 72058J5N

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

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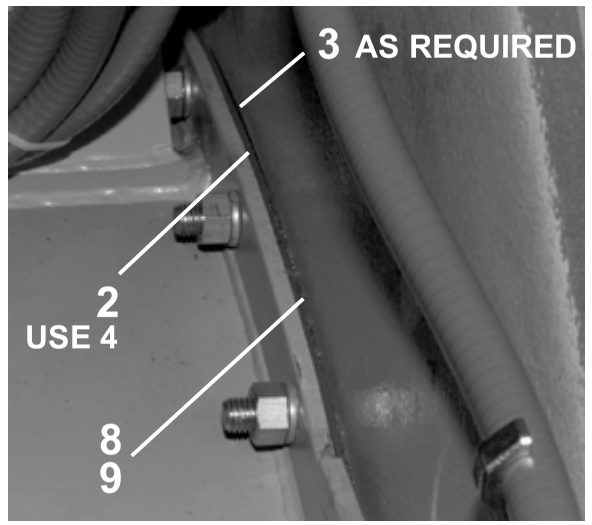
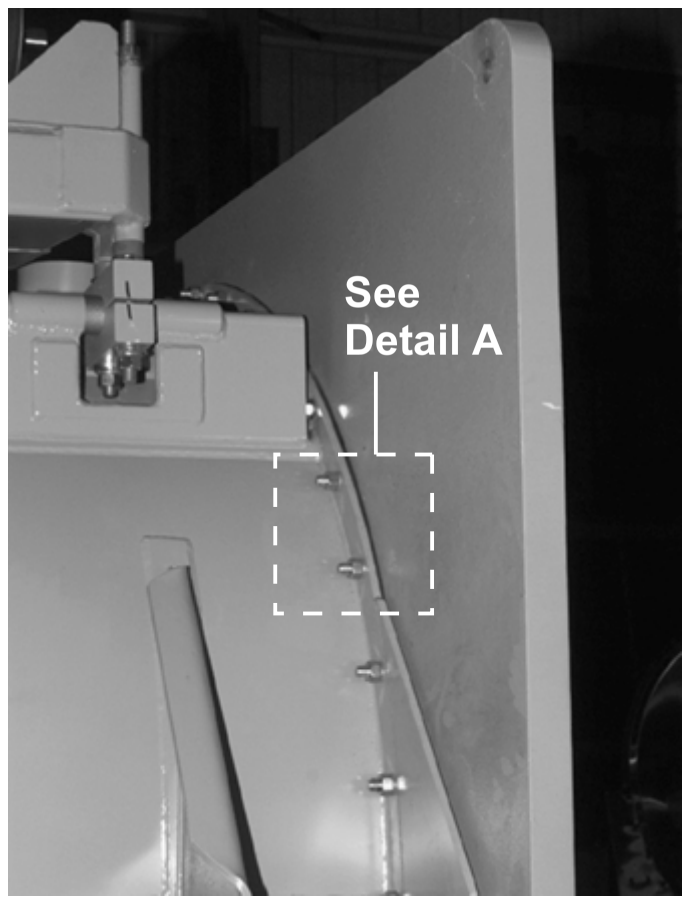
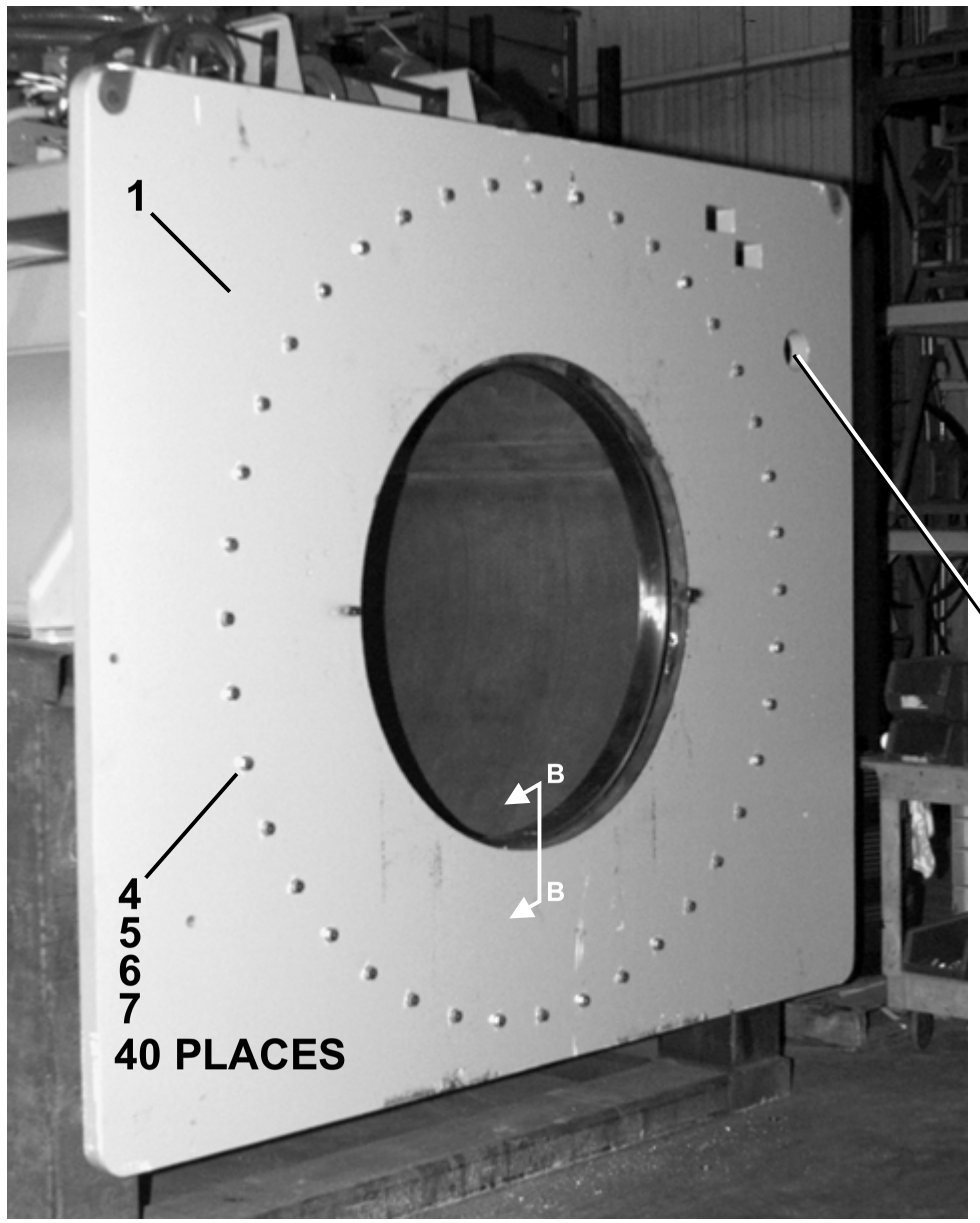
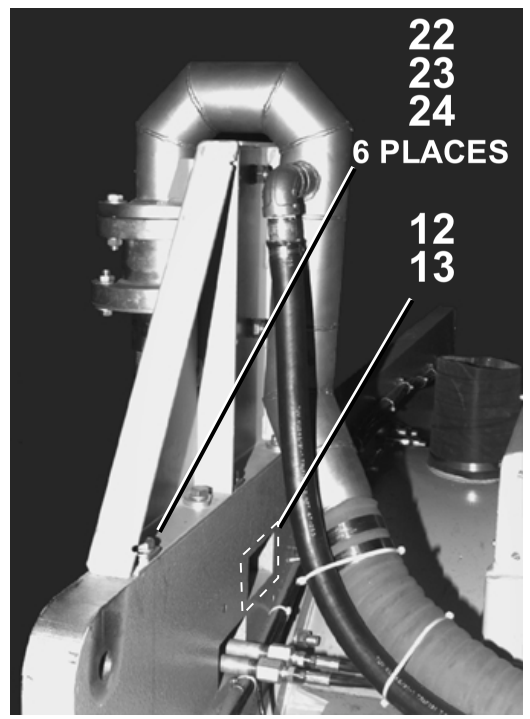


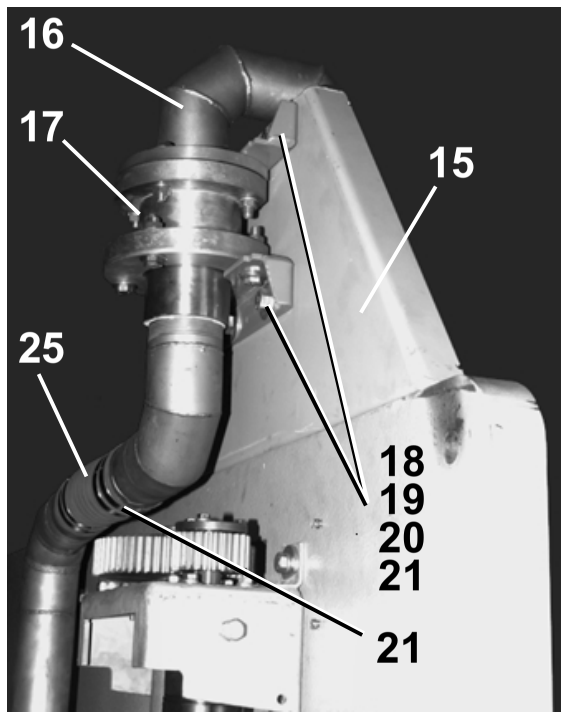
Detail A: Shellfront Gaskets



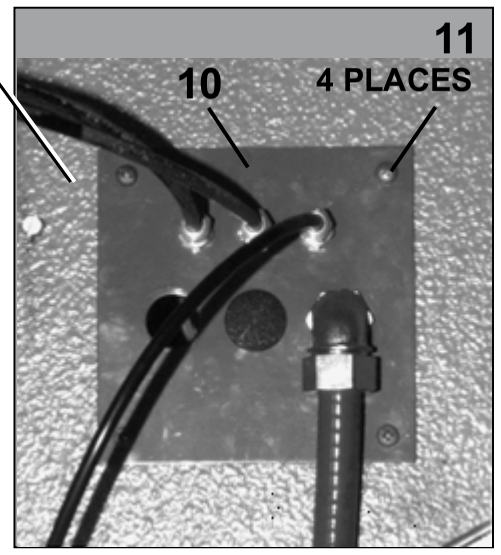


Shellfront Installation

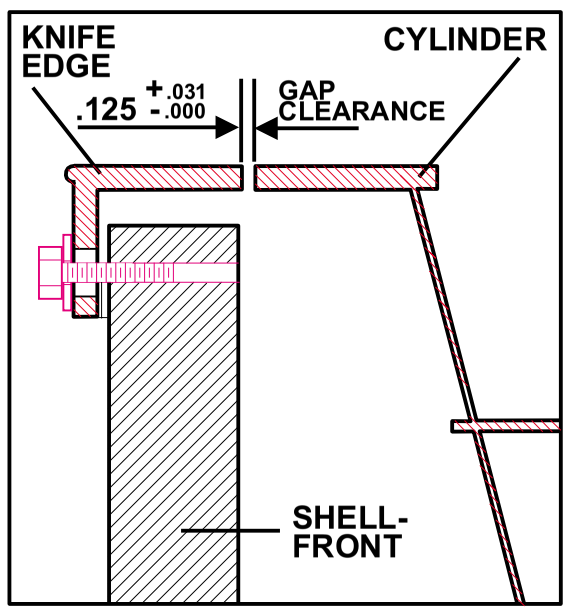




Optional Recirculation - 64046J6N Only



Cover Plate



A Section B-B

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P. O. Box 400, Kenner, LA 70063-0400
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Parts List—Installation Shellfront

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	GSF65001	INST=SHELL FRONT 6442B6P	6446E6N,J6N 6450E6N
	B	GSF65001R	INST=SHELLFRNT+RECIRC 6446J6N	6446J6N RECIRCULATION
	C	GSF58001	93000Z INST=SHELL FRONT+DOOR	7246E5N,J5N 7258J5N
			----------COMPONENTS----------	
A,Bl	1	W3 65040D	93000Z WLMT=SHELL FRONT 6446D6NMOD1	
C	1	W5 58040	93000Z WLNT=SHELL FRONT 7258E5N	
A,B	2	03 65044D	93123C GASKET=70.0BC 1/8"THK 6446D6	
C	2	05 58044	94347C 3”W GASKET 38.88BR 1/8T DY	
A,B	3	03 65044E	93123# GASKET=70.0BC 1/16THK 6446D6	
C	3	05 58044A	94347# 3”W GASKET 38.88BR 1/16 DY	
all	4	15K227	HXCAPSCR 5/8-11UNC2AX4 GR5 ZINC/CAD	
all	5	15U318	FLATWASH 1+1/8 ODX21/32 IDX3/32 PL	
all	6	15U315	LOKWASHER MEDIUM 5/8 ZINCPL	
all	7	15G238	HXNUT 5/8-11UNC2B SAE ZINC GR2	
all	8	20C044	041290ADHESIVE-EC1300-PINT	
all	9	20C036	PERMATEX NO 1C IN 11 OZ TUBES	
all	10	03 CF551	98322BSF COVER PLATE W/HOLES HRS	
all	11	15P059	01Z SCRHXSELFDR:10-16X1/2 #2 ZINC	
all	12	03 65050	93236B PLATE=GEAR BOX COVER 6446E6N	
all	13	15P100	07Z THDCUT-F PANHD 8-32 X 3/8 SS410	
B	14	27A077A	T-BOLT HOSECLAMP 3.37-3.68"SS	00B ONLY, USE 4
B	15	W3 65511	94366#*WLMT=ROT COUPL SHL MNT BRKT	00B ONLY
B	16	W3 65354	96392#*WLMT=INLET ROT COUPL 6446J6	00B ONLY
B	17	ACP65002	93000Z ASSY=3.5ROTARY COUPL 6446J6N	00B ONLY
B	18	15K162	HXCAPSCR 1/2-13UNC2AX1.5 GR5 PLATED	00B ONLY
B	19	15G230A	HVY HXNUT 1/2-13UNC2B ZINC GR2H	00B ONLY
B	20	15U286	FLATWASHER 2"0DX17/32"IDX1/4" ZINC	00B ONLY
B	21	15U300	LOKWASHER REGULAR 1/2 ZINC PLT	00B ONLY
B	22	15K147	HXCAPSCR 1/2-13UNC2X1 GR5 ZINC	00B ONLY
B	23	15U300	LOKWASHER REGULAR 1/2 ZINC PLT	00B ONLY
B	24	15U280	01Z FL+WASHER(USS STD)1/2 ZNC PL+D	00B ONLY
B	25	60E303D	01Z 3"ID VITON BLEND TUBE *	00B ONLY

Basic Door Assembly

64046E6N/J6N, 72046E5N/J5N, 72058J2N/J5N

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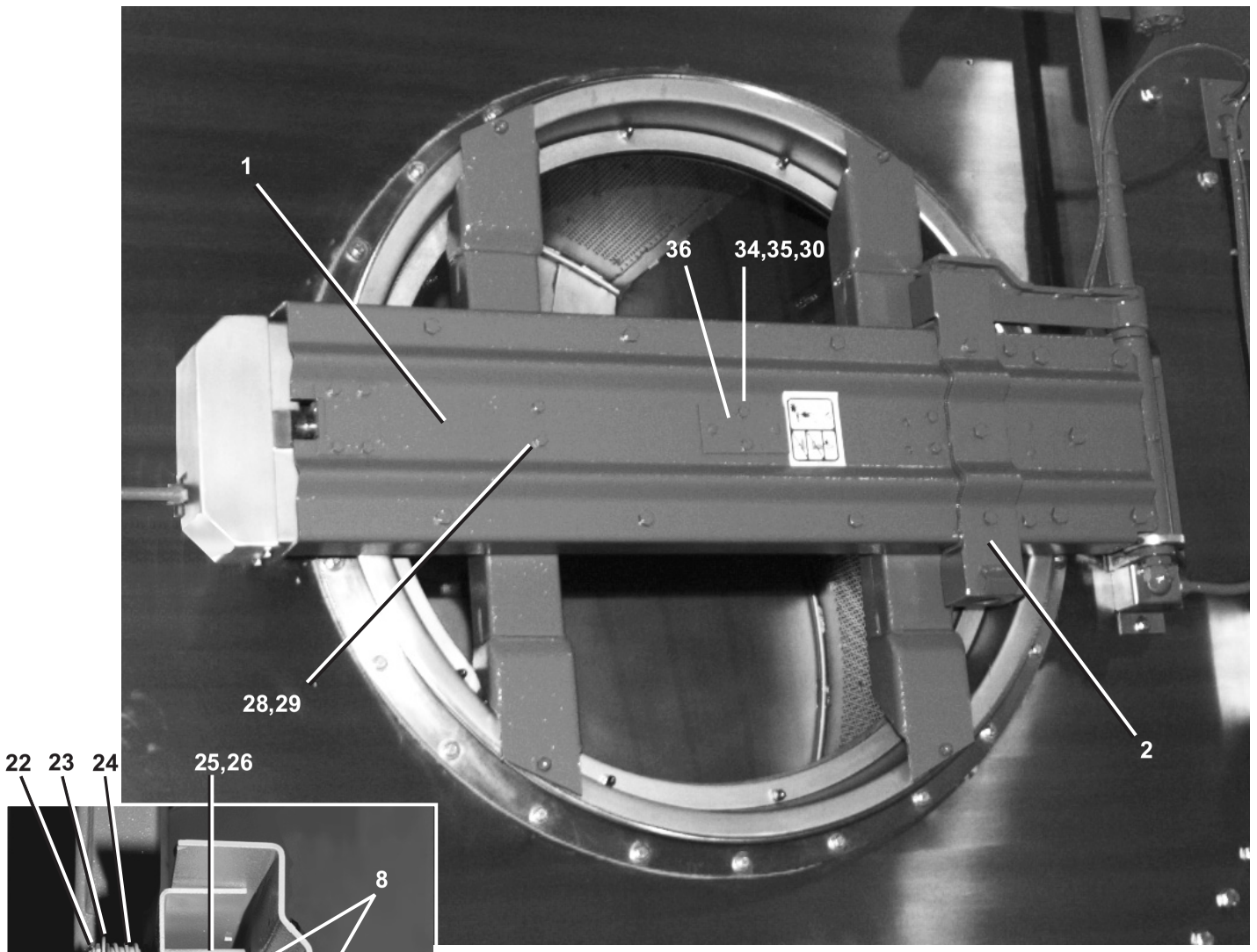

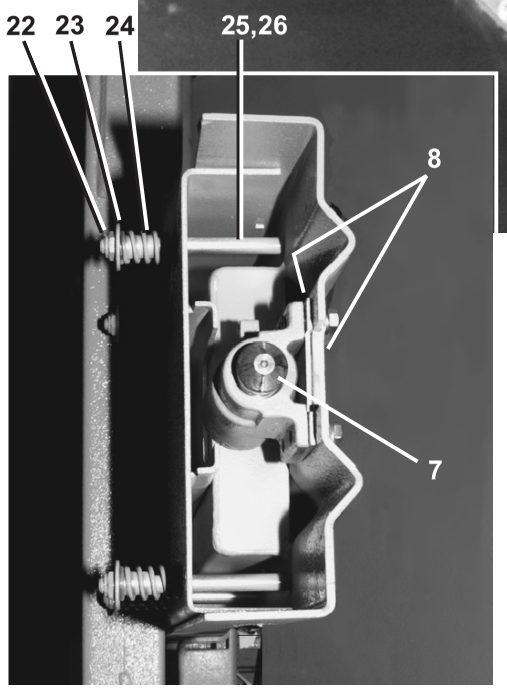

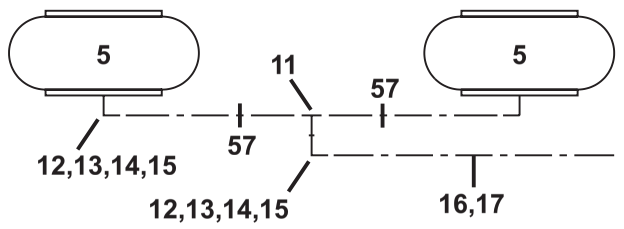

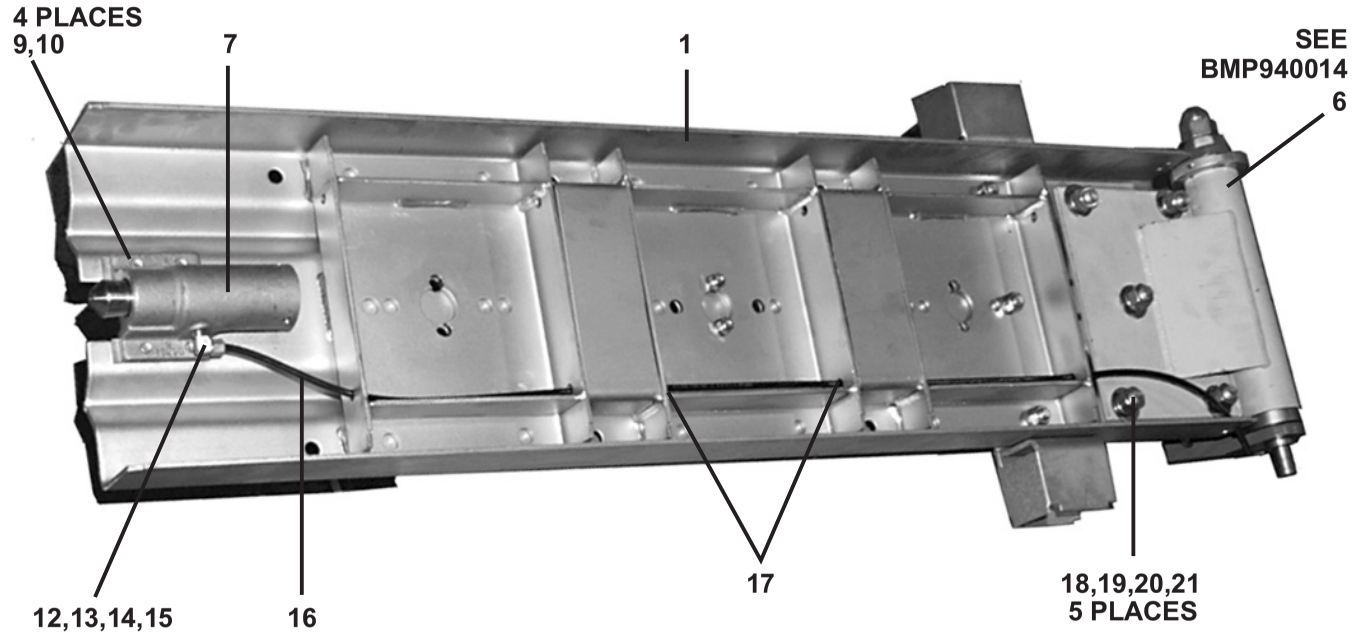

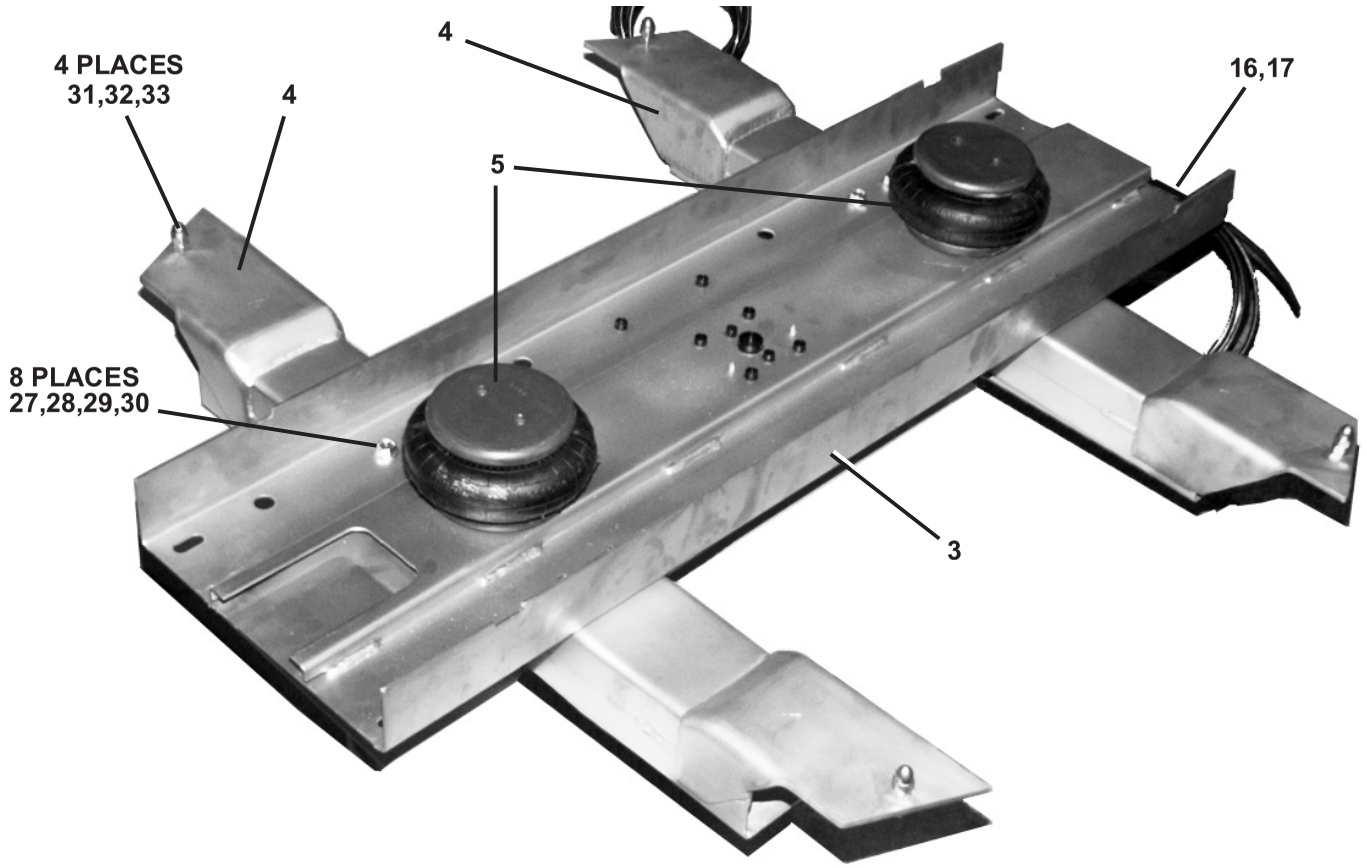

Basic Door Assembly

64046E6N/J6N, 72046E5N/J5N, 72058J2N/J5N

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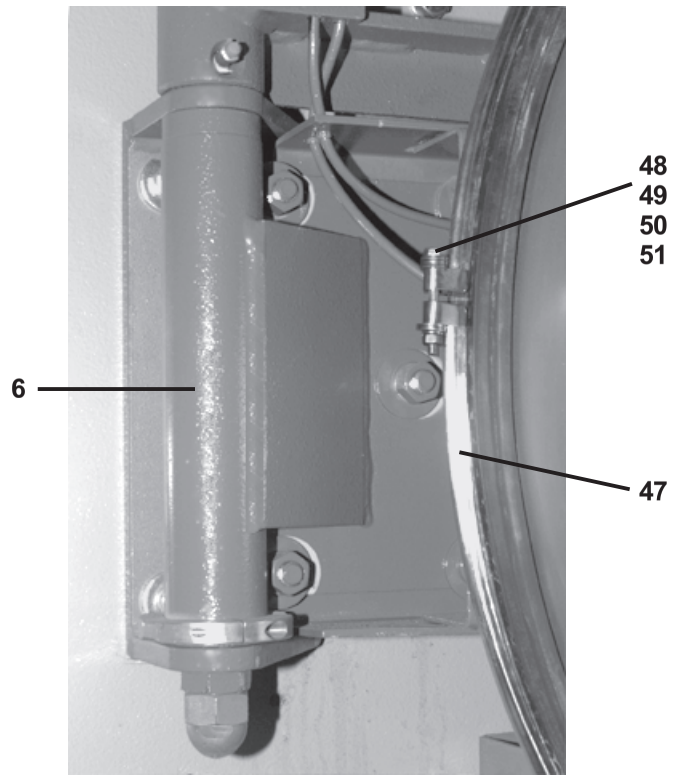
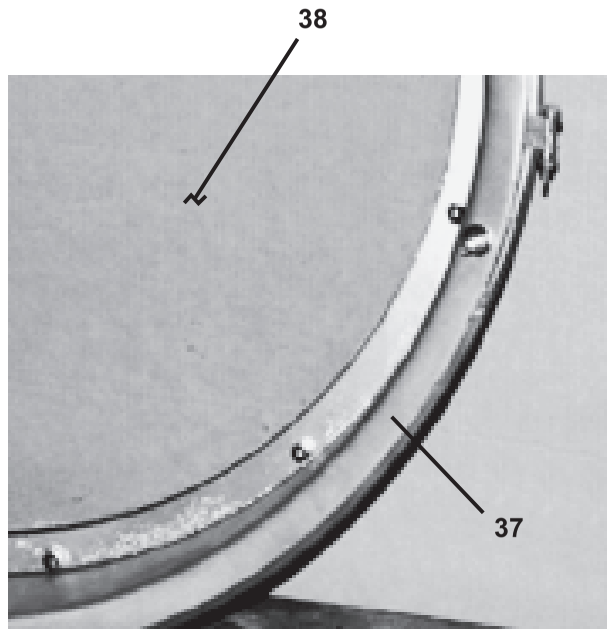
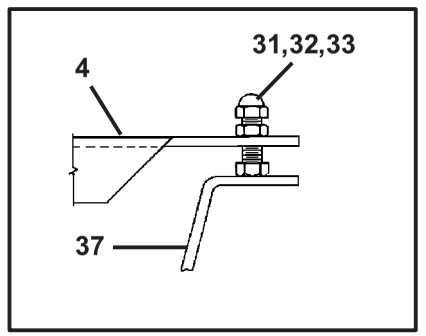
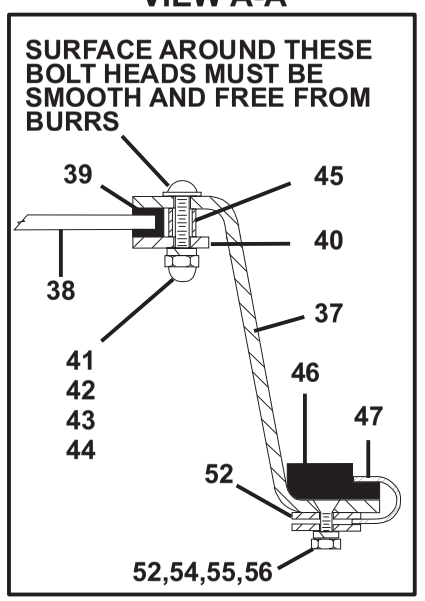






VIEW A-A



SECTION B-B

Parts List—Door Assembly

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

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	ADC66001	97000Z ASSY=DR CHNL 2AIR BSK CRB	
	B	ASD66001	97000Z ASSY=40X4DR W/GLASS ONLY 304	
	C	ADG66001	97000Z PRTS=DOOR GLS/PLT MNT 304	
	D	ADT66002	97000Z PRTS=DOOR GASKET DYE 304	
			----------COMPONENTS----------	
all	1	W5 20020	98226C* OUTER CHANNEL WELD 40"DOOR	
all	2	W5 20155B	93477C*WLD=BRKT DR ACTUR RT	
all	3	W5 20019	94247C* CHANNEL WELD-INNER 40"DOOR	
all	4	W5 20197	92316C*WELDMENT=DOOR BRACE 72DAN	
all	5	60B090	01ZAIRMT S-131 1CONV.F#W013587731	
all	6	ADH66001	97000Z PRTS=DR HINGE CRB	
all	7	SA 15 028	70239D* DOOR LATCH ASSY-DIVCYLS	
all	8	02 15633	ADJPLATE=DOORLATCH	
all	9	15K105	HXCAPSCR 3/8-16UNC2A1.25 GR5 PLATED	
all	10	15U255	LOCKWASHER MEDIUM 3/8 ZINCPL	
all	11	53A044A	BODY=TEE 1/4TX1/8FP #177C-4-2B	
all	12	53A031B	BODY-EL90MALE.25X1/8 #269C-42B	
all	13	53A059A	NUT 1/4"BR.HOLYOKE AND #61A-4	
all	14	53A500	1/4" SLEEVE-DELRIN	
all	15	53A501	TUBEINSERT .170"OD	
all	16	60E004TE	04Z 1/4"OD X.170"ID NYL TUBING *	
all	17	12P1AGSB	SNAPBUSH 3/8"MH X 1/4" T=1/8	
all	18	15K214E	HXCAPSCR 5/8-11UNC2AX1.5 GR5 ZNC/CD	
all	19	15U314	FLATWASHER(USS STD) 5/8" ZNC PLT	
all	20	15U315	LOKWASHER MEDIUM 5/8 ZINCPL	
all	21	15G238	HXNUT 5/8-11UNC2B SAE ZINC GR2	
all	22	15G234	LOKNUT 1/2-13NC CAD FLXLOC#21FKF813	
all	23	15U280	01Z FL+WASHER(USS STD)1/2 ZNC PL+D	
all	24	02 18187S	82477B SPRING=DOOR STAINLESS STEEL	
all	25	27B2750L0T	01ZSPCRROLL.562ID.937L.048T ZNC	
all	26	15K203D	HXCAPSCR 1/2-13X5.5UNC2A GR5 PLATED	

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Parts List, cont.—Door Assembly

Used In	Item	Part Number	Description	Comments
all	27	15P200	02Z TRDCUT-F HXWASHD 3/8-16X3/4NIK	
all	28	15K095	HXCPSCR 3/8-16UNC2AX1 GR5 ZINC/CAD	
all	29	15U255	LOCKWASHER MEDIUM 3/8 ZINCPL	
all	30	15G205	HXNUT 3/8-16UNC2B ZINC GR2	
all	31	15U260	LOCKWASHER MEDIUM 3/8 SS18-8	
all	32	15K100	HEXCAPSCR 3/8-16X1+1/4 SS18-8	
all	33	15G200C	01Z HXCPNUT HI 3/8-16 BRASS NIK PLT	
all	34	15K095	HXCPSCR 3/8-16UNC2AX1 GR5 ZINC/CAD	
all	35	15U255	LOCKWASHER MEDIUM 3/8 ZINCPL	
all	36	03 64039C	97192B COVER PLATE W/O HANDWHEEL	
all	37	Y5 20022	97373# DRILL=40"X4" DOOR W/GLASS304	
all	38	05 20023	76532C DOORGLASS SIZE=36"O.D.	
all	39	05 20034	77247B GASKET=36"=DOOR GLASS	
all	40	X5 20016	94373# MACH=DOOR GLASS 37"DIA BC	
all	41	15K106B	BUTSOKCAPSCR 3/8-16NCX1+3/8 SS18-8	
all	42	24G030N	ROLLED WASH.379ID NYLTITE 37W	
all	43	15G200	01Z HXCPNUT 3/8-16 UNC2A 5/8X1/2	
all	44	15U260	LOCKWASHER MEDIUM 3/8 SS18-8	
all	45	27B2400K0L	92601A SPACER ROLL.43ID.562L.03T SS	
all	46	05 20036	92157C GASKET=40DURO 1/2T=40"DOOR	
all	47	W5 20021	94222#*RING=DOOR GASKET RETAIN WELD	
all	48	15N200	FILMACSCR 1/4-20UNCX2 SS18-8 SLTD	
all	49	15G170	HEXNUT 1/4-20UNC2 SS18-8	
all	50	15U188	01Z FLTWASH 1/4 STD COMM SS18-8	
all	51	15U181	LOCKWASHER MEDIUM 1/4 SS18-8	
all	52	15U245	01Z FLTWASH 3/8 STD COMM 18-8 SS	
all	53	15U245B	93262B FLATWASH SPECIAL DOOR 52+72	
all	54	15U260	LOCKWASHER MEDIUM 3/8 SS18-8	
all	55	15G206	HEXNUT 3/8-16 UNC2 SS 18-8	
all	56	15N223	FLATMACSCR 3/8-16NC2 X 1+1/4 SS18-8	
all	57	12P016	01Z CABLE CLMP-BLACK UL APPROVED	

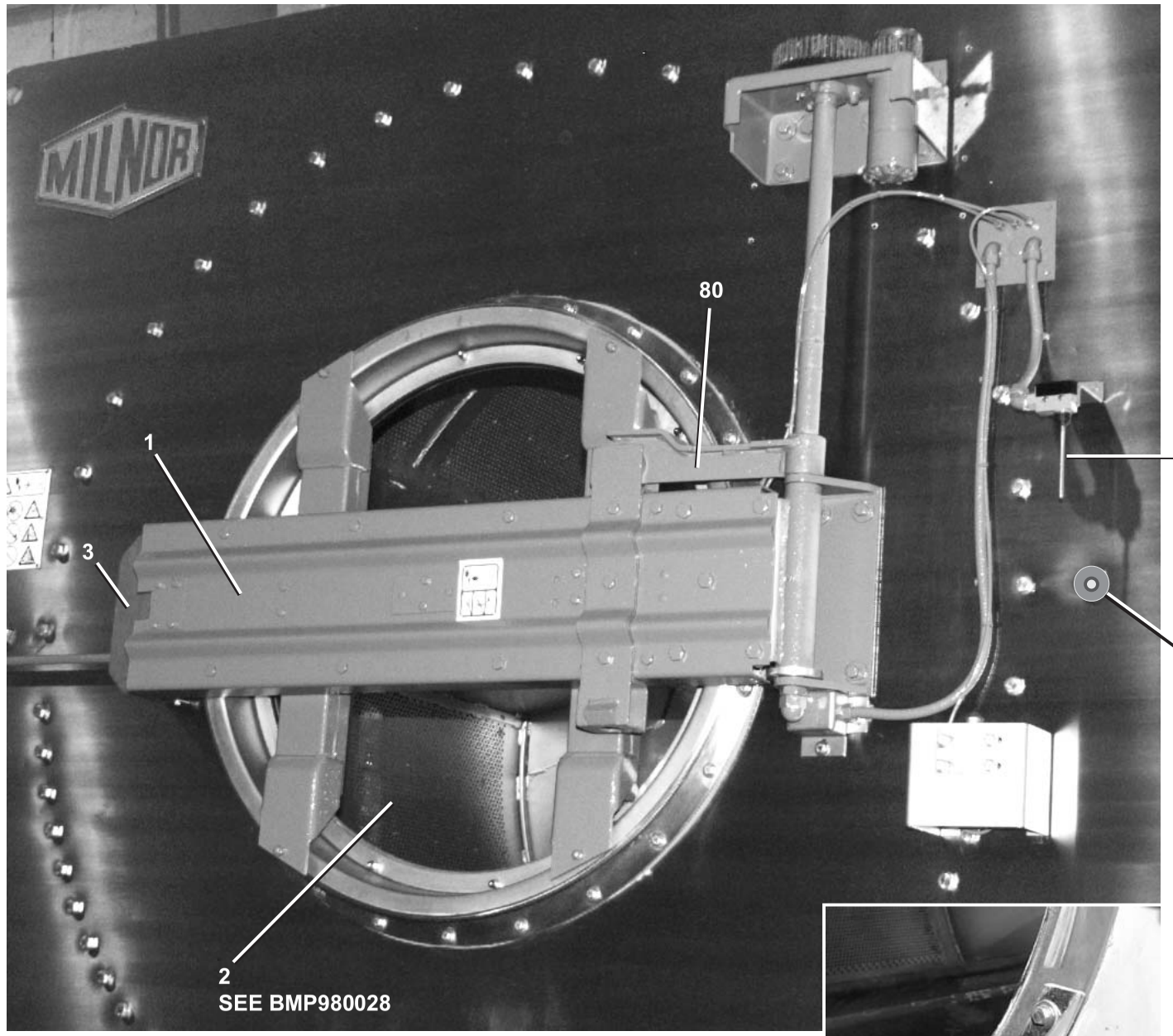
Basic Door Installation

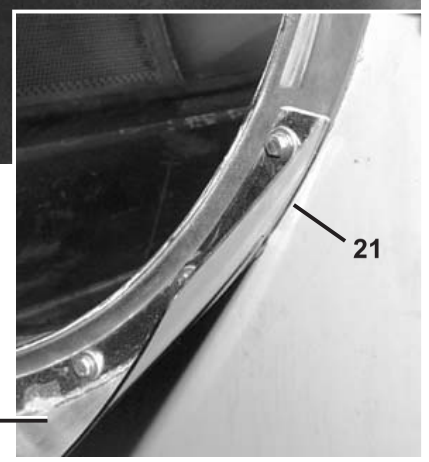
64046E6N/J6N, 72046E5N/J5N, 72058J2N/J5N

BMP980029/2011264B
(Sheet 1 of 3)

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

Litho in U.S.A.





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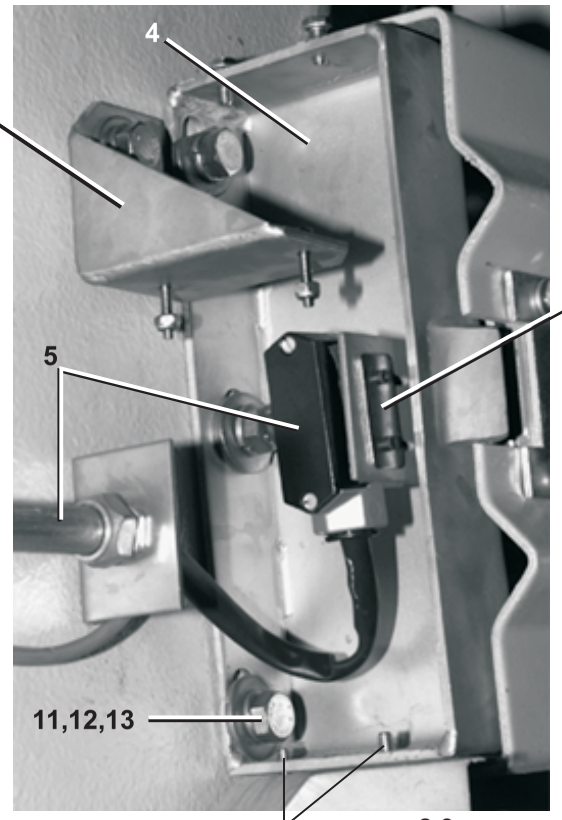
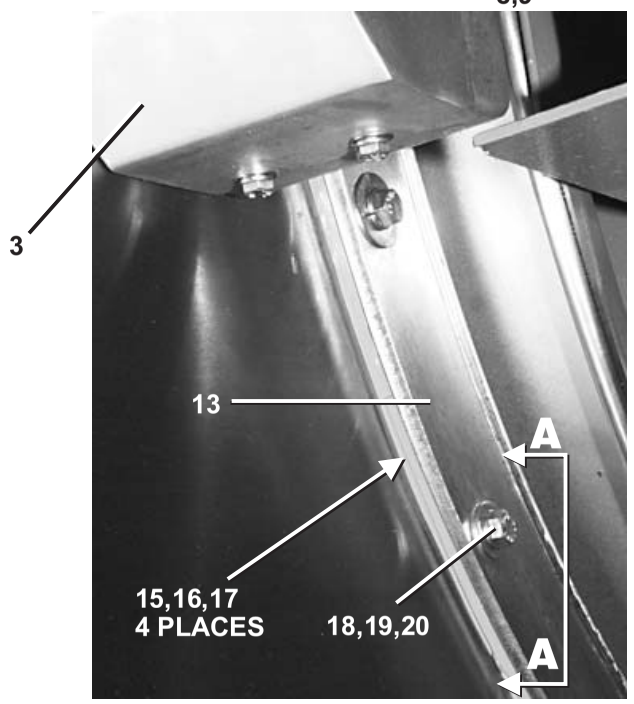
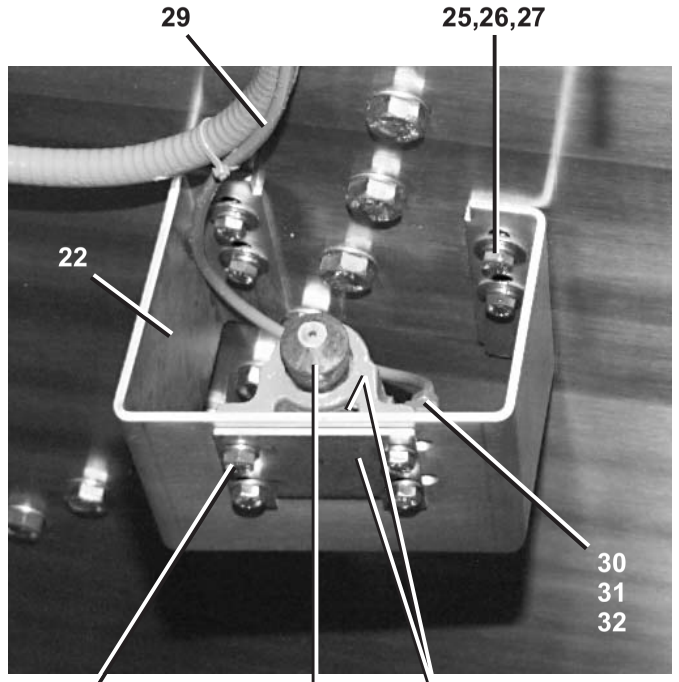
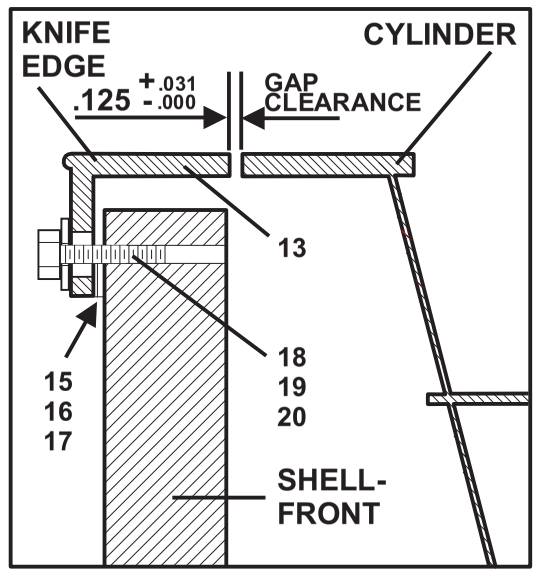








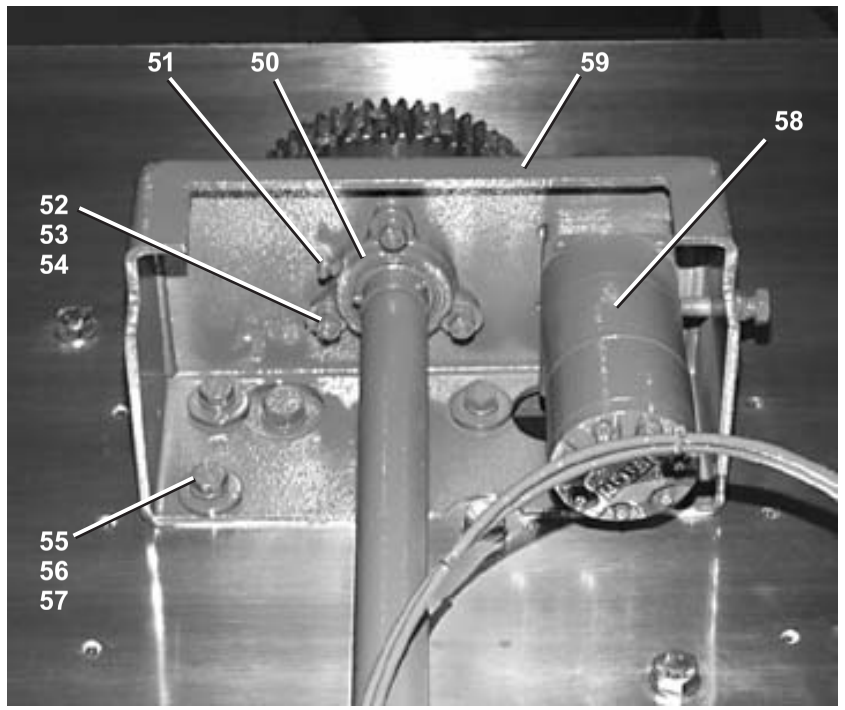
SECTION A-A

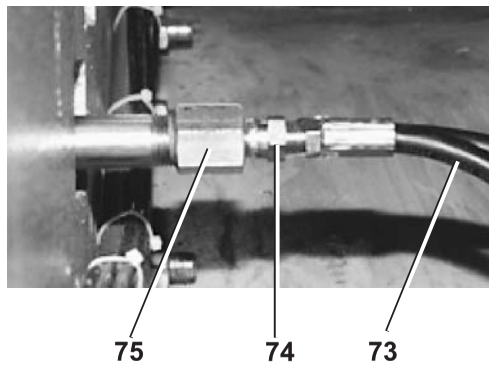
Basic Door Installation

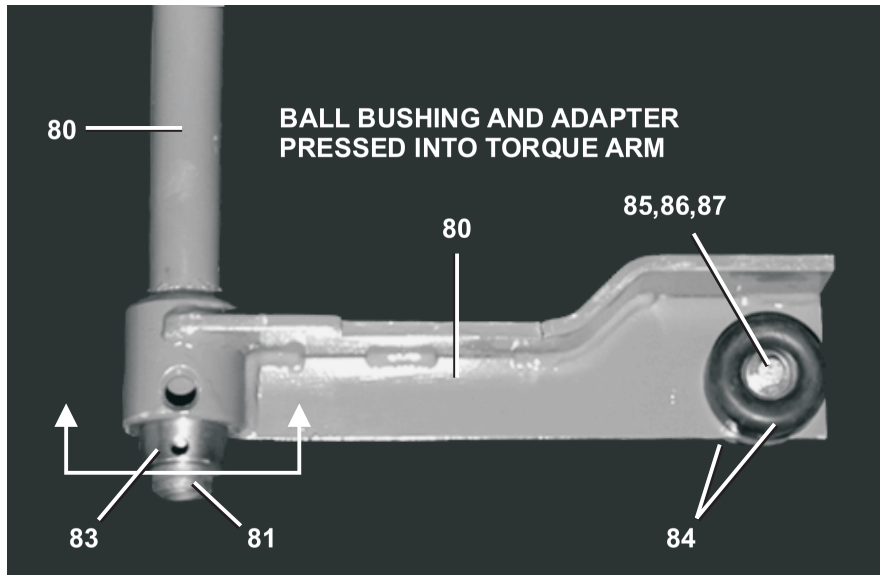
64046E6N/J6N, 72046E5N/J5N, 72058J2N/J5N

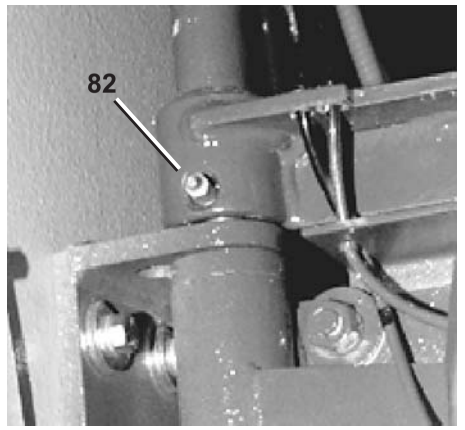
Pellerin Milnor Corporation
P. O. Box 400, Kenner, LA 70063-0400

Litho in U.S.A.

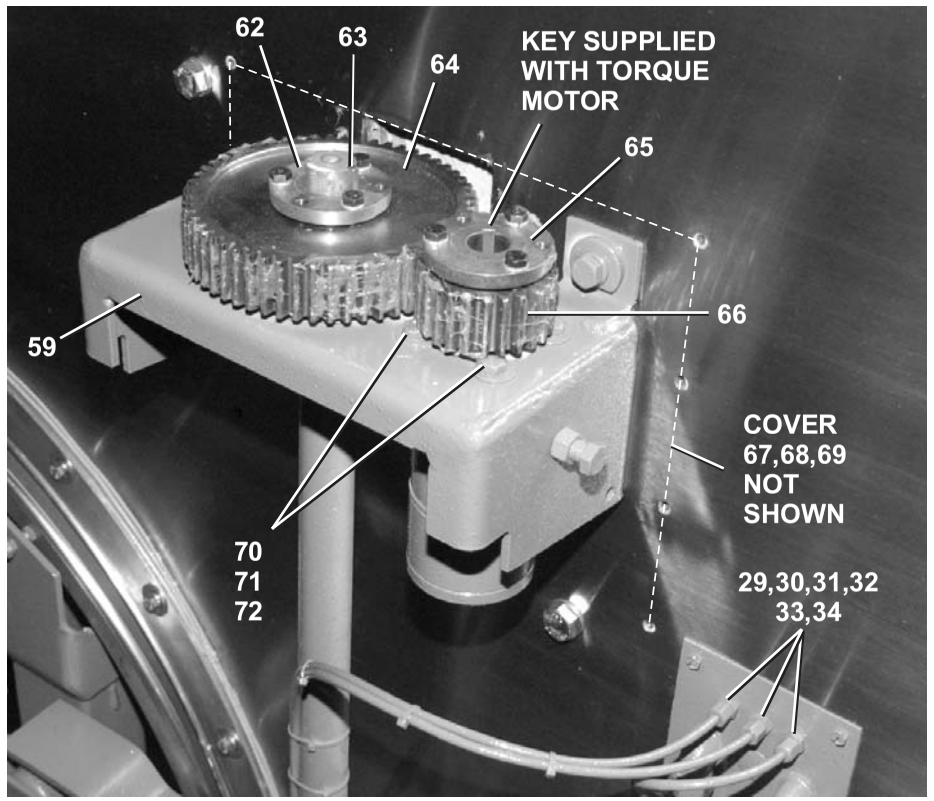


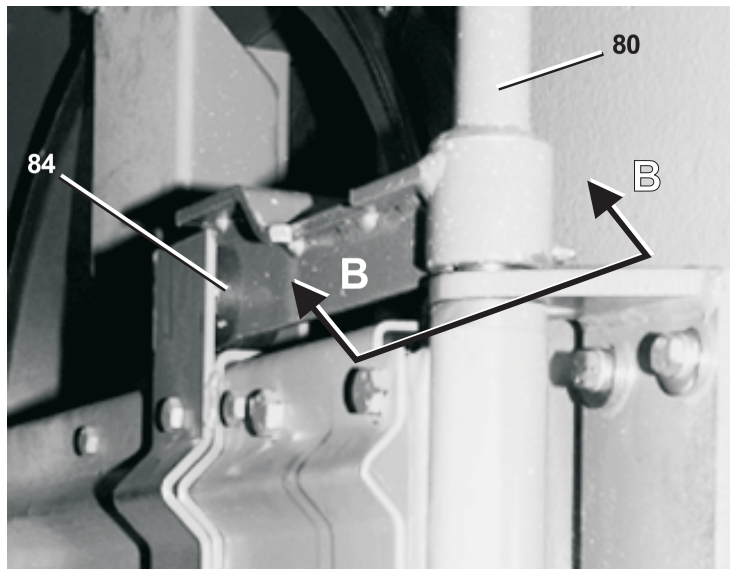


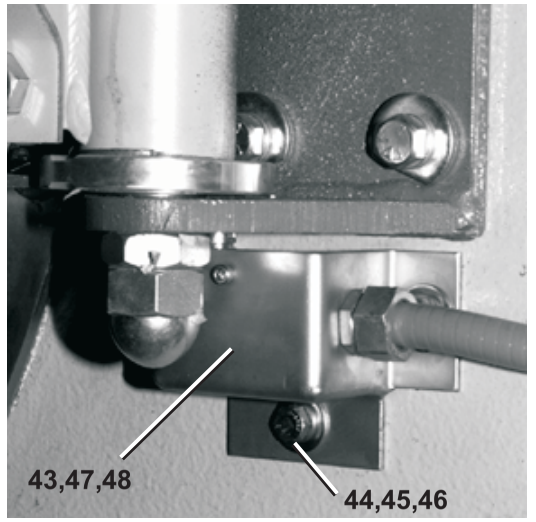




VIEW B-B







Basic Door Installation

64046E6N/J6N, 72046E5N/J5N, 72058J2N/J5N

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

Litho in U.S.A.

Parts List—Basic Door 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	GSD66001	97000Z INST=40X4DR304 W/GLS ACCRB	
	B	ADL66001	97000Z ASSY=DR CLOSED STRIKER 304	
	C	GKE65001	95253L INST=DOOR KNIFE EDGE 304L SS	
	D	ADL66010	97000Z ASSY=DR FULL OPN LTCH-SW CRB	
	E	ADS66001	97000Z PRTS=SECONDARY DR SWITCH 304	
	F	GSD65001	94000Z INST=40"DR HYDMTR +BRKTS	
----------COMPONENTS----------				
all	1	ADC66001	97000Z ASSY=DR CHNL 2AIR BSK CRB	
all	2	ASD66001	97000Z ASSY=40X4DR W/GLASS ONLY 304	
all	3	W5 20146	93303C* COVER=WLMT,DOORSW=7244TILTS	
all	4	W5 20143	95236C* WLMT,DOORSTRIKER,SS =72TILT	
all	5	09R008BSTD	82026#* 09R008B+MOUNTING HDWRE+INST	
all	6	02 10391	COVERSTRIP-ELECTROPOL	
all	7	15P185	TRDCUT-F HXHD 1/4-20UNC2AX3/4 ZNC	
all	8	15K031	BUTSOKCAPSCR 1/4-20X1/2 SS18-8	
all	9	15U181	LOCKWASHER MEDIUM 1/4 SS18-8	
all	10	15K173A	HXCAPSCR 1/2-13UNC2AX1.75 GR5 PLATD	
all	11	15U490	FLAWASH 1+1/2X17/32X1/4ZINC	
all	12	15U300	LOKWASHER REGULAR 1/2 ZINC PLT	
all	13	Y3 65045	93287# MACH=KNIFE EDGE 40"DOOR 64B6	
all	14	W3 65338A	95246D*WLMT=LOAD/UNLOAD SCOOP W/TUB	
all	15	05 20052C	93287# 1/8 GASKET DR 72D E=1SEGMENT	
all	16	05 20052D	93287# 1/16GASKET DR 72D E=1SEGMENT	
all	17	05 20052E	93287# 1/32GASKET DR 72D E=1SEGMENT	
all	18	15K100	HEXCAPSCR 3/8-16X1+1/4 SS18-8	
all	19	15U260	LOCKWASHER MEDIUM 3/8 SS18-8	
all	20	15U246	FLATWASHER 1"ODX25/64IDX1/8"304 S/S	
all	21	20C040B	SILSEAL RTV CLR10.2 OZ #59575	
all	22	03 65046	94267B DOOR ACTTR MNT BRKT	
all	23	SA 15 028	70239D* DOOR LATCH ASSY-DIVCYLS	
all	24	15K105	HXCAPSCR 3/8-16UNC2A1.25 GR5 PLATED	
all	25	15U255	LOCKWASHER MEDIUM 3/8 ZINCPL	
all	26	15K110	HEXCAPSCR 3/8-16UNC2AX1.5 GR5-PLTD	
all	27	15U240	FLATWASHER(USS STD) 3/8" ZNC PLT	
all	28	02 15633	ADJPLATE=DOORLATCH	
all	29	60E004TE	04Z 1/4"OD X.170"ID NYL TUBING *	
all	30	53A059A	NUT 1/4"BR.HOLYOKE AND #61A-4	
all	31	53A500	1/4" SLEEVE-DELRIN	
all	32	53A501	TUBEINSERT .170"OD	
all	33	53A042	BULKHDUNION 1/4"COMP.BODY ONLY	
all	34	53A042A	BULKHDUNION 1/4"COMP.=JAMNUT	
all	35	03 01439F	94307# BRKT=4" DOOR OPEN SWITCH	
all	36	15P185	TRDCUT-F HXHD 1/4-20UNC2AX3/4 ZNC	
all	37	09R008BSTD	82026#* 09R008B+MOUNTING HDWRE+INST	
all	38	02 10391	COVERSTRIP-ELECTROPOL	
all	39	60C075	TRUCK BUMPER 2+1/2ODW3/8HO.613	
all	40	15K136	HEXCAPSCR 3/8-16UNCX3+1/2 GR5 ZINC	

Parts List, cont.—Basic Door Installation

Used In	Item	Part Number	Description	Comments
all	41	15U255	LOCKWASHER MEDIUM 3/8 ZINCPL	
all	42	15U240	FLATWASHER(USS STD) 3/8" ZNC PLT	
all	43	W5 20024E	92703#*WLMT=BRKT SECOND DR SW 6446	
all	44	15K084S	HXCAPSCR 3/8-16NCX5/8 SS18-8	
all	45	15U260	LOCKWASHER MEDIUM 3/8 SS18-8	
all	46	15U245	01Z FLTWASH 3/8 STD COMM 18-8 SS	
all	47	09RM01212S	03Z CAPSW 12' 180DEG ROLLER SILVE	
all	48	09R008BSTD	82026#* 09R008B+MOUNTING HDWRE+INST	
all	50	54A718	03Z FLGBRG 1+1/4" HC#FB150X1+1/4S	
all	51	54M021	GRSFIT 1/8PIPE X 1/4STR 1607-B	
all	52	15U255	LOCKWASHER MEDIUM 3/8 ZINCPL	
all	53	15K088	HEXCAPSCR 3/8-16NCX7/8 GR 5 ZINC	
all	54	15G205	HXNUT 3/8-16UNC2B ZINC GR2	
all	55	15U300	LOKWASHER REGULAR 1/2 ZINC PLT	
all	56	15U490	FLAWASH 1+1/2X17/32X1/4ZINC	
all	57	15K173A	HXCAPSCR 1/2-13UNC2AX1.75 GR5 PLATD	
all	58	27E320025	10Z TDRQMOTOR- HYRAULIC	INCLUDES KEY
all	59	W5 20144	81151C*WELDMENT=BKT=DOOR MOTOR 72T	
all	62	15E210	SQMACHKEY 1/4X2 NOTAPER-NOHEADC1018	
all	63	56Q1EP1	1+1/4" BUSH VPUL BROWNING P1	INCLUDES HARDWARE
all	64	54N120	GEAR BROWN #YSS8P56 (P1)	
all	65	56Q1AP1	1.0" BUSH VPUL BROWNING P1	INCLUDES HARDWARE
all	66	54N090	SPURGEAR B#YSS8-24 P1 PE-5064	
all	67	03 65047	97056D COVER=RT DOOR HYD MOTOR	
all	68	03 65049	92797B COVER=RT TOP DOOR HYD MOTOR	
all	69	15P185	TRDCUT-F HXHD 1/4-20UNC2AX3/4 ZNC	
all	70	15K151	HXCAPSCR 1/2-13UNC24X1.25 GR5 PLATE	
all	71	15U280	01Z FL+WASHER(USS STD)1/2 ZNC PL+D	
all	73	60EH15C165	97223N HYD HOSE 3/16"+ENDS=165"L	
all	74	52XY0ER008	STRADAPT 1/4" #1404-4-4	
all	75	52XY0KR031	STRADPT 1/20RX1/4F#6405-8-4-0	
all	76	52LY0KR015	NPTNIP 1/2X6 304SS SK 80	
all	77	52XY0KR011	STRADAPUN 1/2X1/4=FP#1405-8-4	
all	80	W5 20139C	94281D*WELD=TORQUE ARM-PWR DR 6446	
all	81	54AA00PBB	BUSH BALL 3/4 RBC-B12L	
all	82	54M021	GRSFIT 1/8PIPE X 1/4STR 1607-B	
all	83	03 25604	82472B ADAPTER FOR B12-L BUSHING	
all	84	60C075	TRUCK BUMPER 2+1/2ODW3/8HO.613	
all	85	15U240	FLATWASHER(USS STD) 3/8" ZNC PLT	
all	86	15K120	HXCAPSCR 3/8-16UNC2AX2 GR5 ZINC/CAD	
all	87	15G218	01Z HXLOKNUT NYL 3/8-16 STL/ZNC	

Door Assembly with Sample Port

64046E6N/J6N, 72046E5N/J5N, 720582/J5N

BMP980030/98181V
(Sheet 1 of 2)

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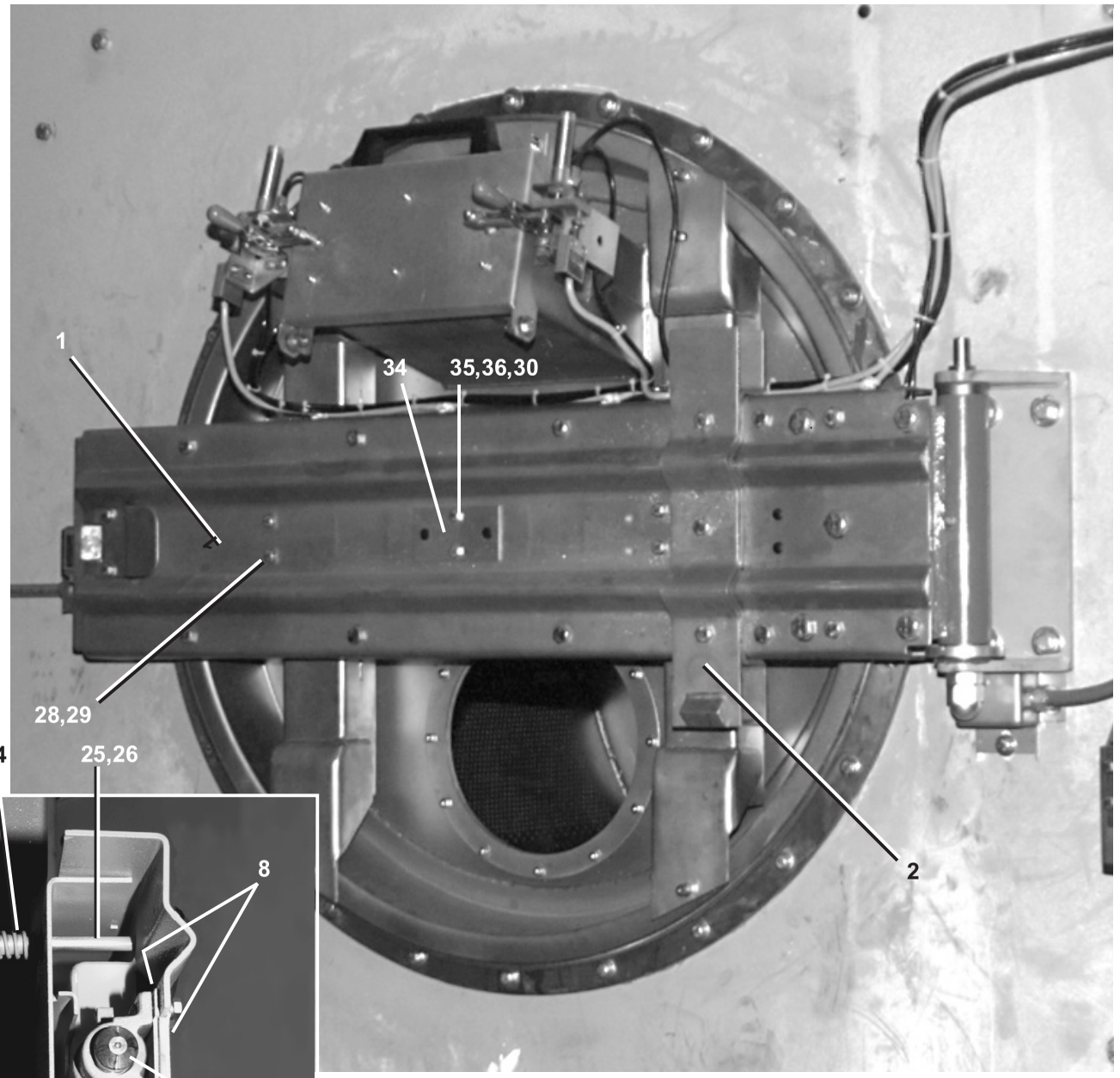
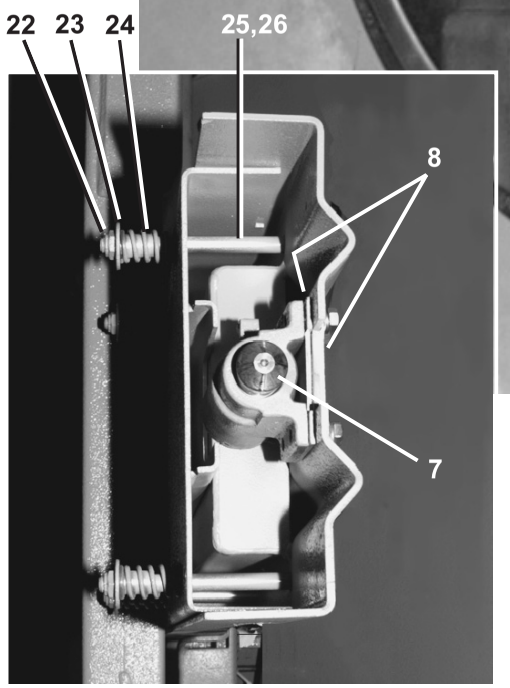
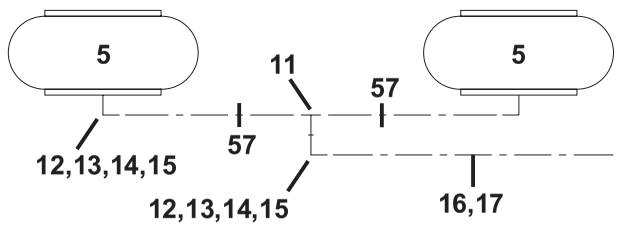
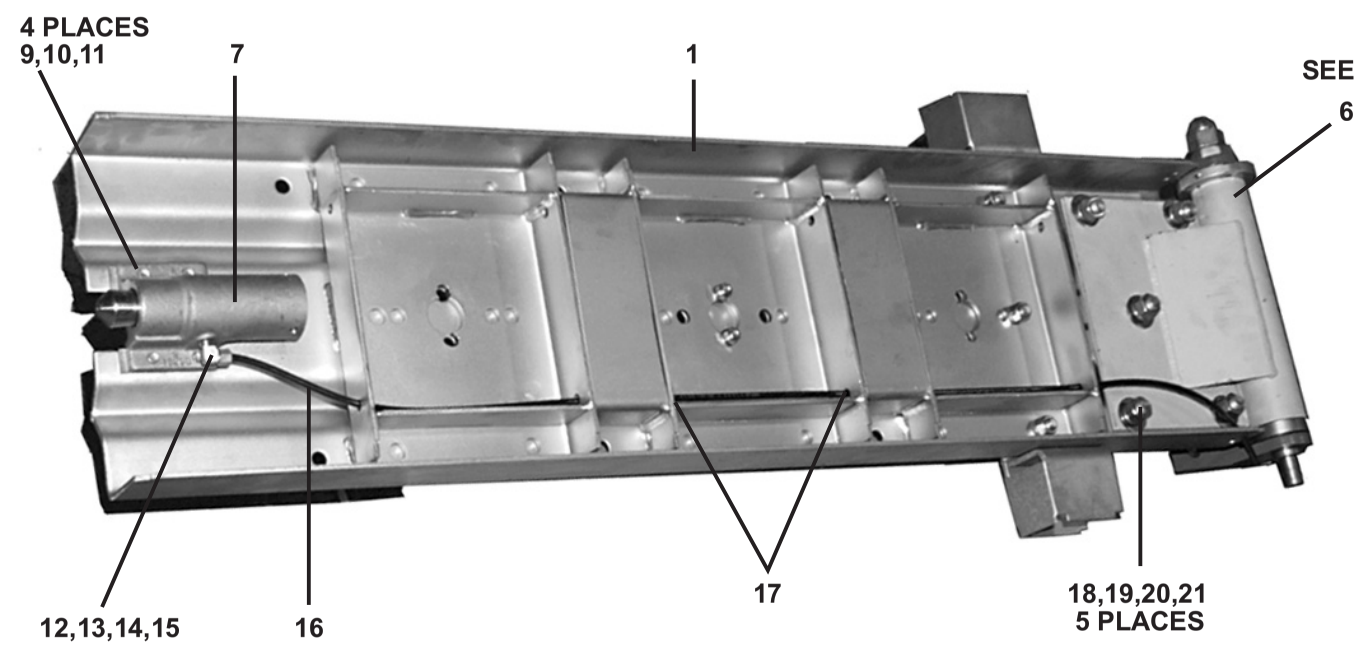
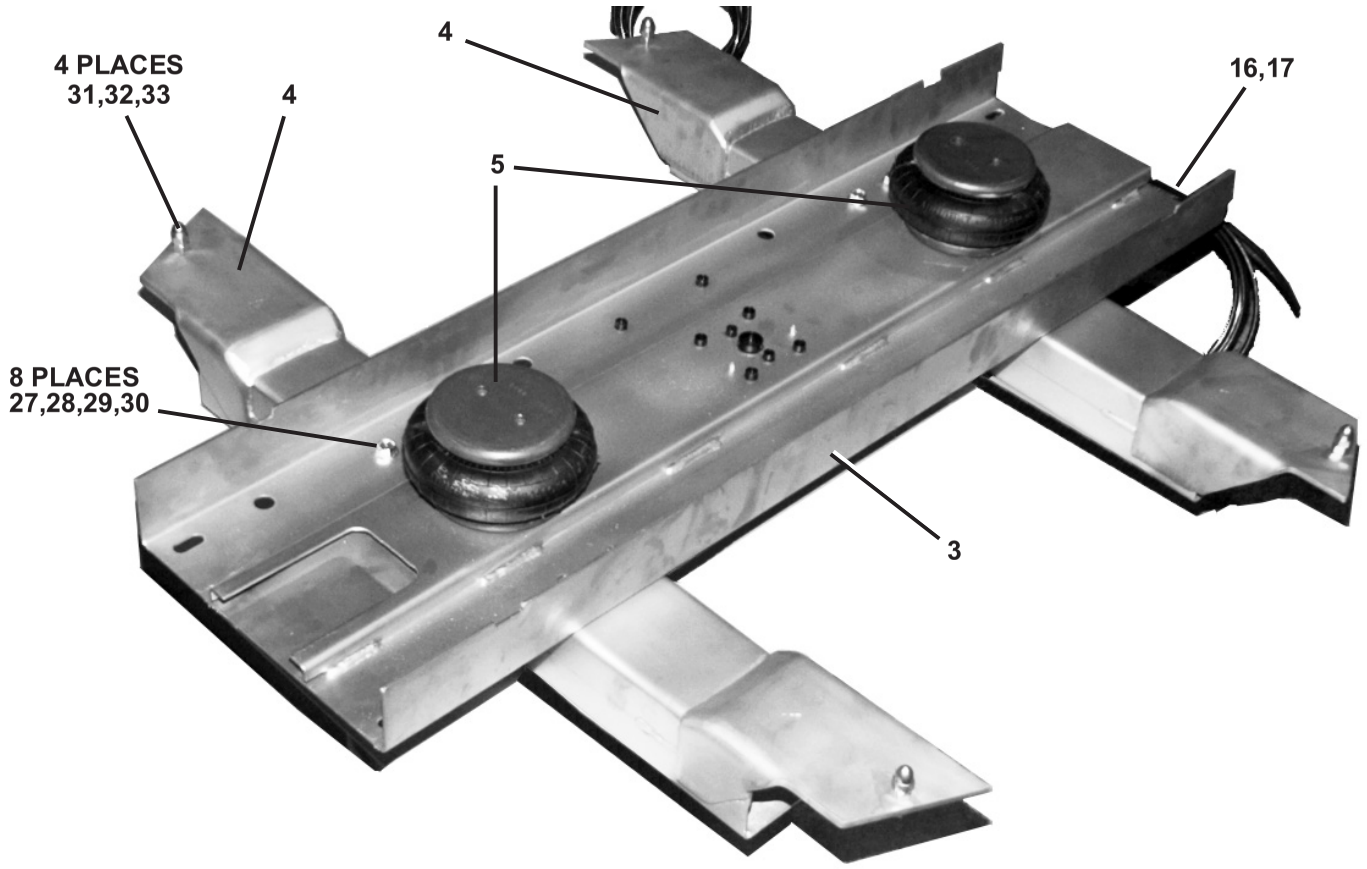
Litho in U.S.A.











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

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Parts List—Door Assembly with Sample Port

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	GSD66022A	97000Z INST=40X4DR316 SML PRT AC304	
	B	ADC66002	97000Z ASSY=DR CHNL 2AIR BSK 304	
----------	----------	----------	----------COMPONENTS----------	----------
all	1	W5 20020S	98226#*CHANNEL WELD=OUTER 40"DR S/S	
all	2	W5 20155D	93477#*WELD=BRKT DOOR ACTUR RT64D6N	
all	3	W5 20019S	94247#*CHANNEL WELD=INNER 40"DR S/S	
all	4	W5 20197S	92316#*WELDMENT=DOOR BRACE 72D6N SS	
all	5	60B090	01ZAIRMT S-131 1CONV.F#W013587731	
all	6	ADH66001	97000Z PRTS=DR HINGE CRB	
all	7	SA 15 028	70239D* DOOR LATCH ASSY-DIVCYLS	
all	8	02 15633S	93216# DOOR LATCH ADJPLT=S/S	
all	9	15K100	HEXCAPSCR 3/8-16X1+1/4 SS18-8	
all	10	15U260	LOCKWASHER MEDIUM 3/8 SS18-8	
all	11	53A044A	BODY=TEE 1/4TX1/8FP #177C-4-2B	
all	12	53A031B	BODY-EL90MALE.25X1/8 #269C-42B	
all	13	53A059A	NUT 1/4"BR.HOLYOKE AND #61A-4	
all	14	53A500	1/4" SLEEVE-DELRIN	
all	15	53A501	TUBEINSERT .170"OD	
all	16	60E004TE	04Z 1/4"OD X.170"ID NYL TUBING *	
all	17	12P1AGSB	SNAPBUSH 3/8"MH X 1/4" T=1/8	
all	18	15K214C	HEXCAPSCR 5/8-11X1-1/2 S/S 18-8	
all	19	15U314S	01Z FLTWSHR 5/8 STDCOMM SS18-8	
all	20	15U315S	LOKWASHER MEDIUM 5/8 18-8 S/S	
all	21	15G238S	HEXNUT 5/8-11UNC2B SS18-8	
all	22	15G233	HEXSLOTNUT 1/2-13UNC2 SS18-8	
all	23	15U285	01Z FLATWASHER 1/2 STD COMM SS18-8	
all	24	02 18187S	82477B SPRING=DOOR STAINLESS STEEL	
all	25	27B2750L0T	01ZSPCRROLL.562ID.937L.048T ZNC	
all	26	15K203E	HEXCAPSCR 1/2-13X5.5UNC2A SS18-8	
all	27	15P200	02Z TRDCUT-F HXWASHD 3/8-16X3/4NIK	

Parts List, cont.—Door Assembly with Sample Port

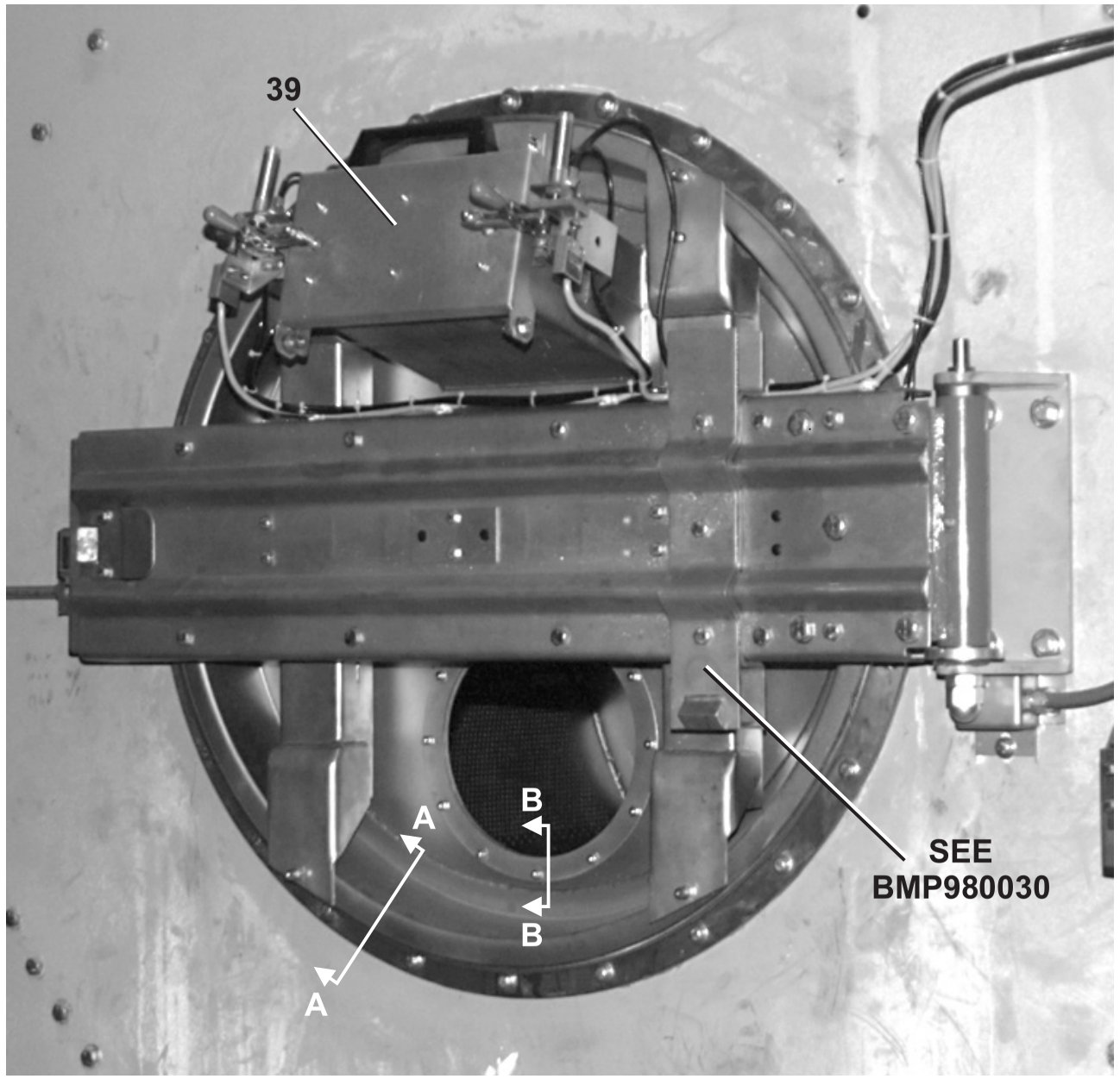
Used In	Item	Part Number	Description	Comments
all	28	15K095	HXCPSCR 3/8-16UNC2AX1 GR5 ZINC/CAD	
all	29	15U255	LOCKWASHER MEDIUM 3/8 ZINCPL	
all	30	15G206	HEXNUT 3/8-16 UNC2 SS 18-8	
all	31	15U260	LOCKWASHER MEDIUM 3/8 SS18-8	
all	32	15K100	HEXCAPSCR 3/8-16X1+1/4 SS18-8	
all	33	15G200C	01Z HXCPNUT HI 3/8-16 BRASS NIK PLT	
all	34	15K096	HEXCAPSCR 3/8-16UNC2X1SS18-8	
all	35	15U260	LOCKWASHER MEDIUM 3/8 SS18-8	
all	36	03 64039E	97192# COVER PLATE W/O HANDWHEELS/S	

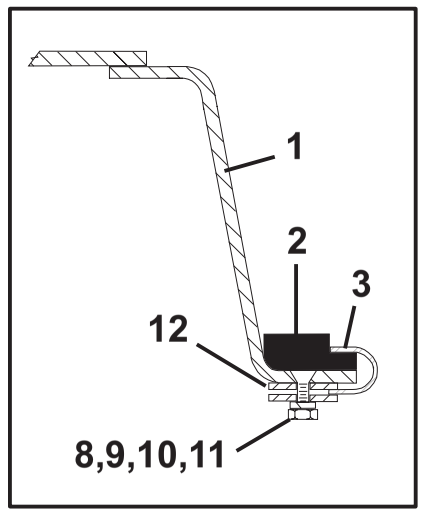
Installation Door with Sample Port

64046E6N/J6N, 72046E5N/J5N, 72058J2N/J5N

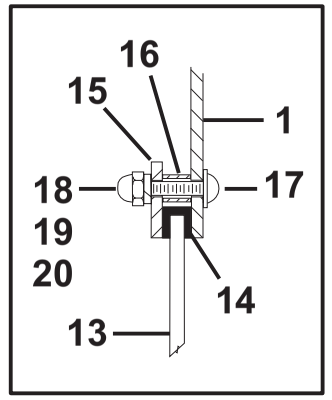
Pellerin Milnor Corporation
P. O. Box 400, Kenner, LA 70063-0400

Litho in U.S.A.





SECTION A-A



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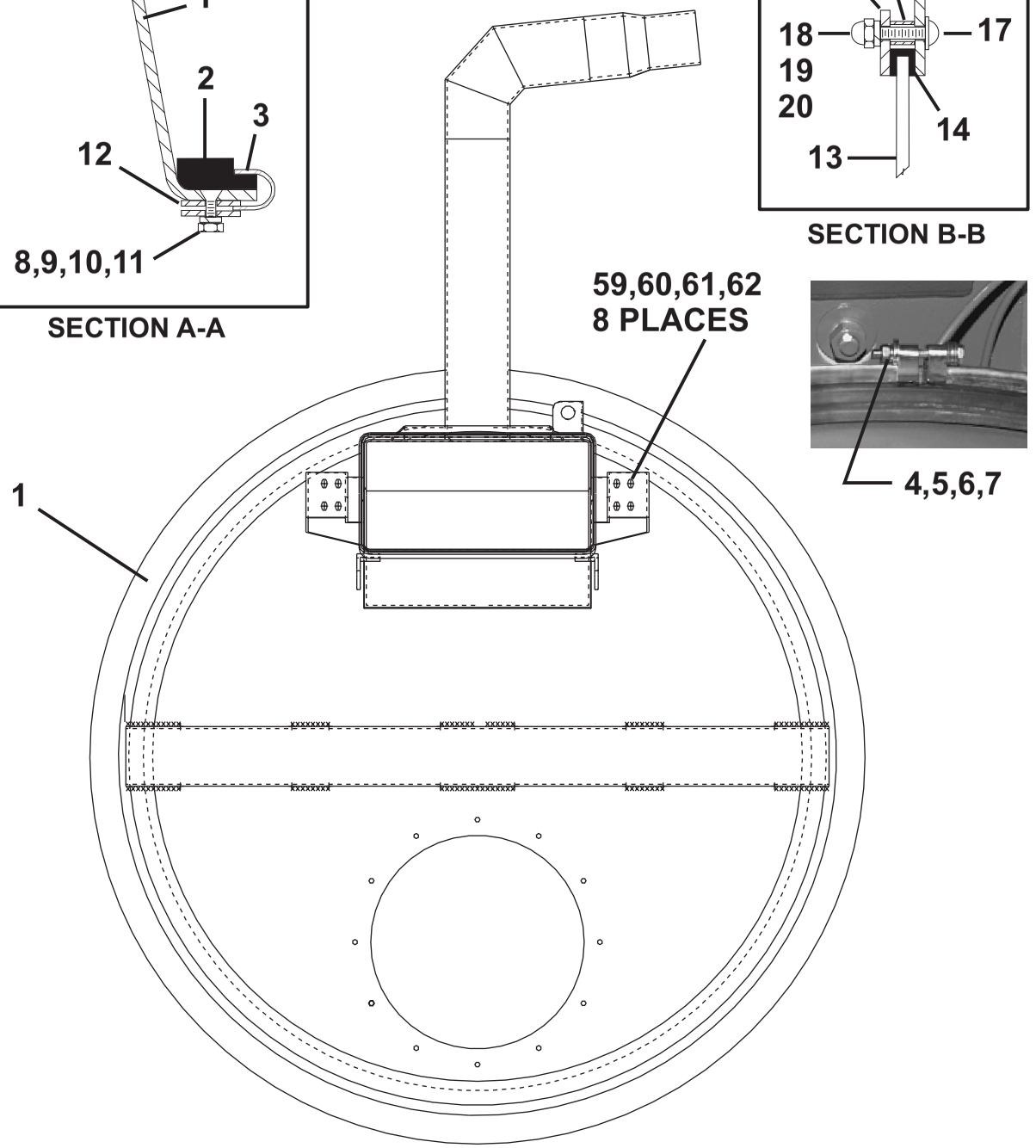
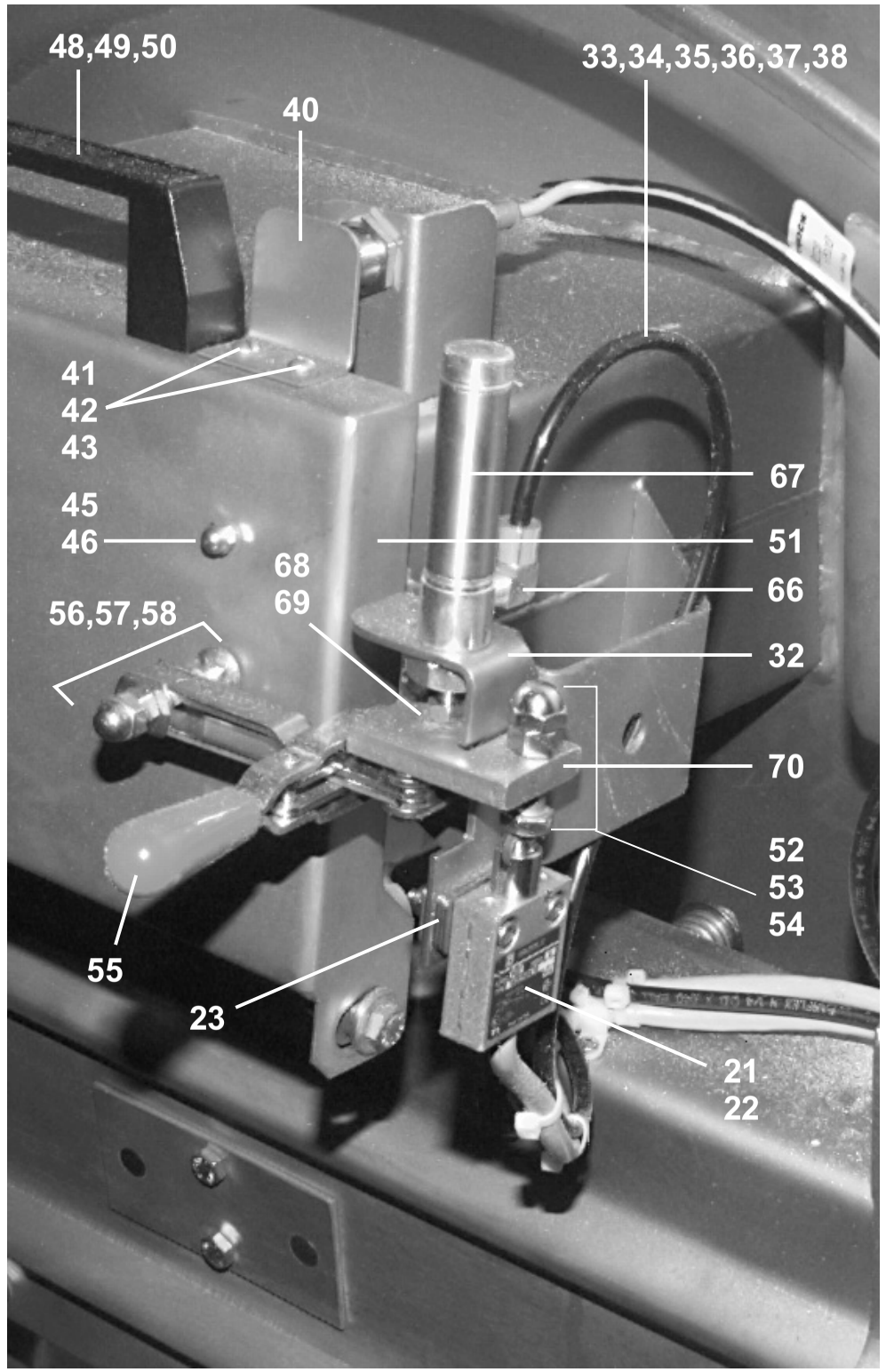


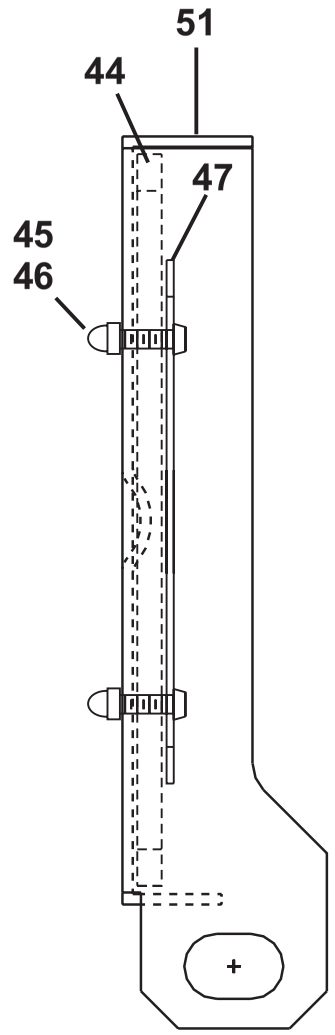
Installation Door with Sample Port

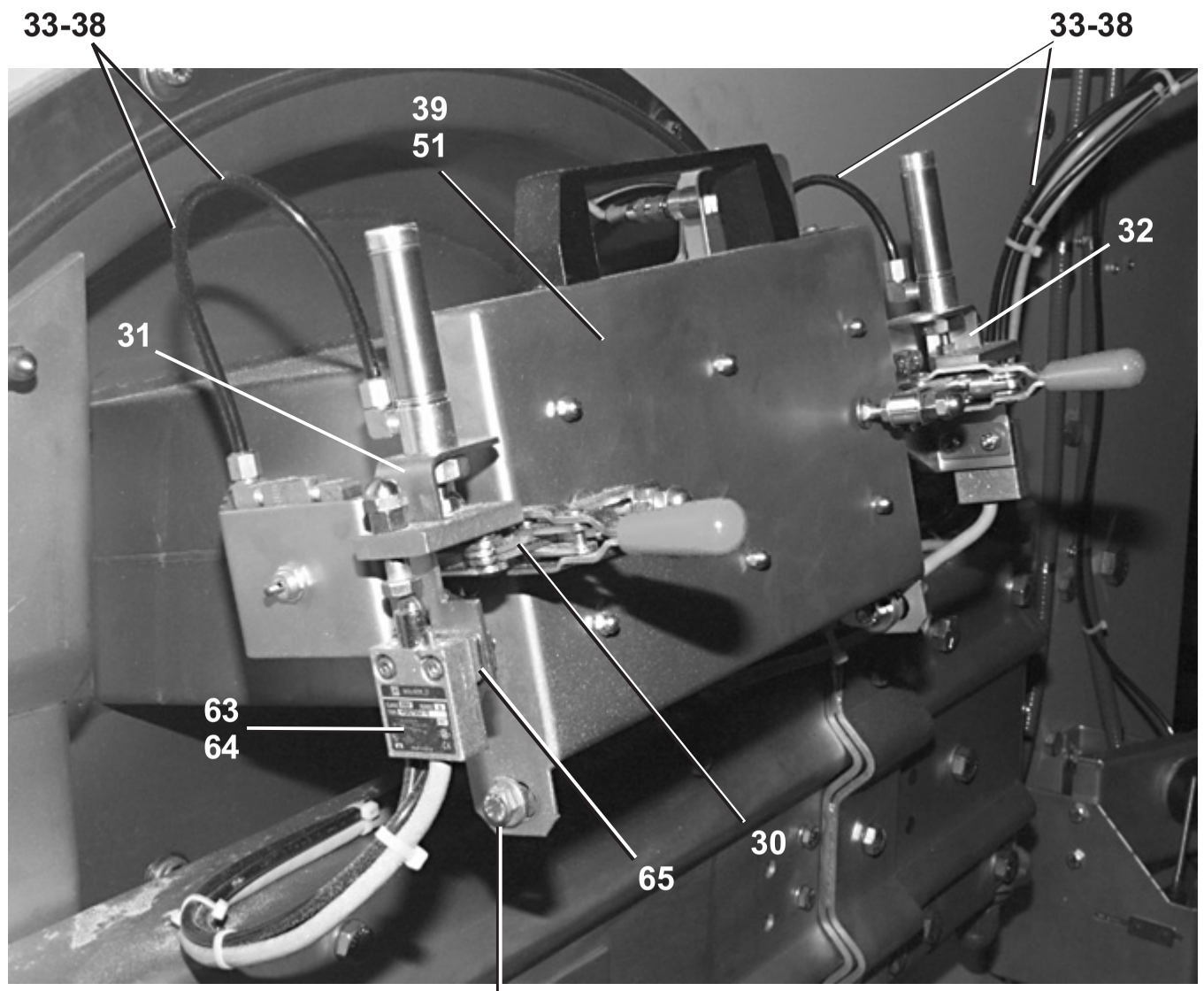
64046E6N/J6N, 72046E5N/J5N, 72058J2N/J5N

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

Litho in U.S.A.







Installation Door with Sample Port

64046E6N/J6N, 72046E5N/J5N, 72058J2N/J5N

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

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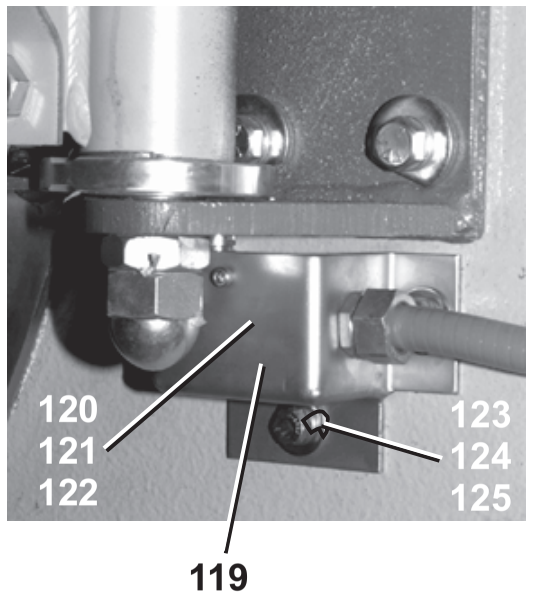
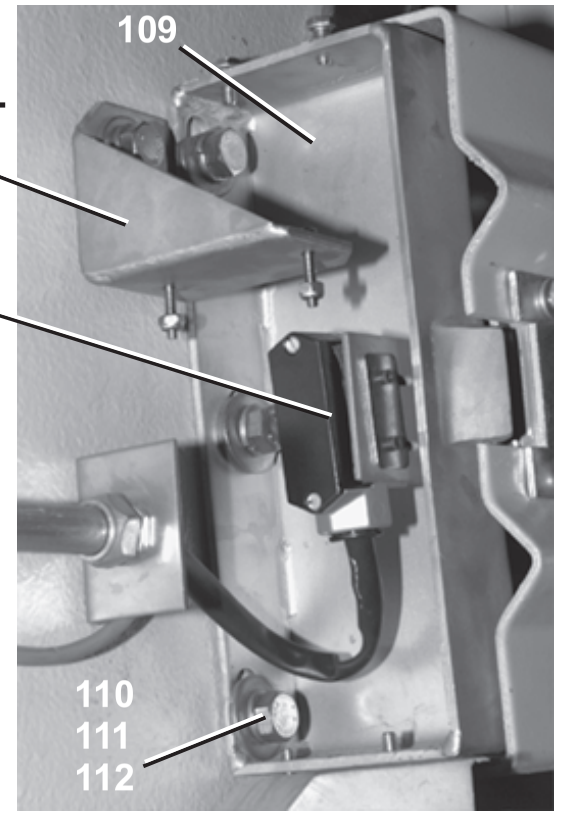
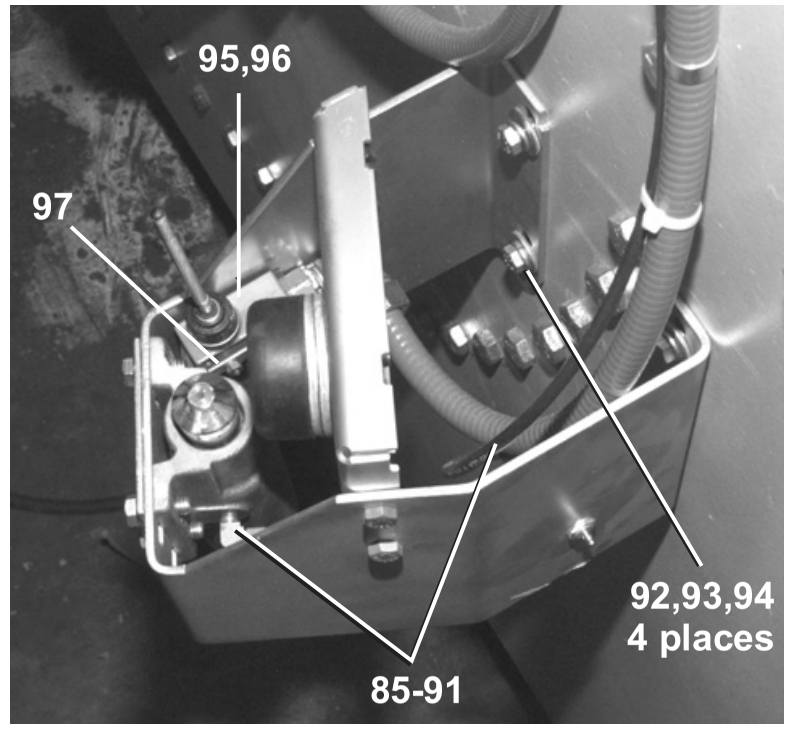
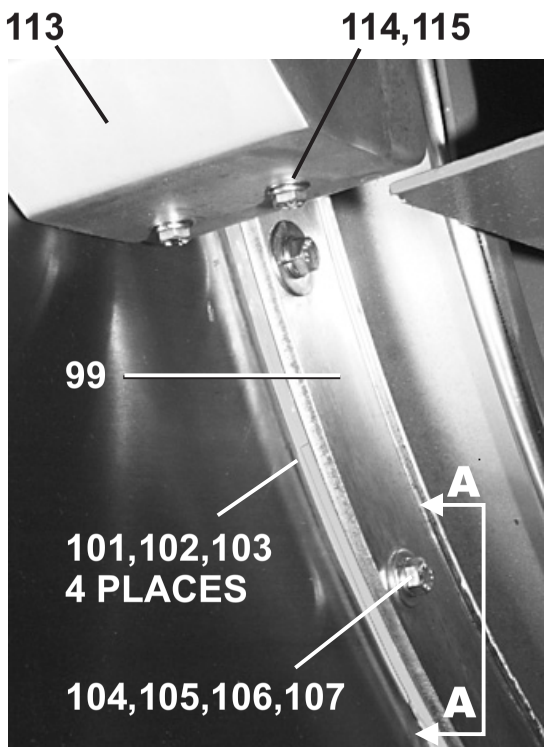
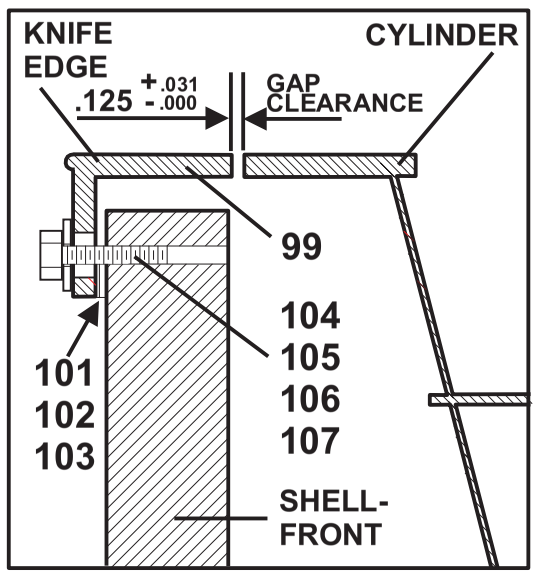


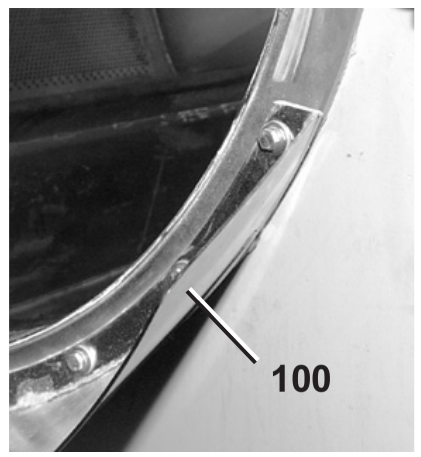


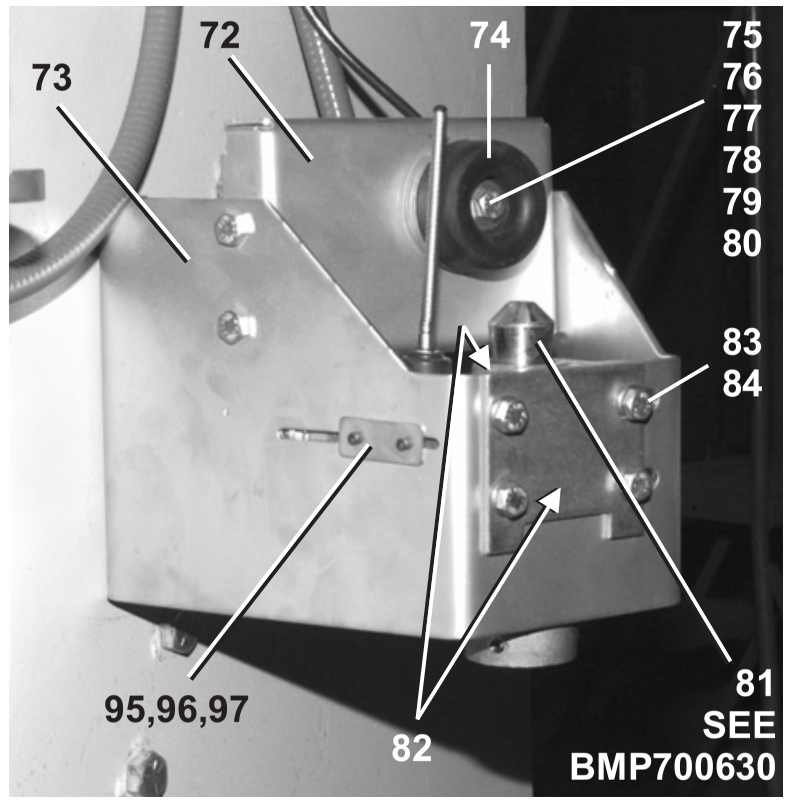






SECTION A-A





Installation Door with Sample Port

64046E6N/J6N, 72046E5N/J5N, 72058J2N/J5N

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

Litho in U.S.A.

Parts List—Installation Door with Sample Port

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	ASD66022	97000Z ASSY=40X4DR SMPL PRT 316	
	B	ASD66020	97000Z PRTS/COMMON 40X4DR SMPL PORT	
	C	ADT66002	97000Z PRTS=DOOR GASKET DYE 304	
	D	ASL66001	97000Z ASSY=LID 6X12 SAMPL PORT 316	
	E	ASD66020A	97000Z PRTS=SMP LID CLMP+SFTY INTLC	
	F	ADL66021	97000Z ASSY=SMP DR FL OPN LH+SW 316	
	G	GKE65001D	95253@ INST=DOOR KNIFE EDGE 316L	
	H	ADL66001	97000Z ASSY=DR CLOSED STRIKER 304	
	J	ADS66001	97000Z PRTS=SECONDARY DR SWITCH 304	
			----------COMPONENTS----------	
all	1	W3 66001	97373D*WLMT=40"X4"DR SMPL PORT 316	
all	2	05 20036D	92157# GASKET=40DURO 1/2T=40"DR DYE	
all	3	W5 20021	94222#*RING=DOOR GASKET RETAIN WELD	
all	4	15N200	FILMACSCR 1/4-20UNCX2 SS18-8 SLTD	
all	5	15U188	01Z FLTWASH 1/4 STD COMM SS18-8	
all	6	15U181	LOCKWASHER MEDIUM 1/4 SS18-8	
all	7	15G170	HEXNUT 1/4-20UNC2 SS18-8	
all	8	15N223	FLATMACSCR 3/8-16NC2 X 1+1/4 SS18-8	
all	9	15U245	01Z FLTWASH 3/8 STD COMM 18-8 SS	
all	10	15U260	LOCKWASHER MEDIUM 3/8 SS18-8	
all	11	15G206	HEXNUT 3/8-16 UNC2 SS 18-8	
all	12	15U245B	93262B FLATWASH SPECIAL DOOR 52+72	
all	13	02 09215	83096A DRGLASS 12 3/8DIA SS STAMPED	
all	14	02 02366	93516A GASKET DOORGLAS GTR52-5220-3	
all	15	03 66030	97373B RETAINER RING DOOR GLASS	
all	16	27B20006SS	00000Z SPACER=.322IDX.375LX.042WT S	
all	17	15K039A	BUTSOKCPSCR 1/4-20X7/8 SS 18-8 E=1	
all	18	24G020N	ROLLED WASH.252ID NYLTITE 25W	
all	19	15U181	LOCKWASHER MEDIUM 1/4 SS18-8	
all	20	15G140	03Z HXCPNT 1/4-20 #C250=20 NKLPLT	
all	21	09RM01212G	04Z CAPSW 12FT 180DEG ROLLER GOLD	
all	22	09R008BSTD	82026#* 09R008B+MOUNTING HDWRE+INST	
all	23	02 10391	COVERSTRIP-ELECTROPOL	
all	24	ADT66002	97000Z PRTS=DOOR GASKET DYE 304	
all	25	ASL66001	97000Z ASSY=LID 6X12 SAMPL PORT 316	
all	26	15K086E	SOKCAPSCR 3/8-16X3/4 18-8SS	
all	27	54E016M	FLGBRG 3/8X5/8X3/8BRZ#FB610-3	
all	28	15U245	01Z FLTWASH 3/8 STD COMM 18-8 SS	
all	29	15G206	HEXNUT 3/8-16 UNC2 SS 18-8	
all	30	ASD66020A	97000Z PRTS=SMP LID CLMP+SFTY INTLC	
all	31	02 14488C	87336# BKT-AIRCYL SAMPLE LOCK 42DYP	
all	32	02 14488A	87336C BKT-AIRCYL SAMPLE LOCK	

Parts List, cont.—Installation Door with Sample Port

Used In	Item	Part Number	Description	Comments
all	33	53A031B	BODY-EL90MALE.25X1/8 #269C-42B	
all	34	53A501	TUBEINSERT .170"OD	
all	35	53A500	1/4" SLEEVE-DELRIN	
all	36	53A059A	NUT 1/4"BR.HOLYOKE AND #61A-4	
all	37	60E004TE	04Z 1/4"OD X.170"ID NYL TUBING *	
all	38	53A031B	BODY-EL90MALE.25X1/8 #269C-42B	
all	39	ASL66001	97000Z ASSY=LID 6X12 SAMPL PORT 316	
all	40	03 66028	97373B TARGET=SAMPLE PORT	
all	41	15K021A	SOKCAPSCR 10-24UNCX1" LG S/S	
all	42	15G121	HXCAPNUT 10-24UNC2 #3266BR NKLPLTG2	
all	43	15U160	LOCKWASHER MEDIUM #10 SS18-8	
all	44	03 66027	97373B GASKET SAMPLE PORT	
all	45	15G121	HXCAPNUT 10-24UNC2 #3266BR NKLPLTG2	
all	46	15U160	LOCKWASHER MEDIUM #10 SS18-8	
all	47	W3 66026	97373#*WLMT=BACKING PLATE GASKET	
all	48	27A109	GRAB HANDLE #B8-20-503-10	
all	49	15K041S	HEXCAPSCR 1/4-20UNC2AX1 SS18-8	
all	50	15U181	LOCKWASHER MEDIUM 1/4 SS18-8	
all	51	W3 66025	97373#*WLMT=LID SAMPLE PORT	
all	52	15K100	HEXCAPSCR 3/8-16X1+1/4 SS18-8	
all	53	15G214	HXJAMNUT 3/8-16UNC2B SAE ZINC GR2	
all	54	15G200	01Z HXCPNUT 3/8-16 UNC2A 5/8X1/2	
all	55	27A700	TOGGLECLAMP GOODHAND E=1	
all	56	15G187	LOWCROWN ACORN NUT5/16-18BRASS,NICK	
all	57	15G190	HEXFINJAMNUT 5/16-18NC2 SS18-8	
all	58	15A005A	CARSCR 5/16-18X3+1/2 FUL THD SS18-8	
all	59	15G168	SQNUT 1/4-20UNC2 SS18-8	
all	60	15U181	LOCKWASHER MEDIUM 1/4 SS18-8	
all	61	15K041S	HEXCAPSCR 1/4-20UNC2AX1 SS18-8	
all	63	09RM01212G	04Z CAPSW 12FT 180DEG ROLLER GOLD	
all	64	09R008BSTD	82026#* 09R008B+MOUNTING HDWRE+INST	
all	65	02 10391	COVERSTRIP-ELECTROPOL	
all	66	53A031B	BODY-EL90MALE.25X1/8 #269C-42B	
all	67	27C075010B	03Z AIRCYL 3/4"BORE1"STK EXTROD	
all	68	15G220	02Z LTHX THIN LOKNUT 3/8-24 SSNTE	
all	69	15G177	HXNUT 1/4-28UNF2B SAE ZINC GR2	
all	70	02 14487B	87336B PLUNGER-SAMPLE DOOR LATCH	
all	71	ADL66021	97000Z ASSY=SMP DR FL OPN LH+SW 316	
all	72	03 66036	97373B FULL OPEN BUMPER MNT L-SMPL	
all	73	03 66035	97417CFULL OPEN LATCH MNT L-SMPL-D	
all	74	60C075	TRUCK BUMPER 2+1/2ODW3/8HO.613	
all	75	15K100	HEXCAPSCR 3/8-16X1+1/4 SS18-8	
all	76	15U260	LOCKWASHER MEDIUM 3/8 SS18-8	
all	77	15U246	FLATWASHER 1"ODX25/64IDX1/8"304 S/S	
all	78	15U245	01Z FLTWASH 3/8 STD COMM 18-8 SS	
all	79	15G207	HEXLIGHTLOKNUT 3/8-16 18-8SS NTE066	

Installation Door with Sample Port

64046E6N/J6N, 72046E5N/J5N, 72058J2N/J5N

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

Litho in U.S.A.

Parts List—Installation Door with Sample Port

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	80	15G206	HEXNUT 3/8-16 UNC2 SS 18-8	
all	81	SA 15 028	70239D* DOOR LATCH ASSY-DIVCYLS	
all	82	02 15633S	93216# DOOR LATCH ADJPLT=S/S	
all	83	15K100	HEXCAPSCR 3/8-16X1+1/4 SS18-8	
all	84	15U260	LOCKWASHER MEDIUM 3/8 SS18-8	
all	85	53A031B	BODY-EL90MALE.25X1/8 #269C-42B	
all	86	53A059A	NUT 1/4"BR.HOLYOKE AND #61A-4	
all	87	53A500	1/4" SLEEVE-DELRIN	
all	88	53A501	TUBEINSERT .170"OD	
all	89	60E004TE	04Z 1/4"OD X.170"ID NYL TUBING *	
all	90	53A042	BULKHDUNION 1/4"COMP.BODY ONLY	
all	91	53A042A	BULKHDUNION 1/4"COMP.=JAMNUT	
all	92	15K112	HXCAPSCR 3/8-16X1+1/2 SS18-8	
all	93	15U260	LOCKWASHER MEDIUM 3/8 SS18-8	
all	94	15U245	01Z FLTWASH 3/8 STD COMM 18-8 SS	
all	95	15P180	TRDCUT-F HXHD 1/4-20UNC2X5/8 SS304	
all	96	09R008BSTD	82026#* 09R008B+MOUNTING HDWRE+INST	
all	97	02 10391	COVERSTRIP-ELECTROPOL	
all	98	GKE65001D	95253@ INST=DOOR KNIFE EDGE 316L	
all	99	Y3 65045D	95253# MACH=KNIFE EDGE 40"DR 6446D6	
all	100	W3 65338A	95246D*WLMT=LOAD/UNLOAD SCOOP W/TUB	
all	101	05 20052C	93287# 1/8 GASKET DR 72D E=1SEGMENT	
all	102	05 20052D	93287# 1/16GASKET DR 72D E=1SEGMENT	
all	103	05 20052E	93287# 1/32GASKET DR 72D E=1SEGMENT	
all	104	15K100	HEXCAPSCR 3/8-16X1+1/4 SS18-8	
all	105	15U260	LOCKWASHER MEDIUM 3/8 SS18-8	
all	106	15U246	FLATWASHER 1"ODX25/64IDX1/8"304 S/S	
all	107	20C040B	SILSEAL RTV CLR10.2 OZ #59575	
all	108	ADL66001	97000Z ASSY=DR CLOSED STRIKER 304	
all	109	05 20143	84492C PLATE=DOOR LATCH STRIKER 72T	
all	110	15K173A	HXCAPSCR 1/2-13UNC2AX1.75 GR5 PLATD	
all	111	15U490	FLAWASH 1+1/2X17/32X1/4ZINC	
all	112	15U300	LOKWASHER REGULAR 1/2 ZINC PLT	
all	113	W5 20146	93303C* COVER=WLMT,DOORSW=7244TILTS	
all	114	15K031	BUTSOKCAPSCR 1/4-20X1/2 SS18-8	
all	115	15U181	LOCKWASHER MEDIUM 1/4 SS18-8	
all	116	E25 00100A	94102B DOOR INTLK SWITCH ASSY E6N	
all	117	09R008BSTD	82026#* 09R008B+MOUNTING HDWRE+INST	
all	118	02 10391	COVERSTRIP-ELECTROPOL	
all	119	ADS66001	97000Z PRTS=SECONDARY DR SWITCH 304	
all	120	09RM01212S	03Z CAPSW 12' 180DEG ROLLER SILVE	
all	121	09R008BSTD	82026#* 09R008B+MOUNTING HDWRE+INST	
all	122	W5 20024E	92703#*WLMT=BRKT SECOND DR SW 6446	

Parts List, cont.—Installation Door with Sample Port

Used In	Item	Part Number	Description	Comments
all	123	15K084S	HXCAPSCR 3/8-16NCX5/8 SS18-8	
all	124	15U245	01Z FLTWASH 3/8 STD COMM 18-8 SS	
all	125	15U260	LOCKWASHER MEDIUM 3/8 SS18-8	

.

Rotary Coupling

6446J6N, 7246J5N ,7258J5N

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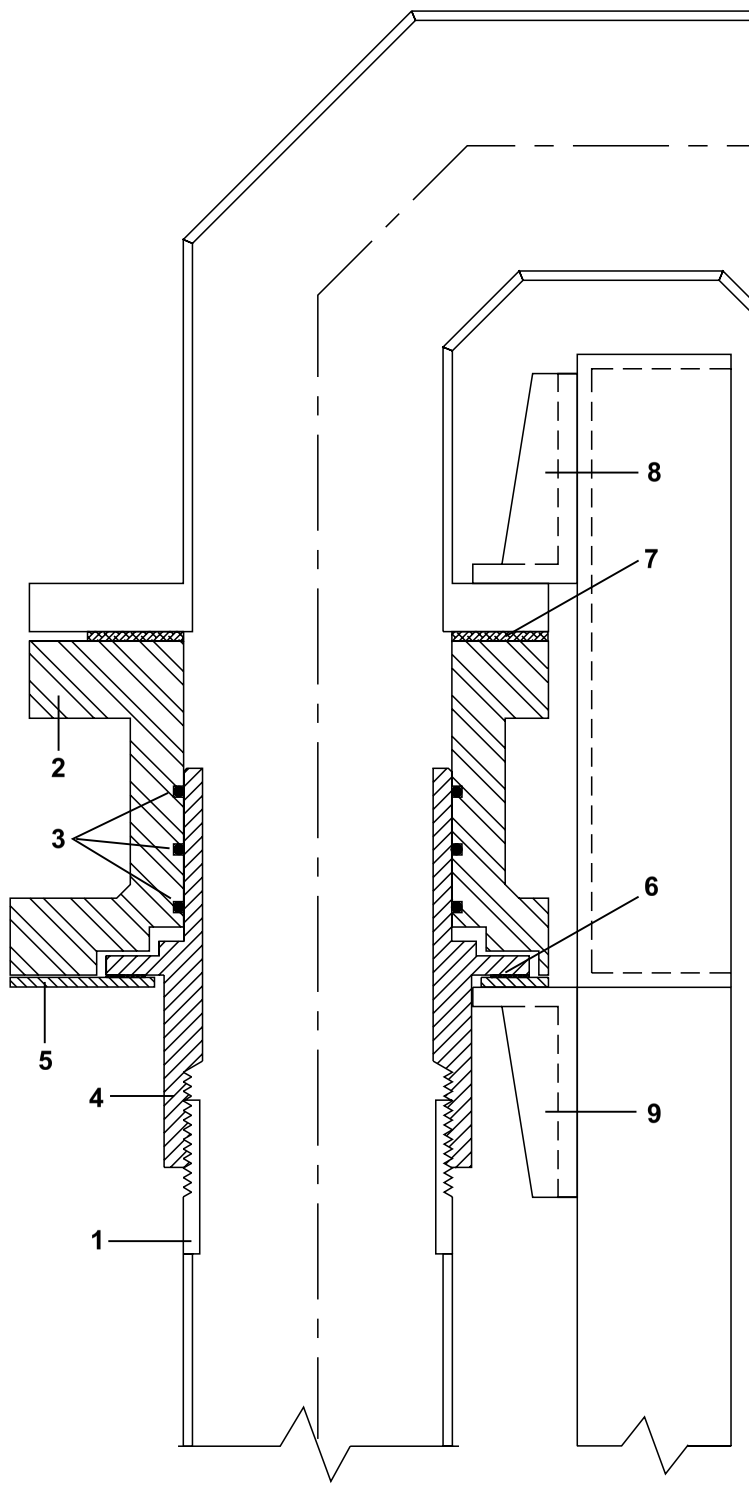

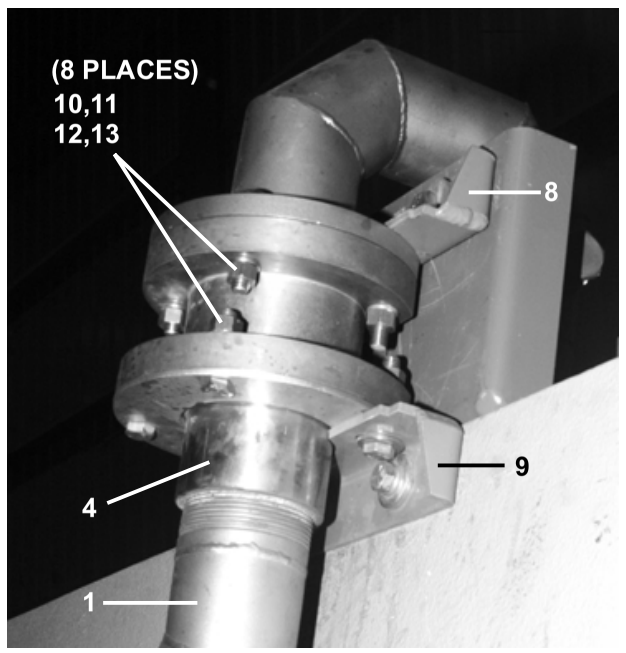

Parts List—Rotary Coupling

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	ACP65002	93000Z ASSY=3.5ROTARY COUPL 6446J6N	
			----------COMPONENTS----------	
all	1	W3 65574A	95392C*WLMT=OUTLET ROT COUPL 316S/S	
all	2	X5 20204D	92772C MACH=OUT SLV 3-1/2"ROT COUP	
all	3	60C145A	ORING 3+1/2ID1/8CSVIT.TEFLN238	
all	4	X5 20205D	92497B MACH=INR SLV 3-1/2" ROT COUP	
all	5	05 72113	92747B PL=3/16"THK.X DIA.8.12	
all	6	05 72121	93051B GASKET=TEF.03X4.50X5.50 OUT	
all	7	49003A	GKT-PIPEFLG-3"IDX1/16"TH,NA700	
all	8	W5 72100	92596#*WLMT=3.5 ROT COULD SUPT UP	
all	9	W5 72100A	92596#*WLMT=3.5 ROT COULD SUPT LOW	
all	10	15K190S	HXCAPSCR 1/2-13UNC2AX2.5 FLTHRD SS	
all	11	15U285A	87451B FLATWASH 1/8THK 1/2ID SS18-8	
all	12	15U310	LOKWASHER REGULAR 1/2 SS18-8	
all	13	15G234B	HEXNUT 1/2-13UNC2B BRASS	

Door Hinge

64046E6N/J6N, 72046E5N/J5N, 72058J2N/J5N

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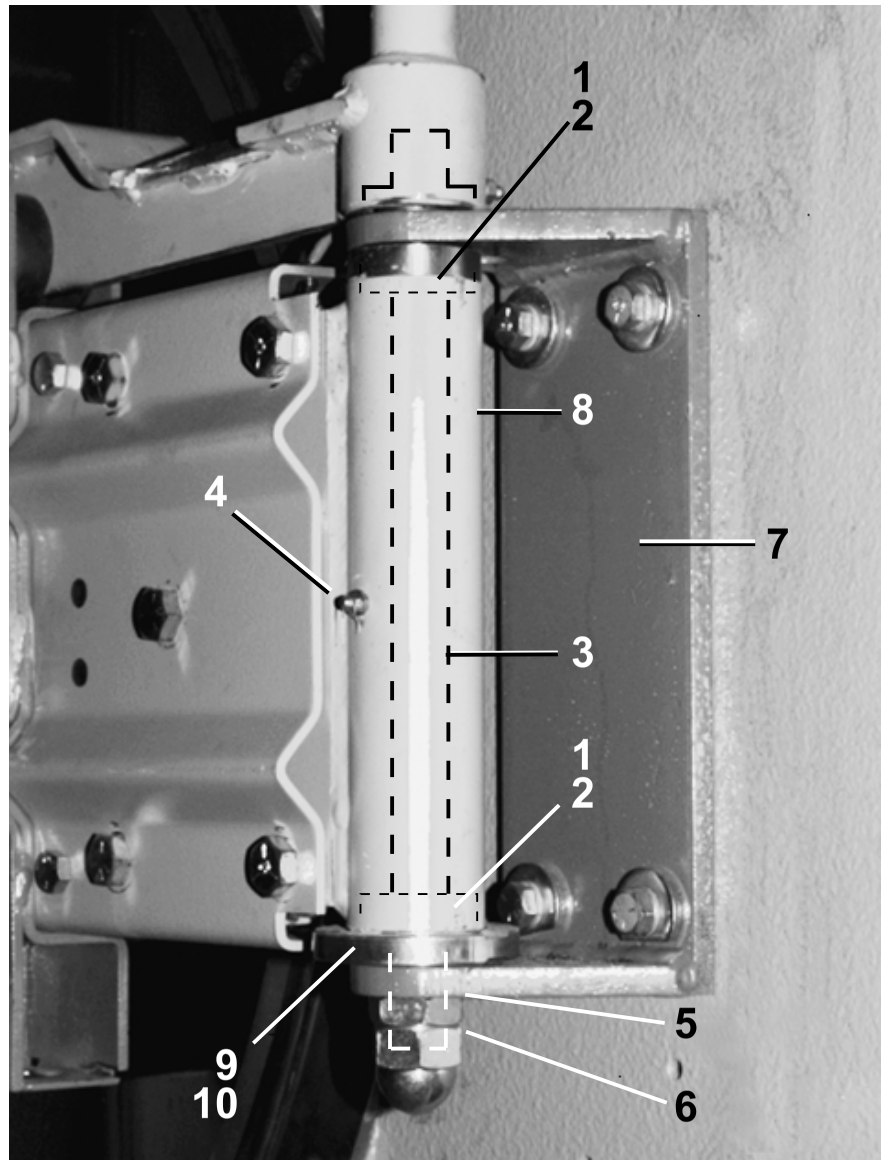

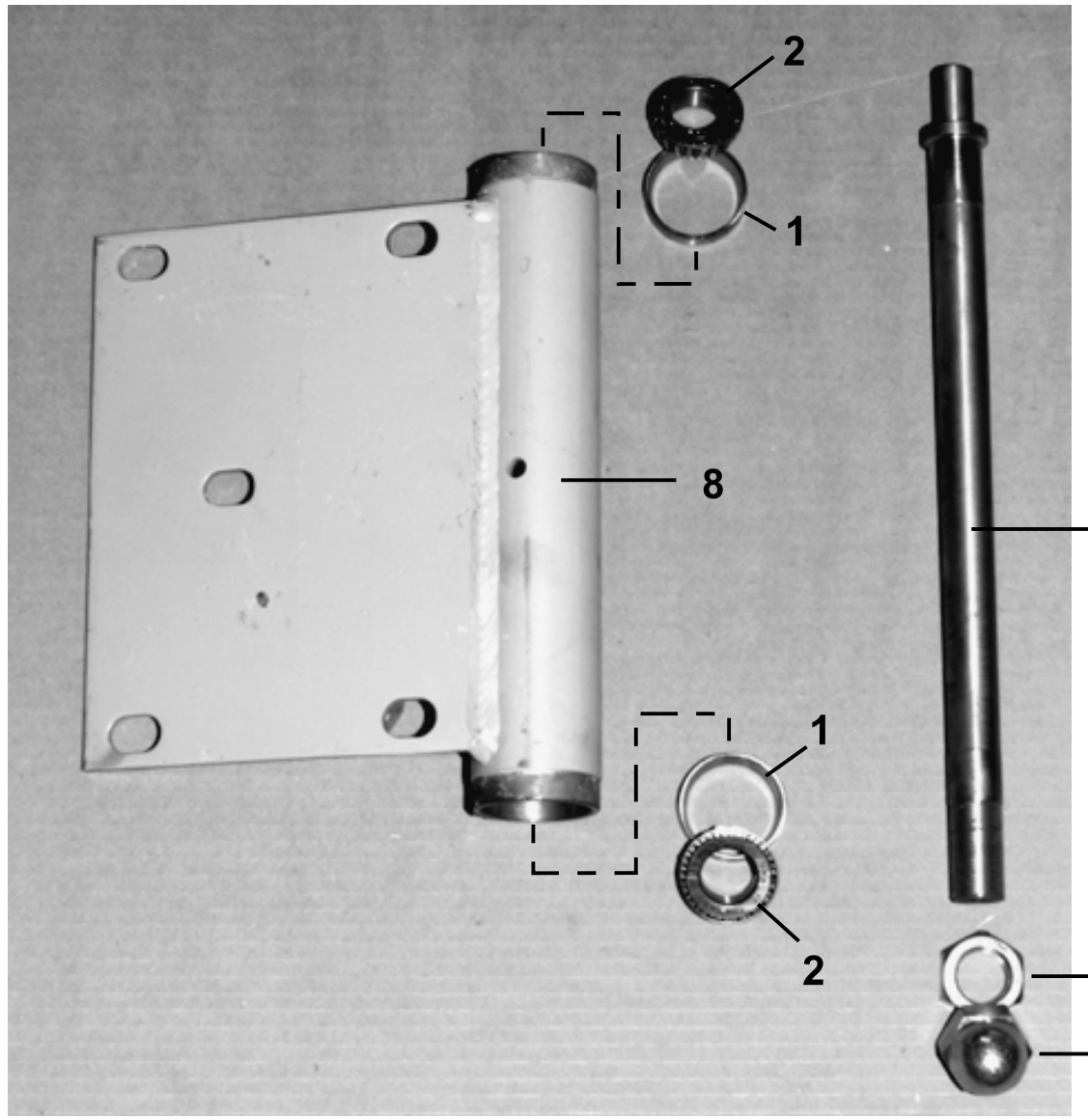

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Parts List—Door Hinge

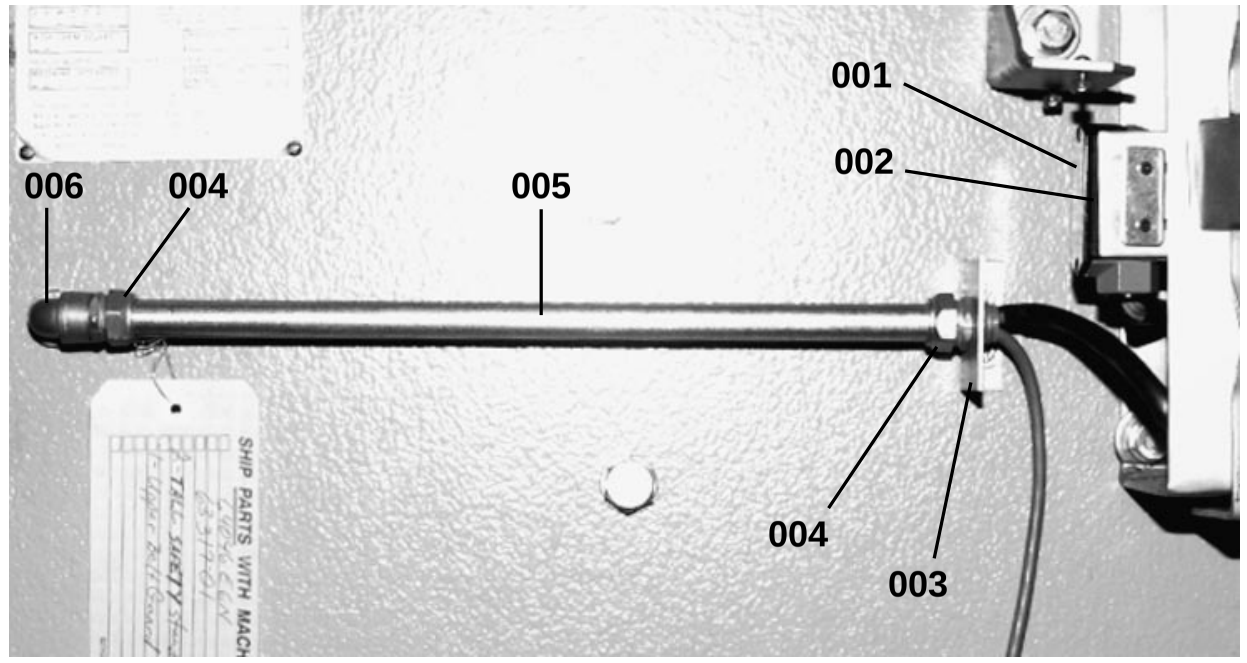
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

Used In	Item	Part Number	Description	Comments
----------	----------	----------	----------ASSEMBLIES----------	----------
	A	ABD65001	94091L ASSY=DOOR BERING&HINGE P/N	
----------	----------	----------	----------COMPONENTS----------	----------
all	1	54A976	CUP TIMKN #L44610 2"OD 1BX+PT#	
all	2	54A977	CONE TIMKN #L44643 1"ID 1BX+P#	
all	3	05 20140A	82047B PIN-DOOR HINGE 15.625LG 72T	
all	4	54M015	65408A GREASEFIT 60X36/60X44 1610BL	
all	5	15G248	HXJAMNUT 1-14UNF2B ZINC GR2	
all	6	15G249	HXCAPNUT L-CROWN 1-14UNF2B ZINC GR2	
all	7	W5 20024A	92707B*HINGE BRACKET WELDMENT 72T	
all	8	W5 20017	92707C* WELDMENT=40" DOOR HINGE	
all	9	54JH13562B	93262C HINGE COL SPLIT 3.56 FL TOP	
all	10	15K041E	05Z SKCPSCR 1/4-20X1+1/4"BLK	

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

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

DOOR INTERLOCK SWITCH ASSEMBLY
64046E6N/J6N/D6N 72046E5N/J5N/D5N 72058J5N



LITHO IN USA

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

PARTS LIST
(See other page for drawing.)

DOOR INTERLOCK SWITCH ASSEMBLY
64046E6N/J6N/D6N 72046E5N/J5N/D5N 72058J5N

ITEM	PART NUMBER	DESCRIPTION	HOW PART IS USED IN ASSEMBLY (Only if pertinent)
00A	E25 00100A	94102B DOOR INTLK SWITCH ASSY E6N	REFERENCE ASSEMBLY
001	09R012STDG	82026#* 09R012 +MOUNTING HDWRE+INST	
002	20A015GA	73115A SHIM=FRICTION=CWU DOORSWITCH	
003	03 BL3X2	92607B BRKT:72DYE DOOR CABLE	
004	12K040	1/2" COND.EMT CONDUIT PECO #260B	
005	12C050	TUBING 1/2 EMT THIN WALL *10RML	
006	12M036L	1/2" 90-DEG SHORT ELLS PECO #780DC	
		******** 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.

LITHO IN USA

Door Latch

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

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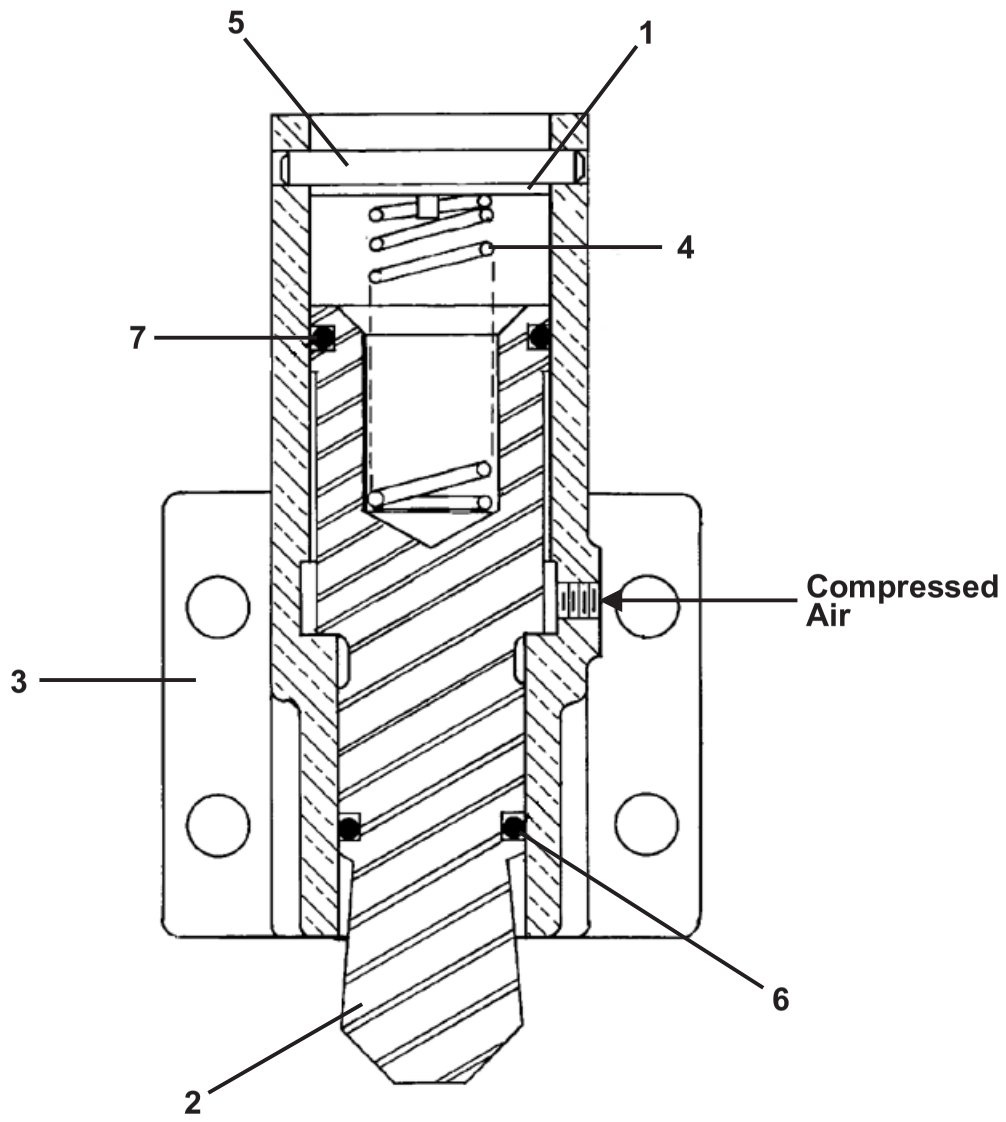

Parts List—Door Latch

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 15 028	70239D* DOOR LATCH ASSY-DIVCYLS	
			----------COMPONENTS----------	
all	1	02 15105	RETAINER LATCHSPRING	
all	2	02 15297	91103B PLUNGER=DOORLOCK(DIVCYL)	
all	3	02 15298	CYLINDER-DOORLATCH INTERLOCK	
all	4	02 15836	68201A DOOR LATCH SPRING (302SS)	
all	5	15H090	01Z SPRNG PIN 1/4X1+7/8 LONG PLAIN	
all	6	60C122	ORING 1" ID 1/8CS BN 70 DURO #214	
all	7	60C128	ORING 1+3/8 ID 1/8CS BN 70DURO #220	

Section 4

Drive and Brake Assemblies

Drive Chart

64040, 64050, 64046E6N/J6N 72046E5N/J5N 72058J2N/J5N

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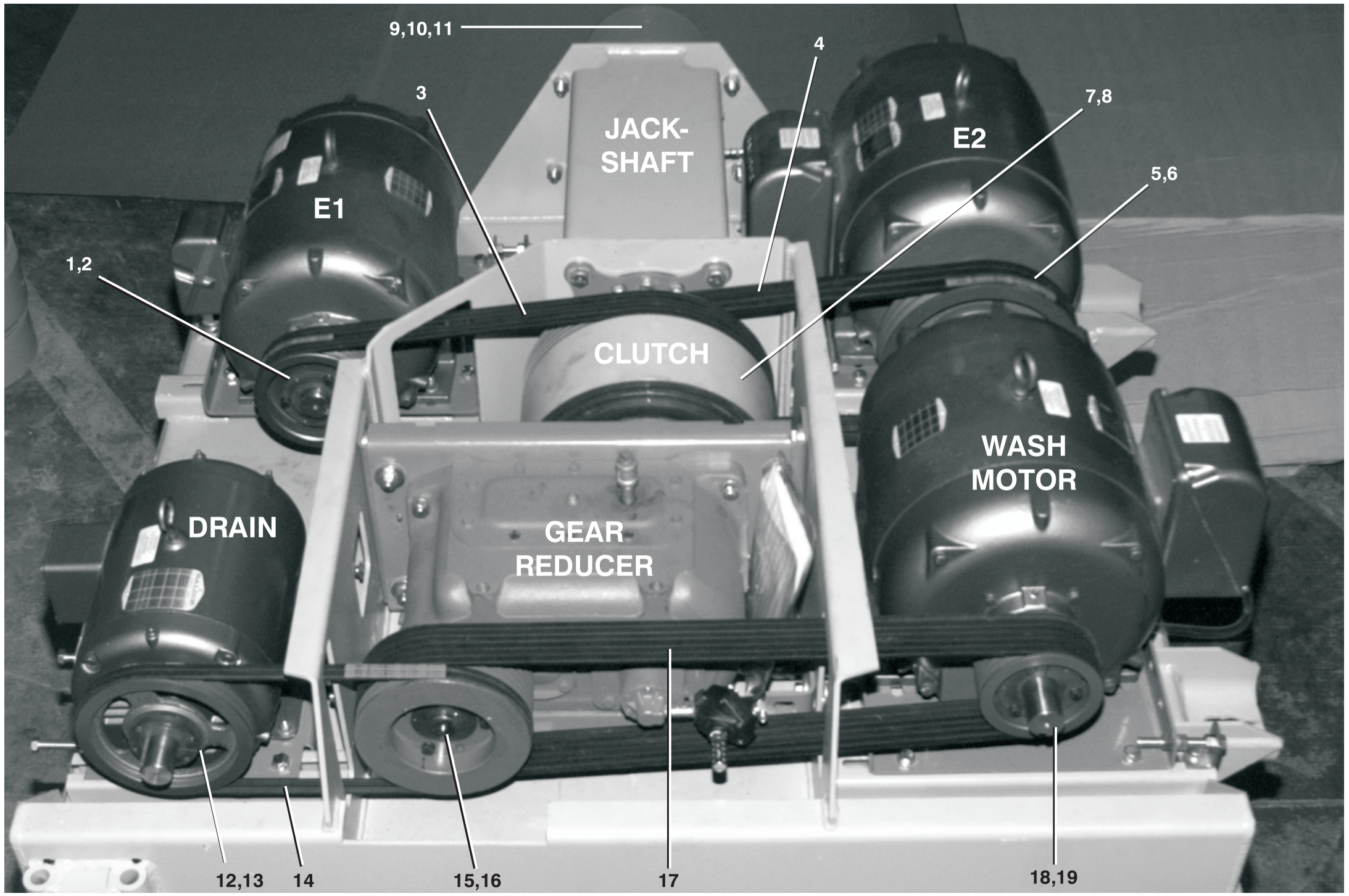

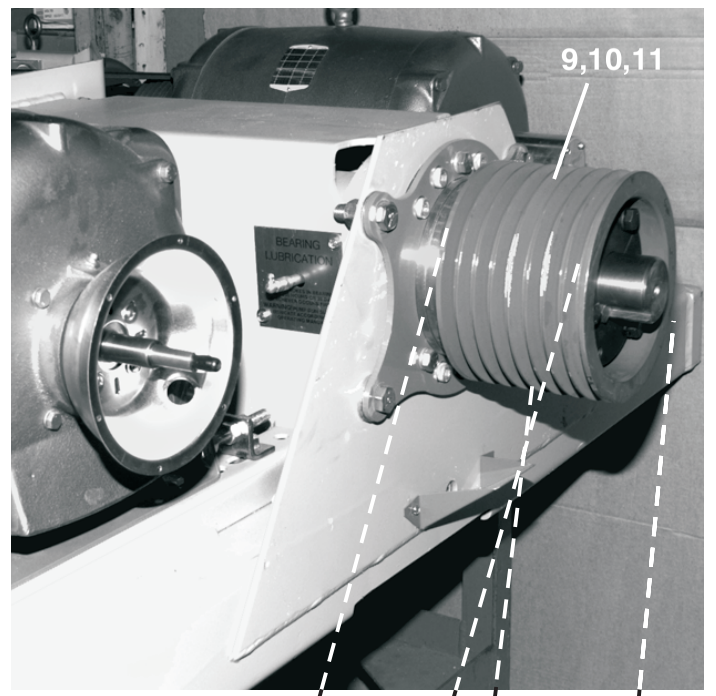

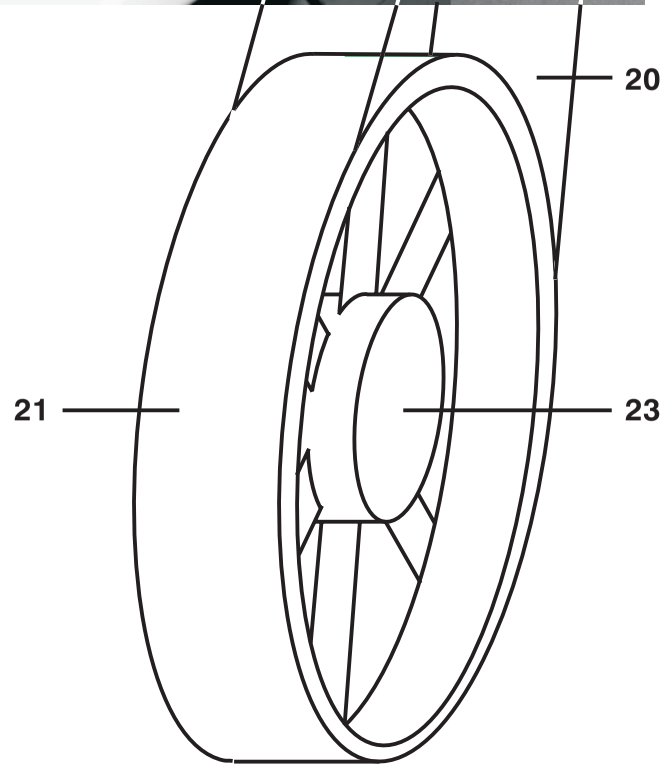

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Parts List—Drive Chart

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

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	D65 00150	DRIVE CHART 6446E6N 50CYCLE	64046E6N 50 CYCLE
	B	D65 00160	DRIVE CHART 6446E6N 60CYCLE	64046E6N 60 CYCLE
	C	D46 00150	DRIVE CHART 72046E5N 50CY	72046E5N 50 CYCLE
	D	D46 00160	DRIVE CHART 72046E5N 60CY	72046E5N 60 CYCLE
	E	D58 00150	DRIVE CHART 72058E5N 50CY	72058E5N 50 CYCLE
	F	D58 00160	DRIVE CHART 72058E5N 60CY	72058E5N 60 CYCLE
	G	D58 00250	DRIVE CHART 7258J2N 50CYC	72058J2N 50 CYCLE
	H	D58 00260	DRIVE CHART 7258J2N 60CYC	72058J2N 60 CYCLE
	J	D60 00150	DRIVE CHART 6440E6N 50CYCLE	64040/64050 E6N 50 CYC
	K	D60 00160	DRIVE CHART 6440E6N 60CYCLE	64040/64050 E6N 60 CYC
			----------COMPONENTS----------	
ABCDJK	1	560645R5SK	VPUL 5G3V6.45 (SK) TYPE QD	
EF	1	560685R5SK	VPUL 5G3V6.85 (SK) TYPE QD	
GH	1	560407R4SH	VPUL 4G3V4.07 (SH) TYPE QD	
ABCDEFJK	2	56Q1MSK	1+5/8" BUSH VPUL QD TYPE SK	
GH	2	56Q1MSH	1+5/8" BUSH VPUL QD TYPE SH	
all	3	56VR067S	VBELT 3V670	
ABJK	4	56VS0670M3	VBELT 5V670 MATCHSET3 EA=1BLT	
CD	4	56VR067S	VBELT 3V670	
EF	4	56VR063S	VBELT 3V630	
ABJK	5	561080S3SF	VPUL 3G5V10.8 (SF) TYPE QD	
CD	5	561055R5SK	VPUL 5G3V10.55(SK) TYPE QD	
EF	5	560795R5SK	VPUL 5G3V7.95PD (SK) TYPE QD	
all	6	56Q1RSF	1+7/8" BUSH VPUL QD TYPE SF	
ABJK	7	X3 64268	CLUTCH DRUM 3G5V8.92/5G3V13.45	
CDEGH	7	X2 15106	FLANGE=CLUTCH DRIVE 2.5	
ABJK	8	15E230	STRMACHKEY 3/8SQX2+1/2 TOL.+0	
CDEGH	8	X5 20111	CLUTCH DRUM+VPUL 5G13.45+9.0	
AGJ	9	561020S8F	VPUL 8G5V10.2 (F) TYPE QD	
BK	9	560840S8E	VPUL 8G5V8.4PD-8.50D E QD	
CE	9	561020S10F	VPUL 10G5V10.2PD/10.3D F QD	
DFH	9	560840S10E	VPUL 10G5V8.4PD/8.50D E QD	
ACEGJ	10	56Q2HF	2+7/16" BUSH VPUL QD TYPE F	
BDFHK	10	56Q2HE	2+7/16" BUSH VPUL QD TYPE E	
all	11	02 175121	KEY=5/8SQ	
all	12	560795R2SE	VPUL 2G3V7.95.(SDS).TYPE QD	
ABJK	13	56Q1GSDS	1+3/8" BUSH VPUL QD TYPE SDS	
CDEF	13	56Q1MSDS	1+5/8" BUSH VPUL QD TYPE SDS	

Parts List, cont.—Drive Chart

Used In	Item	Part Number	Description	Comments
ABJK	14	56VR050S	VBELT 3V500	
CDEF	14	56VR0500	VBELT 3VX500 COGGED WEDGE ONLY	
all	15	02 19201D	V-PUL 8G3V7.95 QD TYPE "SF"	
all	16	56Q1GSF	1+3/8" BUSH VPUL QD TYPE SF	
ABCDEF	17	56VR0750M2	VBELT 3V750 MATCHSET2 EA=1BLT	
GH	17	56VR071S	VBELT 3V710	
ABCDEFGH	18	560525R5SK	VPUL 5G3V5.25.(SK).TYPE QD	
JK	18	560495R5SE	VPUL 5G3V4.95 "SDS" TYPE QD	
ABCDEFGH	19	56Q1MSK	1+5/8" BUSH VPUL QD TYPE SK	
JK	19	56Q1GSDS	1+3/8" BUSH VPUL QD TYPE SDS	
AJ	20	56VX1530W4	V-BAND SET OF 2 WRAP 4R5V1530	
BK	20	56VS1505W4	V-BAND SET OF 2 WRAP 4R5V1505	
CEG	20	56VX1700W5	V-BAND SET OF 2 WRAP 5R5V1700	
DFH	20	56VX1650W5	V-BAND SET OF 2 WRAP 5R5V1650	
ABJK	21	03 25105B	VPUL W/O BKDRM8G5V30.0-M HUB	
CDEFGH	21	X5 58160	VPUL 10G5V31.4PD/31.5OD MACH	
CDEF	22	02 175121	KEY=5/8SQ	
	23	56Q5EM	5+1/4" BUSH VPUL QD TYPE M	

Drive Base Installation

64040, 64050, 64046E6N/J6N/D6N 72046E5N/J5N 72058J2N/J5N 6440/6450E6N SM

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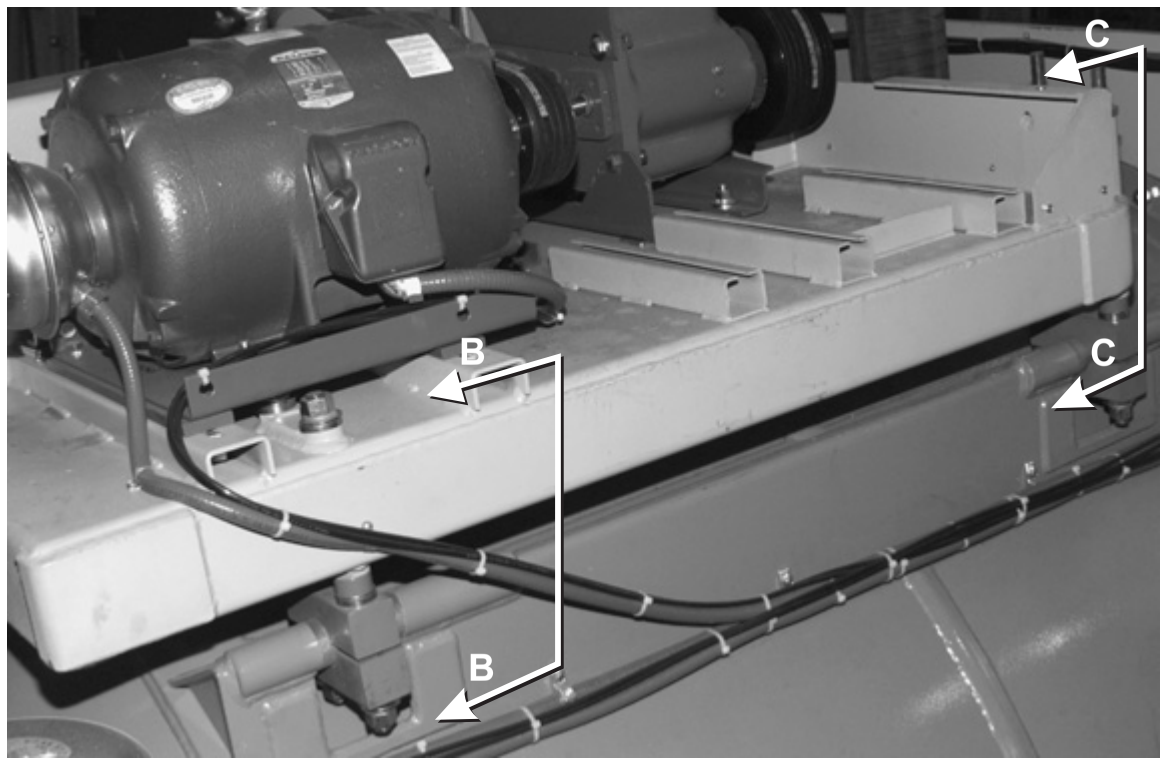
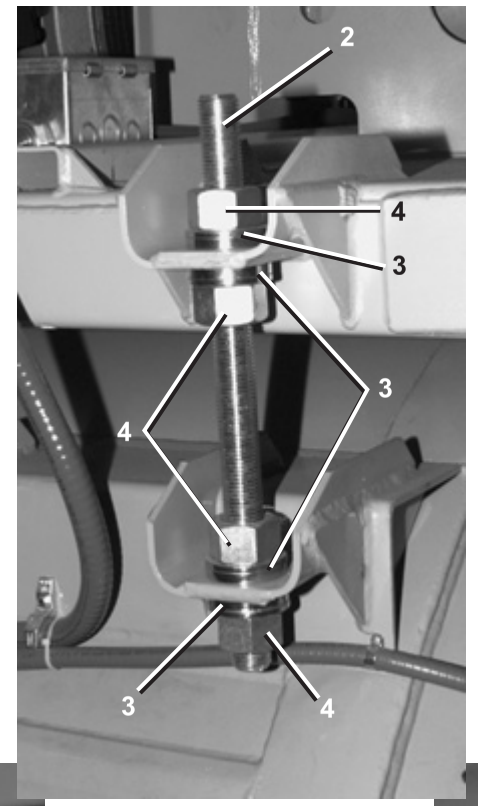
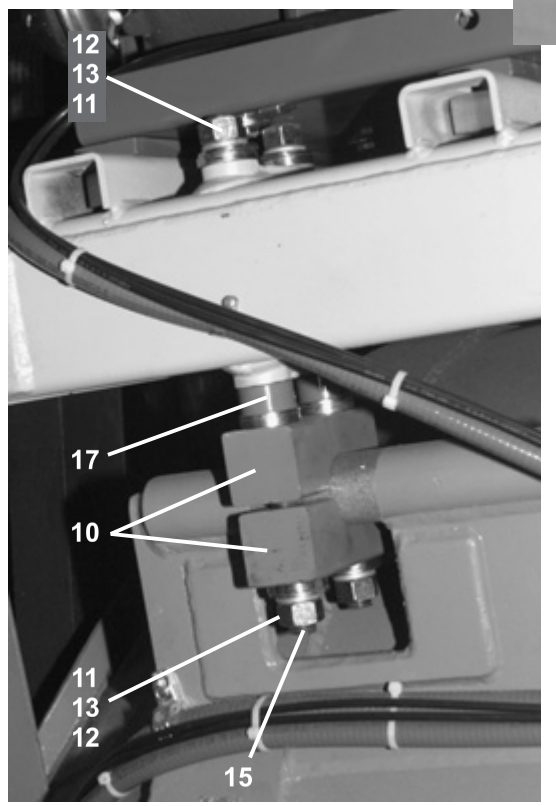


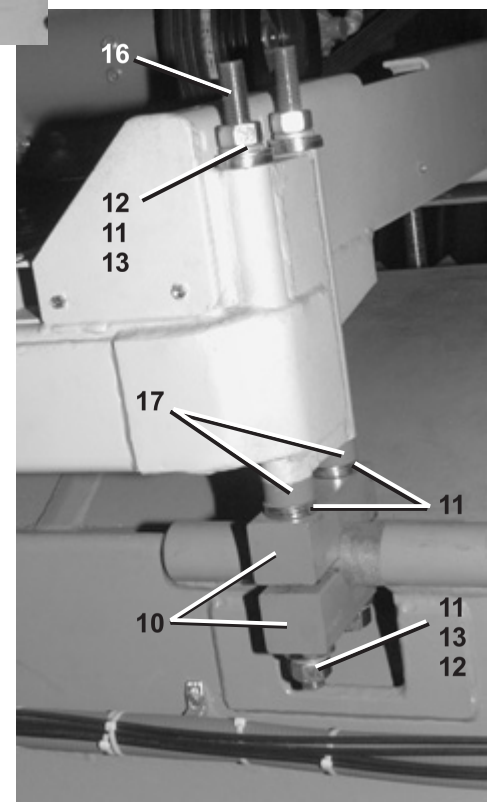


VIEW A-A

VIEW B-B



VIEW C-C



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Parts List—Drive Base 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	GDB65001	93442L INST=DRIVE BASE 6446E6N	65050, 64046D6N,J6N,E6N
	B	GDB46001	94000Z INST=DRIVE BASE 7246E5N	7246J5N,E5N
	C	GDB58001	93000Z INST=DRIVE BASE 7258	7258D5N,J5N
	D	GDB58501	94000Z INST=DRIVE BASE 7258J2N	7258J2N,7258J2N SLIM
	E	GDB65002	99000Z INST=DRIVE BASE 6440	64040E6N, 64050
	F	GDB65003	INST=DRIVE BASE 6440 1MTR	6440/6450E6N SINGLE MOTOR
			----------COMPONENTS----------	
A	1	ADB65001	93452B ASSY=DRIVE BASE 6446E6N	
B	1	ADB46001	94000Z ASSY=DRIVE BASE 7246E6N	
C	1	ADB58001	94000Z ASSY=DRIVE BASE 7258E5N	
D	1	ADB58501	94000Z ASSY=DRIVE BASE 7258J2N	
E	1	ADB650002	99000Z ASSY=DRIVE BASE 6440	
F	1	ADB65003	ASSY DRIVE BASE 6450 1MOTOR	
all	2	17R125A17K	83287# STUD=DRIVEBASEADJ 1+1/4X17.5	
all	3	17W125	81422B 1+1/4"SPHERICAL WASHER SET	
all	4	15G261	HVHXNUT 1+1/4-8UNC2B ZINC GR2H	
all	10	03 64176	89112B BAR=MTR MNT HINGE PIN CLAMP	
all	11	17W050	04Z SPHERICALWASHER SET 7/8 M/F	
all	12	15G240	HXNUT 3/4-10UNC2B SAE ZINC GR2	
all	13	15U340	LOCKWASH MEDIUM 3/4 ZINCPL	
all	15	17R026A14A	93297B MCS BEARING CARRIER STUD	
all	16	17R026A19A	93297# 3/4-1OUNC2 THREADED ROD 19LG	
all	17	03 64281	89112B SPACER 6442 MTR.MT.	

Drive Base Assembly

64040/64050E6N 64046E6N/J6N/D6N 72046E5N/J5N 72058J5N/D5N

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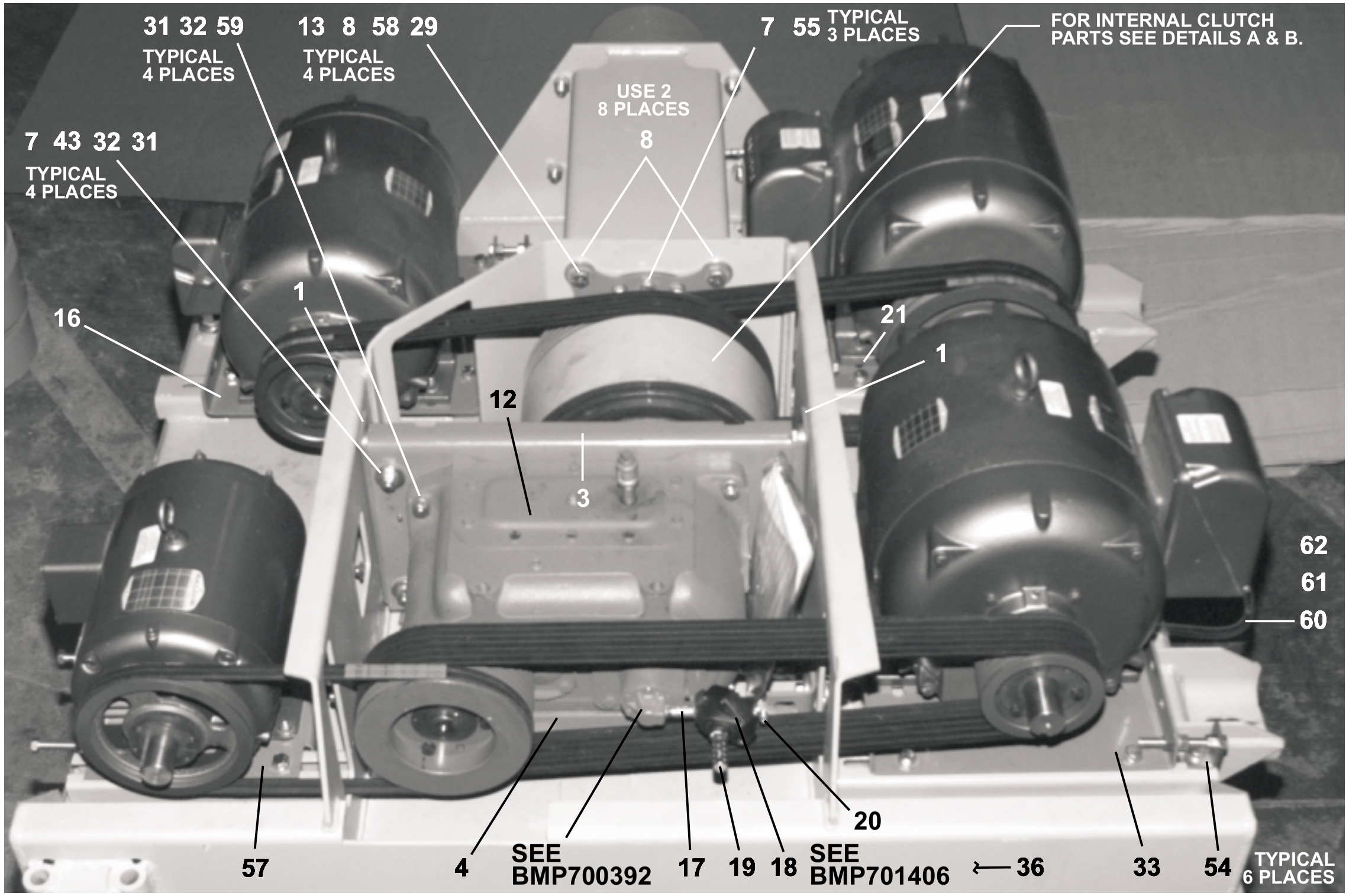

Drive Base Assembly

64046E6N/J6N/D6N 72046E5N/J5N 72058J5N/D5N

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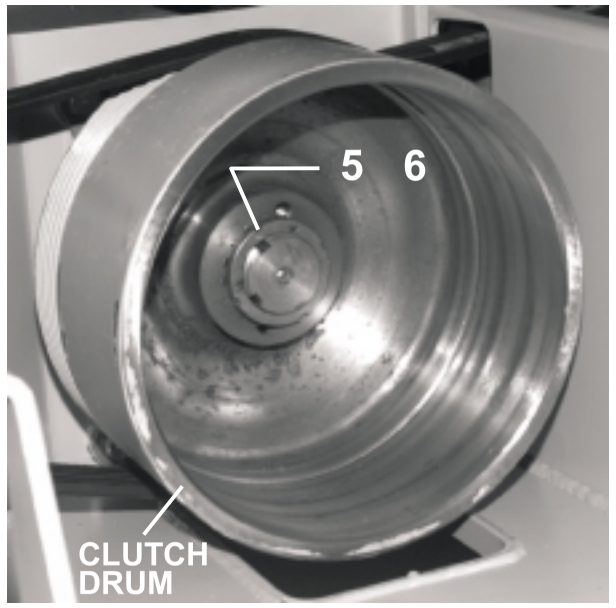
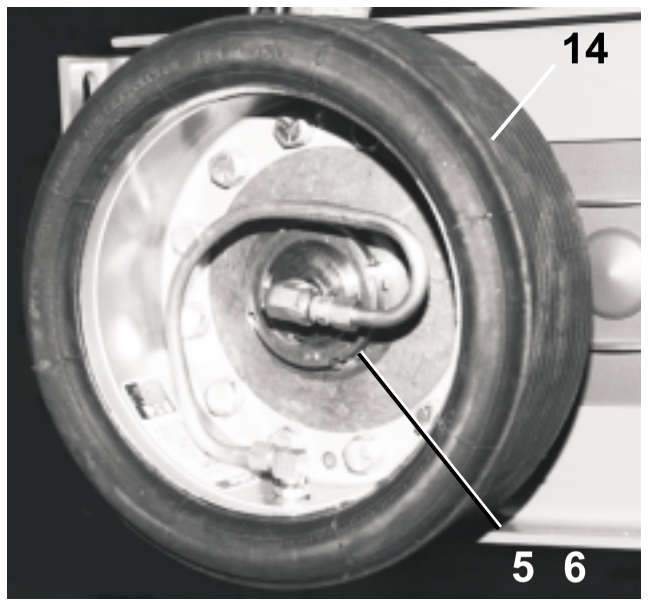
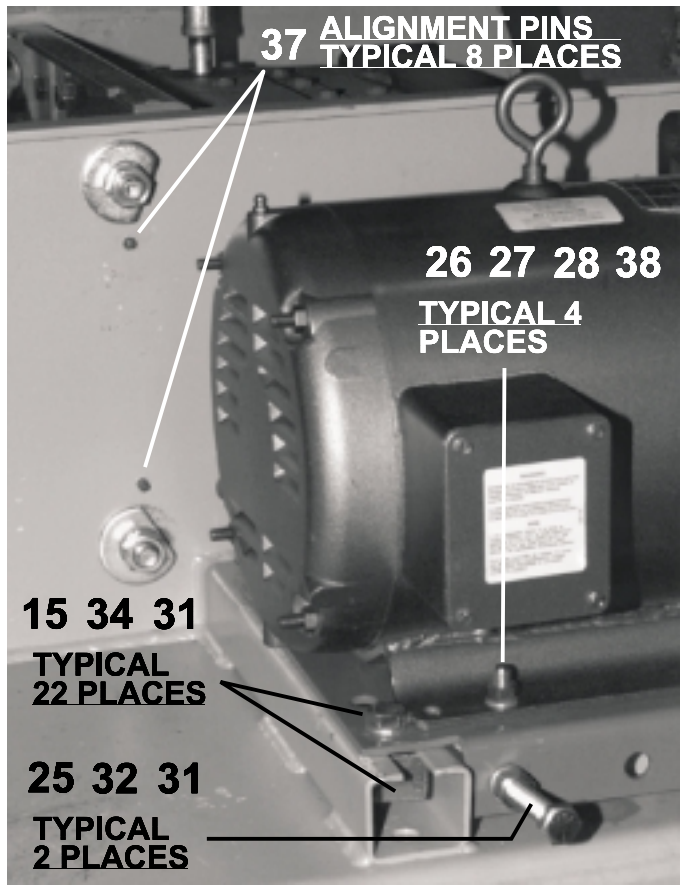


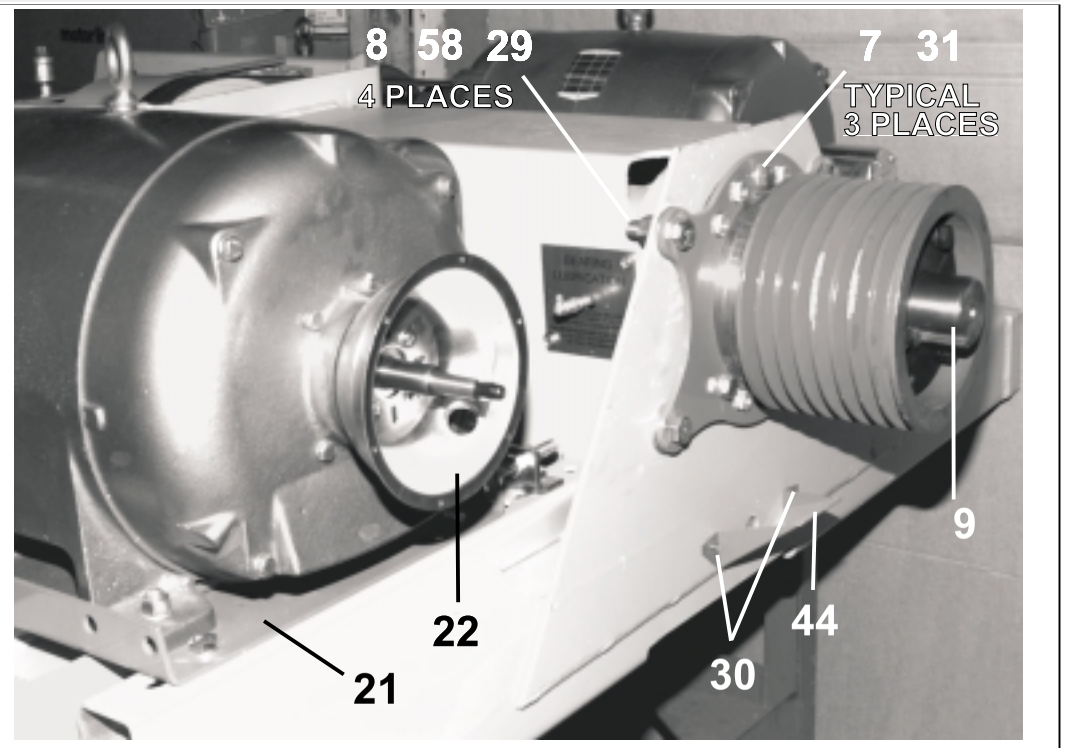
Detail A:
Clutch Drum and Jackshaft Bearing Locknut



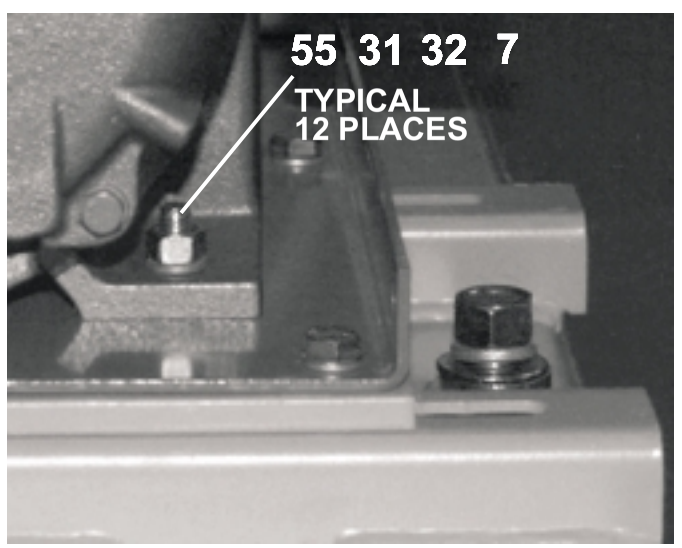
Detail B:
Air Clutch and Gear Reducer Bearing Locknut



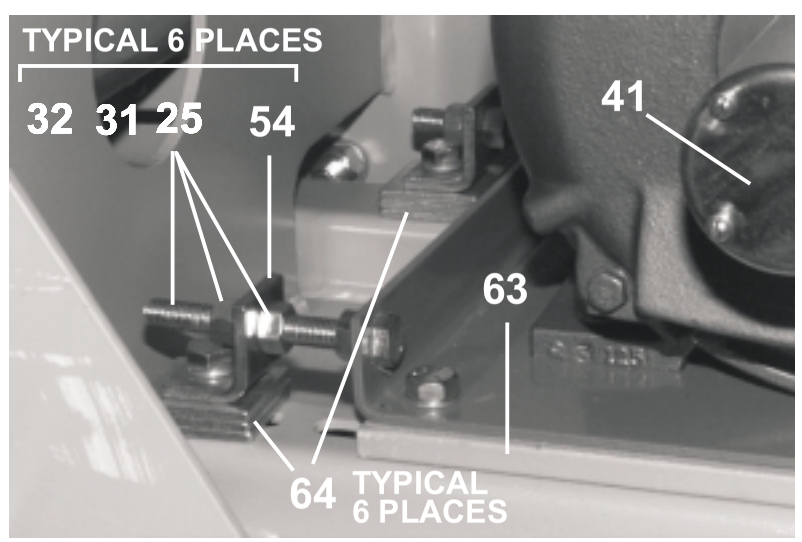
Typical Mounting Bolts



View: Motor & Jackshaft



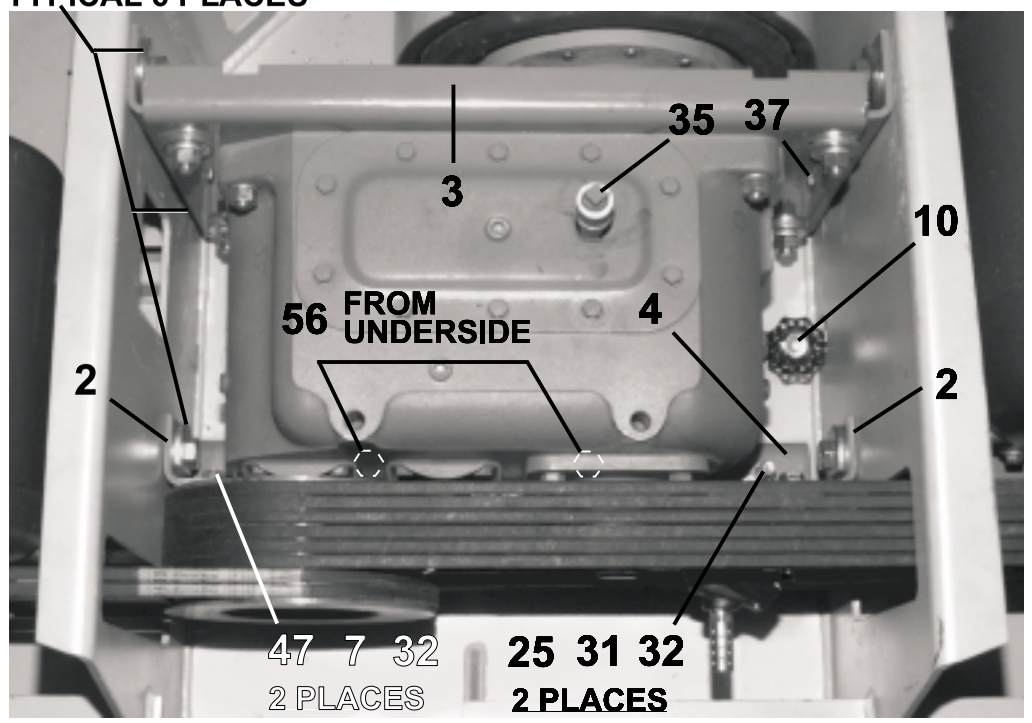
Motor to Base Hardware



Typical Adjusting Bolt

PAGE 2 of 2

8 58 24 29 TYPICAL 6 PLACES



View: Gear Reducer

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Parts List—Drive Base 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	ADB65001	93452B ASSY=DRIVE BASE 6446E6N	64046 MODELS/ 64050E6N
	B	ADB46001	94000Z ASSY=DRIVE BASE 7246E6N	72046 MODELS
	C	ADB58001	94000Z ASSY=DRIVE BASE 7258E5N	72058 MODELS
	D	ADB65002	99000Z ASSY=DRIVE BASE 6440	64040E6N
			----------COMPONENTS----------	
all	1	03 64084H	83517C ANGLE GEAR RED SUPPORT PLATE	
all	2	03 64084Q	88287C SUPPORT ANGLE GEAR RED MTG Z	
all	3	03 64084M	87302D GEAR RED MTG PLATE REAR	
all	4	03 64084R	84013C GEAR REDUCER MTG Z FRONT	
all	5	56AHN12	N12 BEARING LOCKNUT	
all	6	56AHW12	W12 BEARING LOCKWASHER	
all	7	15K162	HXCAPSCR 1/2-13UNC2AX1.5 GR5 PLATED	
all	8	15U315	LOKWASHER MEDIUM 5/8 ZINCPL	
all	9	GBJ28001	87332D JKSHFT ASSY TIMKEN 60W+72W+T	
all	10	AD 28 008	93456B DRAIN=DIVCYL GEAR REDUCER	
all	12	54S025A	02Z REDUCR 10.16:1 3210-600EC2	
All	12A	54S025PK	KIT GEAR REDUCER T3210-600EC	
all	13	15U314	FLATWASHER(USS STD) 5/8" ZNC PLT	
all	14	A28 18010	93457B ASSY=CLUTCH DRUM TIRE+MNT HD	
all	15	15K162	HXCAPSCR 1/2-13UNC2AX1.5 GR5 PLATED	
all	16	03 64261	84433D PLATE=MOTOR MTG 256T=E1=6442	
all	17	5N0E02AG42	NPT NIP 1/4X2 TBE GALSTL SK40	
all	18	96M051	USE KZK5B00100	
all	19	27A005	MUFFLER 3/8" BANTAM B38	
all	20	53A008B	BODYMALECON.25X.25COMP#B68A-4B	
A,B,D	21	05 20131A	77017T MTRPLATE 284/286T BEND@PRINT	
C	21	05 20131A	77017T MTRPLATE 284/286T BEND@PRINT	
all	22	G10 05000B	84412# CENTSW ASSY=FRAME NO-PLATE	
all	24	02 11603A	90273B WASHER DBLR=2" W/CUTOFF SIDE	
all	24A	02 11603	83527B WASHER DOUBLER .6561DX20D	
all	25	15D119	HXTAPSCR 1/2-13X4 GR5 ZNC FULLTHRD	
all	26	15U240	FLATWASHER(USS STD) 3/8" ZNC PLT	
all	27	15G205	HXNUT 3/8-16UNC2B ZINC GR2	
all	28	15U255	LOCKWASHER MEDIUM 3/8 ZINCPL	
all	29	15K221	HEXCAPSCR 5/8-11 UNC2X2GR5 ZINC	
all	30	15P175	04Z TRDCUT-F HXHD 1/4-20UNC2AX1/2 N	
all	31	15U300	LOKWASHER REGULAR 1/2 ZINC PLT	
all	32	15G230	HXNUT 1/2-13UNC2B SAE ZINC GR2	
A,B,C	33	03 64745	96113D PLATE:MTR MTG WASH 6442DAN	
D	33	03 64745A	99026C PLATE MTR MTG WASH 6440	
all	34	02 19283	86477B NUT=1/2-13UNCX1+1/25Q SPEC	
all	35	5SP0GFFSSV	NPT PLUG 3/8 SQSOLIDVENTBLKSTL	
all	36	W3 65255	943525*WLMT=DRIVE BASE 6446E6N	
all	37	15H100	DOWEL PIN .250X1.0 LG HARD+GND STL	
all	38	15K105	HXCAPSCR 3/8-16UNC2A1.25 GR5 PLATED	
all	41	03 01234	68106A COVER=CENT-SW SHAFT PLATED	
all	43	15U490	FLAWASH 1+1/2X17/32X1/4ZINC	
all	44	02 175257	75561C GREASE RELIEF=DRIP SHIELD	
all	54	02 19288	87483B BRACKET=ADJUSTING-1.5X1.75	
all	55	15U280	01Z FL+WASHER(USS STD)1/2 ZNC PL+D	
all	56	15K211	HXCAPSCR 5/8-11UNC2AX1 GR5 ZINC/CAD	
all	57	W2 19285B	83266#*PLATE=MOTOR MTG WELDMENT	
all	58	15G238	HXNUT 5/8-11UNC2B SAE ZINC GR2	
all	59	15K173A	HXCAPSCR 1/2-13UNC2AX1.75 GR5 PLATD	
all	60	60E005P	04ZPVC TUBING 1/2"ID X 5/8"OD *	
all	61	27A016	PIPESTRP 1/2"2-HOLE STAMP GALV	
all	62	15P010S	02Z TRDCUTPNHD SEMS 10-24X1/2 SS410	
all	63	03 65254	95273B SPACER=E1 MOTOR	
all	64	15U478	SQFLATWASHER 3/16X2X2 9/16ID ZINCPL	

Clutch Drum Tire & Mounting Hardware

64040/64050E6N 64046E6N/J6N/D6N 72046E5N/J5N 72058J2N/J5N

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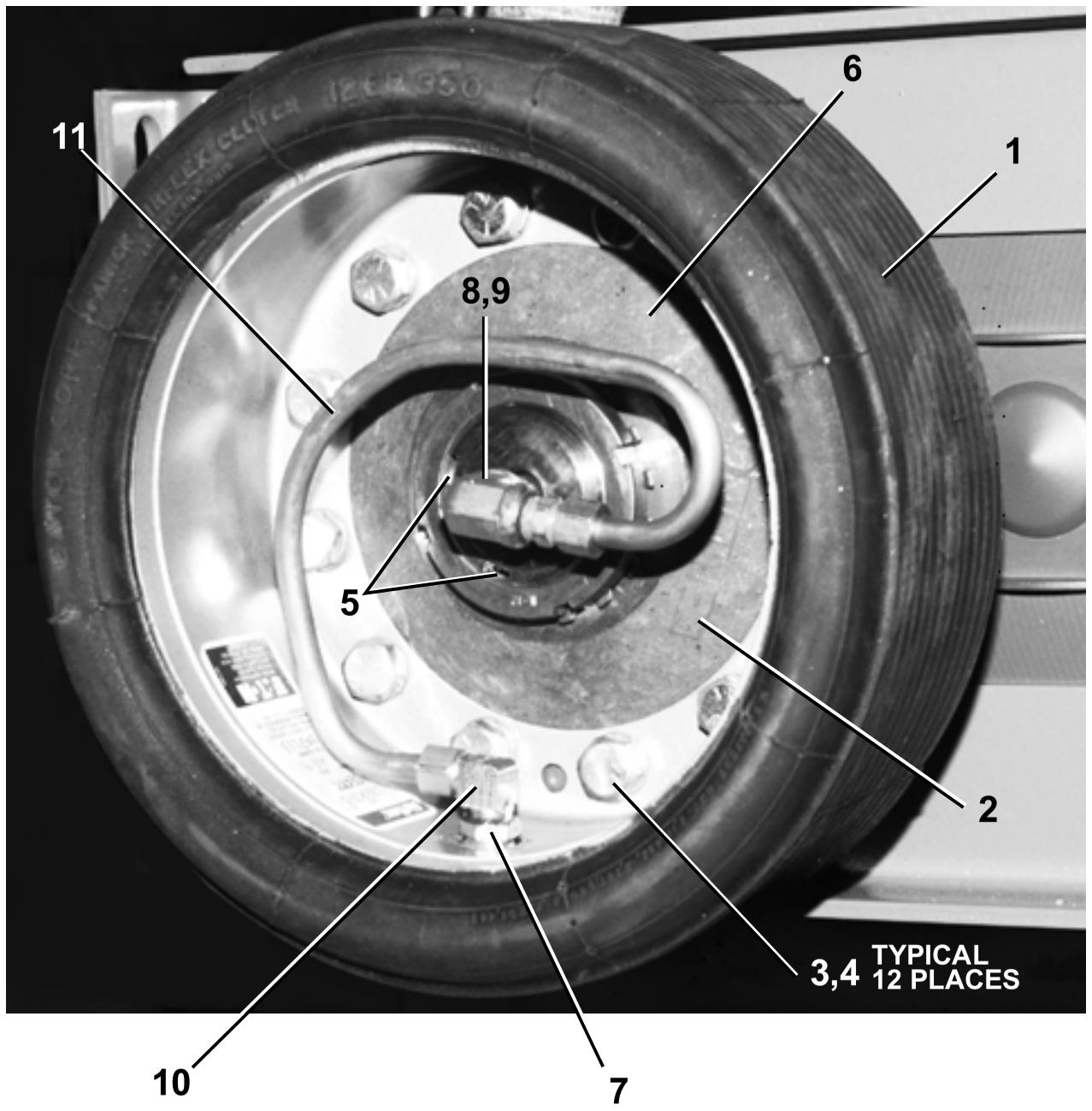

Parts List—Clutch Drum Tire & Mounting Hardware

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----------	
	A	A28 18010	93457B ASSY=CLUTCH DRUM TIRE+MNT HD	6446, 7246, 7258 + 64040/64050 MODELS
	B	A28 18000	71183C CLUTCH DRUM-AIR ASSY=60+72WE	PART OF A
			----------COMPONENTS----------	
A	1	54H150	REPLACED BY KIT K15 0002	
A	2	X2 15106	94251B FLANGE=CLUTCH DRIVE 2.5	
A	3	15K151	HXCAPSCR 1/2-13UNC24X1.25 GR5 PLATE	
A	4	15U300	LOKWASHER REGULAR 1/2 ZINC PLT	
A	5	15E230	STRMACHKEY 3/8SQX2+1/2 TOL.+0 -.022	
B	6	53A023	MALECON3/8X.25COMP ANCHR#68-64	
B	7	5SB0G0EDEO	NPTHEXBUSH 3/8X1/4 GALCI 125#	
B	8	5SL0EBEA	NPTELB 90DEG 1/4 BRASS 125#	
B	9	5N0E01KBE2	NPT NIP 1/4X1.5TBE BRASS STD.	
B	10	53A043G	EL90 3/8X1/4COMP.AND#69A-6B	
B	11	90A021	COPPERTUBE 3/8"X.032X50' EA=1 ROLL	

Reducer Air Seal

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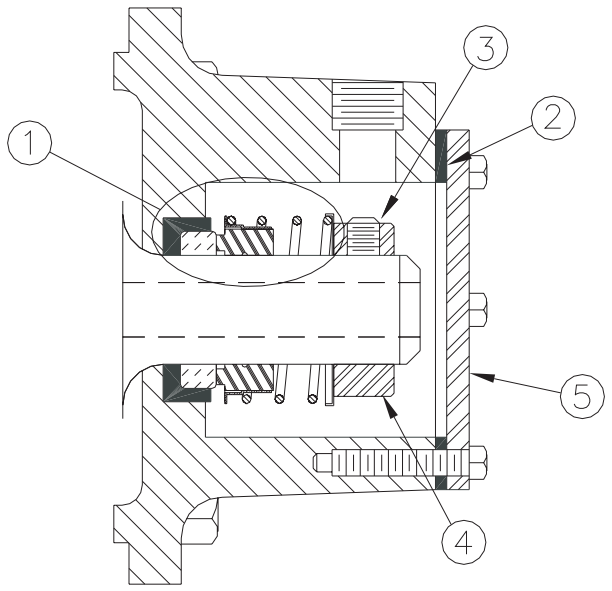
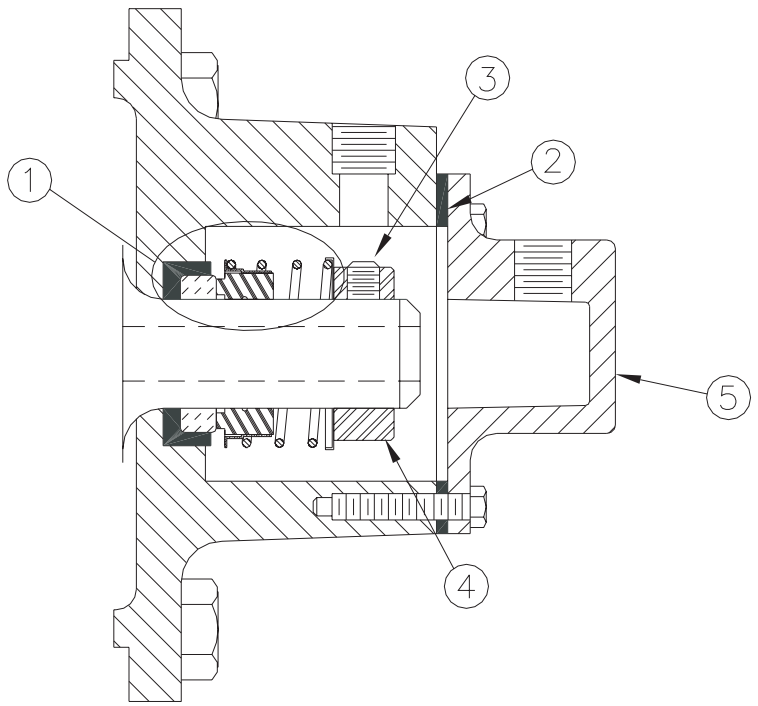


00A–00C



00D–00F

Parts List—Reducer Air Seal

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	54S014HC	REDUCER 15.4 DORRIS#1115-60HC	3621,3626,4226,4832, 4836
	B	54S012HC	REDUCER 15.4 DORRIS #1115-25HC	SHUTL36/40/48R+L
	C	54S015	REDUCER 19.6 SKK/DOR 3220-60C	4226DYE
	D	54S022A	REDUCR 19.59:1 3220-300EC1	4231,4244,5238
	E	54S023B	REDUCR 10.16:1 3210-375EC2	6044
	F	54S025A	REDUCR 10.16:1 3210-600EC2	6442,6446,7244 6440/50
			----------COMPONENTS----------	
B-F	1	K10 0002	KIT=ROTARY AIR SEAL	
B-F	2	02 15111	GASKET AIRSEALHOUSING COVER	
B-F	3	15Q077	SOKSETSCR 1/4-20X1/4 ZINC ALLE	
all	4	02 10380	Z SHAFT COLLAR FOR AIR SEAL	
A-C	5	02 15108	COVER=ROTARY AIRSEAL HOUSING	
D-F	5	02 15108A	AIRINLET=CLUTCH DIECAST+TAP	

Drain for Gear Reducer

64040/64050E6N 64046E6N/J6N/D6N 72046E5N/J5N 72058J2N/J5N

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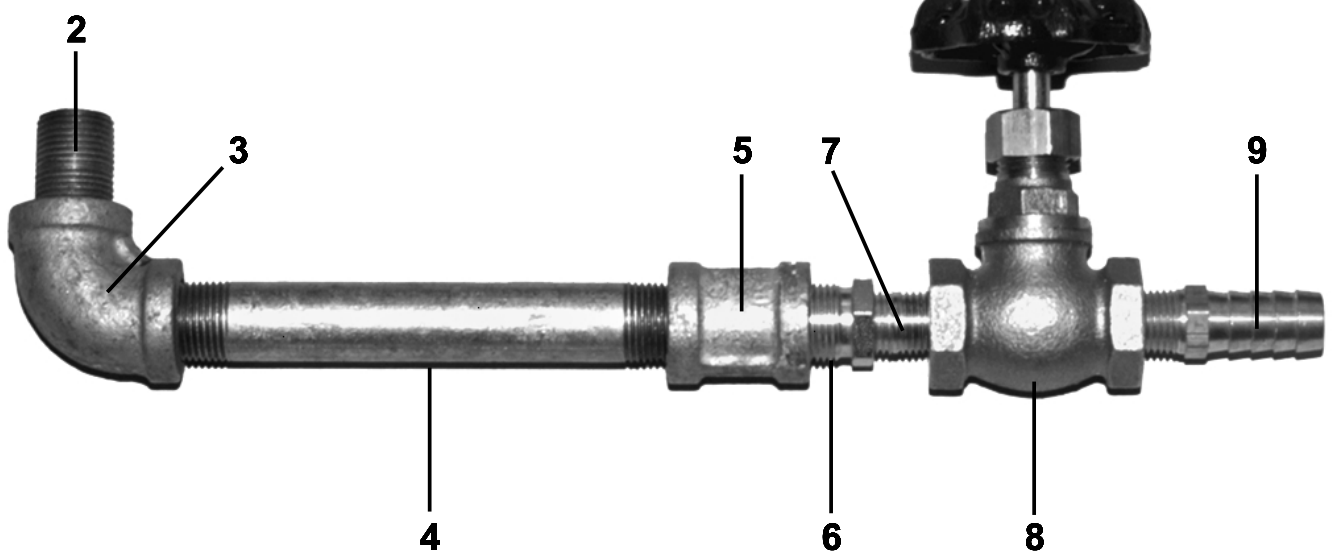

Parts List—Drain for Gear Reducer

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

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	AD 28 008	93456B DRAIN=DIVCYL GEAR REDUCER	
			----------COMPONENTS----------	
all	2	5N0GCLSG42	NPT NIP 3/8XCLS TBE GALSTL S40	
all	3	5SL0GNFA	NPTELB 90DEG 3/8 GALMAL 150#	
all	4	5N0G04KG42	NPT NIP 3/8X4.5 TBEGALSTL SK40	
all	5	5SCC0GNF	NPT COUP 3/8 GALMAL 150#	
all	6	51A025	REPLACED BY 5SB0G0EDEO ON 93274	
all	7	51LL0EN00A	REPLACED BY 5N0ECLSBE2 ON 93214	
all	8	96D026	1/4"GLOBEVAL BRZ125 STEAM	
all	9	51E507	HOSESTEM BRASS 1/4MPX1/2HOSEID	

Centrifugal Switch Assembly

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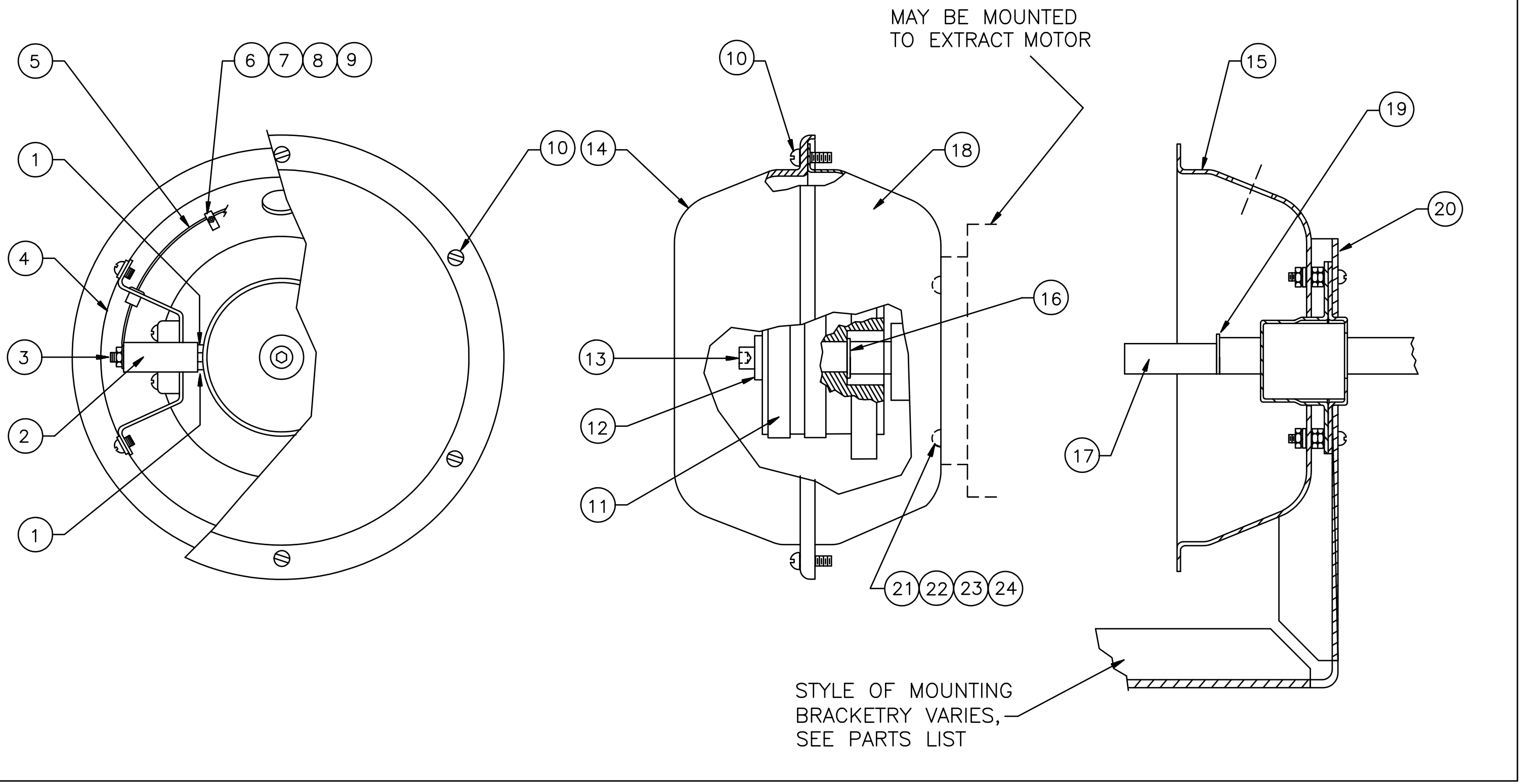

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Parts List—Centrifugal Switch Assembly

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----------	
	N	EDC14003	92000Z*CENTSW + MTG BRKT 3621/26F	3621Q'S MANUFACTURED AFTER JAN. 6,1993
	P	EDC14002	90000Z CENTSW+MTG BRKT 36/42QG/J/P	3621/26+4226Q4'S, Q6'S
	Q	G10 05000B	84412# CENTSW ASSY=FRAME NO-PLATE	3621CPE,BWP,NSP 4226DA1, 64040/64050E6N 64046E6N/J6N/D6N
	R	G03 04500A	84412C CENTSWITCH=MOTOR MT NO-PLATE	6044,6442,6446,7244
	T	SAE03 088	792571 ASSY=CENSW + MOUNTBKT 42	42031,42044,48032,48036
	U	SAE03 088A	83417J ASSY=CENSW + MOUNTBKT 42DYA	5238 DYE
	V	ADC11001	84122D ASSY=CENSW + MOUNTBKT4226QH	4226
	W	ADC14001	90351C CENT SWITCH ASSY 3621F8P	3621F8P
	X	EDC14801	86252C ASSY=CENSW+MTGBRKT RWP	3621/26,4226RWP/SYS 7
	Y	SAE13 001	83246I ASSY=CENSW + MOUNTBKT SWE	3626SWE
	Z	SAE13 001A	83417J CENTRIFUGAL SW ASSY 42QHE	4226,4832,4836
			----------COMPONENTS----------	
all	1	09X100	CARBON BRUSH 3/16"SQ=CENSW	
all	2	ESC0001	82281B* CENT SWITCH BRUSHOLDER ASSY	
all	3	15G071	MACHSCRLOKNUT 6-32 NM SER ZINC	
all	4	03 IF2X3	85046B INSUL.AUTOSPOT/CENTRIFUGL.SW	
all	5	60E005E	TUBING VINYL 3/8IDX.025"W #HT105C *	
all	6	12P015C	CABLECLAMP 5/16-1/2	
all	7	15G070	HXMACHSCRNUT 6-32UNC2B ZINC GR2	
all	8	15N045	RDMACHSCR 6-32UNC2AX3/8 ZINC GR2	
all	9	15U100	LOKWASHER MEDIUM #6 ZINCPL	
all	10	15P010	12Z PHILPAN TRDCUTSCRTYP10-24X1/2SS	
all	11	SAE03 012B	83407#*SLIPRING+CENT SW.ASSY(LORES)	
all	12	15U342	FLTWASH .255/.260IDX.750DX.125T SS	
all	13	15K036	05Z SKSELL0KCP SCR 1/4-20X5/8	

Parts List, cont.—Centrifugal Switch Assembly

Used In	Item	Part Number	Description	Comments
all	14	02 15582	COVER=CENTSW-CADSTL	
N-R	15	03 01147	HOUSING FOR CENTRIFUGAL SWITCH	
all	15	A33 11000	75675B$ HOUSE+BKT+SHAF=CENSW CWM	00S
T	15	A03 01300	75491C*HOUSE+BKT+SHAFT=CENSW 42+52U	
U	15	A03 01300A	75491#* HOUSE+BKT+SHAF=CENSW 42DYA	
V	15	A03 11000	82506T*CENTSWITCH=HOUSING+BRKT 42Q	
W	15	ADC14001A	93381C*C-SWITCH=MNT BRKT+HOUSING	
X	15	ADC14801	86246C*CENT SW HOUSING & BRKT ASSY	
Y	15	A13 02700	83246C$ HOUSE+BKT+SHAF=CENSW SWE	
Z	15	A13 02700A	83246# CENSW HSG+BRKT ASSY 2SPD WAS	
T-Z onlY	16	17B059W	RETAIN RING-ROTOR CLIP# SH-62-ST	
T-Z onlY	17	A03 01400	71103B SHAFT ASSY=CENTSWITCH	
T-Z onlY	18	03 01147	HOUSING FOR CENTRIFUGAL SWITCH	
T-Z onlY	19	17B059W	RETAIN RING-ROTOR CLIP# SH-62-ST	
T	20	02 15359	CENTSW MOUNTBRACKET	
U	20	03 25417	76154C BRKT=CENT SWITCH MT	
V	20	02 11452	94222D CENTRIFUGAL SWITCH BRKT-42Q	
W	20	02 14609	93381D+BRKT=CENTRIF SWITCH 3621F8P	
X	20	02 14836	89391C CENT=SW MTG BRKT	
Y	20	02 13111	77481C BRKT=CENT-SWITCH MT BND@PRNT	
Z	20	03 48170	83246C BRACKET=CENT.SW.MT.2SP WASH	
all	21	15N117	RDMACSCR 10-24UNC2X3/8SS18-8	
all	22	15U130	FLAWAS#10 .031X7/16ODX.203ID ZINCPL	
all	23	15U150	LOCKWASHER MEDIUM #10 ZINCPL	
all	24	15G201	01Z HXLOKNUT 3/8-16 NYL/SS TYPE NE	

Quick Exhaust Valves

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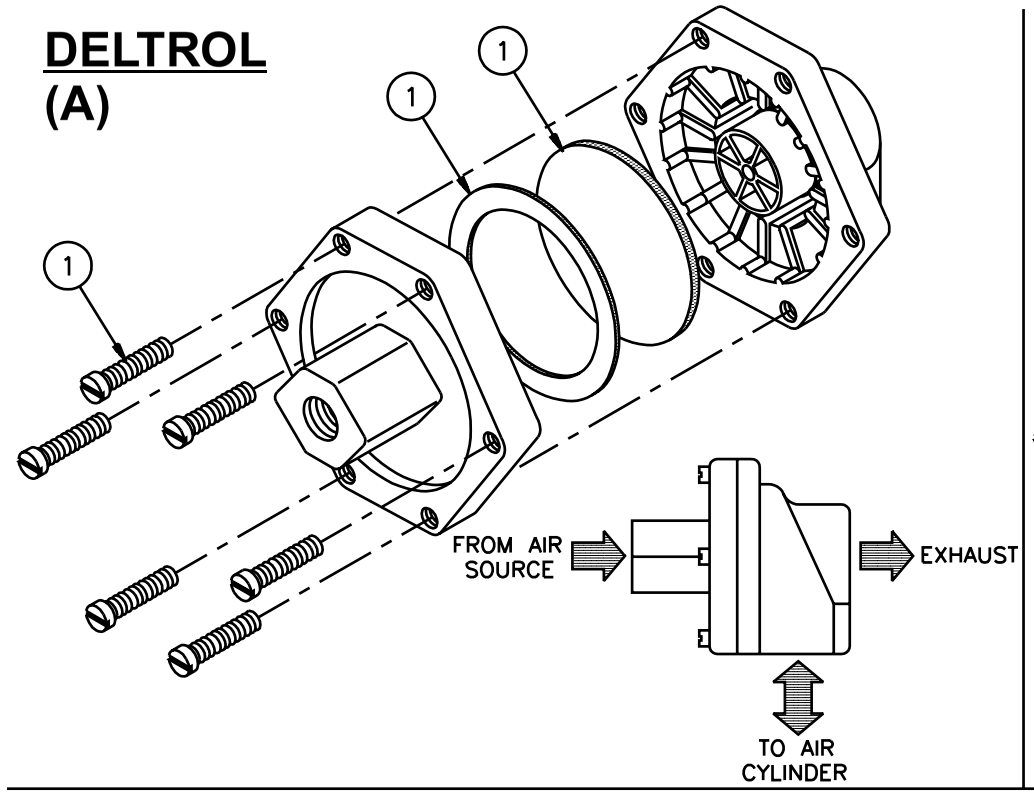
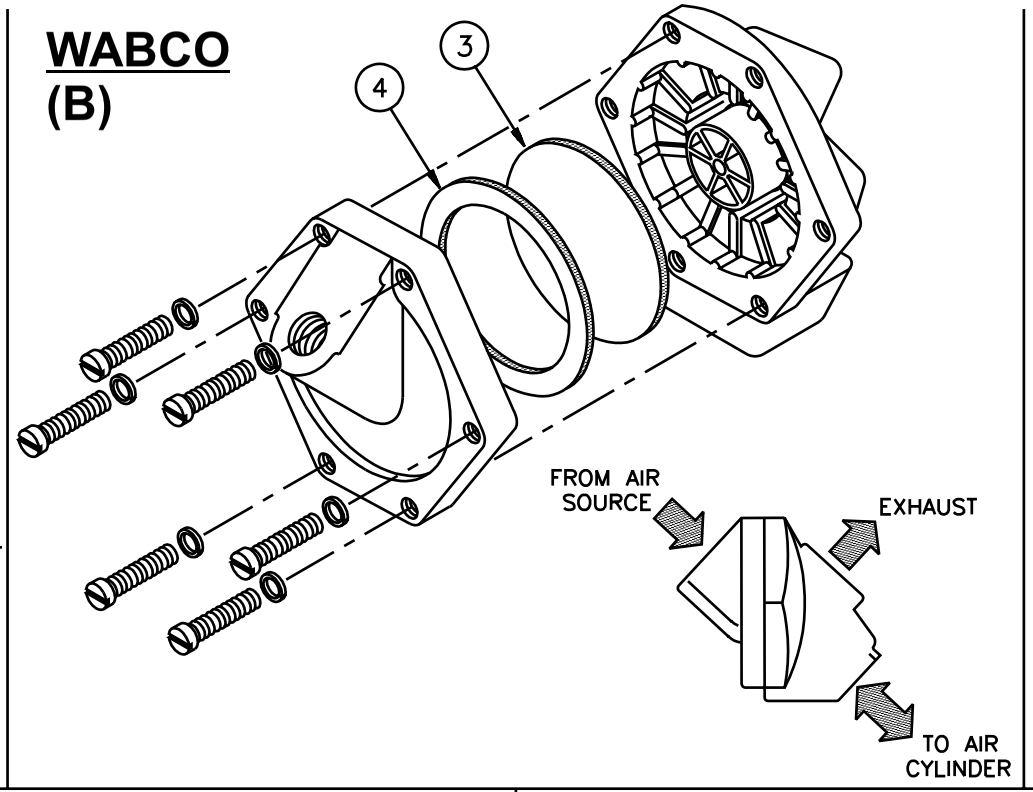
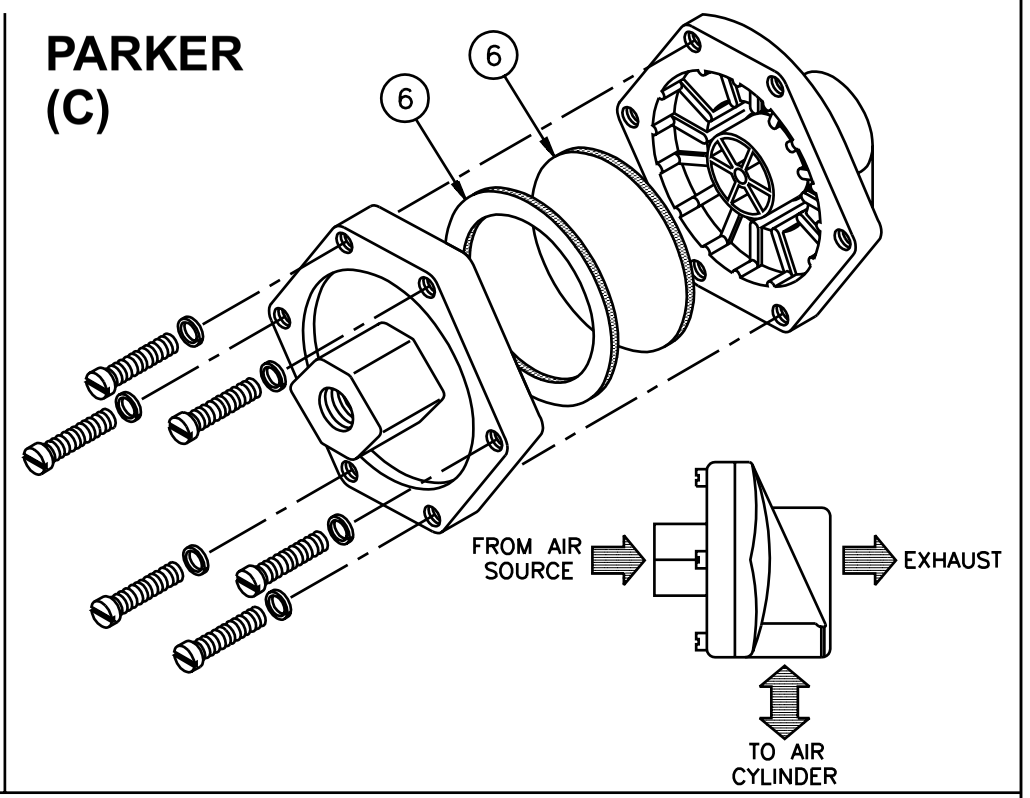
DELTROL
(A)



WABCO
(B)

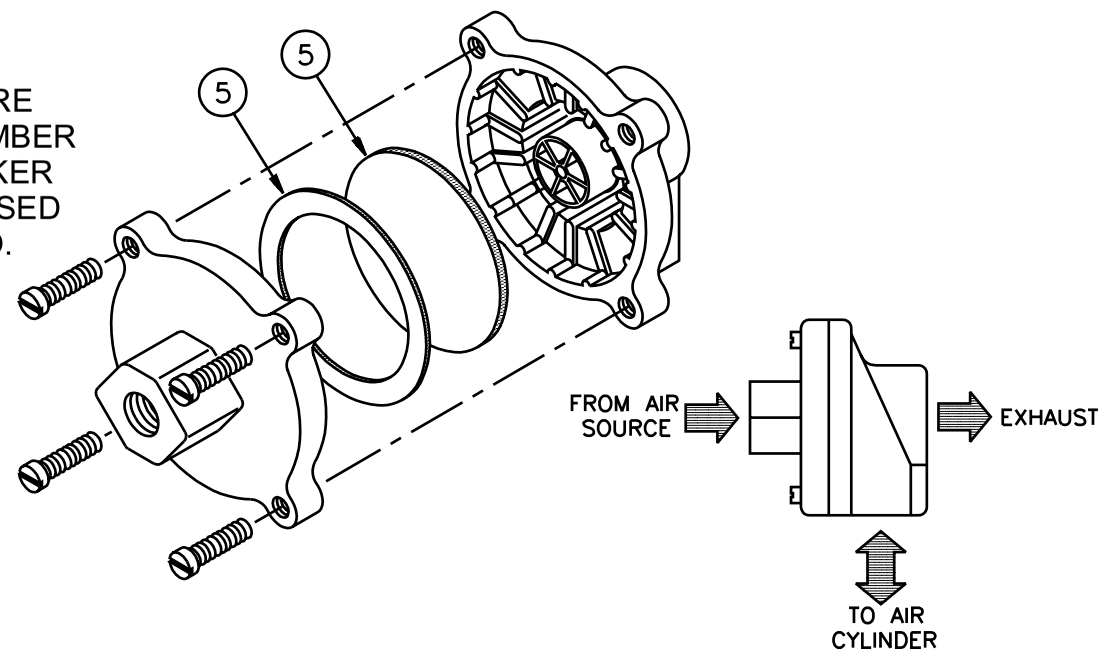


PARKER
(C)



ASCO
(D)

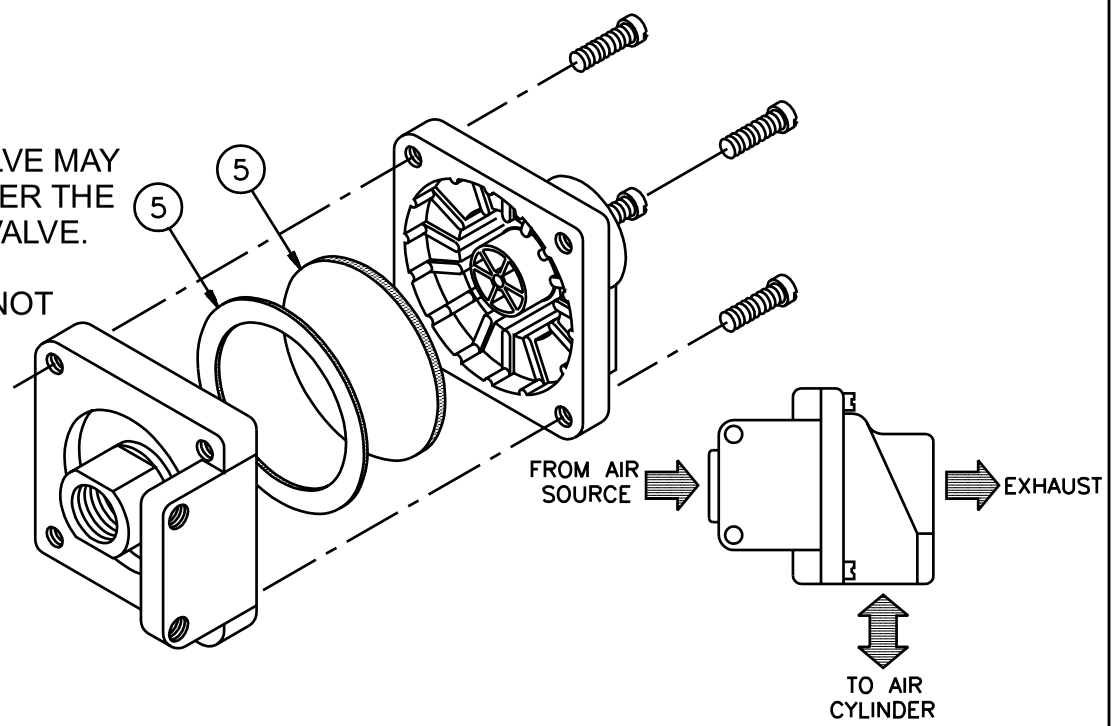
NOTE: ASCO VALVES ARE USED PRIOR TO NOVEMBER 1987. SINCE THEN PARKER VALVES HAVVE BEEN USED IN PLACE OF THE ASCO.



GOYEN
(E)

NOTE: THE GOYEN VALVE MAY BE REPLACES BY EITHER THE WABCO OR DELTROL VALVE.

THE GOYEN VALVE IS NOT TO BE USED IN PLACE OF THE WABCO OR DELTROL VALVE.



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Parts List—Quick Exhaust 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	MESSAGE B2	REPAIR KITS ONLY <>	DELTROL
	B	96M051	USE KZK5B00100	WABCO
	C	96M054	QWIKEXHAUSTVLV 3/4"URETHANE	PARKER
	D	MESSAGE B1	PARTS NO LONGER SOLD	ASCO
	E	MESSAGE B2	REPAIR KITS ONLY <>	GOYEN
	F	96M055	QUICK EXHAUST VALVE 1/4”	DELTROL
			----------COMPONENTS----------	
all	1	96M053A	KIT,QWIKRELVLV EV20A#10091-18	DELTROL VALVE ONLY
all	3	96M051B	DIAPHRAM,QWIKREL WAB#PS112-12	WABCO VALVE ONLY
all	4	96M051A	GASKET,WABCO QUICK EXHAUST VLV	WABCO VALVE ONLY
all	5A	96M052A	REPKIT,QES#M1319 (FOR 96M052)	GOYEN VALVE ONLY
all	5B	96M055A	REPAIR KIT FOR 96M055# 10128-99	DELTROL VALVE ONLY
all	6	96M054K	REPKIT 3/4"QWIKEXHAUSTVLV	PARKER VALVE ONLY

SERVICING DISC BRAKES

Preventive Maintenance

⚠ DANGER ⚠

CRUSH/SEVER HAZARD—Tilting mechanisms can crush or sever parts of your body caught in them.

- ☞ **Install the safety stands before performing maintenance under a tilted machine.**
- ☞ **NEVER test or operate (manually or automatically) any machine function with any portion of a person's body under the machine.**

⚠ WARNING ⚠

ENTANGLE AND CRUSH HAZARD—Moving parts can entangle and crush body parts.

- ☞ **Lock OFF and tag out power at the wall disconnect before servicing, except where specifically instructed otherwise.**
- ☞ **Insure guards are in place during service procedures.**

⚠ WARNING ⚠

SLIP/FALL HAZARD—Spilled brake/hydraulic fluids are slippery.

- ☞ **Take precautions to prevent brake fluids from spilling onto the machine.**
- ☞ **Provide secure footing by cleaning standing surfaces prior to servicing machine.**

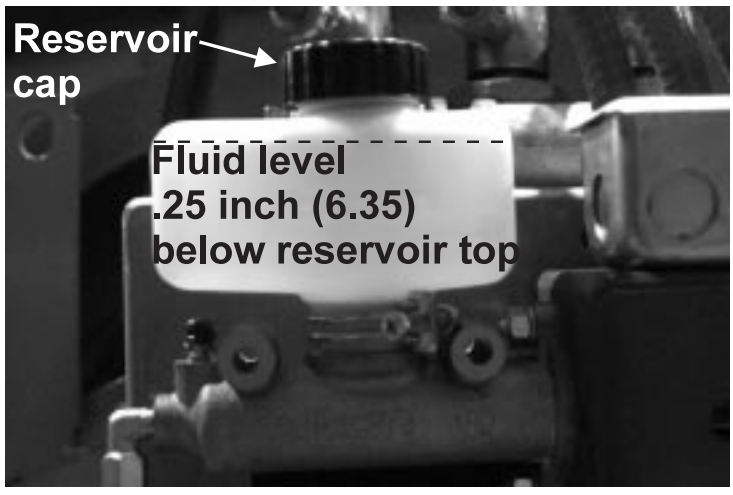

FIGURE 1 (MSSMA426AE)
Reservoir Details

Lock off and tag out machine power then perform the following maintenance:

1. Check fluid level in reservoir—If required, add fluid to within .25 inch (6.35) of the top (FIGURE 1). Add only D.O.T. 3 type brake fluid. *Never mix brake fluid with any other type of fluid.*
2. Check that brake components are securely mounted. Tighten if necessary.
3. Check for hydraulic leaks and repair as required.
4. Check disc surface. Replace if warped or worn beyond specifications (FIGURES 2 and 3).

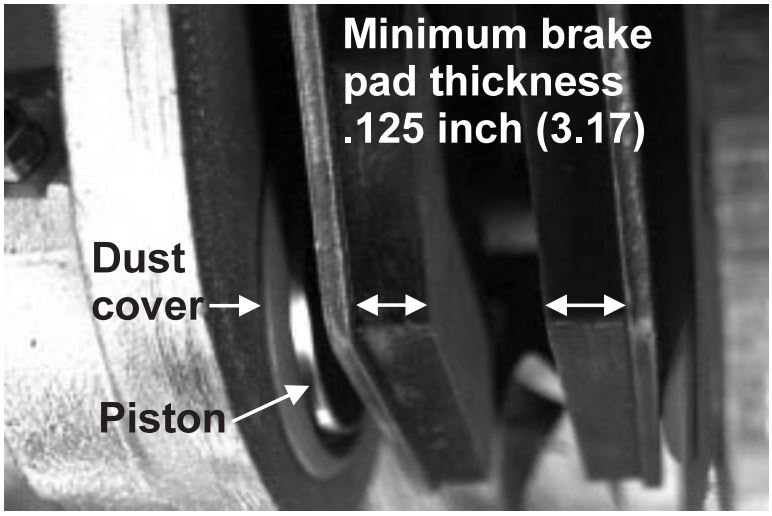

FIGURE 2 (MSSMA426AE)
Brake Pad and Piston Details (disc removed for clarity)

5. Check the brake pads for wear as specified on the preventive maintenance schedule. Replace brake pads worn to less than .125 inch (3.17) (FIGURE 2). Always replace both brake pads at the same time.

Replacing Brake Pads

⚠ WARNING ⚠

CRUSH AND ENTANGLE HAZARD—Machine power is ON and covers are removed for the following procedures. Rotating machinery can entangle and crush body parts.

☞ **Use extreme caution and permit only qualified personnel to perform these procedures.**

NOTE 1: Required equipment includes a bottle or jar and a flexible hose sized to fit the top bleed valve, bleed valve wrenches, and an adequate supply of fresh brake fluid. Before starting, make sure the reservoir is full of D.O.T. 3 brake fluid. Do not allow reservoir fluid level to fall below 1/2" (12.7) above the bottom during this procedure.

NOTE 2: Procedure requires two people.

NOTE 3: Refer to FIGURES 1 through 4.

1. After energizing machine, manually release the brake, (for M7E models, see INVOKING FORMULAS MANUALLY, ACTUATING OUTPUTS, VIEWING INPUTS.., for other machines see VIEWING INPUTS/OUTPUTS AND ACTUATING OUTPUTS...In the Reference manuals).

⚠ CAUTION ⚠

DISC BRAKE COMPONENT DAMAGE AND BRAKE FLUID RELEASE HAZARD—Careless actions can damage brake disc and/or caliper components. Brake fluid is released under pressure during this procedure. Brake fluid irritates eyes and is harmful if swallowed.

- ☞ **Take care not to mark face of disc or pistons.**
- ☞ **Wear eye protection during procedure. Follow procedure carefully to avoid possible injury.**

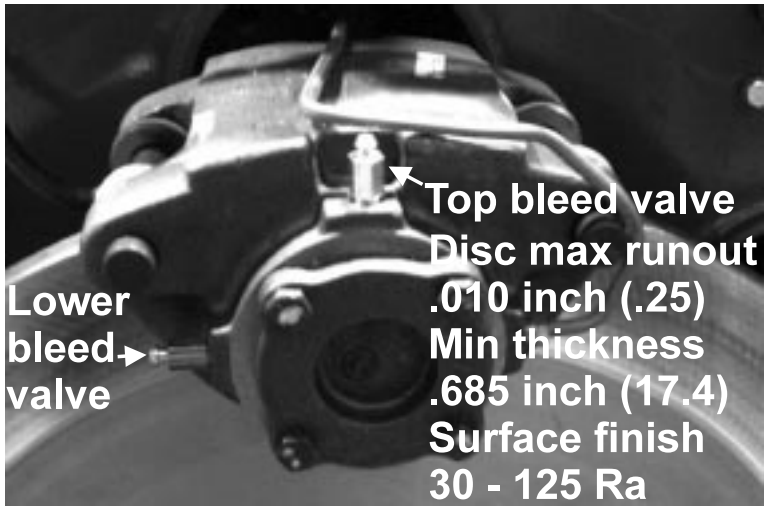

FIGURE 3 (MSSMA426AE)
Disc Brake Bleeder Valves and Disc Specifications

2. Attach one end of the flexible hose to the top bleed valve. Place the other end of the hose into a bottle or jar containing 1/2 - 1 inches (12.7 - 25.4) of clean brake fluid. Submerge the hose below the fluid surface to prevent sucking air on the return stroke.

3. Remove the reservoir cap. Loosen the top bleed valve. Using a hardwood dowel or the flat of a large screwdriver, gently push the pistons back into their bores by carefully prying between the backs of the old pads and the pistons until the pistons are level with the dust covers. *Take care not to dislodge or tear dust covers*. Remove cotter pins, slide out pad pins, then remove the brake pads. After replacing the pads, close the top bleed valve.

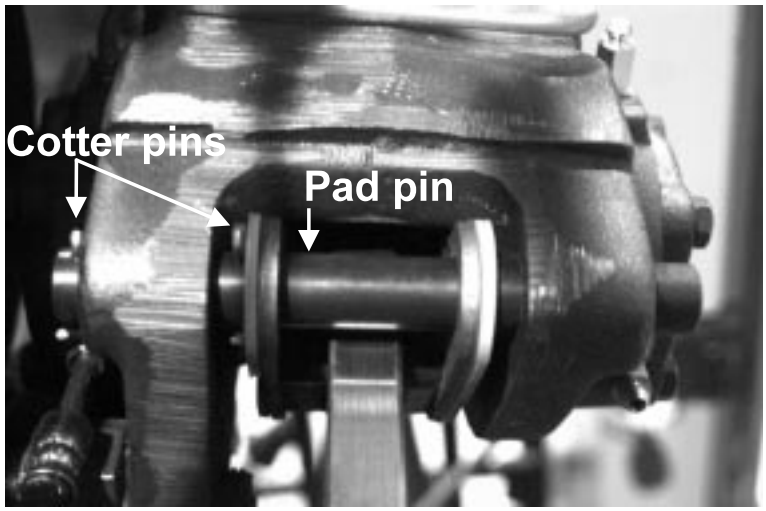

FIGURE 4 (MSSMA426AE)
Caliper Details

4. As one technician turns the brake output off (applying brake), the technician at the caliper opens the top bleed valve just enough to allow air to escape. Close the bleed valve and repeat step until air bubbles stop, adding new fluid to reservoir as needed.

5. Add new fluid to reservoir to bring level back up to within .25 inch (6.35) of top and replace reservoir cap. Test operation and check for leaks. Discard fluid in the bottle or jar as it contains air and must not be reused.

Setting Stroke

If either the brake cylinder or the air cylinder is removed, the brake stroke must be properly set. Insufficient or excessive stroke causes poor braking and/or damage to the brake cylinder. Set brake stroke as follows:

1. After energizing machine, manually release the brake. This causes the air cylinder rod to fully retract into the air cylinder (FIGURES 5 and 6).
2. Thread the brake cylinder rod into the air cylinder rod until resistance is felt at the brake cylinder rod. This action ensures a full stroke by placing the brake cylinder rod plunger (within the brake cylinder), at the limit of its travel.
3. Tighten lock nuts (FIGURE 6).

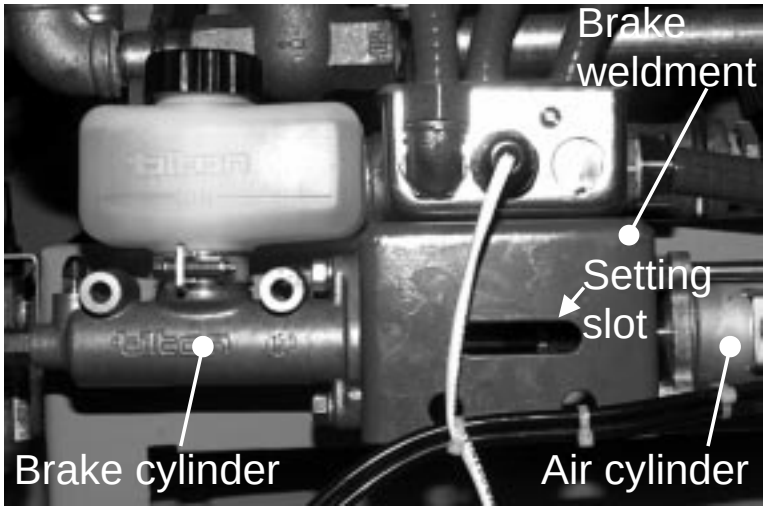

FIGURE 5 (MSSMA426AE)
Brake Cylinder and Actuator (ExN machine shown)

4. Observe and mark the position of the lock nuts as viewed through the setting slot shown in FIGURE 5. Verify that the brake pressure (FIGURE 7) is between 10 - 12 PSI (0.70 - 0.84 kg/cm^2). Manually apply the brake and mark the new position of the lock nuts. Verify that the range between marks is approximately 0.75 - 1.00 inch (19-25 mm).

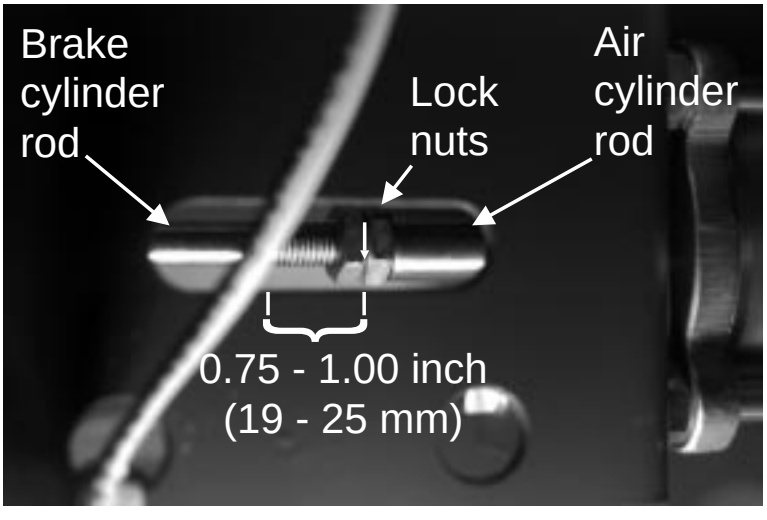

FIGURE 6 (MSSMA426AE)
Brake and Air Cylinder Rod Details

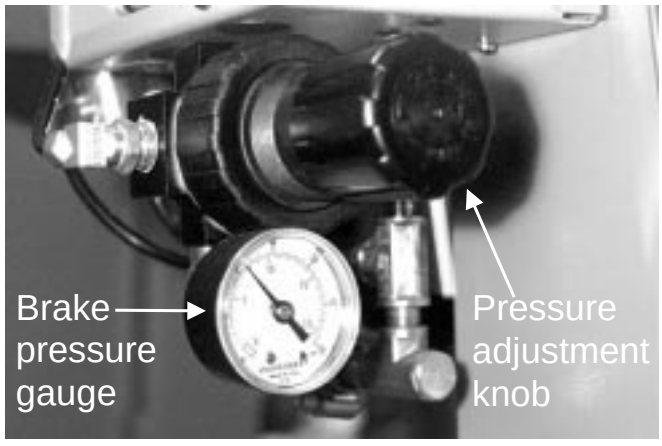

FIGURE 7 (MSSMA426AE)
Brake Air Pressure Gauge and Regulator

Brake Installation

64040/64050E6N, 64046E6N/J6N, 72046E5N/J5N, 72058J5N

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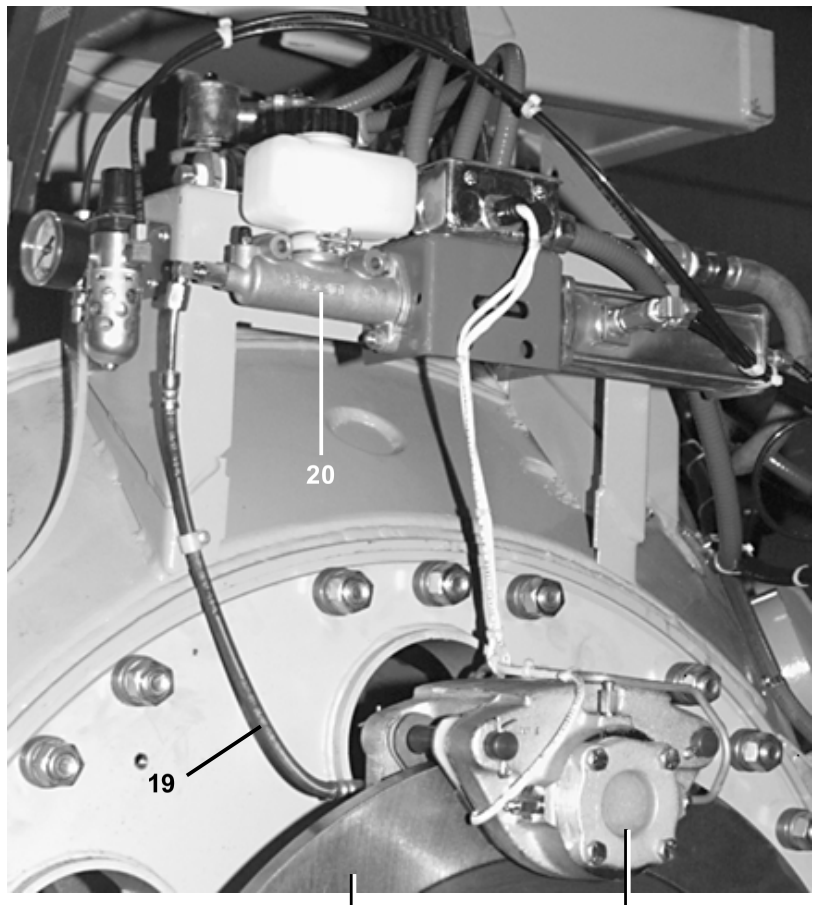

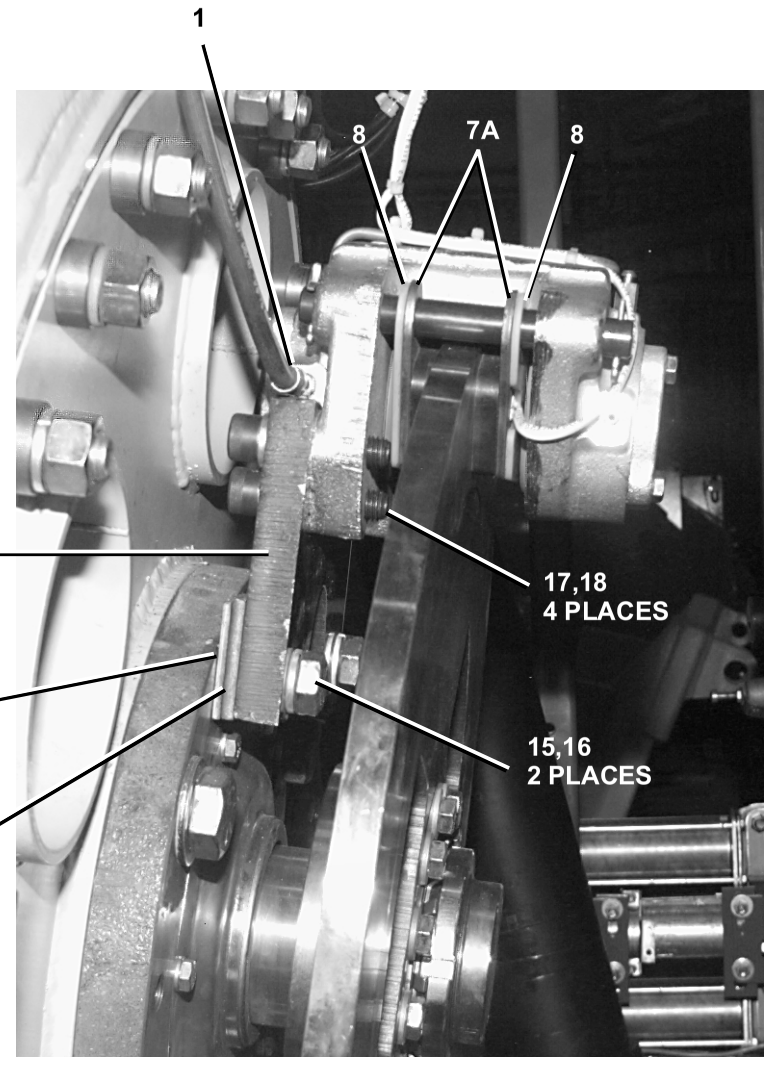

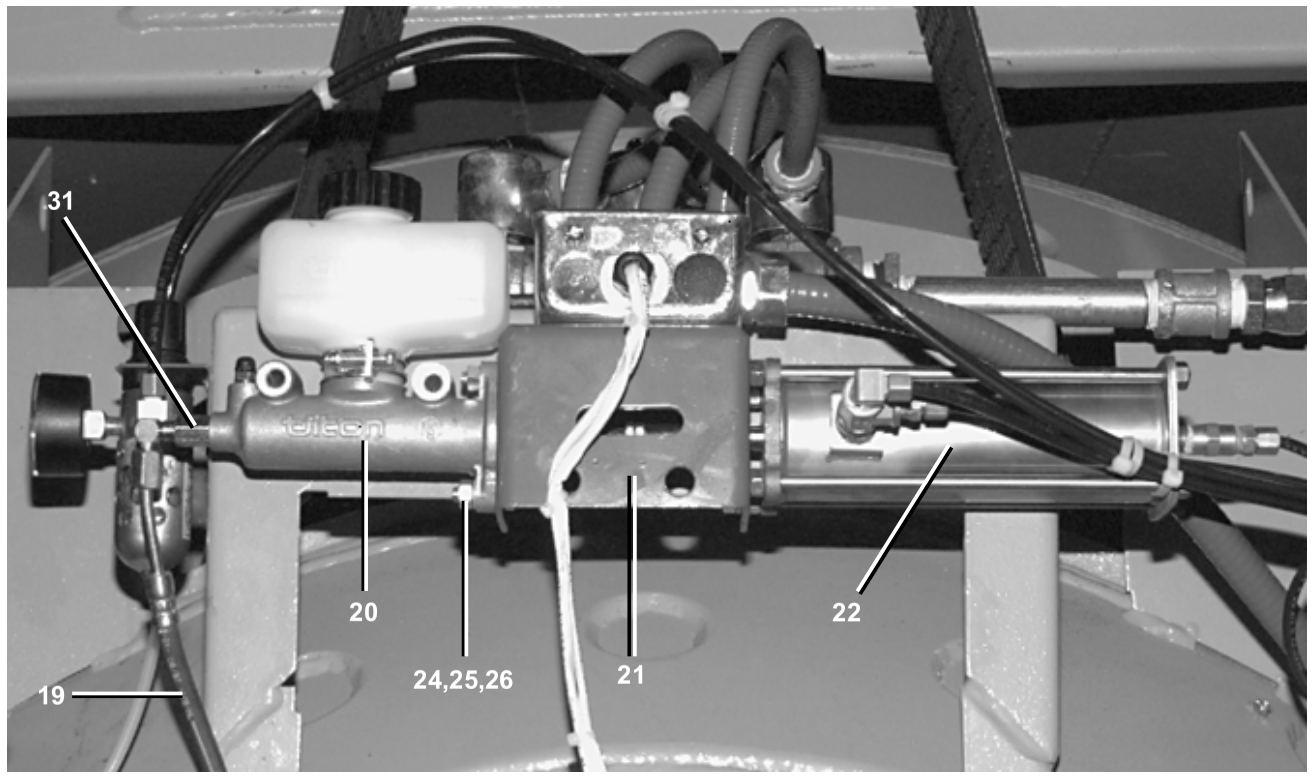

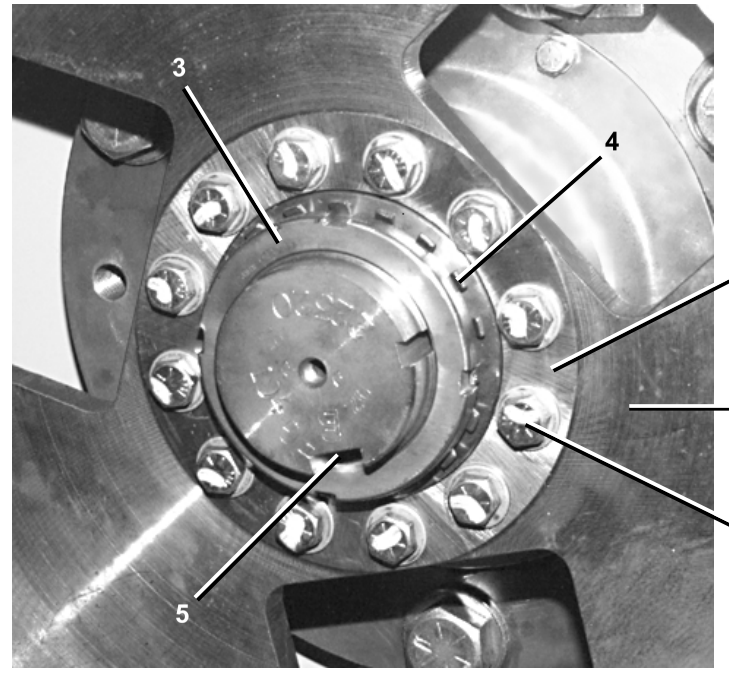

Brake Installation

64040/64050E6N, 64046E6N/J6N, 72046E5N/J5N, 72058J5N

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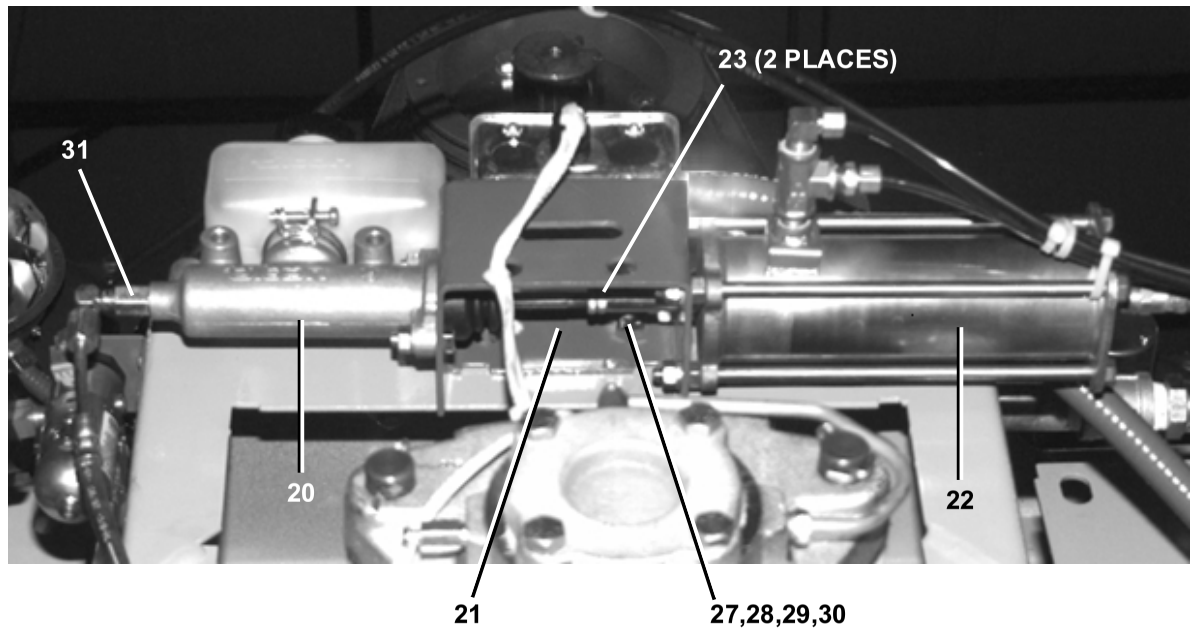
BMP930028/2000077V (2 of 3)

Litho in U.S.A.



Parts List—Brake 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	GBR65001A	93442Q INSTL=DISC BRAKE MOD2	ALL
	B	ABR65001A	97106C DISC BRAKE MOD2=ASSY+BALANCE	ALL
	C	GBR60002	98456N BRAKE INSTALLATION 6440	64040, 64050 ONLY
			----------COMPONENTS----------	
all	1	54KC7961B0	O-RING 08-11070 BRAKE 2-660	
all	2	ABR65001A	97106C DISC BRAKE MOD2=ASSY+BALANCE	
all	3	56AHN18	AN18 BEARING LOCKNUT	
all	4	56AHW18	W18 BEARING LOCKWASHER	
all	5	15E245	92803B SQMACHKEY 7/8X7/8 C1018	
all	6	X3 65202	93173# MACH=CALIPER MNT PLT MOD2	
all	7	54KC7961	01Z CALIPER HYD FIXMT 12/20 ROTOR	CALIPER BRAKE ASSEMBLY
	7A	54KC7961RS	00Z BRAKE PAD W/SENSOR #B99-13727	REPAIR PART FOR 7
	7B	54KC7961BG	BRAKE HOSE=1/8"X18"OAL #50612	REPAIR PART FOR 7
	7C	54KC7961BH	02Z BRAKE HOSE #W2261 1/8X18"OAL	REPAIR PART FOR 7
	7D	54KC7961BP	01Z BRAKEFLUID/PISTON KIT #98-1198	REPAIR PART FOR 7
	7E	54KC7961BS	BLEEDERSCREW#10-07721 #2-660	REPAIR PART FOR 7
`	7F	54KC7961B0	O-RING 08-11070 BRAKE 2-660	REPAIR PART FOR 7
	7G	54KC7961CT	CROSSOVERTUBEKIT HAY#B98-11700	REPAIR PART FOR 7
	7H	54KC7961H2	01Z BRAKEHOSE #W2511 1/8X32" OAL	REPAIR PART FOR 7
all	8	03 65203	95071B DISC BRAKE PAD DAMPENER 1/8T	
All	10	03 65204B	94467# 3/16 SPCR=CALIP MNT PLT MOD2	
all	11	03 65204	94467B 3/8 SPCR=CALIP MNT PLT MOD2	
all	12	03 65204A	94467# 1/4 SPCR=CALIP MNT PLT MOD2	
all	13	03 65204C	94467# 10GA SPCR=CALIP MNT PLT MOD2	
all	14	03 65204D	94467# 14GA SPCR=CALIP MNT PLT MOD2	
all	15	15K235A	03Z HXCPSC 3/4-10X2.5 GR 8	
all	16	15U340	LOCKWASH MEDIUM 3/4 ZINCPL	
all	17	15K226C	06Z SKCPSC-5/8-11X3GR8BLK HK	
all	18	15U315	LOKWASHER MEDIUM 5/8 ZINCPL	
all	19	54KC7961BH	02Z BRAKE HOSE #W2261 1/8X18"OAL	
all	20	54KMC1125U	01Z MASTER CYL TILTON 74-1125U	

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Parts List—Brake 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
All	21	W3 65238	95051#*WLMT=MASTER BRAKE CYL BRKT	
all	22	AAC65001	93481B AIRCYL=BRAKE ASSY 6446E6N	
all	23	15G191	HXFINJAMNUT 5/16-24UNC2 ZINC GR2	
all	24	15K065	HEXCAPSCR 5/16-18UNC2AX1 GR5 ZINC	
all	25	15U210	LOKWASHER MEDIUM 5/16 ZINCPL	
all	26	15G185	HXNUT 5/16-18UNC2B SAE ZINC GR2	
all	27	15K088	HEXCAPSCR 3/8-16NCX7/8 GR 5 ZINC	
all	28	15U240	FLATWASHER(USS STD) 3/8" ZNC PLT	
all	29	15U255	LOCKWASHER MEDIUM 3/8 ZINCPL	
all	30	15U205	LOCKWASHER MEDIUM 5/16" 18-8SS	
all	31	52XY0ER004	STRADTUN3/16MJX1/8FP#2405-3-2	
all	32	X3 65200	94187# MACH=DISC BRAKE DISC MOD2	
all	33	X3 65201	94147# MACH=DISC BRAKE HUB MOD2	
all	34	15K181B	02Z HEXCASCR 1/2-13X2 GR8 ZNC	
all	35	15U317B	FLTWSHR 1.0625ODX.531IDX13GA GR8 ZC	
.				

Brake Assembly

72058, 72075J2N

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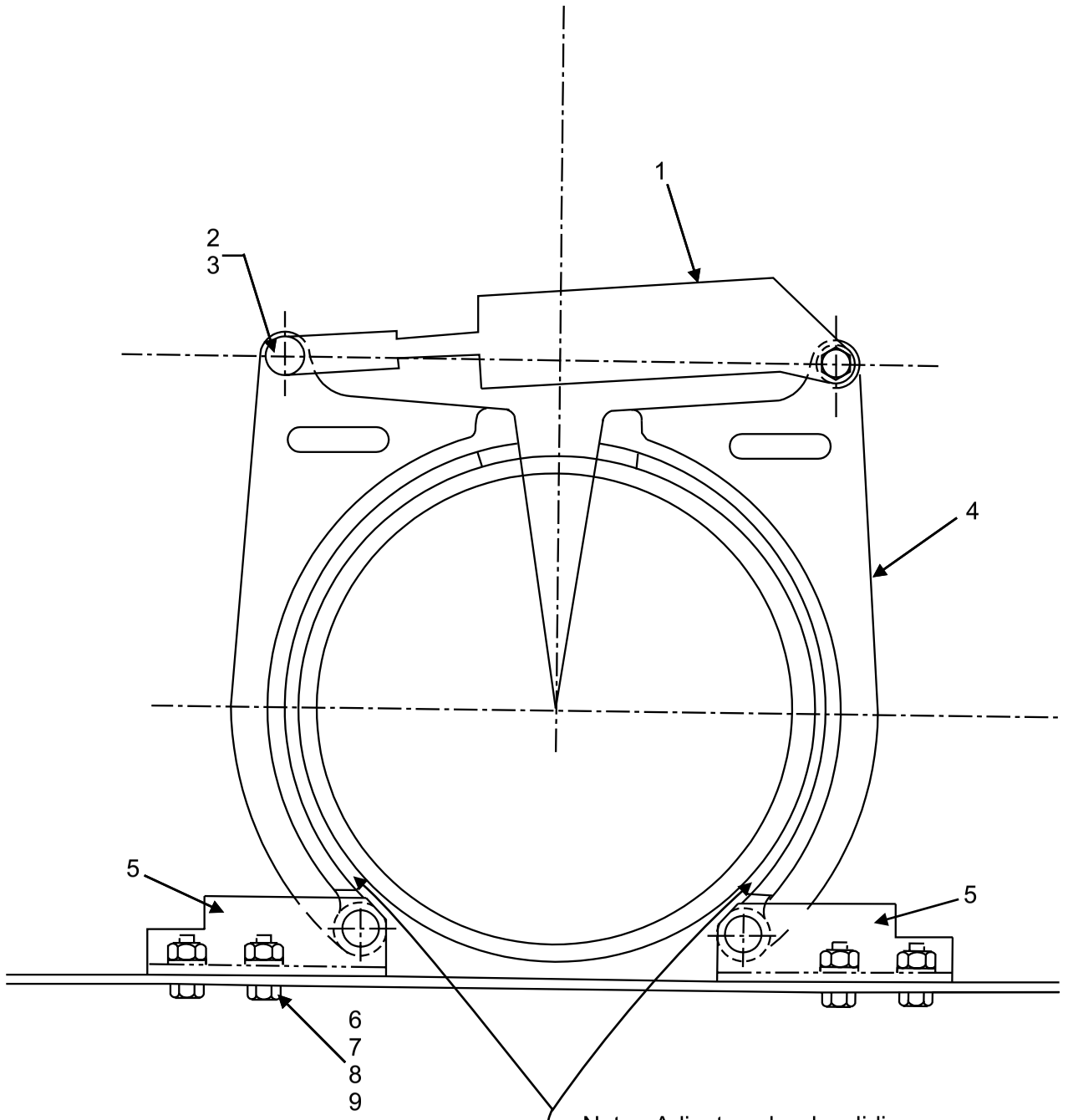
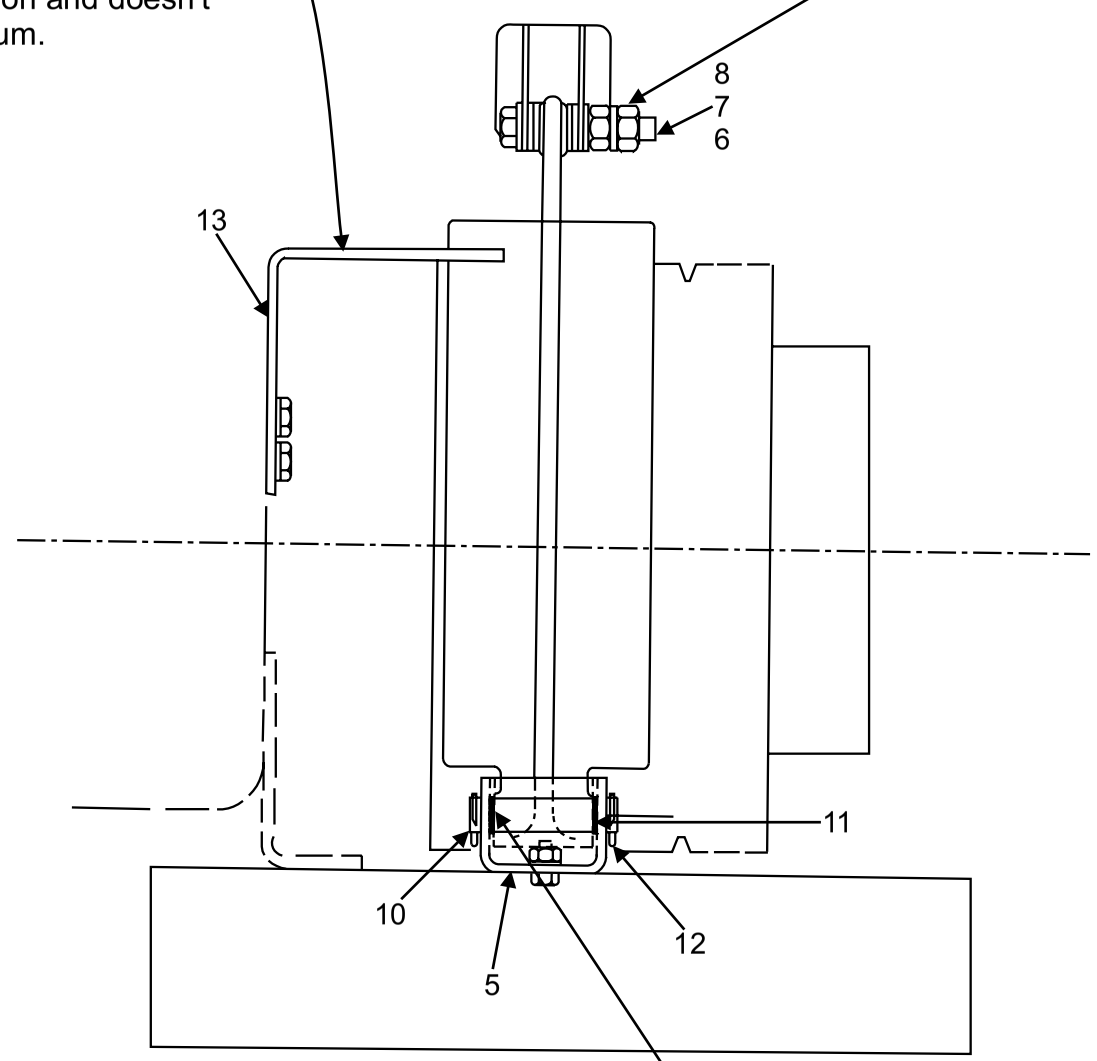


Note: Adjust anchor by sliding back and forward so that brake lining clears drum in open position and contacts drum in closed position.

Note: When Brake is off the back of the shoe pushes against the stop to prevent the brake from rattling. Center open in stop with shoe so that shoe pushes on stop in open position and doesn't drag on drum.

Note: Tighten these jam nuts enough to take out excess clearence. Do Not Over Tighten, Air Cylinder must move freely.



Do not lubricate make sure nyliners are in place.

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Parts List, cont.—Brake Assembly

Used In	Item	Part Number	Description	Comments
.				
			----------ASSEMBLIES----------	
	A	G40 00200B	95391J BRAKE ASSY=MOTOR MT 72J2N	72058,72075J2N
			----------COMPONENTS----------	
all	1	AAC58001	95000Z AIRCYL=BRAKE ASSY 7258J2N	
all	2	17A040	CLEVISPIN 1/2"X1+3/8" DRILLED	
all	3	15H045	STDCOTTERPIN 1/8X1 SS18-8	
all	4	SA 28 131N	85131C*BRAKESHOE(NON-ASB)72SG+WETCH	
all	5	02 18986	95521B ANCHOR=BRAKE END 1/60SGH	
all	6	15G230	HXNUT 1/2-13UNC2B SAE ZINC GR2	
all	7	15U300	LOKWASHER REGULAR 1/2 ZINC PLT	
all	8	15U490	FLAWASH 1+1/2X17/32X1/4ZINC	
all	9	15K173A	HXCAPSCR 1/2-13UNC2AX1.75 GR5 PLATD	
all	10	17A045	CLEVIS PIN 3/4"X 3" DRILLED + ZNC	
all	11	54E223	NYLNR12L12-FBUSH3/4X13/16X3/4	
all	12	15H051	STDCOTTERPIN 1/8X1+1/2ZINCPL	
all	13	04 00331A	95391# LIMIT BKT=BRAKEASSY 72J2N	
all	15	15K105	HXCAPSCR 3/8-16UNC2A1.25 GR5 PLATED	
all	16	15U255	LOCKWASHER MEDIUM 3/8 ZINCPL	
all	17	15U240	FLATWASHER(USS STD) 3/8" ZNC PLT	
all	18	02 18984	81047A SHIM=BRAKE END 16GA	
all	19	02 18984A	85403B SHIM BRAKE END 10GA	AS REQUIRED

Section 5

Suspension

Isolator Installation

64046E6N New Pivot, 72046 E5N/J5N, 72058J5N

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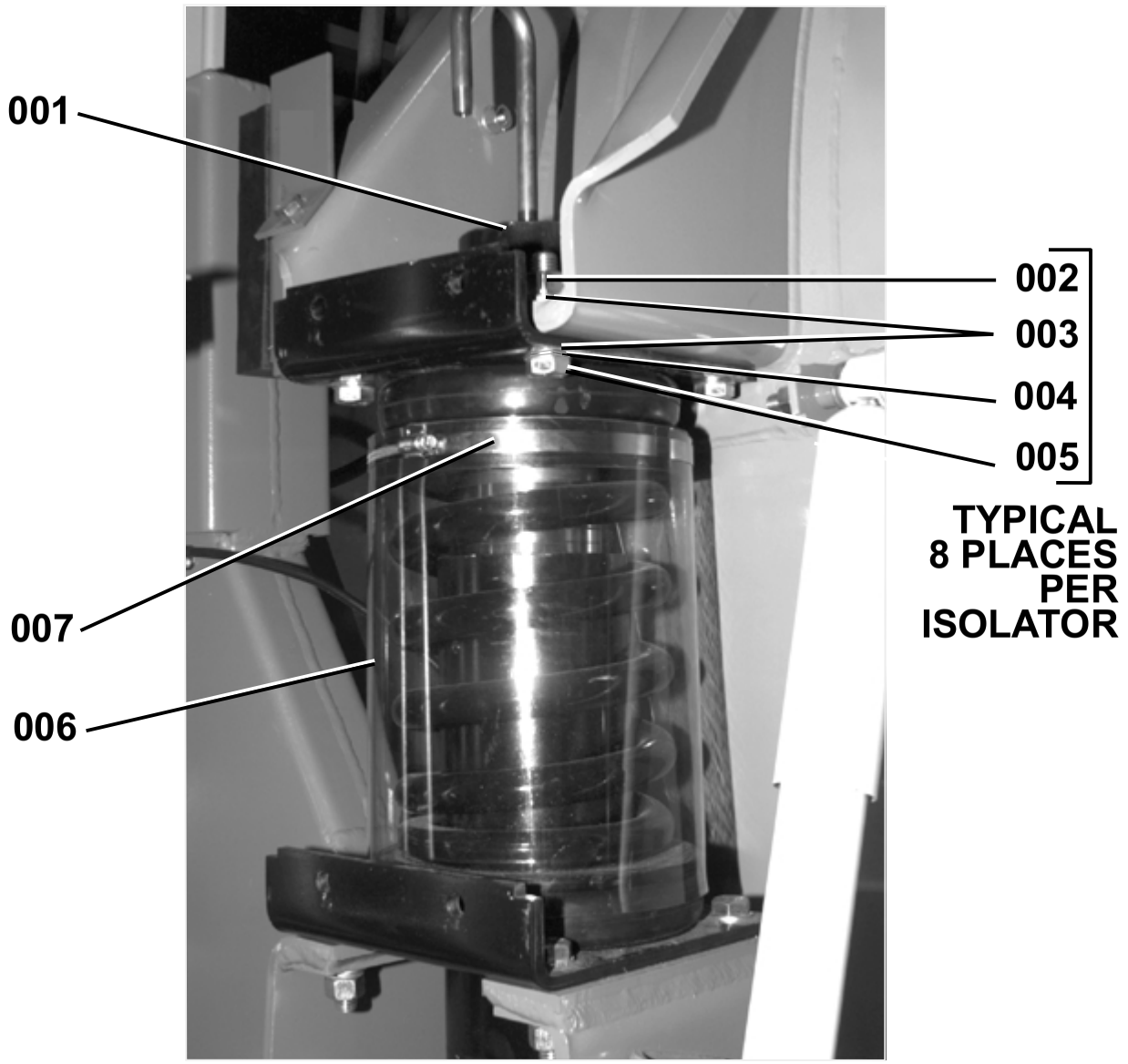

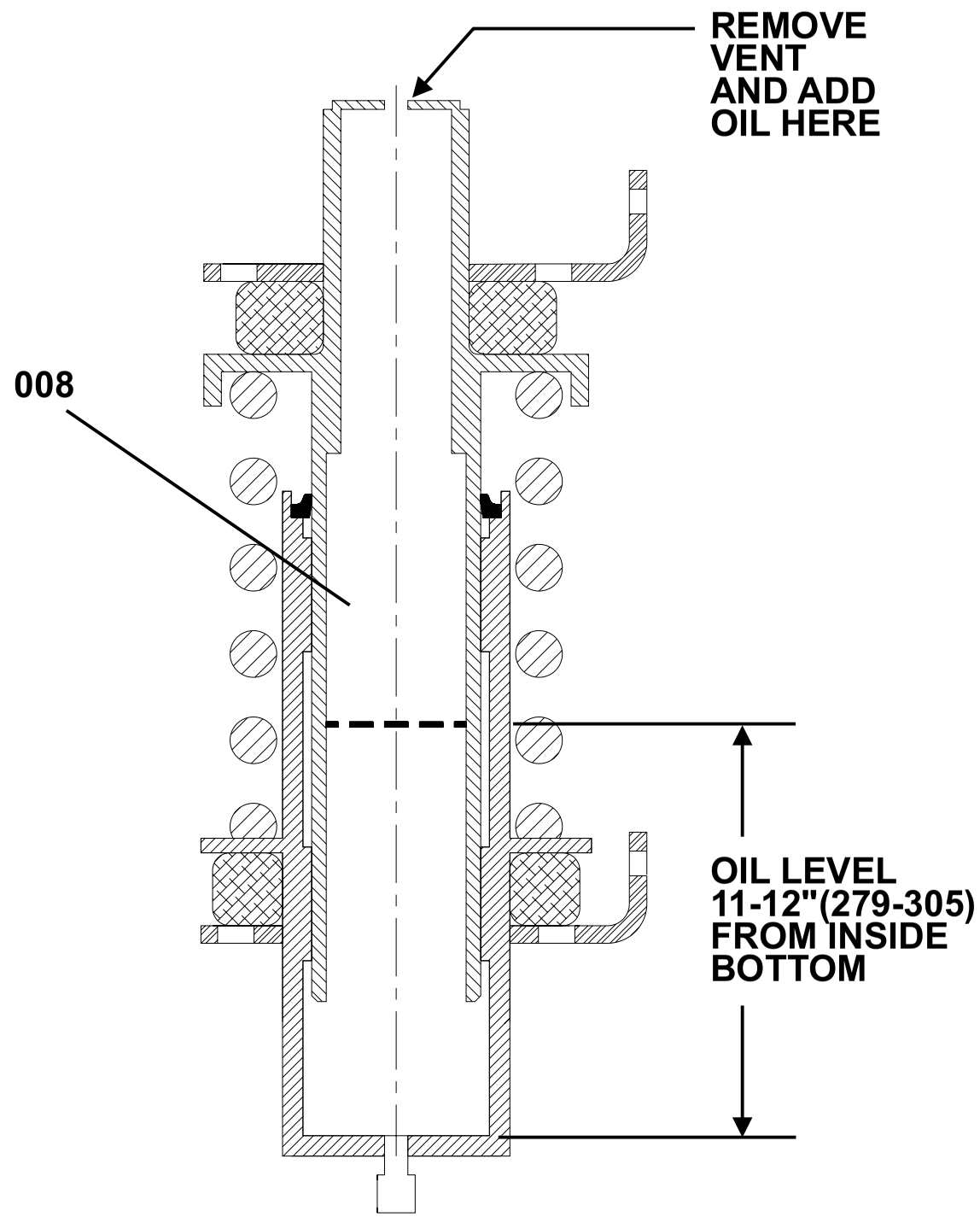

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Parts List—Isolator Installation

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	GIC65003	INST=ISO ASSY'S 64E&J MD2	6446E6N
	B	GIC58003	INST=ISO ASSY'S 72E MD2	7246J5N, E6N
	C	GIC58013	INST=ISO ASSY'S 72J MD2	7258D5N, J5N
			----------COMPONENTS----------	
A	1	AIC65003	ASSY=FNT OR RR ISO 64E&J MD2	
B	1	AIC58003A	ASSY=REAR ISO MNT 72E MD2	
C	1	AIC58013A	ASSY=REAR ISO MNT 72J MD2	
all	2	15K218	HXCPSCR 5/8-11X1+5/8" GR.5 ZIN	
all	3	15U315	LOKWASHER MEDIUM 5/8 ZINCPL	
all	4	15U318	FLATWASH 1+1/8 ODX21/32 IDX3/3	
all	5	15G238	HXNUT 5/8-11UNC2B SAE ZINC GR2	
all	6	20C008C	THDLOCK-RMUBL-250CC LT#242-41	
all	7	03 65036P	PLASTIC SHIELD 12.75X 27.75	
all	8	27A092	HOSECLAMP S.S.SCR 7+1/8-10"	

Isolator Assembly & Installation

64040/64050E6N

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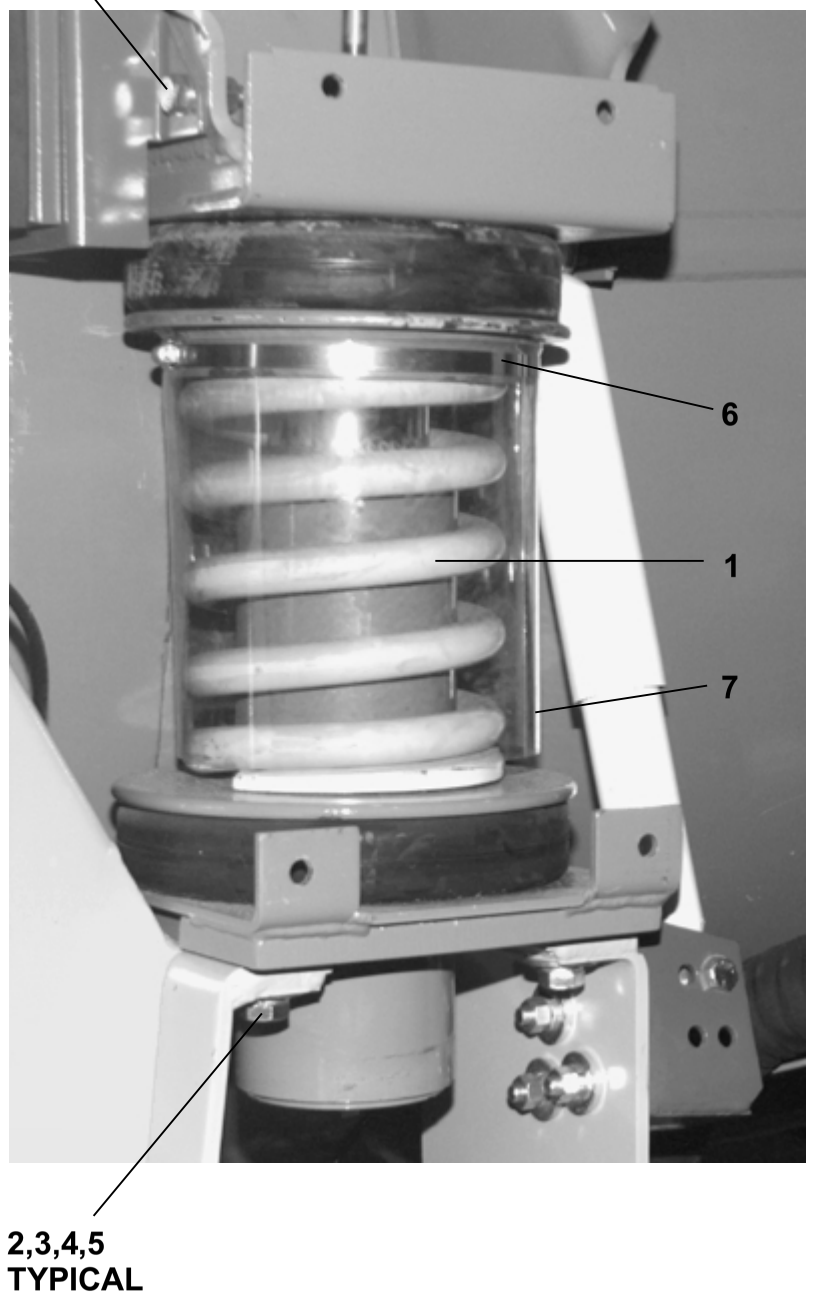

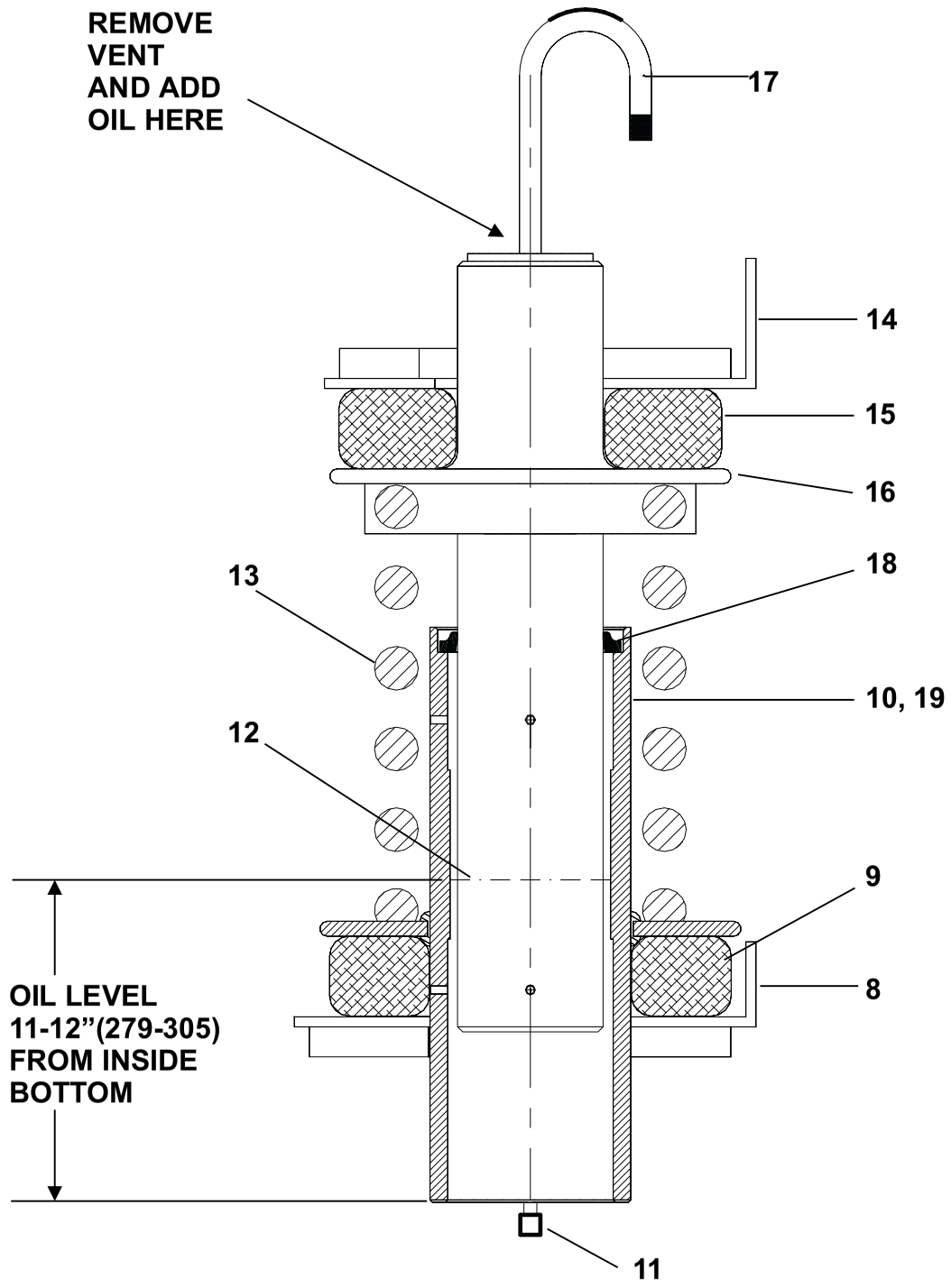

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Parts List—Isolator Installation

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	GIC65003	INST=ISO ASSY'S 64E&J Md2	
	B	AIC65003	ASSY=FNT OR RR ISO 64E&J MD2	
			----------COMPONENTS----------	
all	1	AIC65003	ASSY=FNT OR RR ISO 64E&J MD2	
all	2	15K218	HXCPSCR 5/8-11X1+5/8" GR.5 ZIN	
all	3	15U315	LOKWASHER MEDIUM 5/8 ZINCPL	
all	5	20C008C	THDLOCK-RMUBL-250CC LT#242-41	
all	7	03 65036P	PLASTIC SHIELD 12.75X 27.75	
all	6	27A092	HOSECLAMP S.S.SCR 7+1/8-10"	
all	8	W3 65030G	*WLMT=BTM ISO MNT PLTE MD2	
all	9	60D10A05AA	ISO MNT=10/5.03/2 M6AA814	
all	10	AIC65000	SUBASSY=64ISO BODY+SEALS	
all	11	5SP0GGFSS	NPT PLUG 3/8 SQ SOLID GALSTL	
all	12	20H008A	ROTELLA 10W30 MTR OIL DR.EA=1G	
all	13	03 65032	SPRING=7.25 OD X 1170#/IN	
all	14	W3 65030E	*WLMT=TOP ISO MNT PLATE MD2	
all	15	60D09K03NA	ISO MNT=9.5/3.69/2 M6AA814	
all	16	X3 65025E	MACH=3.5 ISO ROD MD2	
all	17	03 65036	ISOLATOR = VENT PIPE BRASS	
all	18	Y3 65033F	MACH=ISO BODY W/BUSH 64 MD2	
all	19	24S004	SEALH1L7 WIPER3.625X4.625X.500	
all	20	20C004	LOCTITE GRADE B .2CC SIZE	

Shock Absorber Installation

64040/64050E6N 64046E6N/J6N 72046E5N/J5N 72058J5N

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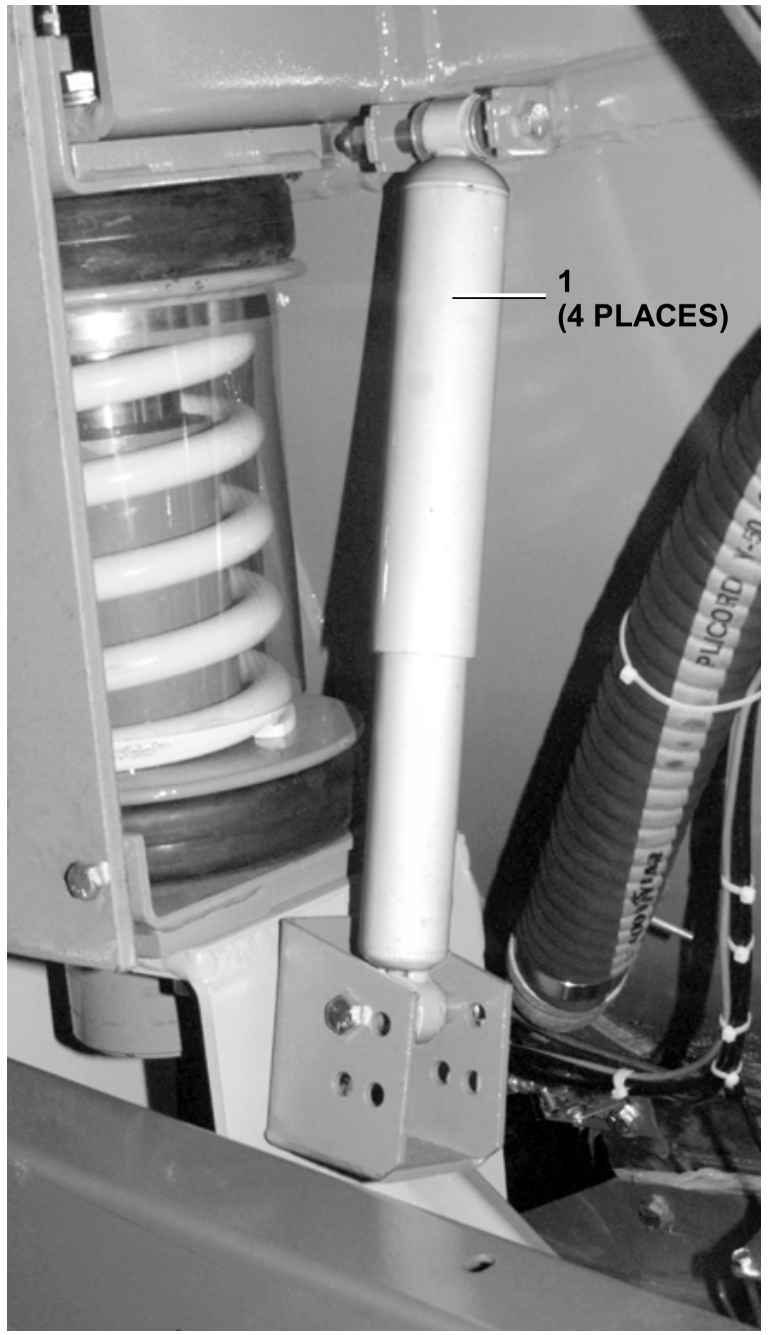

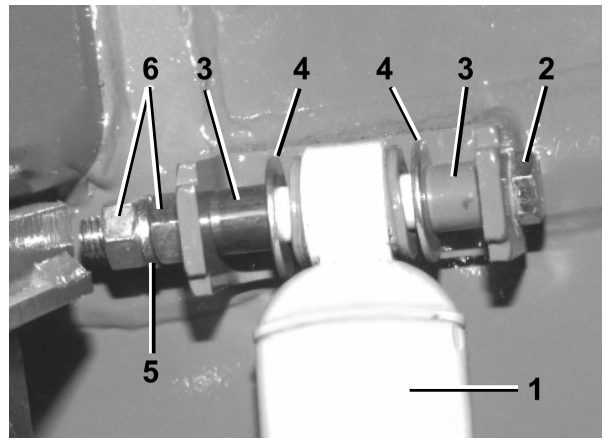

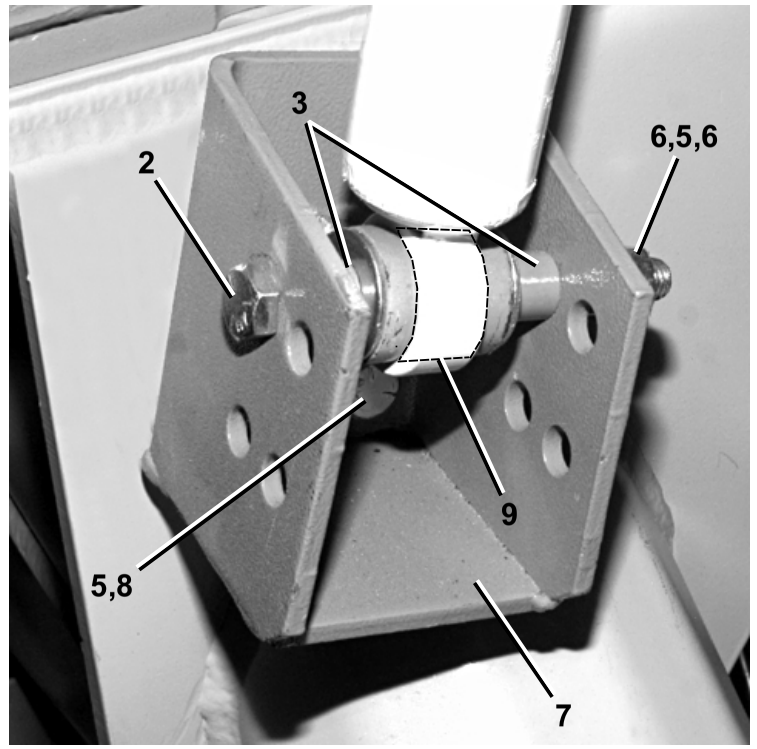

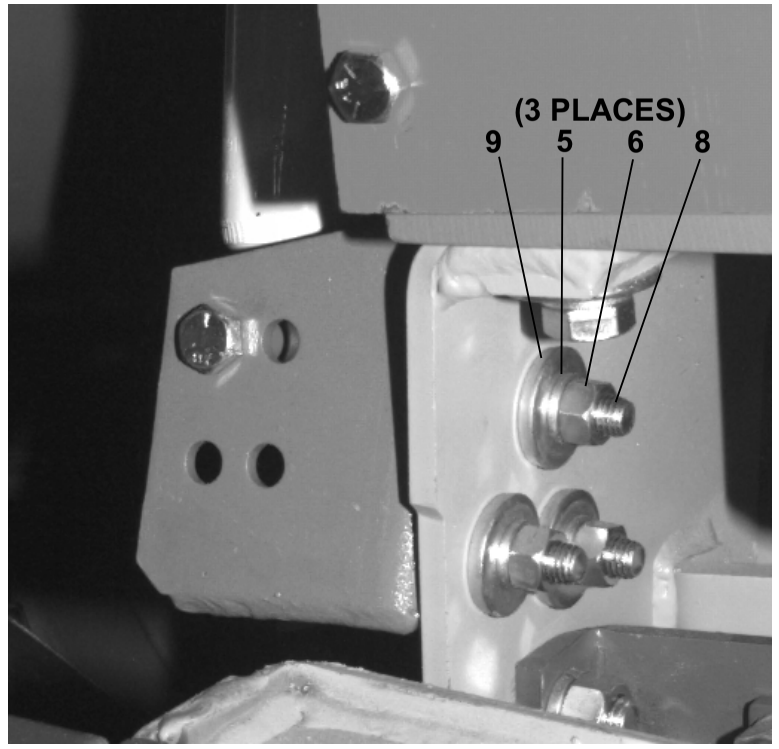

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Parts List—Shock Absorber Installation

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	GIC65002	INST=SHOCK ABSORBER 6446E6N	64040/64050E6N 64046E6N/J6N
	B	GIC58002	INST=SHOCK ABSORBER 7258E5N	72046E5N/J5N 72058D5N/J5N
			----------COMPONENTS----------	
all	1	60BS6832	SHOCK ABSORBR GABRIEL65488440X	
all	2	15K202	HXCAPSCR 1/2-13UNC2AX5 GR5 ZIN	
all	3	05 20190	MTG-SPACER=SHOCK ABSORBER72T	
all	4	15U280	FL+WASHER(USS STD)1/2 ZNC PL+D	
all	5	15U300	LOKWASHER REGULAR 1/2 ZINC PLT	
all	6	15G230	HXNUT 1/2-13UNC2B SAE ZINC GR2	
all	7	W3 65110B	96261C *WELD=SHOCK MNT PLATE ISO	
all	8	15K147	HXCAPSCR 1/2-13UNC2X1 GR5 ZINC	
all	9	05 20187A	MTG.STUD=SHOCK ABS 6446E6N	

Section 6

Tilt Frame and Pivots

Installation Frame, Pivots & Hydraulics

64046E6N/J6N/D6N 72046E5N/J5N 72058J5N

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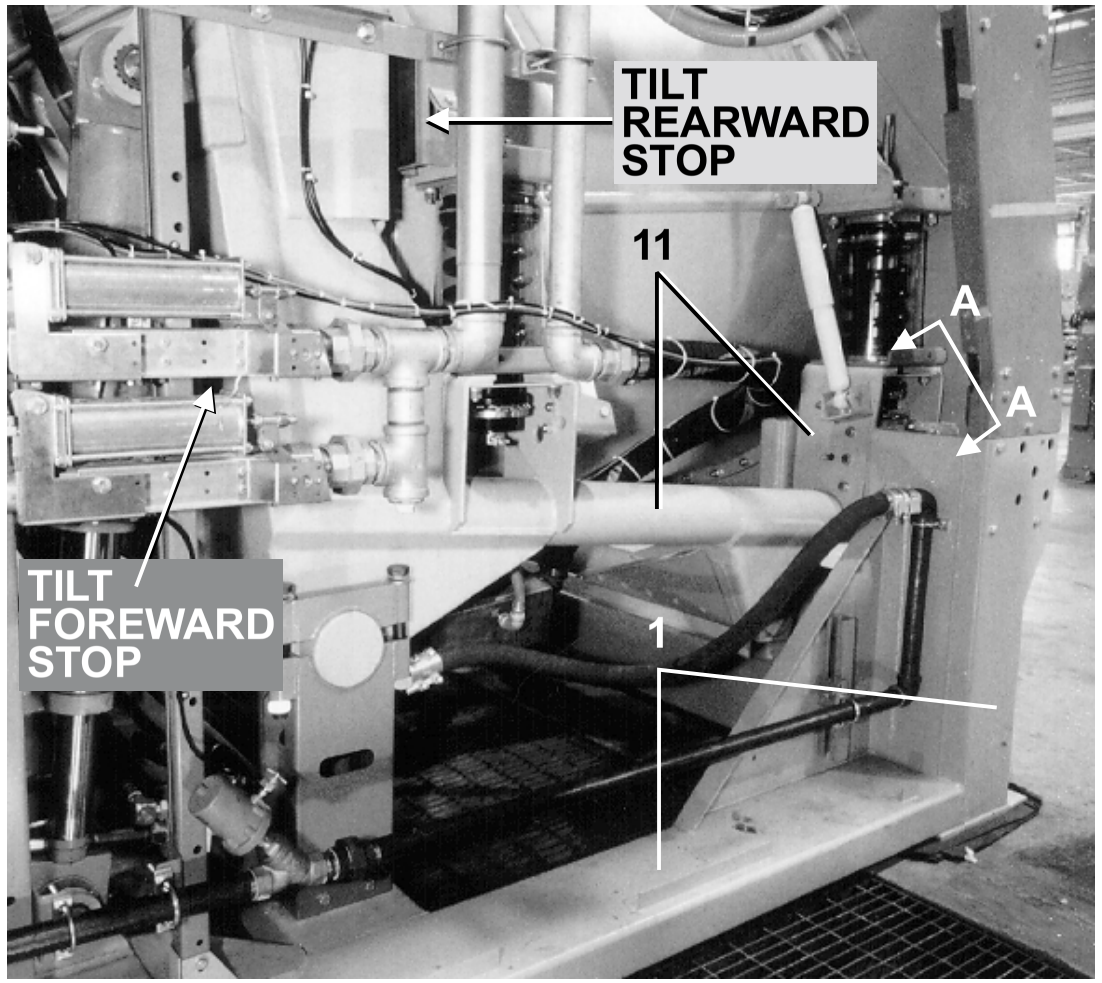
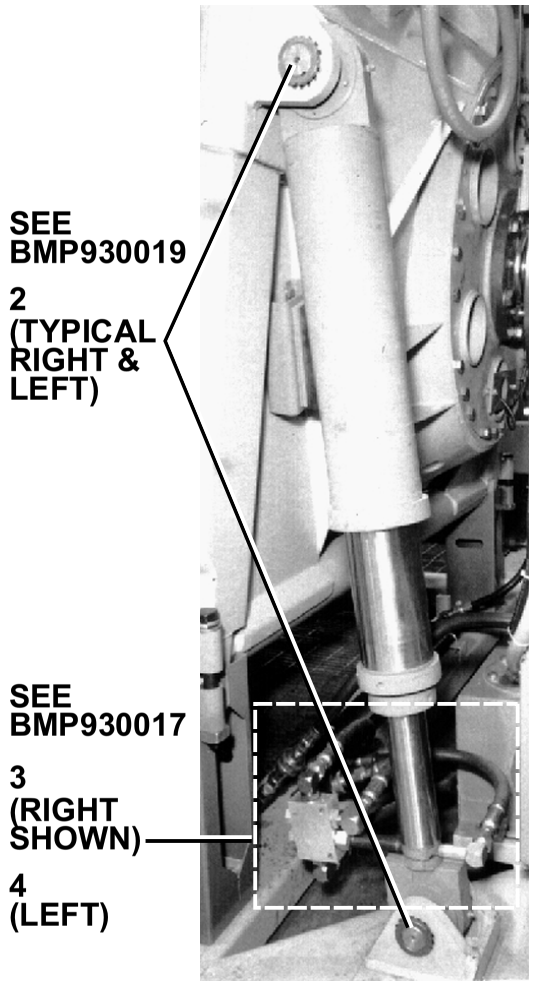
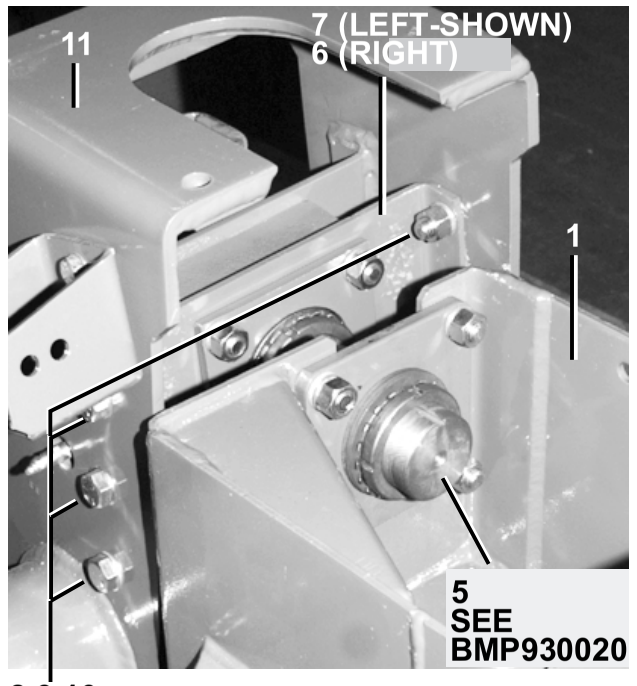
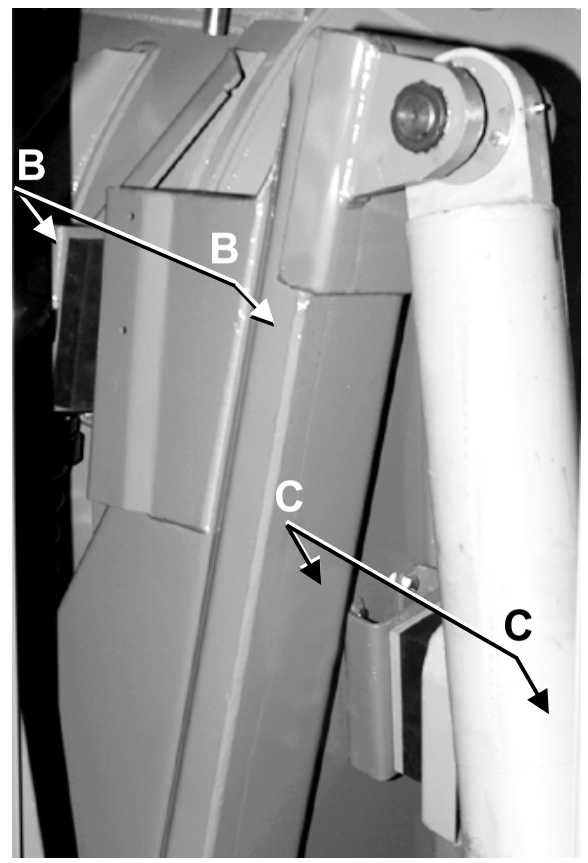
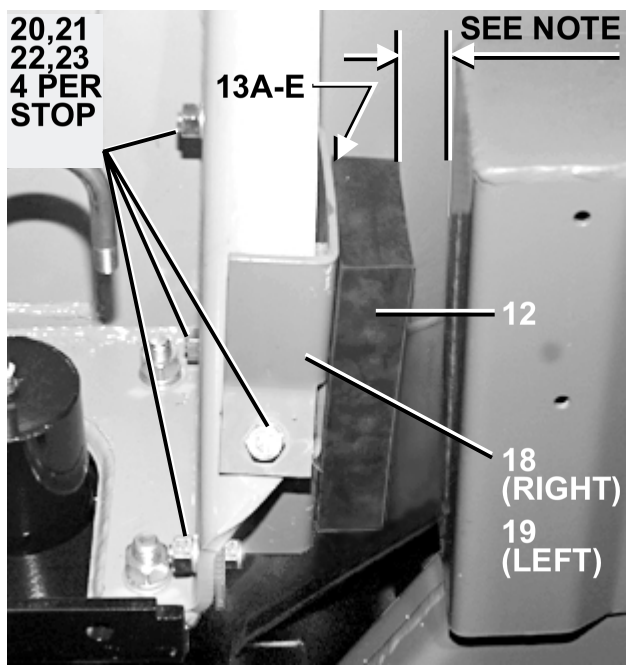




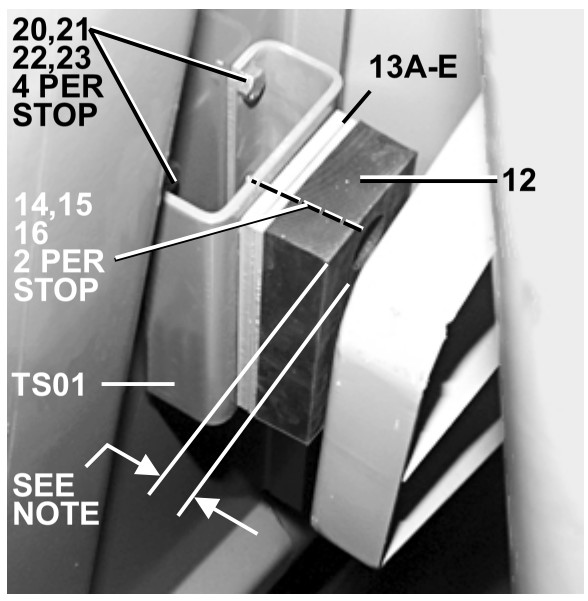


VIEW A-A





VIEW B-B



VIEW C-C

Note: Maintain a 1"(25mm) minimum to 1-1/4"(32mm) maximum gap between frame and tilt forward stops and frame and tilt rearward stops while the machine is empty and in the wash position. This gap should be checked monthly.

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Parts List—Installation Frame, Pivots & Hydraulics

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	GHF65001N	94000Z INSTL=FRMS+PIVOT+HYD-CYL N-T	6446E6N
	B	GHF46001N	94000Z INSTL=FRMS+PIVOT+HYD-CYL N-T	7246J5N, 7246E5N
	C	GHF58001	INST=FRAME+PIVOT+HYD	7258D5N,7258J5N
			none	
			----------COMPONENTS----------	
A	1	W3 65171A	92000Z*WELD=BASE FRAME /W CSMT H	
B	1	W5 46171N	97442E*WLMT=BASE FRAME 7246 NW-TLT	
Cl	1	W5 58171	952535*WLMT=BASE FRAME 7246/58E5N	
all	2	AHT65001	94407B ASSY=HYDRAULIC MNT 2"BALBUSH	
A,B	3	AHT65003N	94000Z ASSY=HYDCYL RT 6446 NW-TLT	
C	3	AHT65003	93442B ASSY=HYDCYL LEFT 6446E6N	
A,B	4	AHT65003P	94000Z ASSY=HYDCYL LF 6446 NW-TLT	
C	4	AHT65003A	93442# ASSY=HYDCYL RIGHT 6446E6N	
all	5	GBM16003	93491LINSTL=BAL BUSH PIVOT M7E/E6N	SEE BMP930020
A	6	03 65156	92653C PIVOT MNT BRKT BOLT RIGHT	
B,Cl	6	05 58156	94313C PIVOT MNT BRKT BOLT RIGHT	
A	7	03 65156A	92653# PIVOT MNT BRKT BOLT LEFT	
B,C	7	05 58156A	94313# PIVOT MNT BRKT BOLT LEFT	
all	8	15K214E	HXCAPSCR 5/8-11UNC2AX1.5 GR5 ZNC/CD	
all	9	15U315	LOKWASHER MEDIUM 5/8 ZINCPL	
all	10	15G238	HXNUT 5/8-11UNC2B SAE ZINC GR2	
A	11	W3 65121N	95122E*WLMT=TILT FRAME 6446E NW-TLT	
B	11	W5 46121N	98197E*WLMT=TILT FRAME 7246 NW-TILT	
C	11	W5 58121	944875*WLMT=TILT FRAME 7258E	
all	12	03 64681	93047B RESTPAD=SHELL STOP FRONT64TN	
all	13	03 64681E	93047# REST PAD :1/2"SPACER	
all	13	03 64681A	93047B REST PAD:10GA SPACER	
all	13	03 64681B	93047# REST PAD :7GA SPACER	
all	13	03 64681C	93047# REST PAD :1/4"SPACER	
all	13	03 64681D	93047# REST PAD :3/8"SPACER	
all	14	15K191	HXCAPSCR 1/2-13UNC2AX2.5 GR5 ZNC/CD	
all	15	15U280	01Z FL+WASHER(USS STD)1/2 ZNC PL+D	
all	16	15G234	LOKNUT 1/2-13NC CAD FLXLOC#21FKF813	
all	17	03 65133A	96297B TILT FRWRD TILT FRM STP MD2	
all	18	03 65134B	96303C TILT RRWRD TILT FRM RT MP2	
all	19	03 65134C	96303# TILT RRWRD TILT FRM LT MP2	
all	20	15K173A	HXCAPSCR 1/2-13UNC2AX1.75 GR5 PLATD	
all	21	15U300	LOKWASHER REGULAR 1/2 ZINC PLT	
all	22	15G230	HXNUT 1/2-13UNC2B SAE ZINC GR2	
all	23	15K147	HXCAPSCR 1/2-13UNC2X1 GR5 ZINC	

Installation of Pivot Ball Bushing

42032M7/M9 64040,64050E6N 64046E6N/J6N 72046E5N/J5N 72058J2N/J5N 72075J2N

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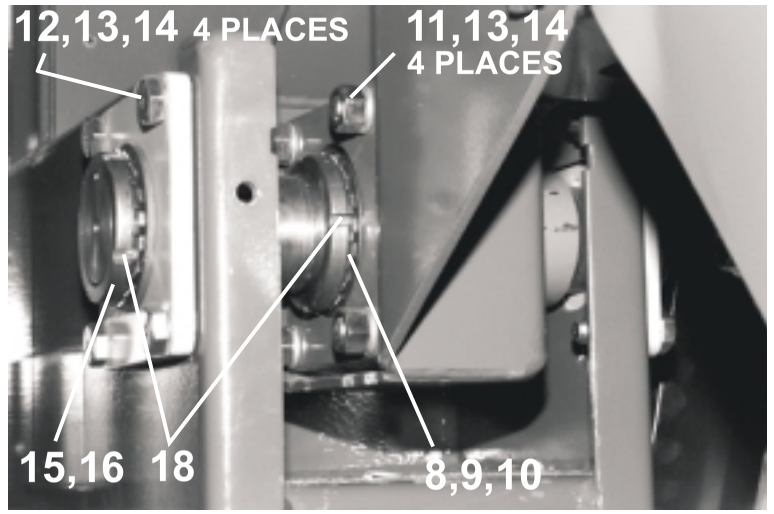
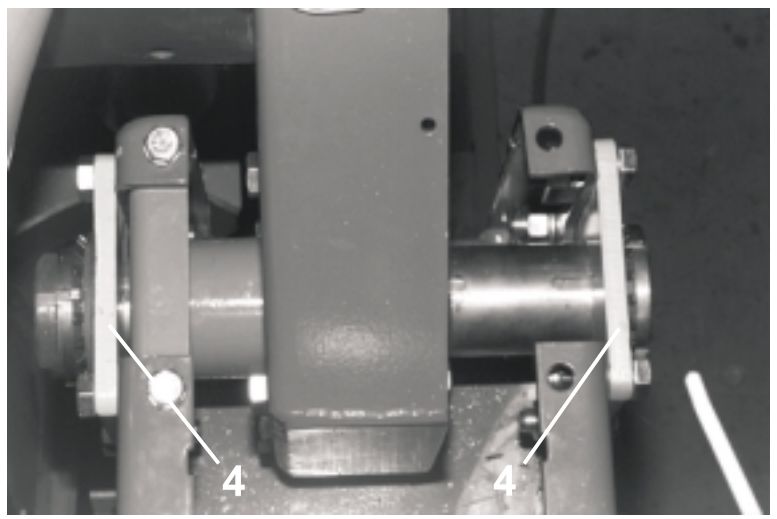
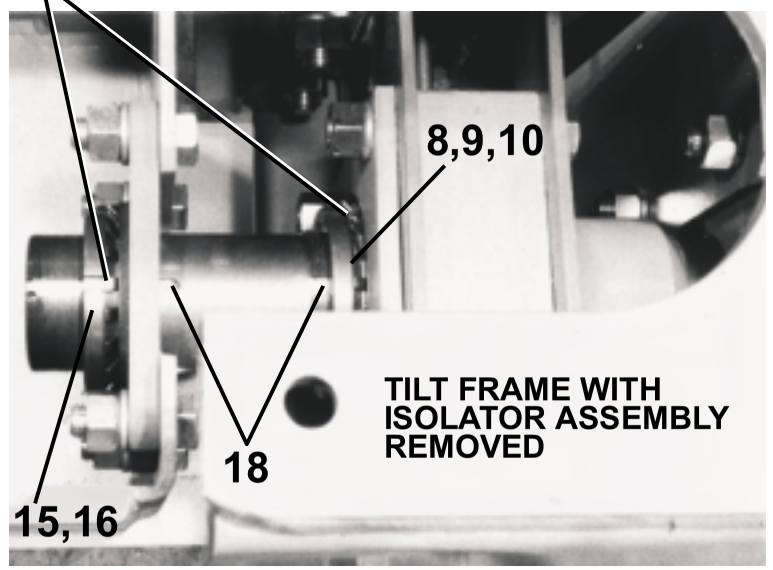


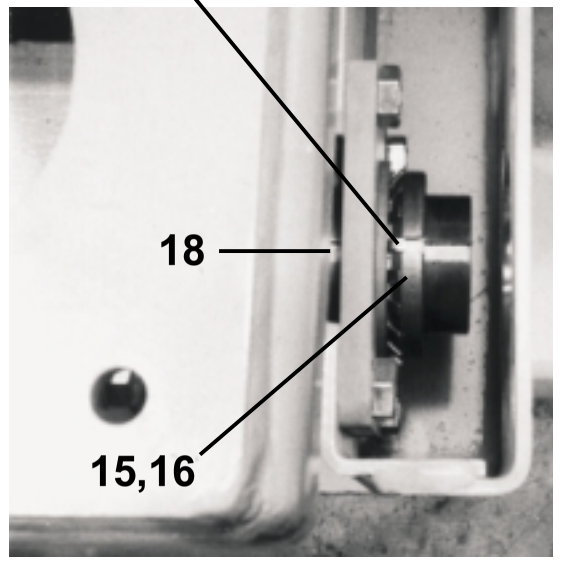
Note: These two views are of the 42032M7E Pivot Installation-Right Side



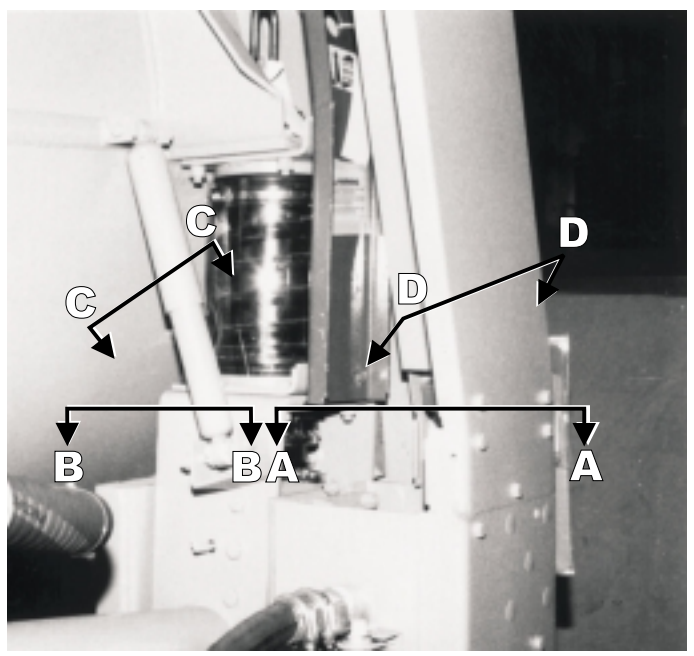
Top View of Right Pivot



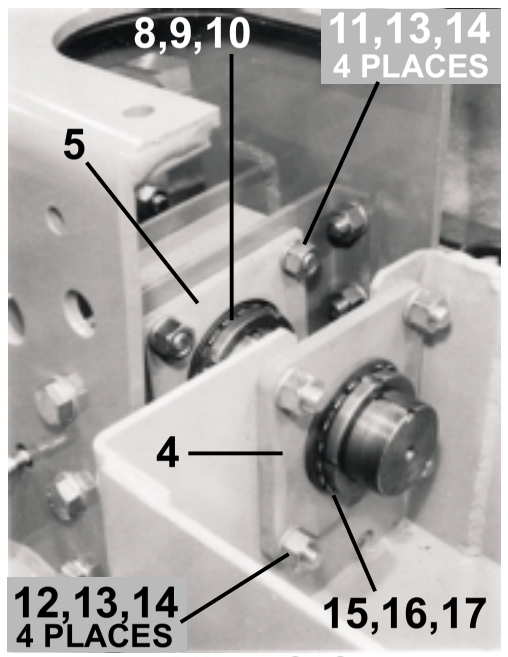
View A-A



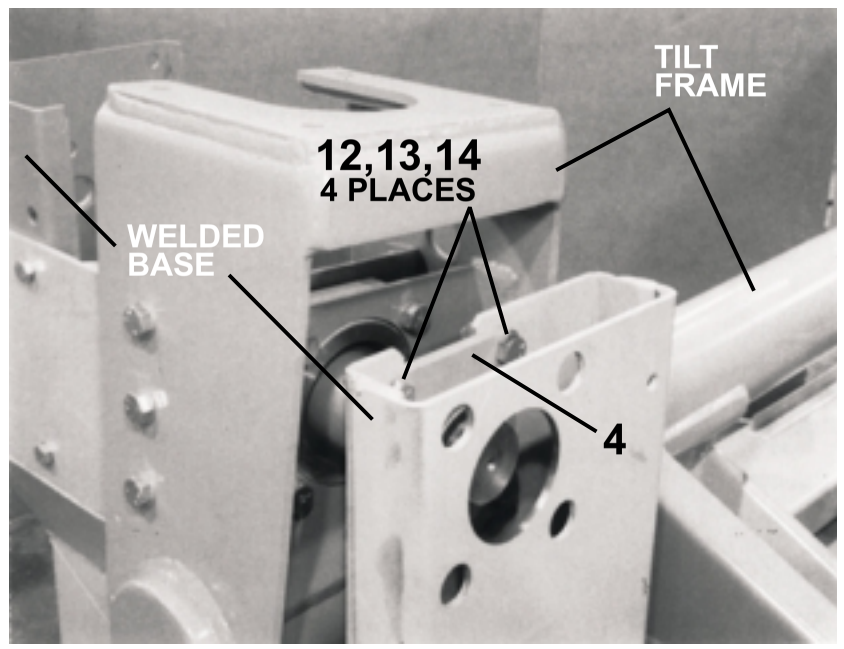
View B-B



Overview Pivot Installation 64046E6N-Left Side

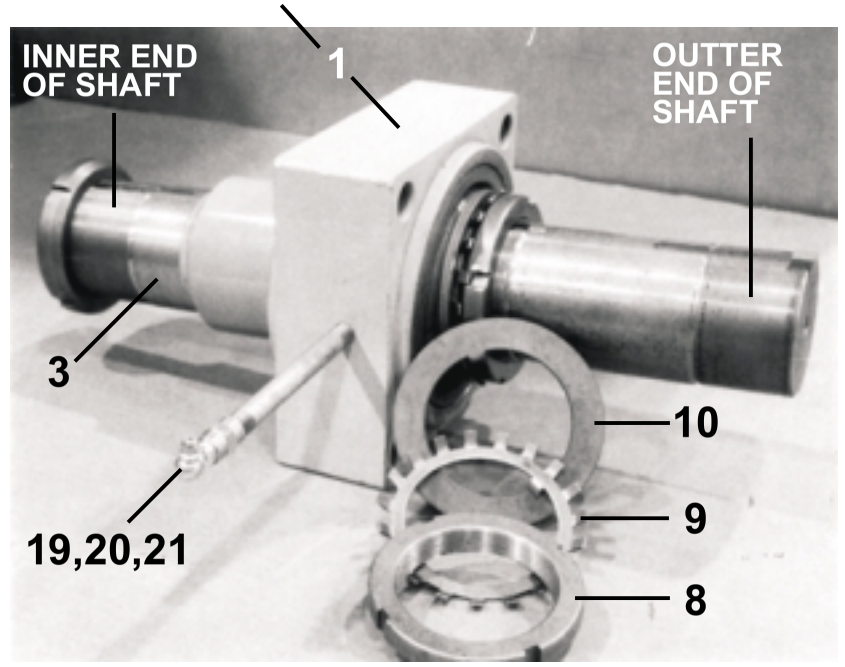


View C-C



View D-D

SEE BMP930026



Ball Bushing and Shaft

Pellerin Milnor Corporation
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Litho in U.S.A.

Parts List—Pivot Ball Bushing

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

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	GBM16003	93491B INSTL=BAL BUSH PIVOT M7E/E6N	
			----------COMPONENTS----------	
all	1	ABM16003	93442B ASSY=BAL BUSH PIV 42M7E64E6N	
all	3	X3 65150	94277C SHAFT=3" BALL BUSH PIVOT	
all	4	X3 65153	93023B MNT PLT=3" BALL BUSH PIVOT	
all	5	03 65152	93491B LOCK PLT=3" BALL BUSH PIVOT	
all	8	56AHN14	N14 BEARING LOCKNUT	
all	9	56AHW14	W14 BEARING LOCKWASHER	
all	10	56ATW14	TONGUE WASH TIM K91514 FOR N14	
all	11	15K227A	HXCAPSCR 5/8-11X4.5 Gr8 ZINC	
all	12	15K214E	HXCAPSCR 5/8-11UNC2AX1.5 GR5 ZNC/CD	
all	13	15U315	LOKWASHER MEDIUM 5/8 ZINCPL	
all	14	15G238B	HEXFINNUT 5/8-11UNC2 Gr8 ZINC	
all	15	56AHN13	N13 BEARING LOCKNUT	
all	16	56AHW13	W13 BEARING LOCKWASHER	
all	18	15E212	STDSQMACHKEY 5/16X2+1/2 C1018	
all	19	5N0C04AG42	NPT NIP 1/8X4 TBE GALSTL SK40	
all	20	5SCC0CBE	NPT COUP 1/8 BRASS 125# 103A-A	
all	21	54M023	GRSFIT 45DEG ALEMITE 1688-B	

Ball Bushing

64046E6N/J6N, 72046E5N/J5N, 72058J2N/J5N, 42032M7E, M7V4840C, M7V4836C

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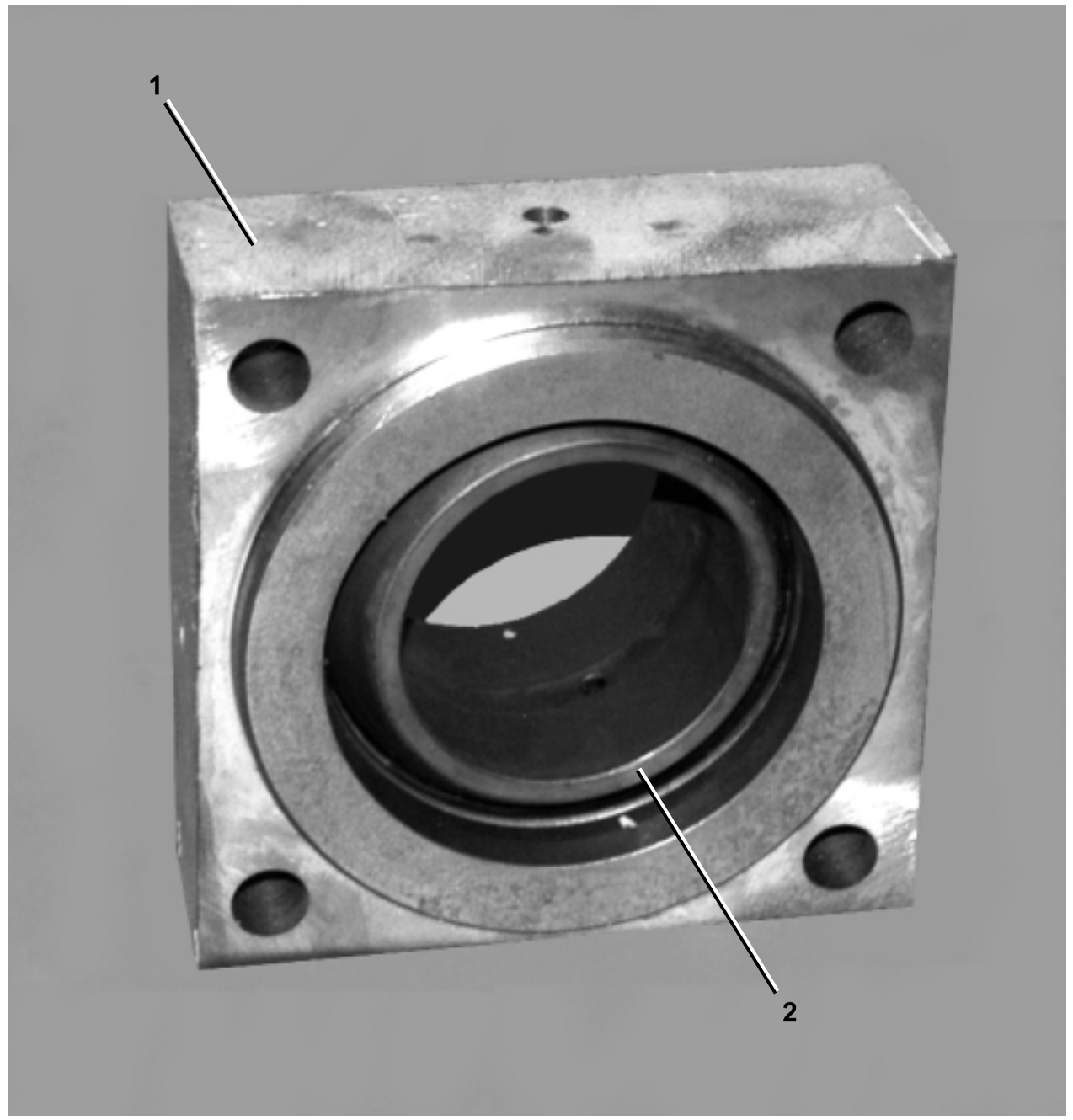

Parts List—Assembly Ball Bushing

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

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	ABM16003	ASSY=BAL BUSH PIV 42M7E64E6N	
			----------COMPONENTS----------	
all	1	X3 65151	MNT BLOCK=3" BALL BUSH PIVOT	
all	2	54A707	BALL BUSHING 3" RBC# B48-L	

Hydraulic Cylinder Mounting 2” Ball Bushing

64040/64050E6N 64046E6N/J6N 72046E5N/J5N 72058J5N 72058/72075J2N

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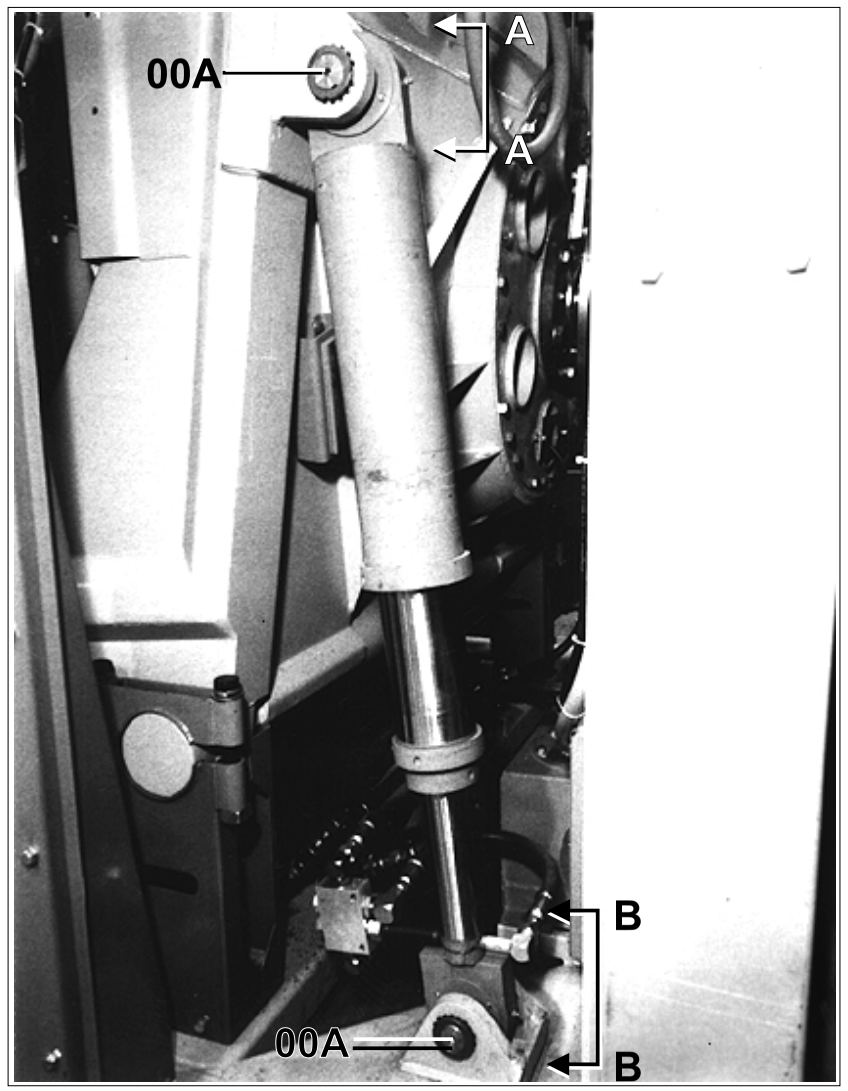

Figure 1:

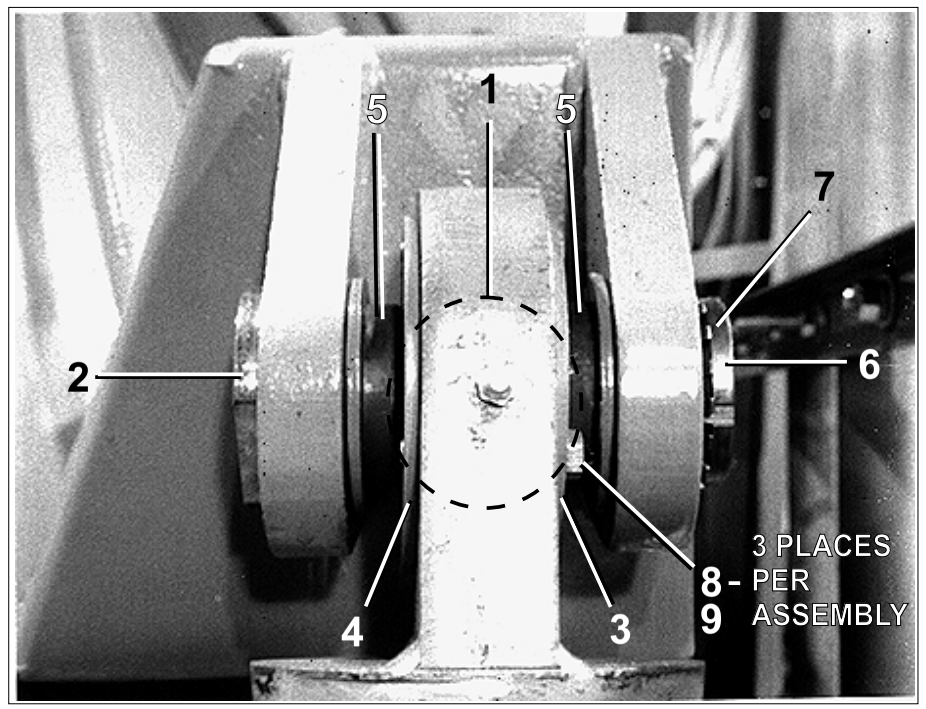

Figure 2: View A-A

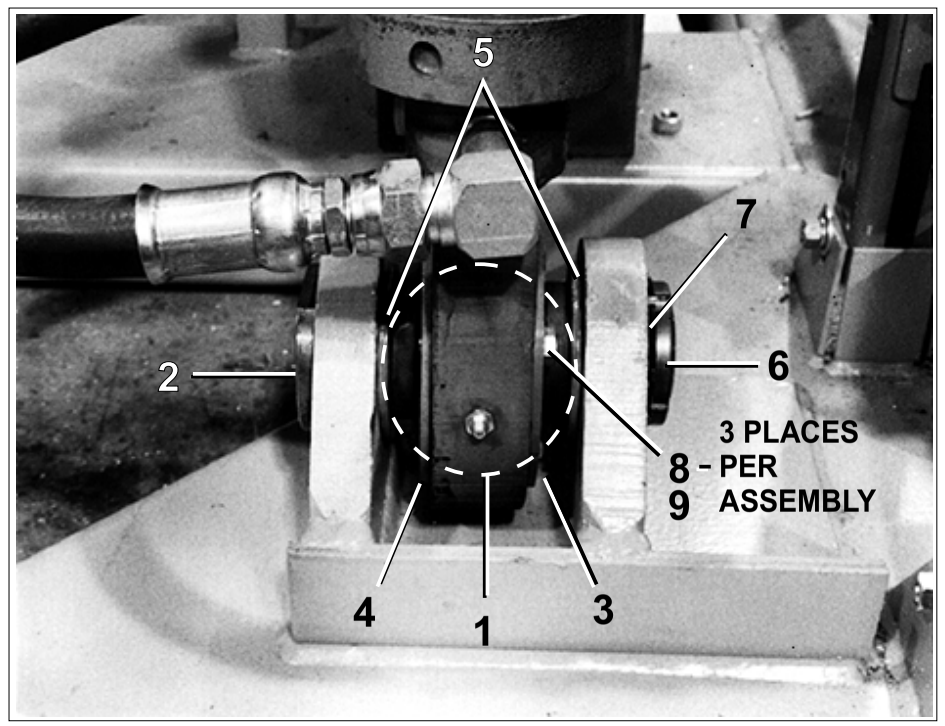

Figure 3: View B-B

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Parts List—Hydraulic Cylinder Mounting 2” Ball Bushing

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

Used In	Item	Part Number	Description	Comments
----------ASSEMBLIES----------				
	A	AHT65001	94407B ASSY=HYDRAULIC MNT 2"BALBUSH	
----------COMPONENTS----------				
all	1	54A705A	00Z BALL-BUSH 2" SKF #GEZ200ES	
all	2	X3 65141	93387B BOLT=2.00 SFTDIA X 5.25L HYD	
all	3	03 65142	92483B WASH=HYD4.75ODX2.62IDW/HOLES	
all	4	X3 65142A	92483B WASH=HYD4.75ODX2.62IDW/TAP	
all	5	X3 65145	94283B SPCR=HYDCYL MNT2"BALBUSH SM	
all	6	56AHN09	N09 BEARING LOCKNUT	
all	7	56AHW09	W09 BEARING LOCKWASHER	
all	8	15K120	HXCAPSCR 3/8-16UNC2AX2 GR5 ZINC/CAD	
all	9	15U255	LOCKWASHER MEDIUM 3/8 ZINCPL	

Proximity Switch Brackets & Mounting Hardware

64046E6N/J6N/D6N 72046E5N/J5N 72058J5N/D5N

BMP930046/97262V
(Sheet 1 of 2)

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BMP930046/97262V (1 of 2)

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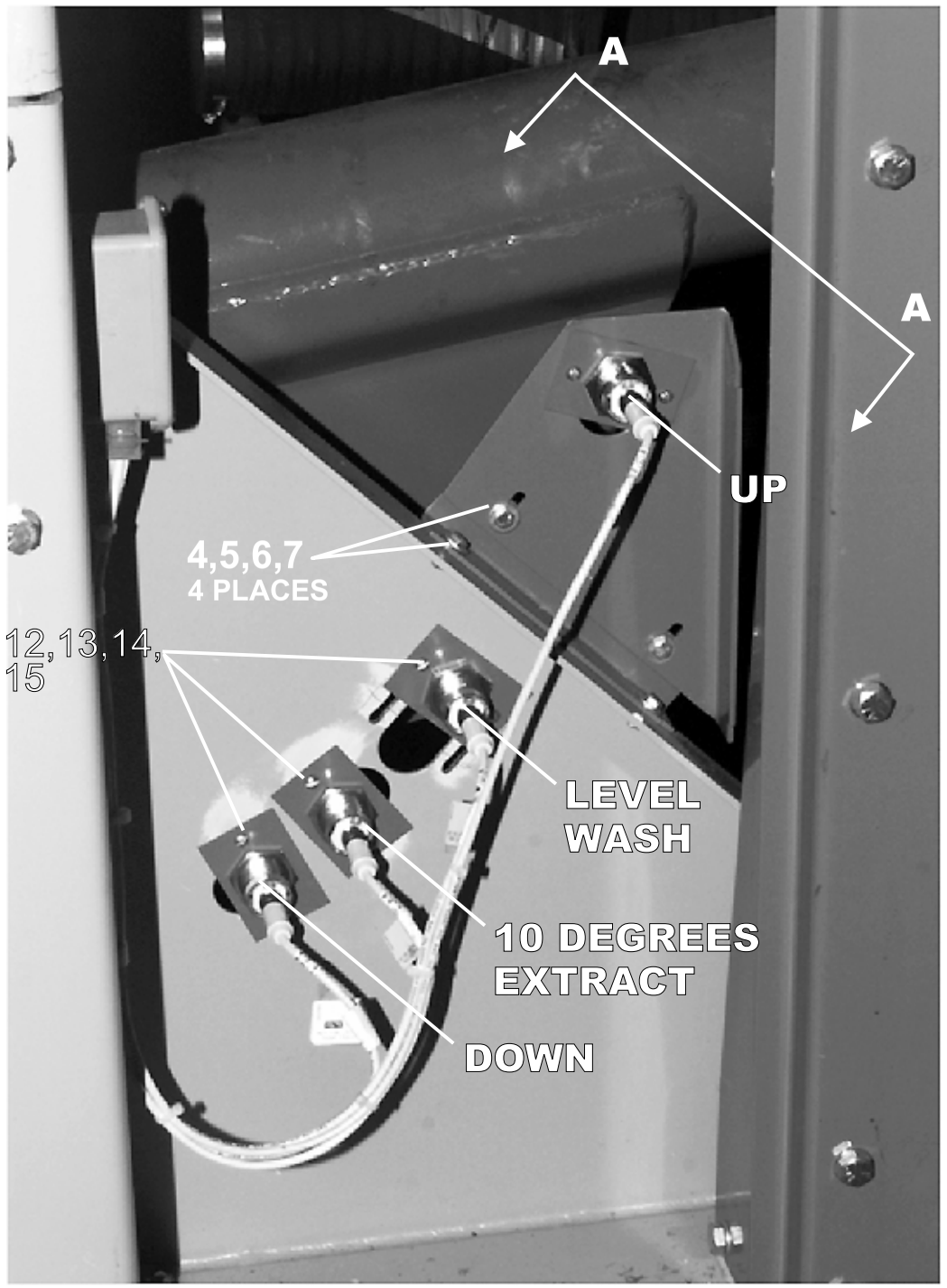

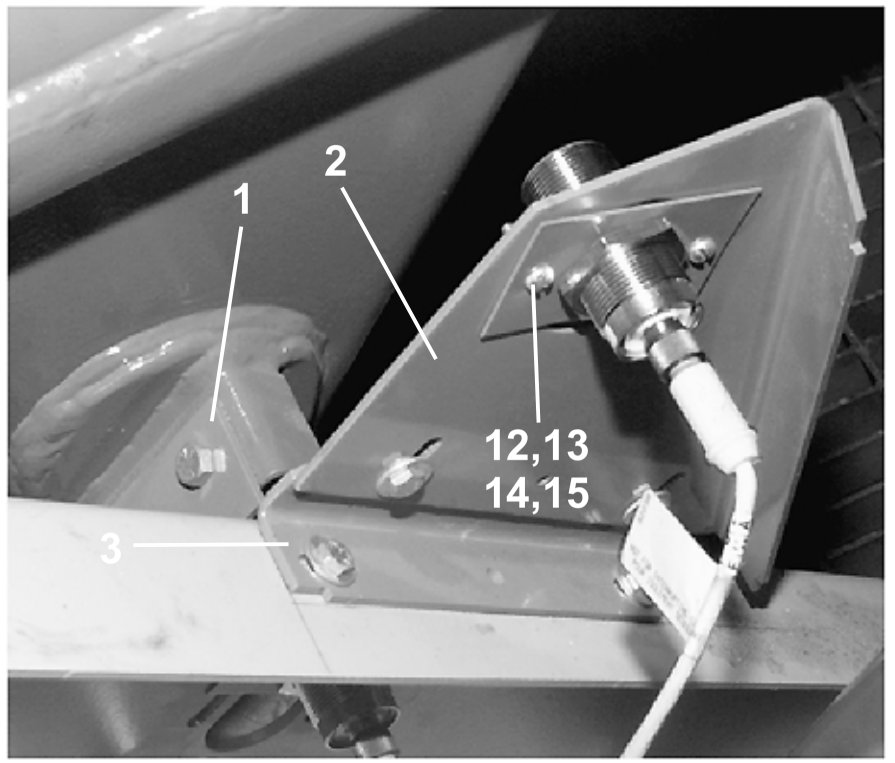

View A-A

Inside View Switches and Target

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

Parts List—Proximity Switch Brackets & 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----------	
	A	GPS65001	94281B INST=PROC SWTCH BRKT & MTHDW	64046E6N,J6N,D6N
	B	GPS65001N	94000Z INST=PROC SWTCH 6446 NW-TLT	64046(NEW PIVOT)E6N, J6N,D6N & 72046E5N, J5N
	C	GPS58001	94000Z INST-PROC SWTCH BRKTS 7258	72058J5N,D5N
			----------COMPONENTS----------	
A	1	03 65221	94534B TARGET BRKT 6446E6N	
B	1	03 65219N	95427B PROC SWCH MNT PLT 6446NW-TLT	
C	1	05 58219	94534B PROC SWTCH MNT PLT 7258E5N	
all	2	03 65220B	94534C PROC SWTCH MNT PLATE UNLOAD	
all	3	03 65220C	92813C ANGL=PRO SWTCH MNT PLT UNLOA	
all	4	15G185	HXNUT 5/16-18UNC2B SAE ZINC GR2	
all	5	15K050	HXCAPSCR 5/16-18UNC2AX1/2 GR5 2N/CD	
all	6	15U241	FLATWASHER 13/32IDX1+3/4ODX14GA ZNC	
all	7	15U278	LOCKWASHER MEDIUM 7/16 ZINCPL	
all	8	15G205	HXNUT 3/8-16UNC2B ZINC GR2	
all	9	15K083	HXCAPSCR 3/8-16 UNC2AX1/2 GR5 ZNC	
all	10	15U240	FLATWASHER(USS STD) 3/8" ZNC PLT	
all	11	15U255	LOCKWASHER MEDIUM 3/8 ZINCPL	
all	12	03 16272	92443B PROXSWTCH MTG PLATE-FOLDSDE	
all	13	15U160	LOCKWASHER MEDIUM #10 SS18-8	
all	14	15G130	HEXMACHSCRNUT 10-24UNC2 SS18-8	
all	15	15N117	RDMACSCR 10-24UNC2X3/8SS18-8	

Section 7

Hydraulic Piping and Assemblies

Hydraulic Schematic

64046E6N,J6N 72046E5N/J5N 72058J5N

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BMP960020/98267V (1 of 1)

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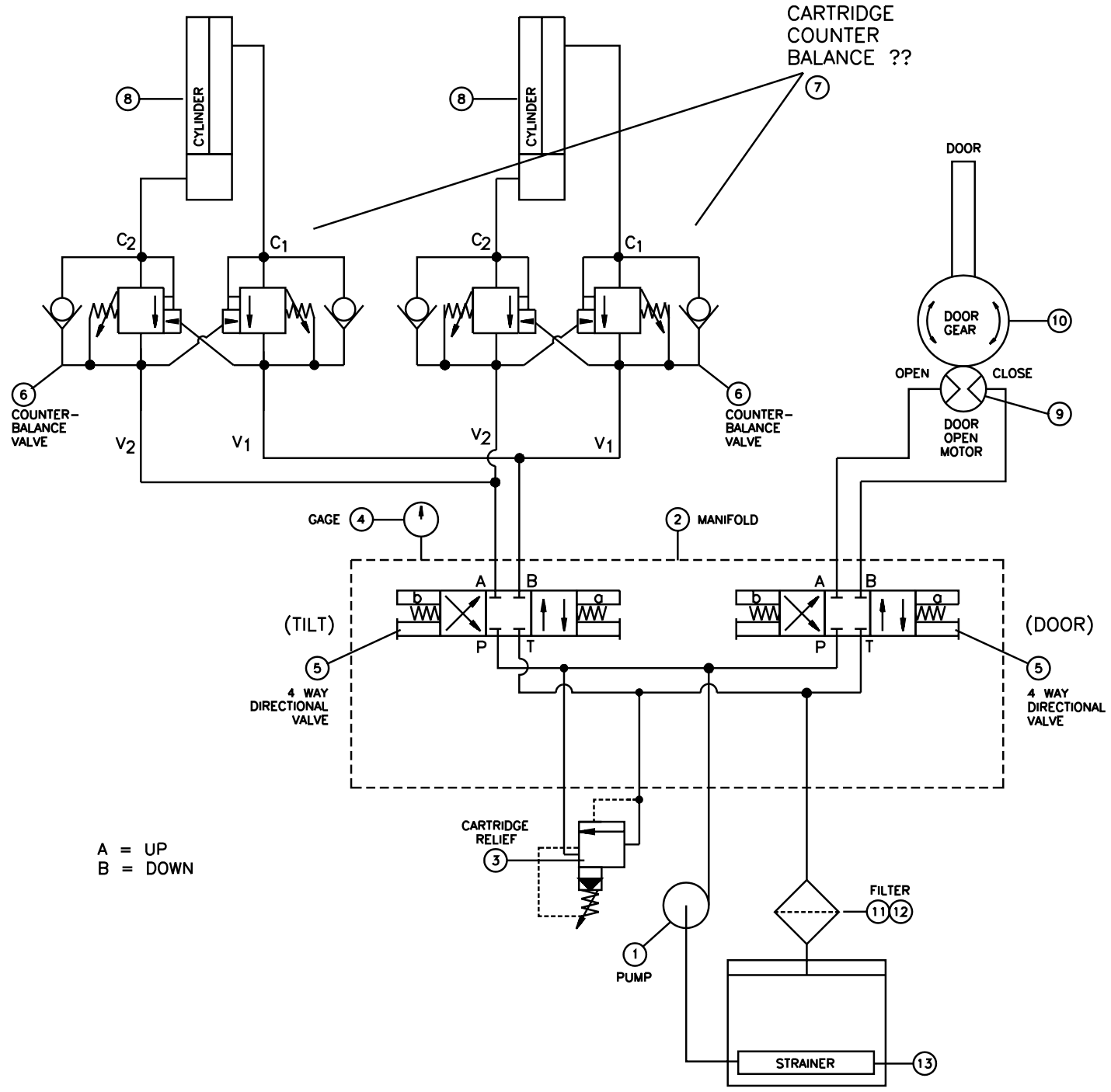

Parts List—Hydraulic Schematic

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

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
			none	
			----------COMPONENTS----------	
all	1	27E5500	PUMPHVDVANE;VICK#V20-1P13PD11	
all	2	96DH455	MANIFOLD, 2-VALVE D05 PARALLEL	
all	3	96DH455A	CARTRIDGE,RELIEFVICK#RV510S020	
all	4	27E731500	01Z LIQFILL GAGE 0-1500PSI/BAR BRZ	
all	5	96RH705E37	04Z VALVE-HYD.4-WAY DIRECTIONAL	
all	6	96DH472	03Z C0UNTERBALANCE VALVE-SUN BODY	
all	7	96DH472A	01Z CARTRIDGE, COUNTERBALANCE VLV	
all	8	27E1657A66	01Z HYD. CYL. 3-STAGE 66"STROKE	
all	9	27E320025	99157ATDRQMOTOR- HYRAULIC	
all	10	54N120	GEAR BROWN #YSS8P56 (P1)	
all	11	27E7103	FILTER-RETURN 1+1/4"10-MICRON	
all	12	27E7201	FILLER-BREATH-FILT.LHA#ABB-40N	
all	13	27E7107	SUCTION STRAINER 1+1/4"PORT	

Hydraulic Tank Piping

64046E6N 72046E5N,J5N 72058J5N

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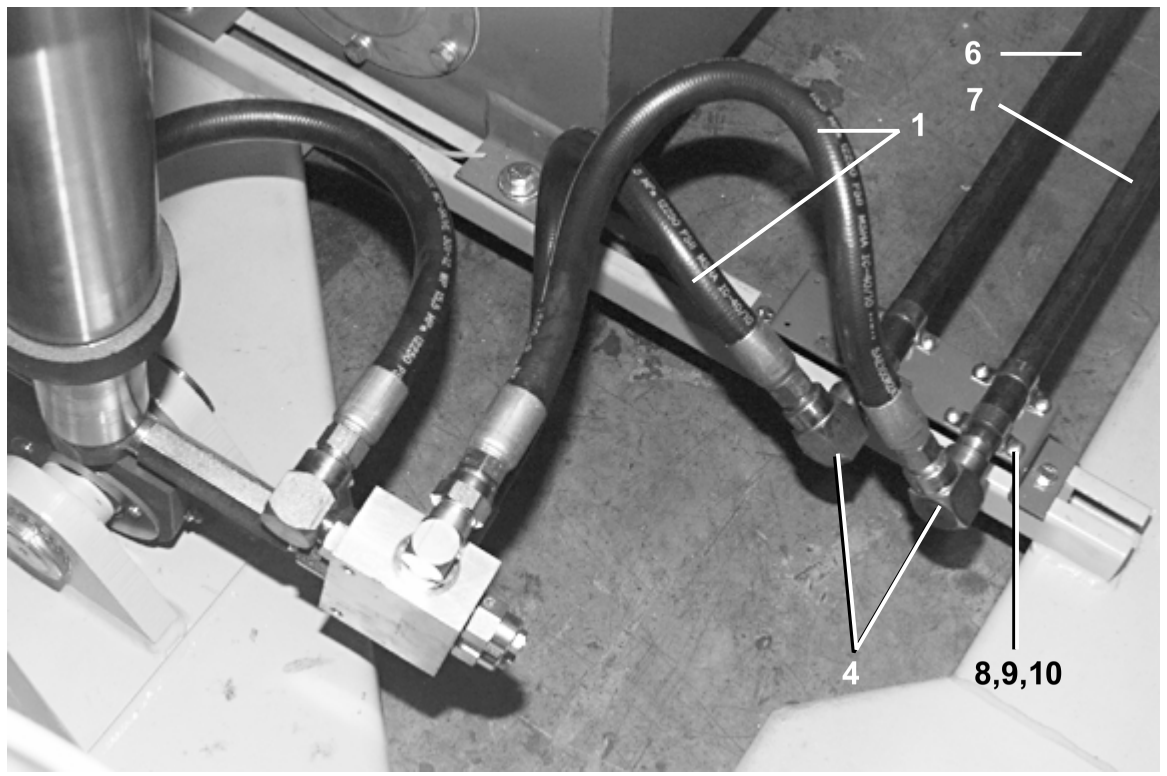

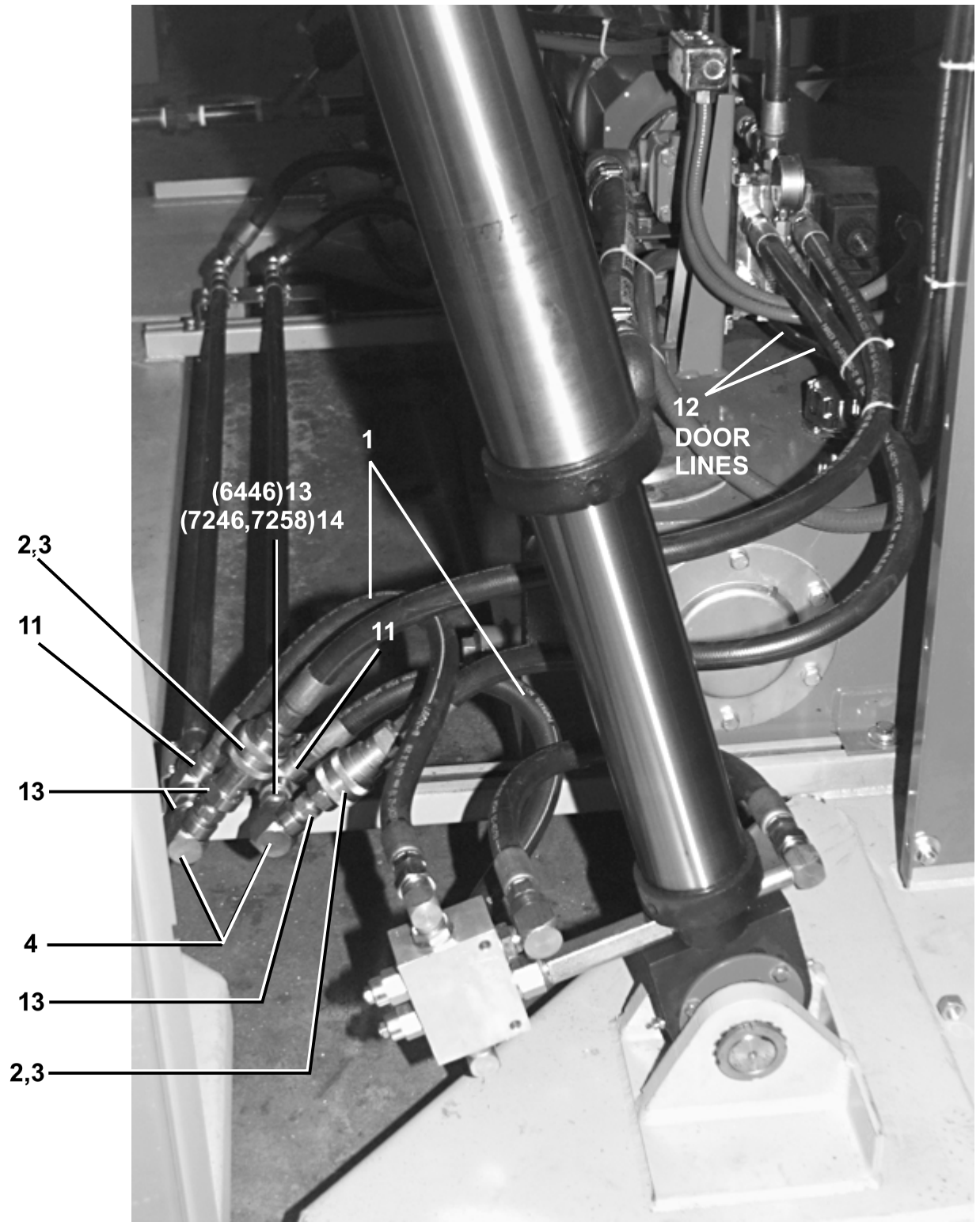

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Parts List—Hydraulic Tank Piping

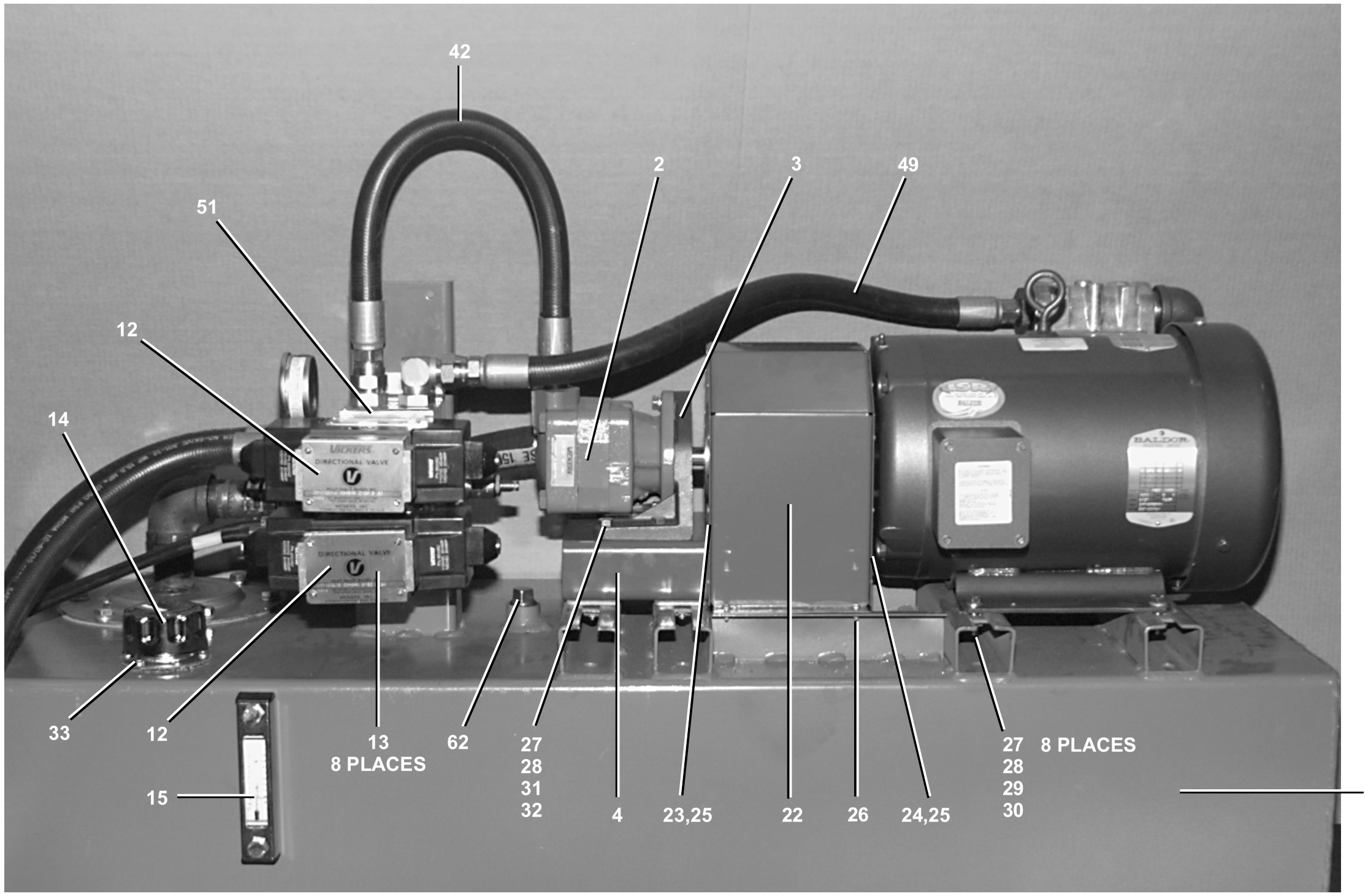
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

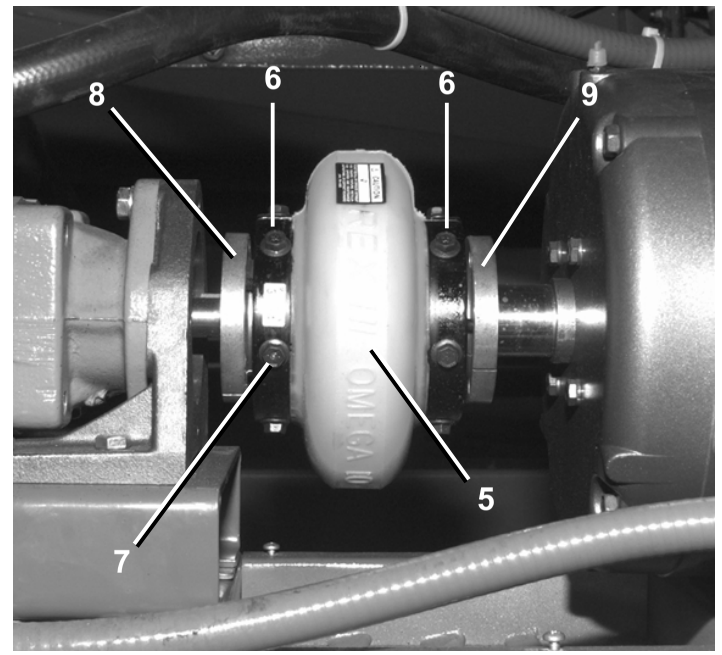
Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	GHT65004A	93442B INSTALL=HYDTANK PIPE 64046	64046E6N,72046E5N 72046J5N
	B	GHT58002	94000ZINSTL=HYDTANK PIPING	72058J5N
			----------COMPONENTS----------	
all	1	60EH50C28A	98091NASSY=HYD HOSE 3/4"X28"LG	
all	2	52XY0BP00X	3/4"QUICK DISCONN.FEM #H6-62	
all	3	52XY0BP00Y	3/4"QUICK DISCONN.MALE#H6-63	
all	4	52JY0PRC06	ELB90 3/4FPT #5504-12-12	
all	5	27A031	01Z U-BOLT 1" PIPE 5/16-18THD ZINC	
A	6	5N0P48AF82	NPT NIP 3/4X48 TBE BLKSTL Sk80	
B	6	5N0P59AF82	NPT NIP 3/4X59 TBE BLKSTL SK8	
All	7	5N0P40AF82	NPT NIP 3/4X40 TBE BLKSTL Sk80	
all	8	15U210	LOKWASHER MEDIUM 5/16 ZINCPL	
all	9	15G185	HXNUT 5/16-18UNC2B SAE ZINC GR2	
all	10	15U200	FLATWASHER(USS STD) 5/16"ZNC PLT	
all	11	52VY0PR003	TEE 3/4"FP #5605-12-12-12	
all	12	60EH15C265	93077N HYD HOSE 3/16"TENDS=265"	
all	13	52LY0PR002	HEXPIPNIP 3/4X3/4 #5404-12-12	
all	14	5N0P05KF42	NPT NIP 3/4X5.5 TBE BLKSTL SK40	

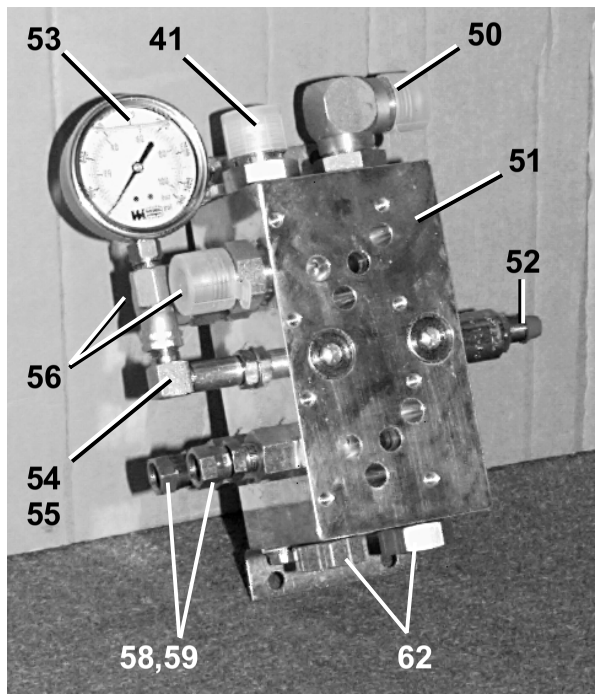
Hydraulic Tank Assembly

64046E6N/J6N, 72046E5N/J5N, 72058J5N

BMP980040/98251V
(Sheet 1 of 4)







Hydraulic Tank Assembly

64046E6N/J6N, 72046E5N/J5N, 72058J5N

BMP980040/98251V
(Sheet 2 of 4)

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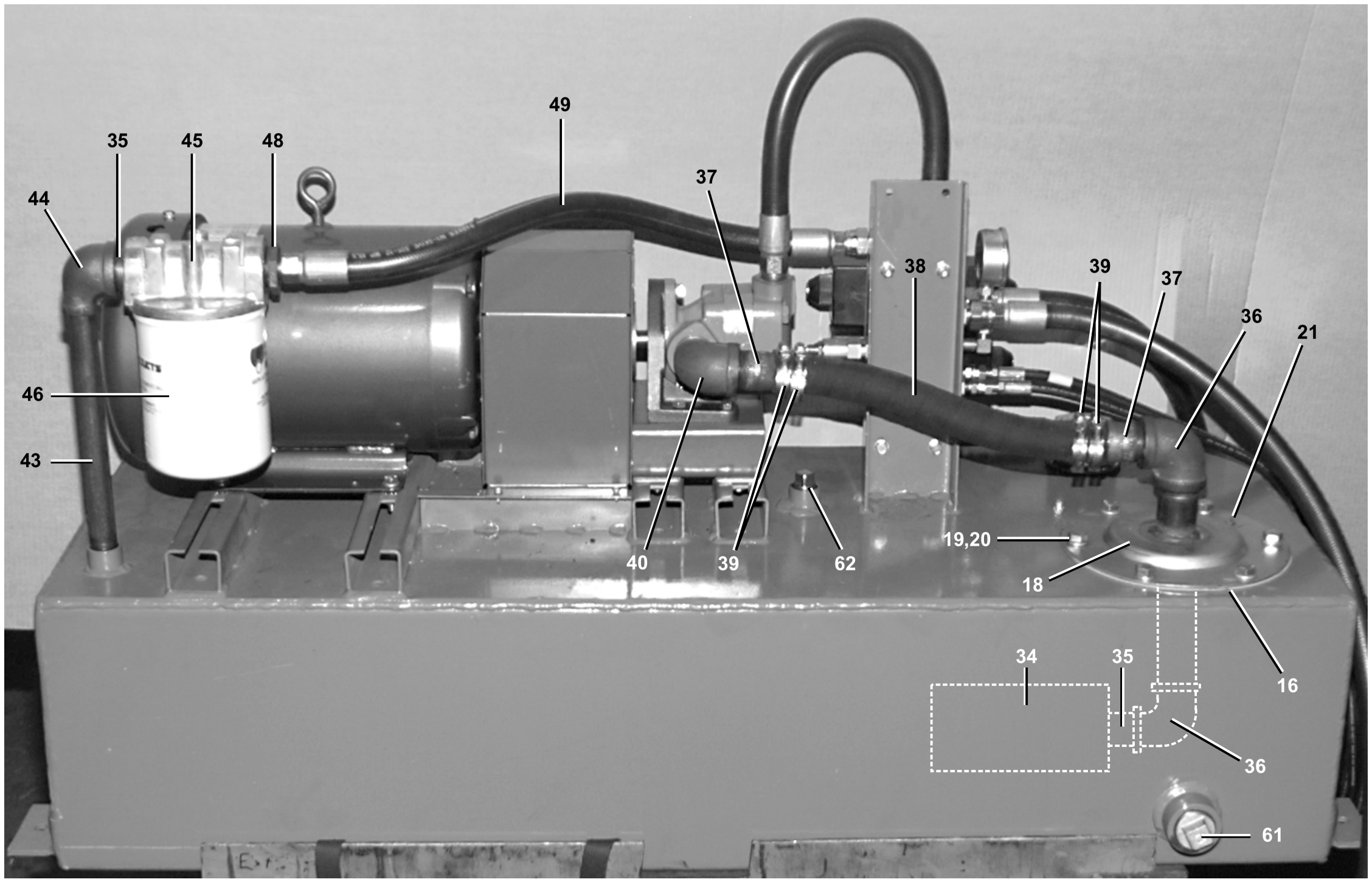

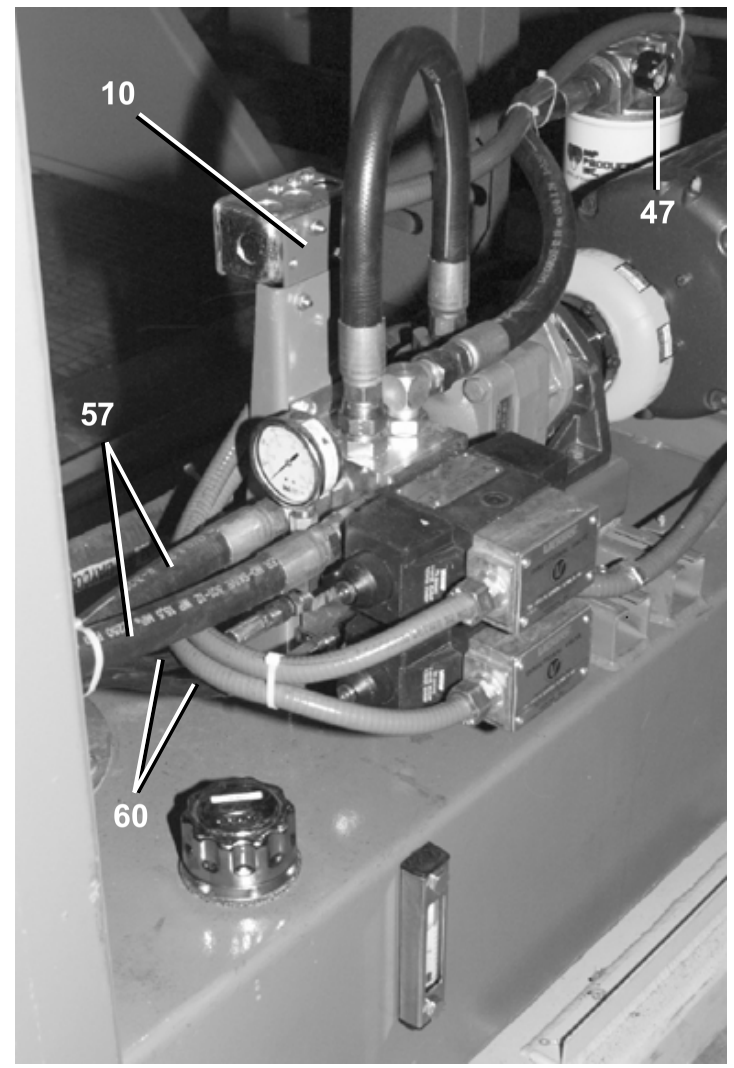

Hydraulic Tank Assembly

64046E6N/J6N, 72046E5N/J5N, 72058J5N

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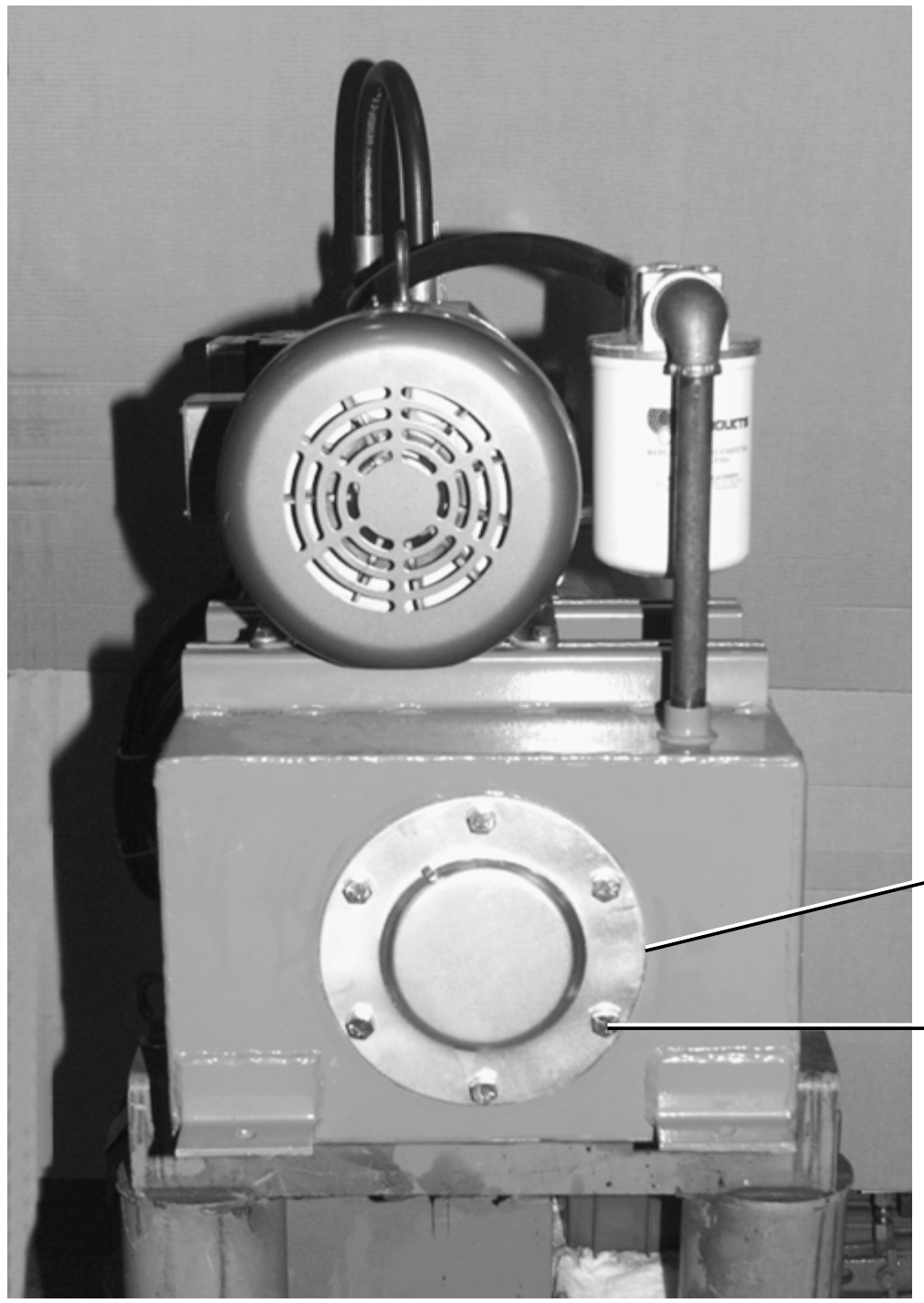

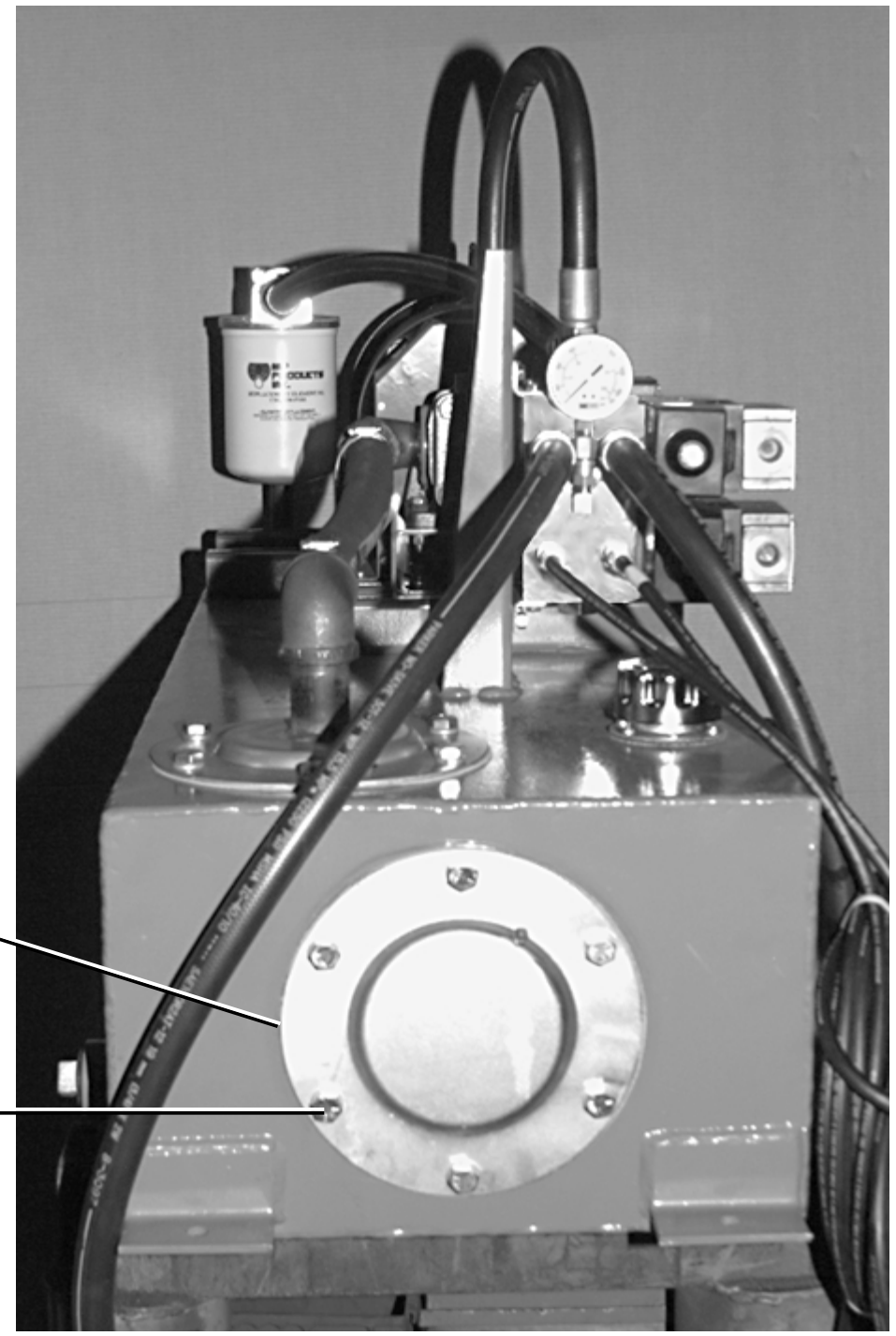

Hydraulic Tank Assembly

64046E6N/J6N, 72046E5N/J5N, 72058J5N

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

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Parts List—Hydraulic Tank 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	AHT65004	94000Z ASSY=HYDTANK-MANIFOLD BLOCK	
			----------COMPONENTS----------	
all	1	W3 65360A	96537E*WELD=HYDRAULIC TANK 64ELL	
all	2	27E5500	PUMPHVDVANE;VICK#V20-1P13PD11	
all	3	27E5501	FOOT BRACKET=VICK-V20#FB-A-10	
all	4	03 65364	92743C HYD PUMP MTG BRKT 6446E6N	
all	5	54J227	USE 54J227X	
all	6	54J227A	USE 54J227AX	
all	8	56Q1GSDS	1+3/8" BUSH VPUL QD TYPE SDS	
all	9	56Q0PSDS	3/4" BUSH VPUL QD TYPE SDS	
all	10	03 65363C	98237BBRKT=HYDRAULIC ELECTRIC BOX	
all	12	96RH705E37	04Z VALVE-HYD.4-WAY DIRECTIONAL	
all	13	15K043K	04Z SKCPSCR 1/4-20X1.5"BLK GR8	
all	14	27E7201	FILLER-BREATH-FILT.CAP#ABB-40N	
all	15	27E7301	03Z SIGHTGAUGE-FLUID:STAUFF#SNA-2T	
all	16	02 18105A	93362# HYD TANK COVER GASKET	
all	17	02 18618	66422A COVER=BEARHOUSE CAD	
all	18	W2 18618B	92757#*WLMT=COVER BEARHOUSE W/PIPE	
all	19	15K145	HXCAPSCR 1/2-13UNC2AX3/4 GR5 PLATED	
all	20	15U300	LOKWASHER REGULAR 1/2 ZINC PLT	
all	21	5SP0CGFSS	NPT PLUG 1/8 SQ SOLID GALSTL	
all	22	03 65371	92787C FLEX COUPLING COVER 6446E6N	
all	23	03 65368	92787C FLEX COUPLING COVER END	
all	24	03 65369	92787C FLEX COUPL COVER BUSHING END	
all	25	15J050AL	01Z POPRIVET 1/8DIA X.328LONG ALUM	
all	26	15P010	12Z PHILPAN TRDCUTSCRTYP10-24X1/2SS	
all	27	15K105	HXCAPSCR 3/8-16UNC2A1.25 GR5 PLATED	
all	28	15U255	LOCKWASHER MEDIUM 3/8 ZINCPL	
all	29	17N070AP	01Z RETAIN NUT#S10222-27	
all	30	02 11942	90387B H20 BRKT JAM PLATE 36/42QU	

Parts List, cont.—Hydraulic Tank Assembly

Used In	Item	Part Number	Description	Comments
all	31	15U240	FLATWASHER(USS STD) 3/8" ZNC PLT	
all	32	15G205	HXNUT 3/8-16UNC2B ZINC GR2	
all	33	15P050	11Z PHDCUT-F PANHD 10-24X3/4 SS410	
all	34	27E7107	SUCTION STRAINER 1+1/4"PORT	
all	35	5N1ECLSF42	NPT NIP 1.25XCLS TBE BLKSTLS40	
all	36	5SL1EMFA	NPTELB 90DEG 1.25 BLKMAL 150#	
all	37	51E099ST	DIXON 1.25KINGNIP NPTEND #ST15	
all	38	60E097	05ZHOSE 1.25"WIRE INSERT 4684C *	
all	39	27A060	HOSECLAMP1+5/16-2.25CADSC#HS28	
all	40	52JY1ER001	ELB90-1.25MPXMJIC#2501-20-20	
all	41	52XY0KR035	STRDPT 3/4MJICX0R#6400-12-12-0	
all	42	60EH50C24A	01Z HYD.HOSE 3/4"+MPTXFJIC=24"LG.	
all	43	5N0P11AF42	NPT NIP 3/4X11 TBE BLKSTL SK40	
all	44	5SL1EFFA0P	NPTELB 90DEG 1.25X3/4BLKMAL150	
all	45	27E7103	FILTER-RETURN 1+1/4"10-MICRON	
all	46	27E7103B	FILT.ELEM.HYCON#MFE160-10/2	
all	47	27E7103A	GAUGE=WIKA 1/8NPT(ON 27E7103)	
all	48	5SB1E0PNFO	NPTHEXBUSH 1.25X3/4GALMAL 150#	
all	49	60EH50C28A	98091NASSY=HYD HOSE 3/4"X28"LG	
all	50	52JY0PRA08	ELB90 3/4MORXMJIC#6801-12-12NW	
all	51	96DH455	MANIFOLD, 2-VALVE D05 PARALLEL	
all	52	96DH455A	CARTRIDGE,RELIEFVICK#RV510S020	
all	53	27E731500	01Z LIQFILL GAGE 0-1500PSI/BAR BRZ	
all	54	52AY0ER005	STR.1/4"FPX3/8"FJIC#6506-4-6	
all	55	52JY0GR004	ELB90 3/80RXMJIC#6801LL-6-6NWO	
all	56	52XY0KR055	STRADPT 3/4MJX1/20R#6400-12-80	
all	57	60EH50C48A	01Z HYD.HOSE 3/4"+MPTXFJIC=48"LG.	
all	58	52XY0KR031	STRADPT 1/20RX1/4F#6405-8-4-0	
all	59	52XY0ER008	STRADAPT 1/4" #1404-4-4	
all	60	60EH15C265	93077N HYD HOSE 3/16"TENDS=265"	
all	61	5SP1EDESC	NPT PLUG 1.25 SQCORED GALV CI	
all	62	52PY0PR002	HEXPLUG 3/4"OR #6408-12-0	

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

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

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

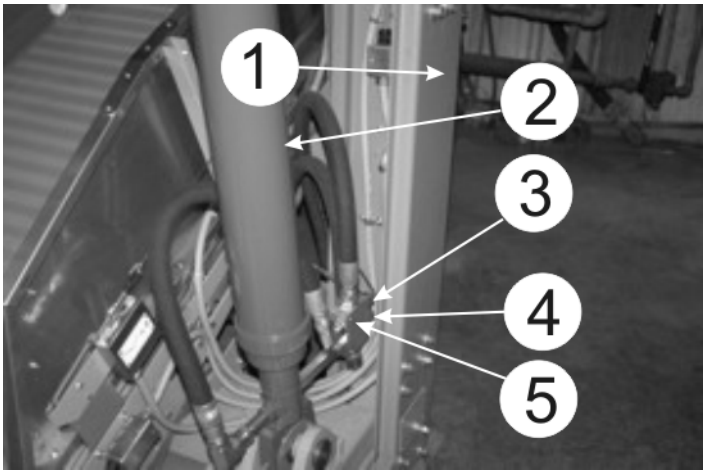
WARNING 1: Entangle and Crush Hazard—The machine shell will crush your body or limbs if it descends or falls while you are under it. The housing can descend with power off or on. Manual operation of tilting valves overrides safety interlocks. Improper operation of manual tilting valves may cause the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

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

1. Observing Tilt Cylinder Operation

Figure 1: Right Cylinder and associated Counterbalance Valves

Components of Hydraulic Manifold



Legend

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

1.1. Setup

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

1.2. Observations

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

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

2. Tilt Cylinder Hydraulic Components and Functions

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

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

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

2.2. Functions of Components

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

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

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

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

3. Counterbalance Valve Adjustments

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

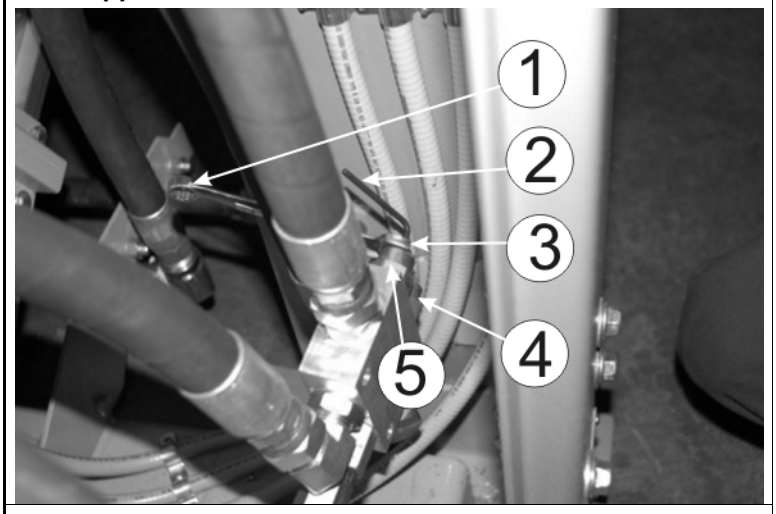
3.1. Coarse Adjustments—Referring to Figure 2,

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

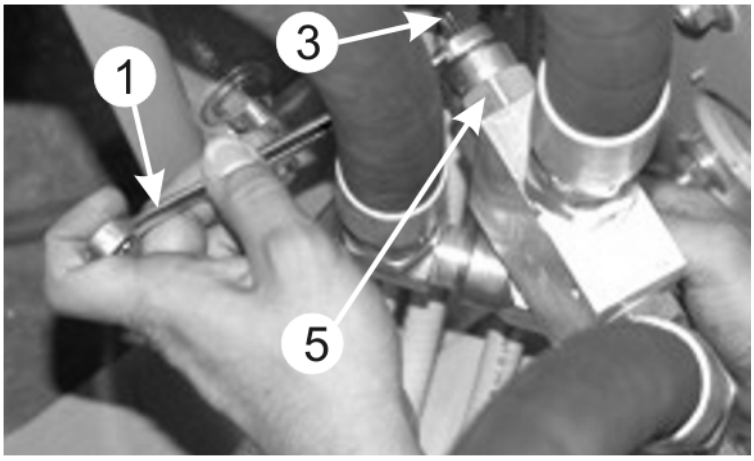
3. Back off the adjustment screws
   a. upper valve -- one full turn (360 degrees)
   b. lower valve -- 3/4 turn (270 degrees)
4. While holding the adjustment nut stationary, tighten the lock nut.

Figure 2: Right Side Hydraulic Manifold

Upper and lower counterbalance valve locations



Adjusting the Upper Counterbalance Valve



Legend

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

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

4. Return Machine to Normal Operation

Remove the tilt safety stands if they were used.

1. Manually tilt the shell down.

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

— End of BIPEUM01 —

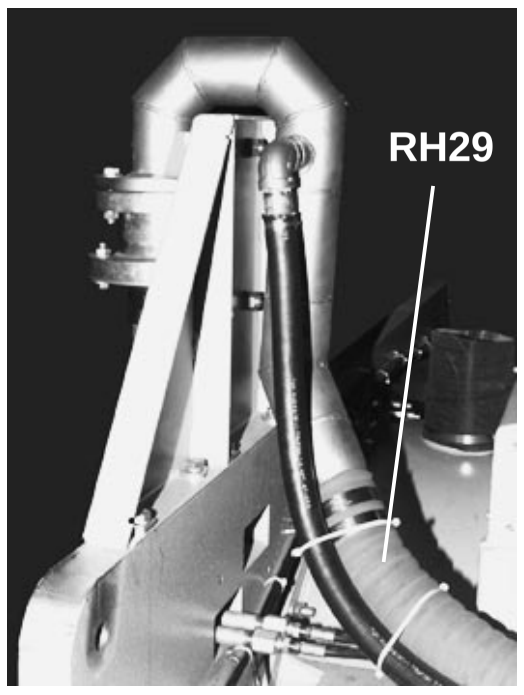
Section 8

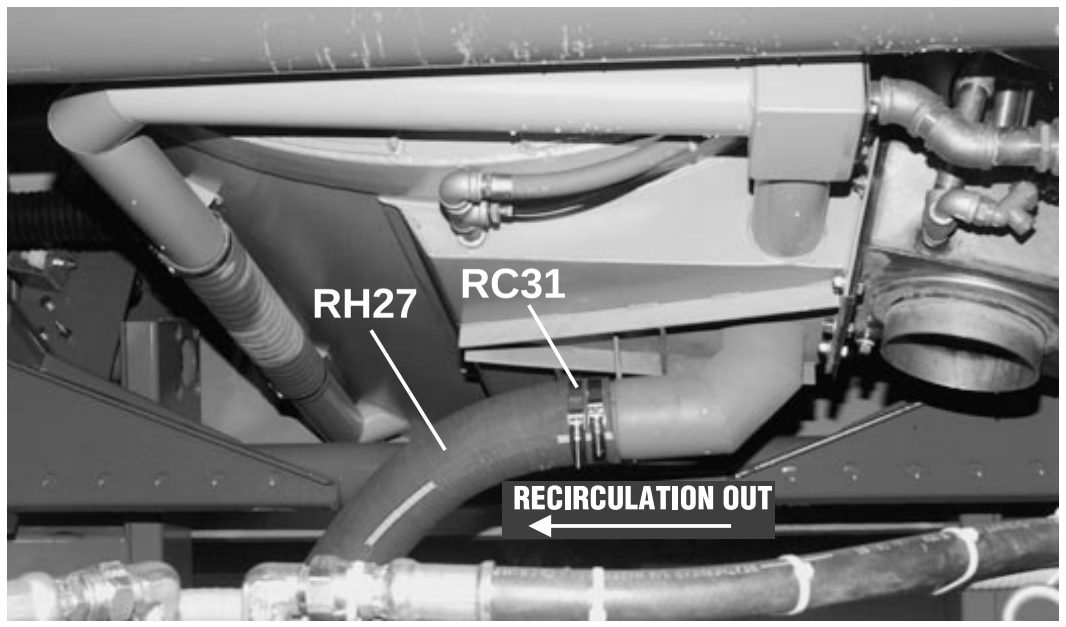
Recirculation

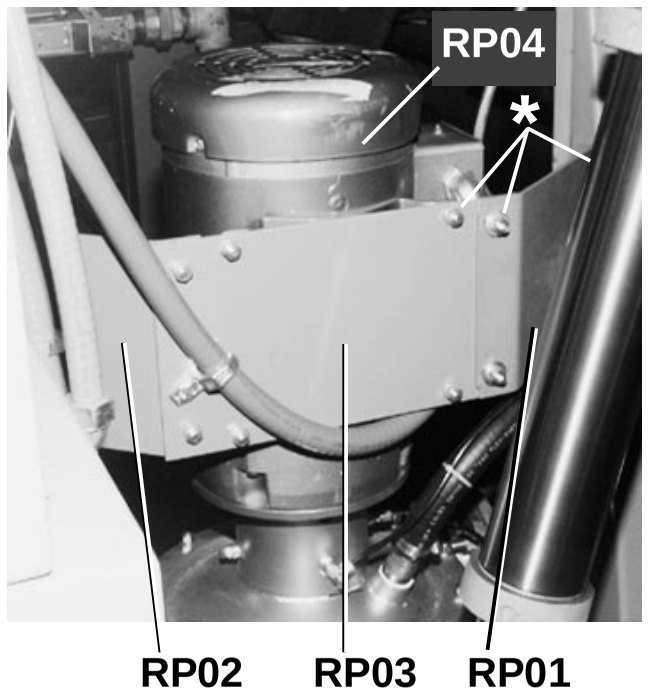
PELLERIN MILNOR CORPORATION
700 JACKSON STREET/POST OFFICE BOX 400
KENNER, LOUISIANA 70063-0400 USA

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

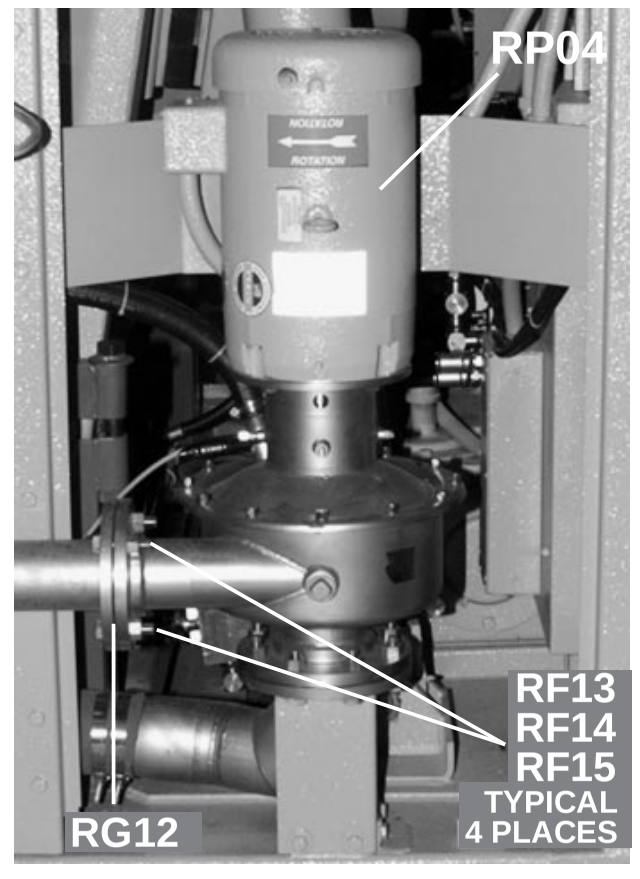
INSTALLATION RECIRCULATION PUMP
64046E6N/J6N 72046E5N/J5N 72058J5N



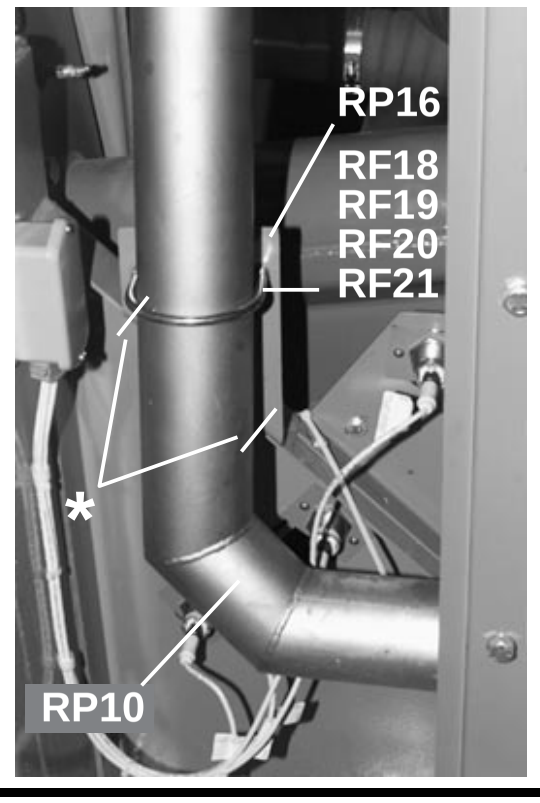


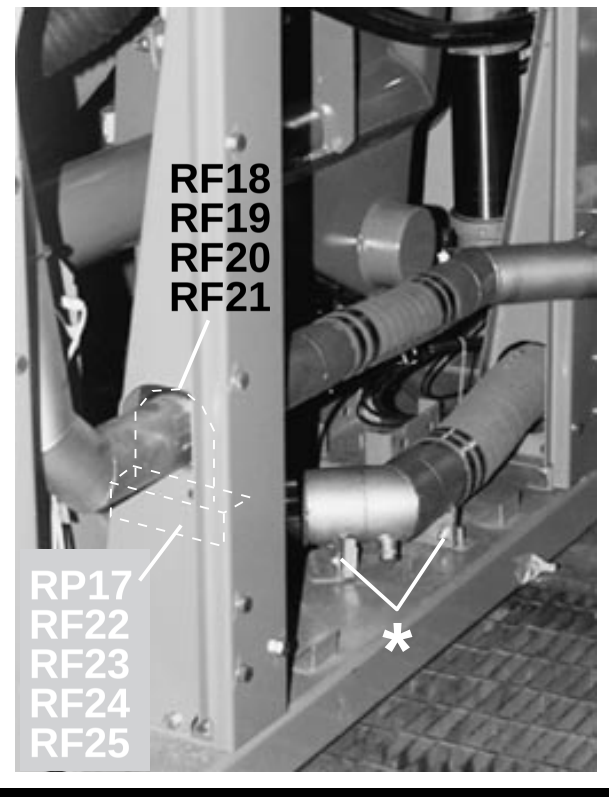


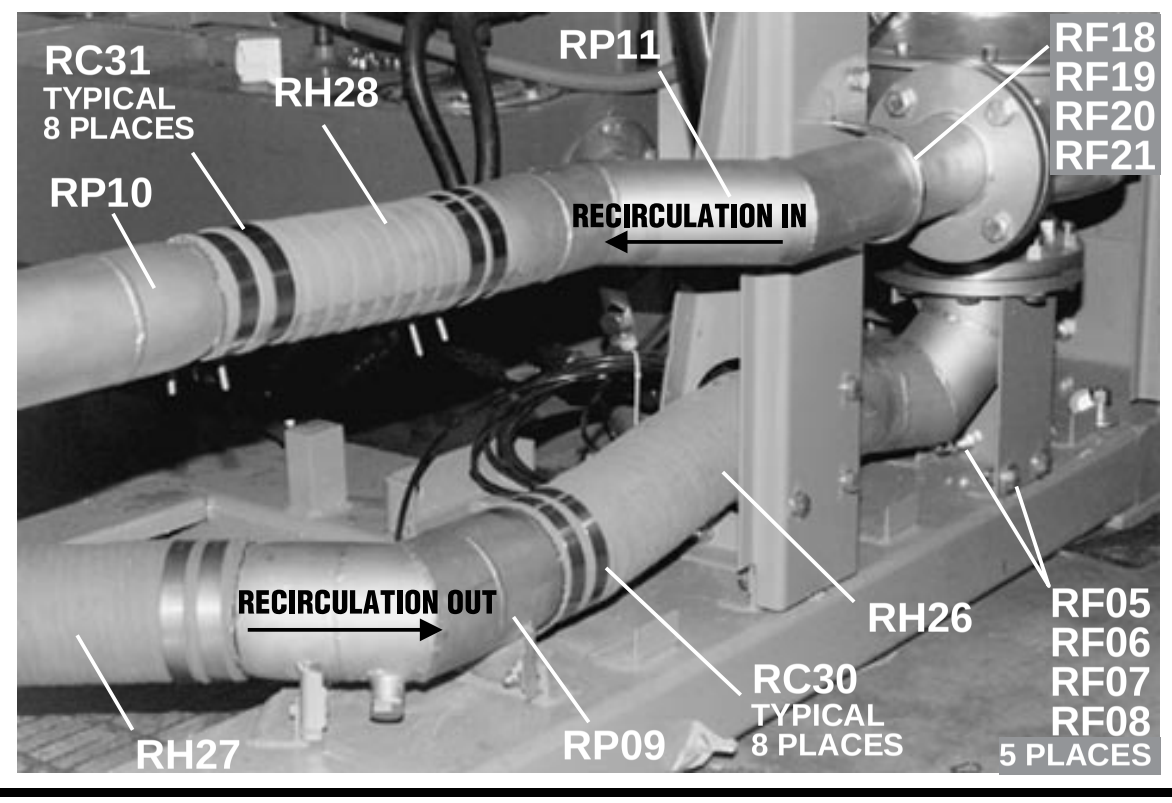
* = RF22, RF23, RF24, RF25 TYPICAL 20 PLACES



Recirculation Pump







LITHO IN USA

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

PARTS LIST
(See other page for drawing.)

INSTALLATION RECIRCULATION PUMP
64046E6N/J6N 72046E5N/J5N 72058J5N

ITEM	PART NUMBER	DESCRIPTION	HOW PART IS USED IN ASSEMBLY (Only if pertinent)
RC30	27A077B	T-BOLT HOSECLAMP SS 4.41" TO 4.72"	
RC31	27A077A	T-BOLT HOSECLAMP SS 3.37" TO 3.68"	
RF05	15K147	HXCAPSCR 1/2-13UNC2X1 GR5 ZINC	
RF06	15U280	01Z FL+WASHER(USS STD)1/2 ZNC PL+D	
RF07	15U300	LOKWASHER REGULAR 1/2 ZINC PLT	
RF08	15G230	HXNUT 1/2-13UNC2B SAE ZINC GR2	
RF13	15K224C	HEXCAPSCR 5/8-11X2-1/2 S/S 18-8	
RF14	15G236B	HEX NUT 5/8-11UNC2B BRASS	
RF15	15U315S	LOKWASHER MEDIUM 5/8 18-8 S/S	
RF18	27A035	U-BOLT =3/8-16,3.625 BETWEEN LEGS	
RF19	15U260	LOCKWASHER MEDIUM 3/8 SS18-8	
RF20	15U245	01Z FLTWASH 3/8 STD COMM 18-8 SS	
RF21	15G206	HEXNUT 3/8-16 UNC2 SS 18-8	
RF22	15K105	HXCAPSCR 3/8-16UNC2A1.25 GR5 PLATED	
RF23	15U240	FLATWASHER(USS STD) 3/8" ZNC PLT	
RF24	15U255	LOCKWASHER MEDIUM 3/8 ZINCPL	
RF25	15G205	HXNUT 3/8-16UNC2B ZINC GR2	
RG12	49003A	GASKET,FLATRING 3"PIPEFLANGE 125WP	
RH26	60E307D	HOSE=4"ID VIT BLND350F-150WP-15"BD*	2 FOOT (609MM)
RH27	60E307D	HOSE=4"ID VIT BLND350F-150WP-15"BD*	5 FOOT (1524MM)
RH28	60E303D	HOSE=3"ID VIT BLND350F-150WP-15"BD*	1 FOOT (305MM)
RH29	60E303D	HOSE=3"ID VIT BLND350F-150WP-15"BD*	5 FOOT (1524MM)
RP01	03 65359A	93000Z BRKT=PUMP MTR MNT-VERT-LEFT	
RP02	03 65359B	93000Z BRKT=PUMP MTR MNT-VERT-RIGHT	
RP03	03 65359C	93000Z BRKT=PUMP MTR MNT-VERT-CENTR	
RP04	ACP65003	93532B ASSY=RECIRC PUMP 6446TTL/D6N	
RP09	W3 65358	93000Z*WLMT=4"PIPE-TRANS SHELL/PUMP	
RP1	W3 65358C	93000Z*WLMT=3"PIPE-PUMP RECIRC OUT	
RP10	W3 65358A	93000Z*WLMT=3"PIPE-TRANS PUMP/ROT	
RP16	03 65355A	93000Z BRKT=3"TRNS SPT-PUMP/ROT 10 D	
RP17	03 65375	93463B W.V. MNT BRKT REAR CLMN	
00A	GCP65003	93532B INST=RECIRC PUMP 6446TTL/D6N	REFERENCE ASSEMBLY
		******** 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).

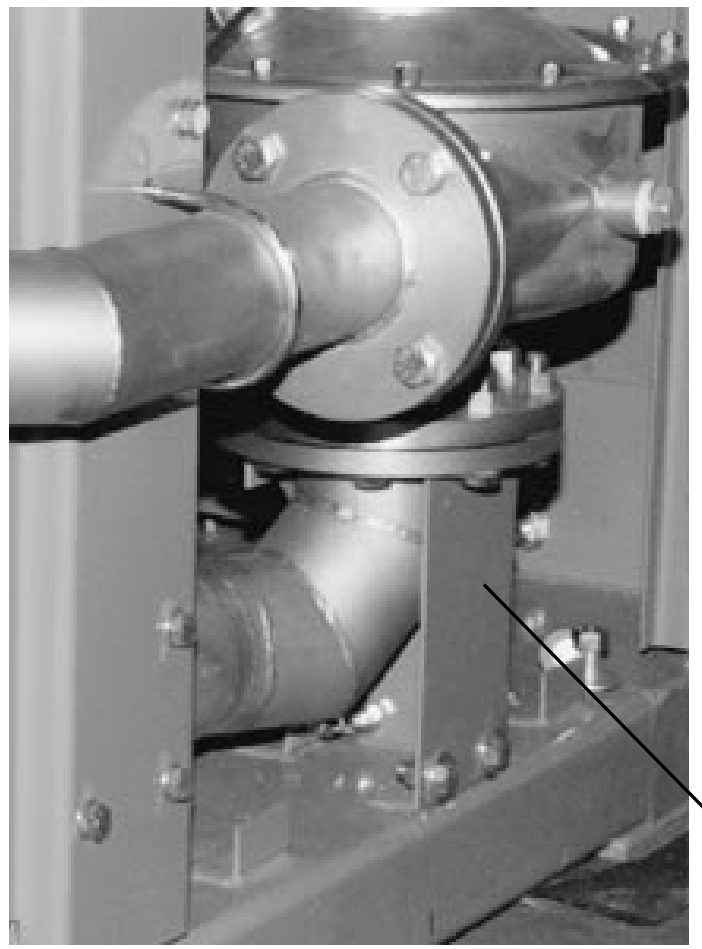
Component Item Numbers—For any item on the drawing (e.g., item ①), there may be several corresponding items on the parts list (e.g., 001A, 001B, 001C, etc.) which are similar components on different assemblies. "How Part Is Used In Assembly" identifies which components apply to your machine, by listing 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.

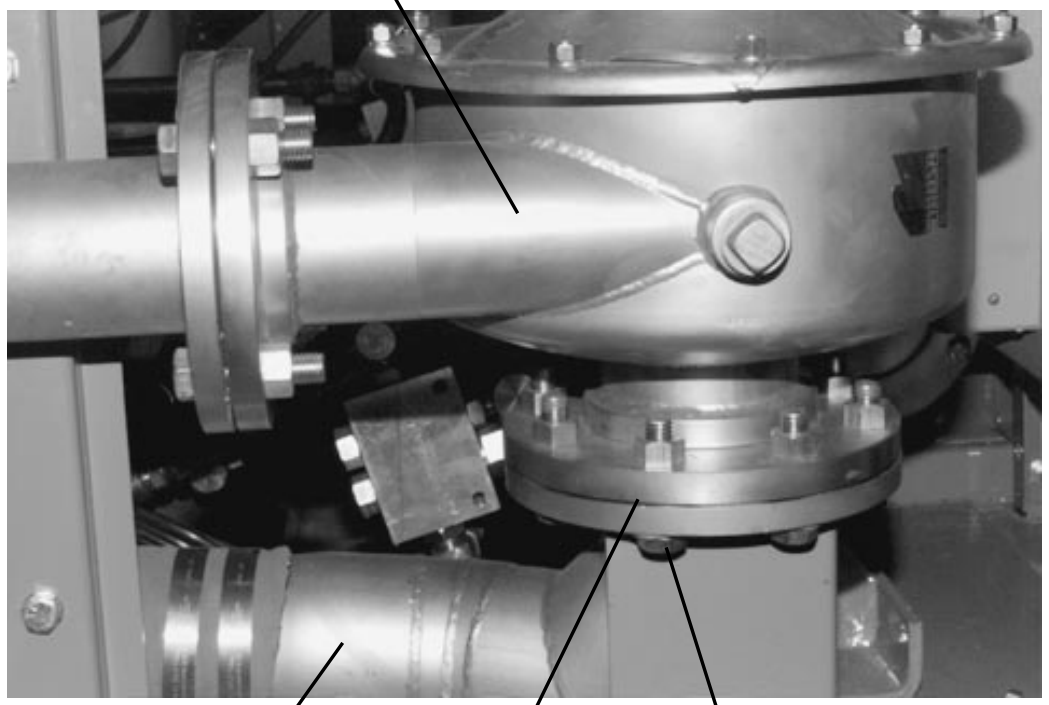
LITHO IN USA

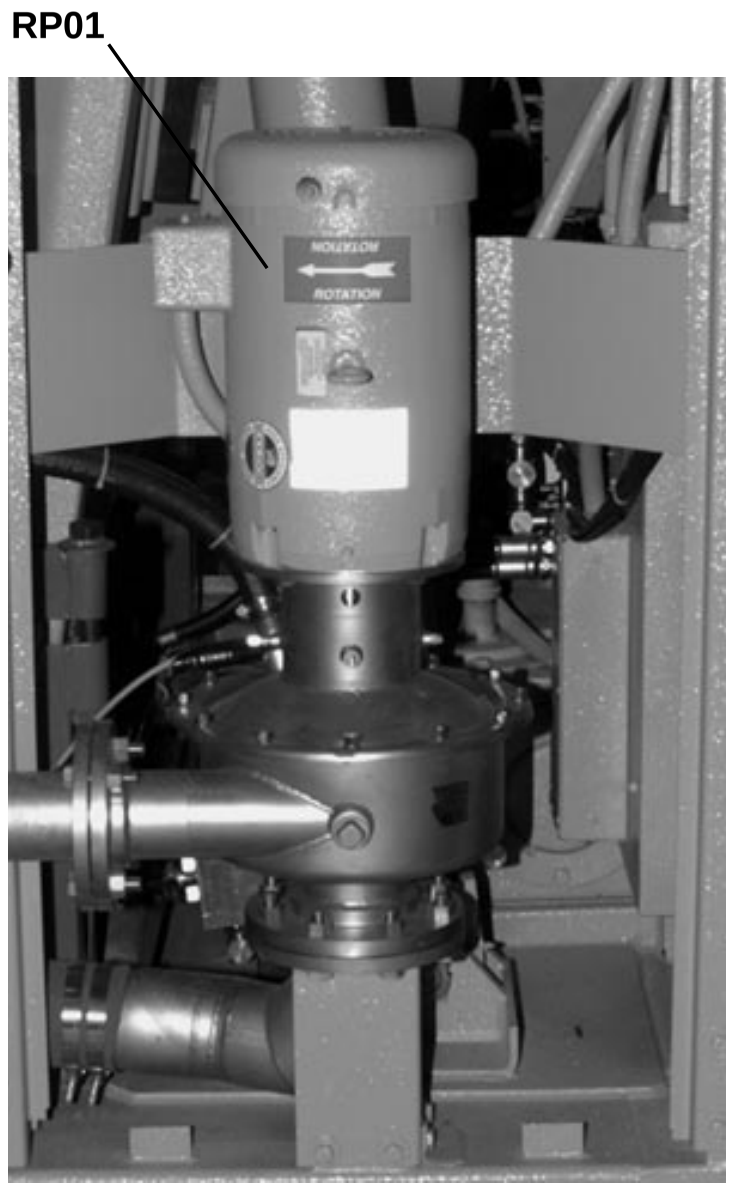
PELLERIN MILNOR CORPORATION
700 JACKSON STREET/POST OFFICE BOX 400
KENNER, LOUISIANA 70063-0400 USA

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

RECIRCULATION PUMP
64046E6N/J6N 72046E5N/J5N 72058J5N







Recirculation Pump

LITHO IN USA

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

PARTS LIST
(See other page for drawing.)

RECIRCULATION PUMP
64046E6N/J6N 72046E5N/J5N 72058J5N

ITEM	PART NUMBER	DESCRIPTION	HOW PART IS USED IN ASSEMBLY (Only if pertinent)
RF05	15K224C	HEXCAPSCR 5/8-11X2-1/2 S/S 18-8	
RF06	15G236B	HEX NUT 5/8-11UNC2B BRASS	
RF07	15U315S	LOKWASHER MEDIUM 5/8 18-8 S/S	
RG03	49004A	GASKET,FLATRING 4" PIPEFLANGE 125WP	
RP01	27E910A74A	06Z PUMP 4"SUC 3" DIS 208/230/460	
RP02	W3 65358F	93000Z*WLMT=4"PIPE-PUMP OFFSET INLT	
RP04	03 65359	93000Z BRKT=PUMP MNT FOR VERT MNTG	
00A	ACP65003	93532B ASSY=RECIRC PUMP 6446TTL/D6N	REFERENCE ASSEMBLY
		******** END OF PARTS LIST ********	

How to Read Parts List

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LITHO IN USA

Section 9

Balancing System

DESCRIPTION AND MAINTENANCE OF THE ELECTRONIC BALANCING SYSTEM FOR WASHER-EXTRACTORS AND TEXTILE MACHINES

Components of the Balancing System

The water balancing system consists of electrical and mechanical components which sense the location and magnitude of an imbalance in the cylinder, and by injecting water into the rib (or ribs) opposite that imbalance, re-balance the cylinder. The basic components (FIGURE 1) include:

- *The accelerometer and balance filter board.*
- *The proximity switch and target.*
- *The analog to digital balance board.*
- *Balancing water valves, rings, and ribs.*

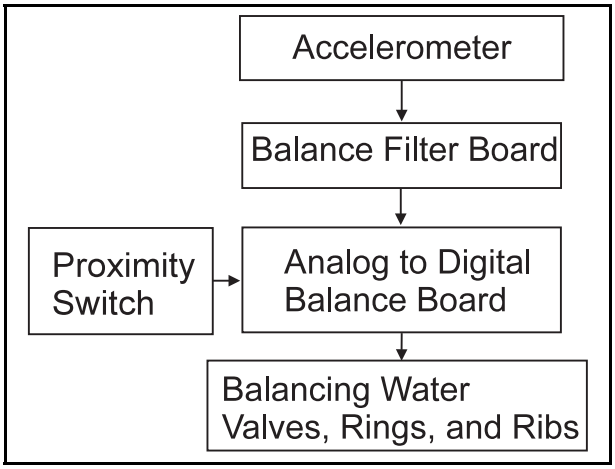


FIGURE 1 (MSSMA401BE)
System Components

Accelerometer and Balance Filter Board— In a flexibly supported washer-extractor (after an initial excursion at the onset of extraction), the unbalanced cylinder rotates about the center of mass resulting in the "light side out" and the "heavy side in" as shown in FIGURE 2. This causes the shell front to oscillate. The door-latch mounted accelerometer (FIGURE 12), and the filter board produce a voltage which fluctuates with this occillation. The fluctuating voltage can be represented as a sine wave (FIGURES 6 and 7).

Proximity Switch and Target—The target passes the proximity switch once per revolution (see FIGURE 4), thus producing a timing signal.

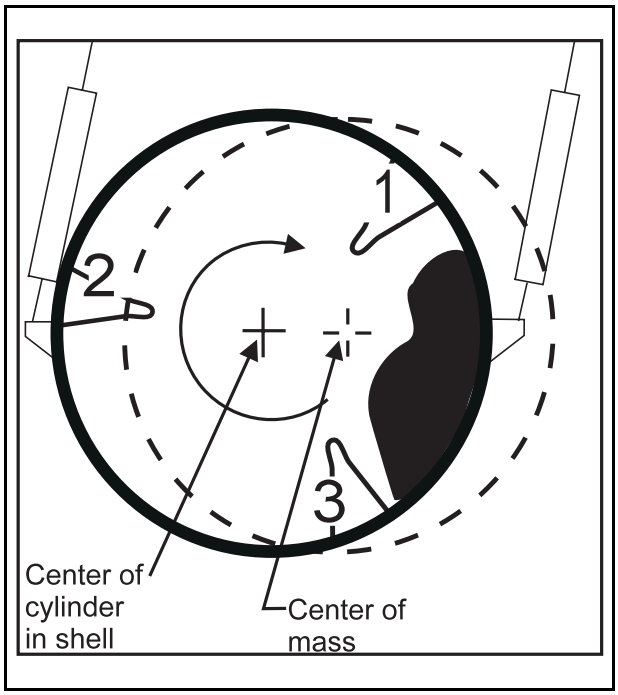


FIGURE 2 (MSSMA401BE)
Flexibly Supported Machine (Hydro-cushion® shown)

Analog to Digital Balance Board—This board uses the accelerometer sine wave and the timing signal to determine the magnitude and location of the imbalance, and in turn control the balancing valve and safety relays mounted on the board (see FIGURE 3), the three balancing water valve relays add water to the individual ribs opposite the imbalance. The machine excursion relay (not used on ExN, JxN, TxN machines) and balance excursion relay make a microprocessor input, causing a

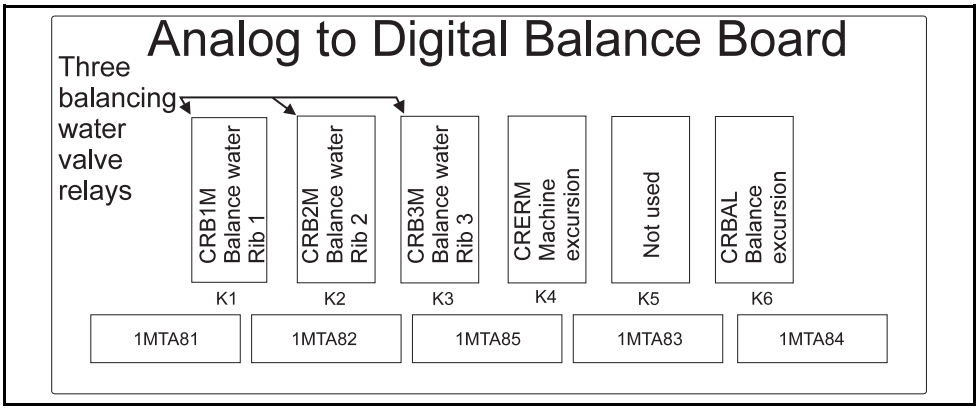


FIGURE 3 (MSSMA401BE)
Balance Board Details

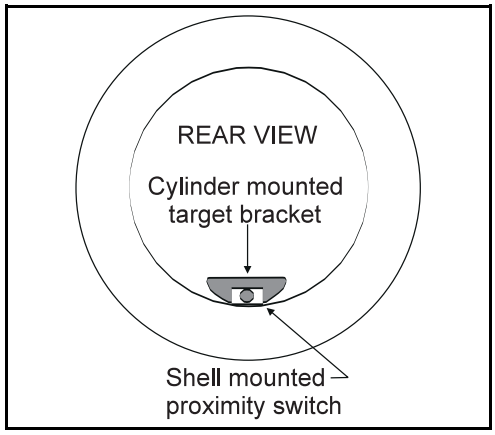


FIGURE 4 (MSSMA401BE)
Proximity Switch and Target (64046 E6N shown)

recycle, if shell excursions or an out-of-balance condition exceed acceptable limits. The machine excursion input causes a recycle at any time in extract, whereas the balance excursion input is checked just before the onset of high speed extraction, and then again from a few seconds after the onset of high speed extract throughout the remainder of extraction.

Balancing Water Valves, Rings, and Ribs—The water from balancing water valves enters the ribs via individual injection nozzles aimed into respective pick-up rings on the back of the cylinder. Corresponding valves, nozzles, and rings must be connected as shown in FIGURE 5.

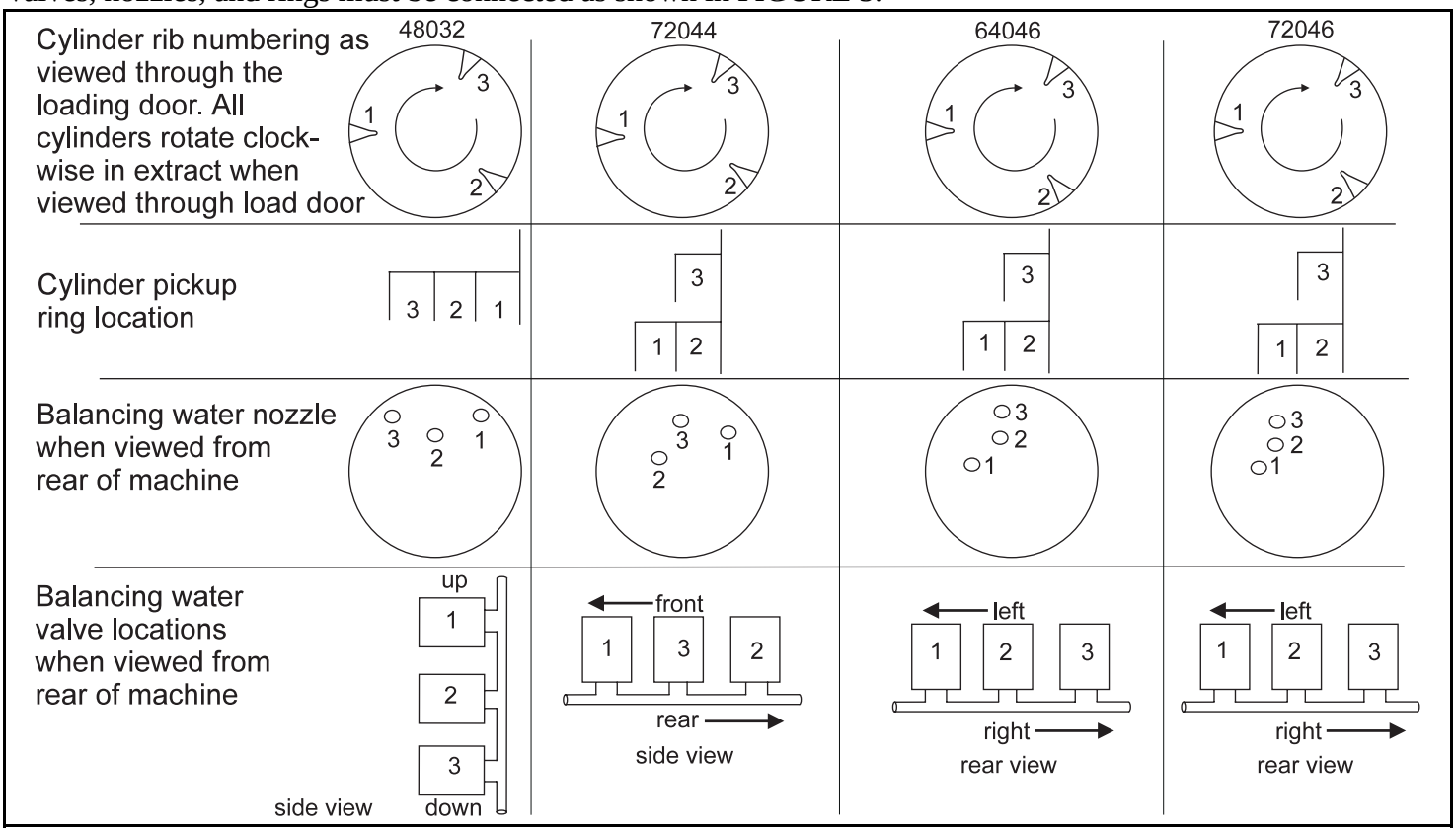


FIGURE 5 (MSSMA401BE)
Hydro-cushion and Suspended Machines

How the Balancing System Works

Determining where the imbalance is and correcting the imbalance takes place in two steps over several revolutions. FIGURE 6, *Step One—Finding the Imbalance*, describes in detail how the machine determines the location of the imbalance.

FIGURE 7, *Step Two—Cancelling the Imbalance*, explains how the machine cancels the imbalance in two stages. During the *first stage*, the machine adds water at the same rate to both ribs opposite the imbalance. The added water in the rib nearest the imbalance, together with the original imbalance, causes the center of mass to shift exactly opposite a rib. During the *second stage*, additional water is added to the counterbalancing rib until the cylinder again rotates about its geometric center. This causes accelerometer sine waves to again fall within the normal (balanced) range and shut off the balancing water valves. The ribs retain their water during the remainder of the extraction cycle, (except for some slight leakage from the ribs which is automatically replenished).

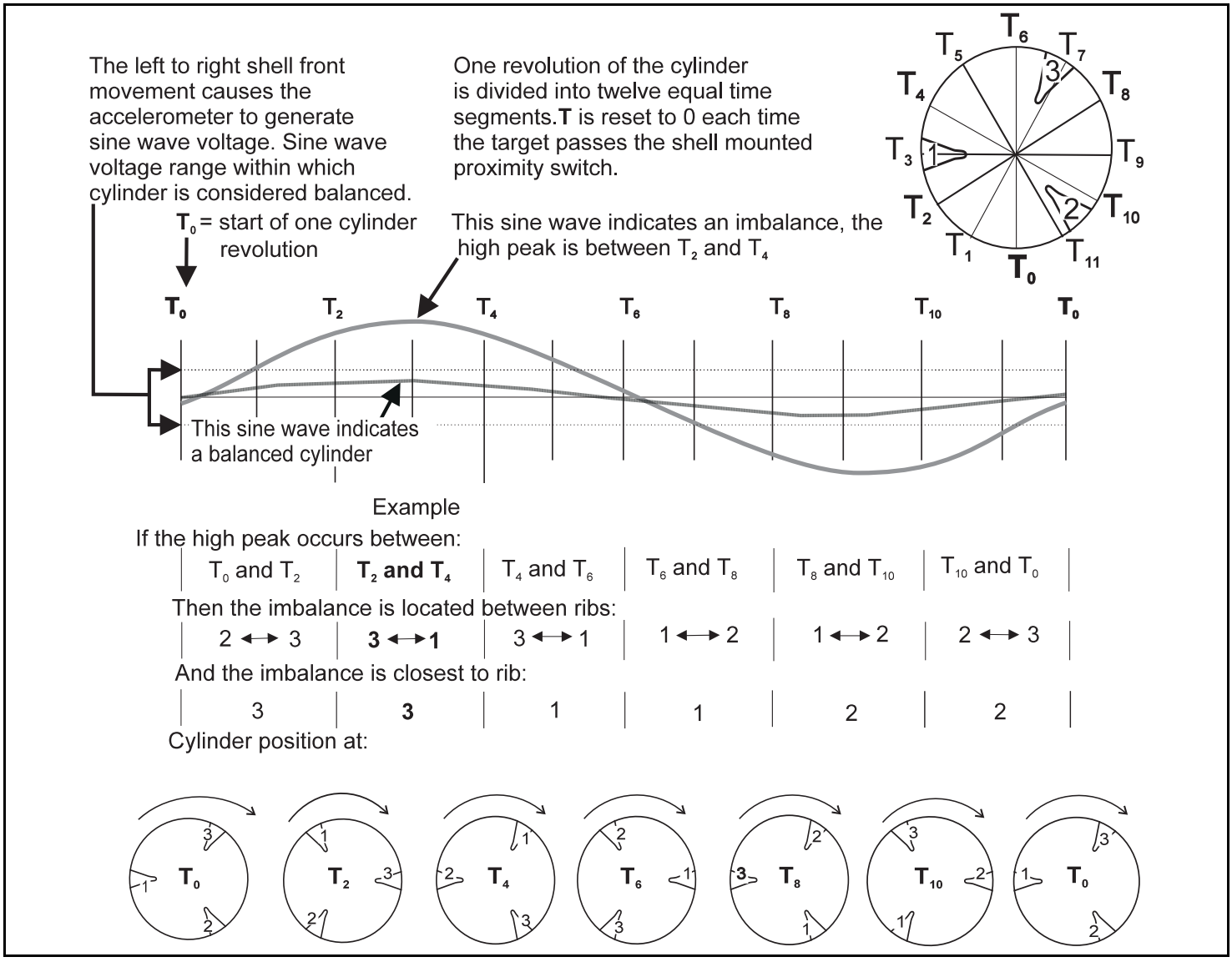
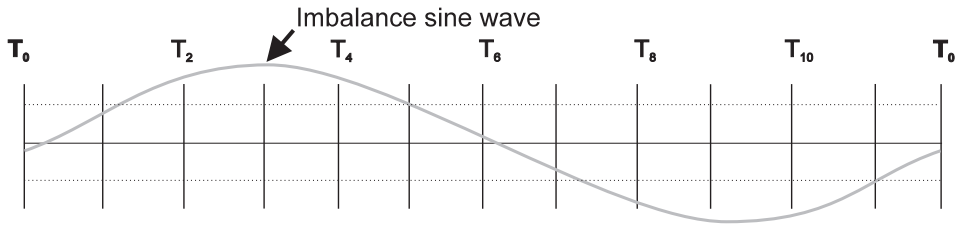
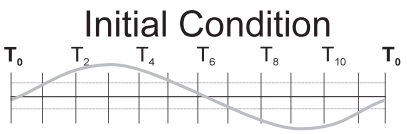
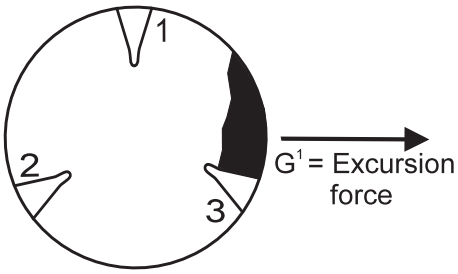


FIGURE 6 (MSSMA401BE)
Step 1—Finding the Imbalance

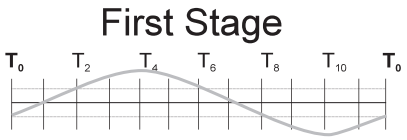
In this example, the high peak of the sine wave occurs at T_3, telling the balancing system that an imbalance is located between ribs 1 and 3, and the imbalance is closest to rib 3. Self balancing takes place in two stages over several revolutions.

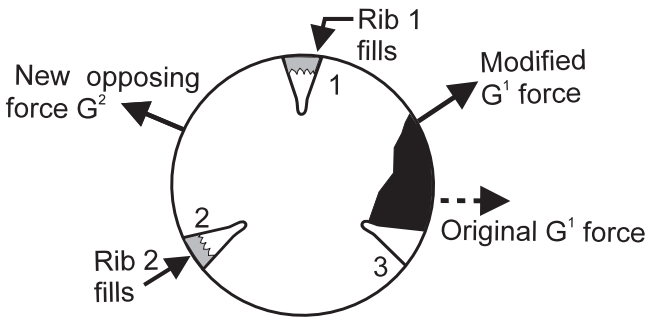




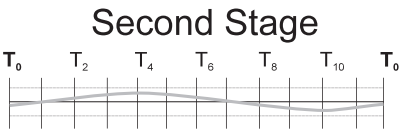


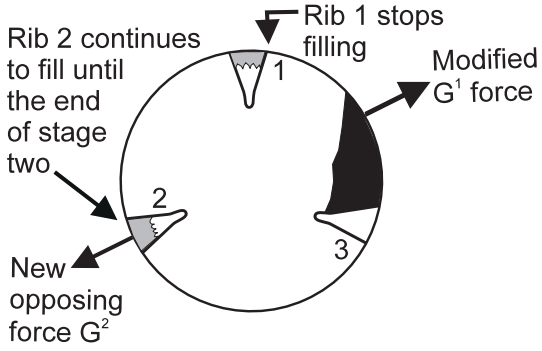
The maximum excursion force G^1, occurs next to rib 3, exactly at the area of maximum imbalance. Since no counterbalancing rib is exactly opposite the imbalance, (a requirement for balancing) the maximum excursion force must be moved to a point opposite a rib.





Simultaneously filling ribs 1 and 2 creates a new opposing excursion force G^2. This new G^2 force modifies the vector of the original force G^1 as shown above, resulting in moving the G^1 force to a point opposite rib 2. The second stage of balancing can now begin.





At the onset of the second stage of balancing, Rib 1 stops filling while Rib 2 continues to fill. This results in moving the opposing G^2 force to a point opposite the original G^1 force. Ultimately the, two forces equalize, reducing the shell front excursion, and the amplitude of the resulting accelerometer sine waves. All water valves shut off when sine waves fall within normal (balanced operation) range and the balancing system resumes monitoring operation.

FIGURE 7 (MSSMA401BE)
Step 2—Cancelling the Imbalance

Monitoring the Balancing System

Status panel lamps monitor balancing system functions. This status panel (FIGURE 8), includes:

Balance Excursion Lamp—This lamp illuminates whenever the three wire circuit is energized. If this lamp extinguishes during E1 (low extract), the machine will not enter E2 (high extract), but recycles instead (see “Recycle Circuit” in this section).

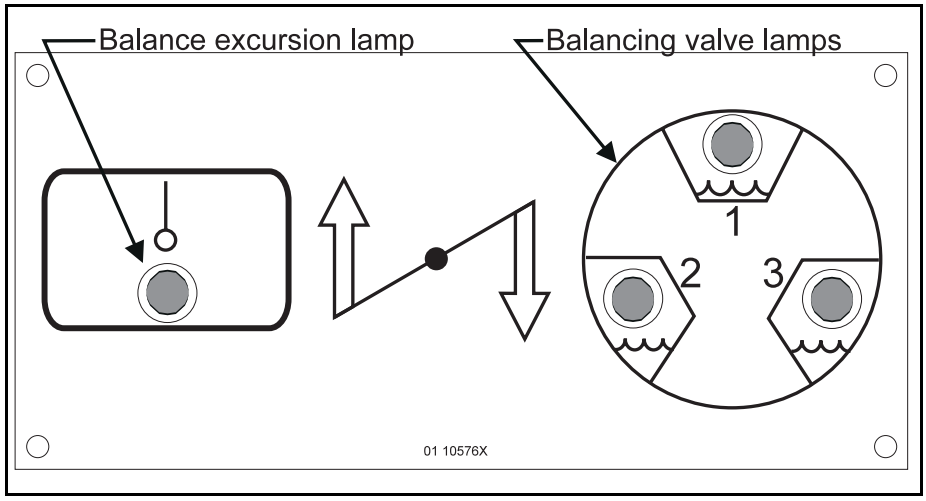


FIGURE 8 (MSSMA401BE)
Balancing System Status Panel

Balancing Valve Lamps—These three lamps go ON and OFF with their respective balancing valves. Lamps should be OFF once balancing is completed, except for intermittent valve operation as the balancing system compensates for changing imbalances (caused by varying load thickness, different absorption rates, etc.). All three lamps should never illuminate except at the onset of low speed extraction and again at the onset of high extraction. At all other times, only one or two of the three lamps should illuminate until balance is achieved, never all three. Continuous recyling over several loads may indicate a need for service.

Balancing System Maintenance

Aiming Injection Nozzles—When properly aimed and adjusted, the injection nozzles correctly deliver balancing water from each balancing water valve to the pickup ring for the appropriate rib. If not aimed or adjusted correctly, water may splash (or fall) into the wrong pick-up ring and enter the wrong rib, rendering the system unworkable. Aim the nozzles so that the water streams gently into the intended ring. Make sure that they are exactly centered in the pickup ring as shown in FIGURE 9. Any splashing causes water to enter the wrong ring, rendering the system inoperative. Periodically check nozzle alignment and for cracks, clogs, and debris in the rings.

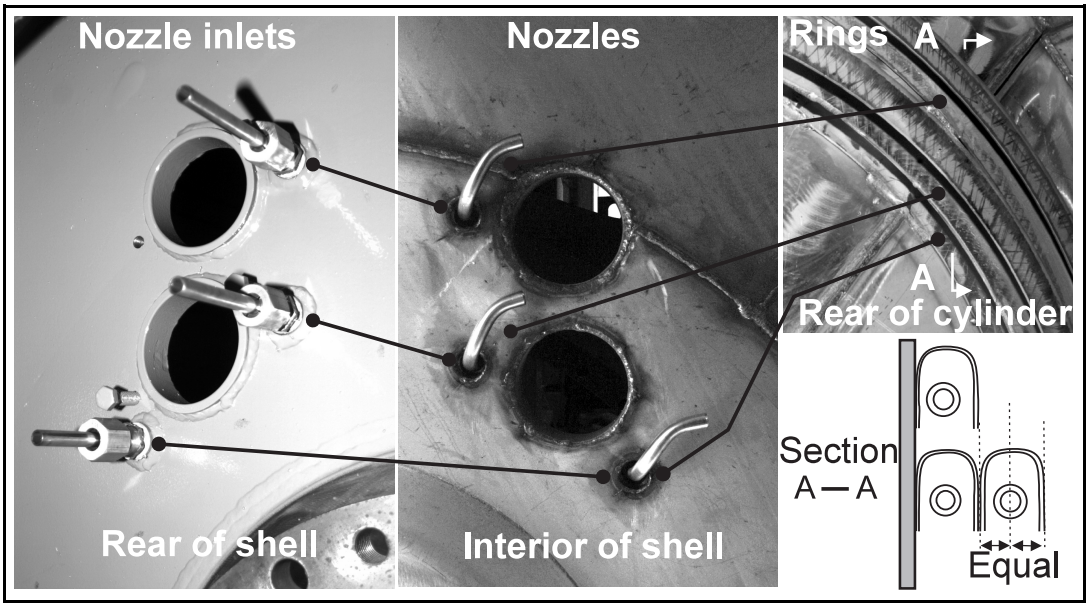


FIGURE 9 (MSSMA401BE)
Aiming the Balancing Nozzles

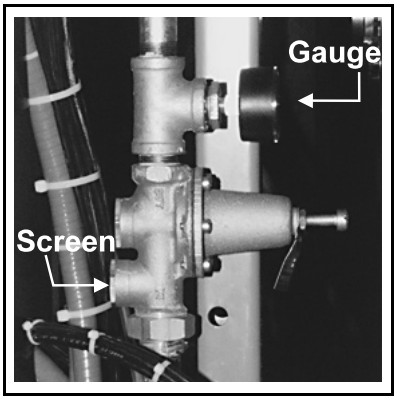


FIGURE 10 (MSSMA401BE)
Water Pressure Gauge

Checking Water Pressure—Check pressure regulator for 28 PSI (1.96 Kg/sq cm) water pressure when there is no water flow and approximately 10 - 15 PSI (0.70 - 1.05 Kg/sq cm) when water valves are operating. Clean screen and/or adjust regulator as required (FIGURE 10).

Positioning the Proximity Switch—Adjust a replacement proximity switch, (FIGURE 11), .187 - .25 inch (4.75 - 6.35) from the target plate.

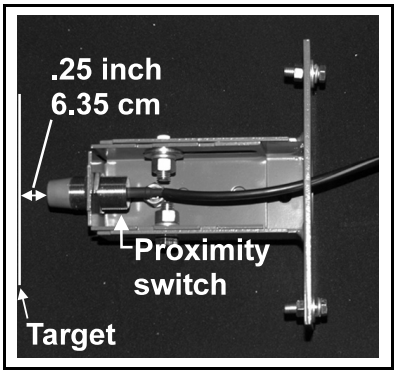


FIGURE 11 (MSSMA401BE)
Proximity Switch

Preparing to Set Accelerometer—Accelerometer voltage must be adjusted with the shellfront in the drain/extract position. In order to do this, put the machine in a valid formula and stop in an wash step. The machine will drain with the shellfront at the 10 degree tilt necessary for setting the accelerometer. The following displays are typical. They may appear differently according to machine model and/or options.

RUN FORMULA 00 OR OK POWER OFF	Machine is ready for load and the *Run Formula menu* is displayed, as shown at left, ENTER NEXT **Accesses *formula 00* .**
FILLING MACHINE	Machine filling with water
RUN FORMULA 00 FORMULA 00	① **Silences the operator signal and starts the process.**
10:38 F0005S03 2:37 dF=A055/D140 * HC3	Alternates With 10:38 STEP01 2:37 WAIT FOR LEVEL HC3

DRAINING TO SEWER

CANCEL ESCAPE Cancels step. The water, chemical, and steam valves close, the drain opens (machines with normally open drain valves), and the shellfront tilts to the angle necessary for the correct adjustment of the accelerometer. Machines with normally closed drain valves must be drained before continuing (See VIEWING INPUTS/OUTPUTS AND ACTUATING OUTPUTS ON THE MARK III MICROPROCESSOR CONTROL...).

3 WIRE DISABLED FAULT: SEE MANUAL

0 Disables the three wire circuit, preventing machine from entering intermediate extract, and displaying an error message. CANCEL ESCAPE cancels the formula, *Cancel button*, silences the operator signal.

Adjusting the Accelerometer—Measure accelerometer voltage at balance filter board connector from 1MTA 86-4 to 1MTA 86-5 with the machine in a formula and the cylinder tilted to the drain/extract position as described in "Preparing to Set Accelerometer" in this section. The accelerometer is adjusted by the screw (FIGURE 12). Set accelerometer voltage between 2.3 - 2.5 VDC, the higher the voltage, the more sensitive the circuit. Output voltages beyond 5 VDC indicate a defective unit.

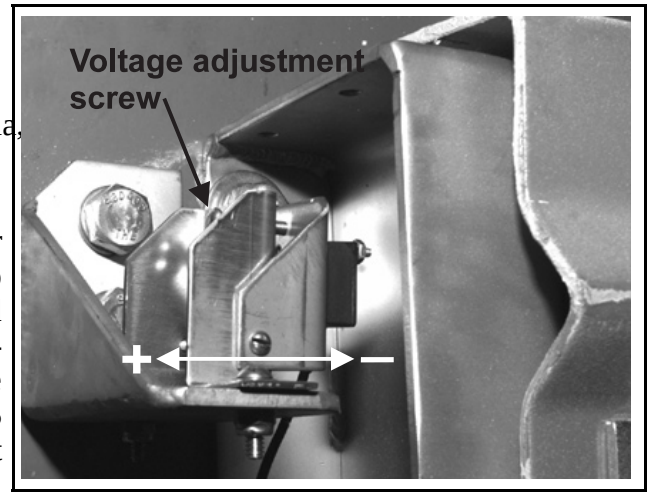


FIGURE 12 MSSMA401BE
Accelerometer

Additional Protection for Excessive Imbalance

Two devices, the recycle and the vibration circuits, independent of the balancing system, protect the machine from excessive imbalances.

Recycle Circuit—The recycle circuit automatically redistributes an out of balance load. It becomes operational when extract commences and is actuated by the machine excursion switch (FIGURE 13). Although the excursion switch initiates a recycle anytime it is actuated during extraction, the primary purpose of this switch is to sense an excessive imbalance during the onset of extraction. When a recycle is initiated, the cylinder comes to a full stop, rotates 16 seconds CCW in wash speed, 7.5 seconds in CW wash speed, and 7.5 seconds in drain speed, then re-enters extract. During a recycle, the program timing stops, and starts again 7.5 seconds after high extract has again been achieved. The machine recycles up to five times, before repeating the final bath (without chemicals) and re-entering extraction.

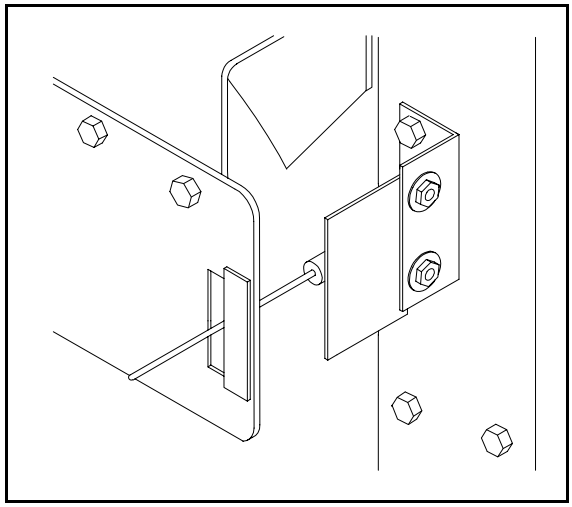


FIGURE 13 (MSSMA401BE)
Excursion Switch

NOTICE

The excursion switch actuator must be exactly in the center of the slotted hole - both when the machine is pushed down and when it is hanging free. If not, the switch will actuate prematurely (during the initial excursion at the onset of extraction), causing unnecessary recycles.

Vibration Circuit—The vibration safety switch (FIGURE 14) reacts to excessive vibration which is not contained by the balancing system, actuating a switch which de-energizes the three wire relay. When this occurs, the cause of the vibration should be determined and corrected. See "VIBRATION SAFETY SWITCH ADJUSTMENTS" elsewhere in this manual.

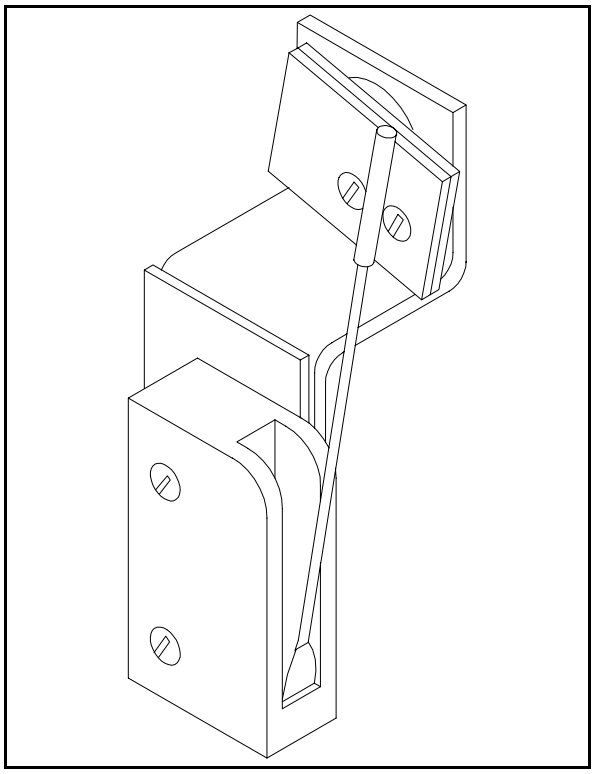


FIGURE 14 (MSSMA401BE)
Vibration Safety Switch

Balancing Bracket Installation

64040/64050E6N 64046E6N/J6N/D6N 72046E5N/J5N 72058J5N

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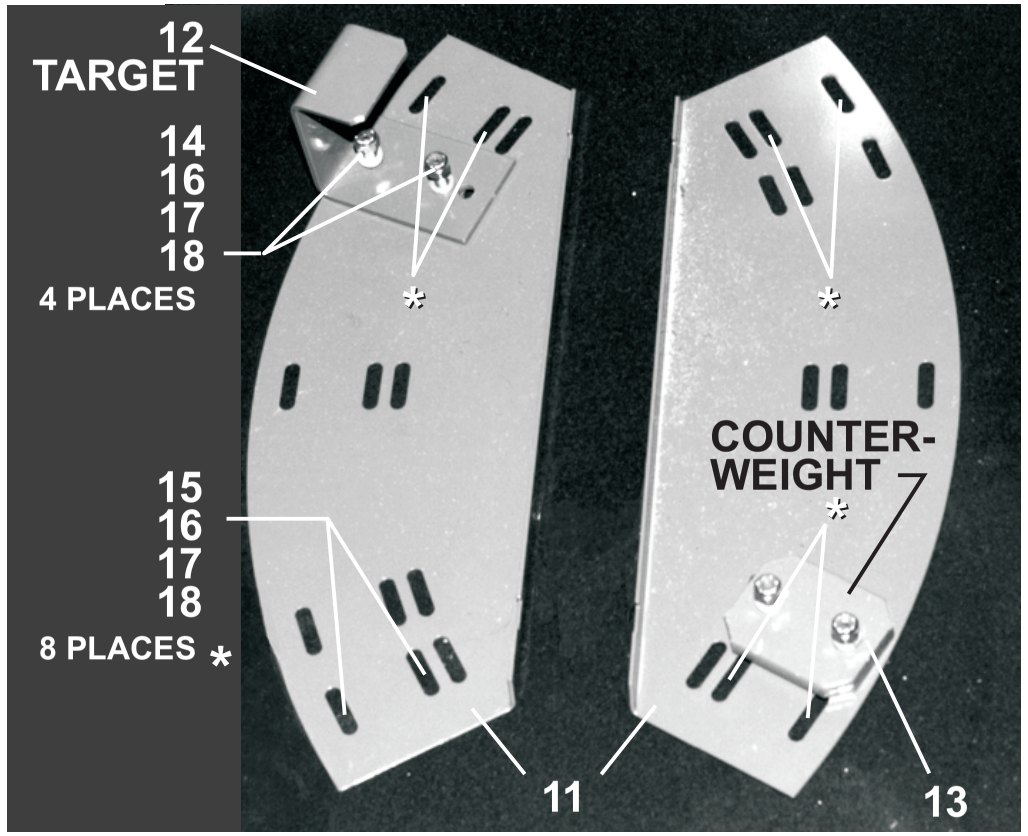
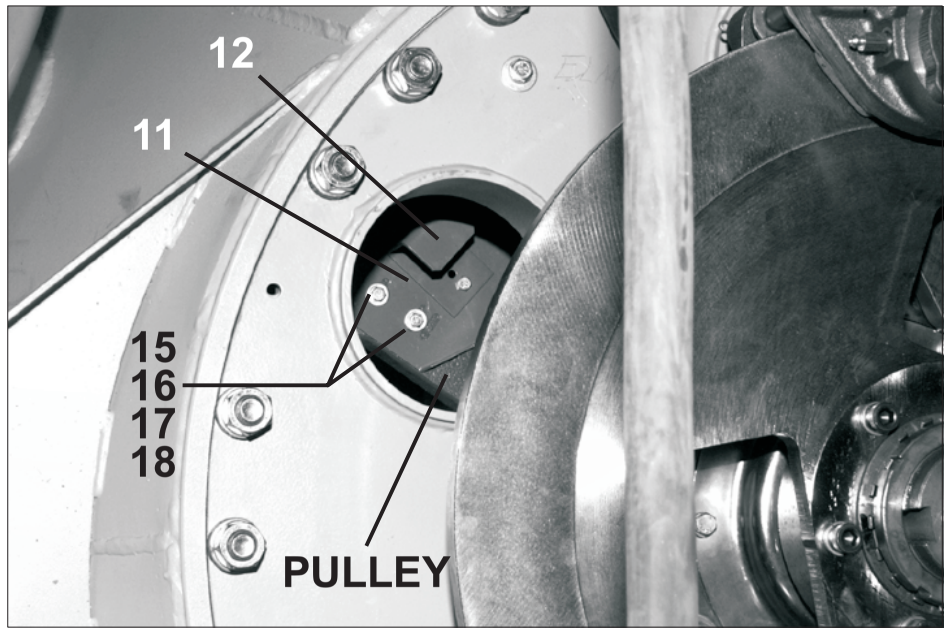
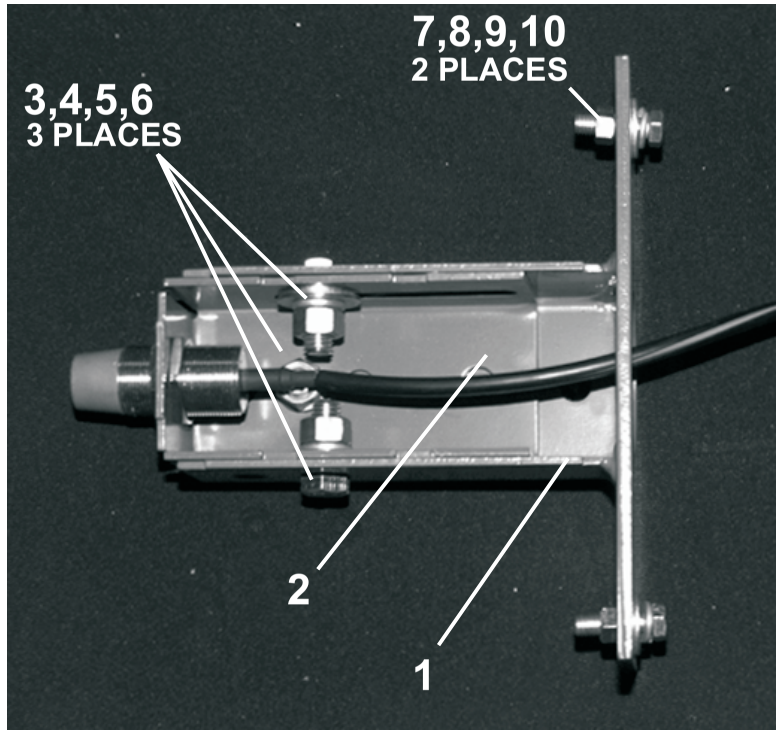


Balancing brackets with target and counter weight



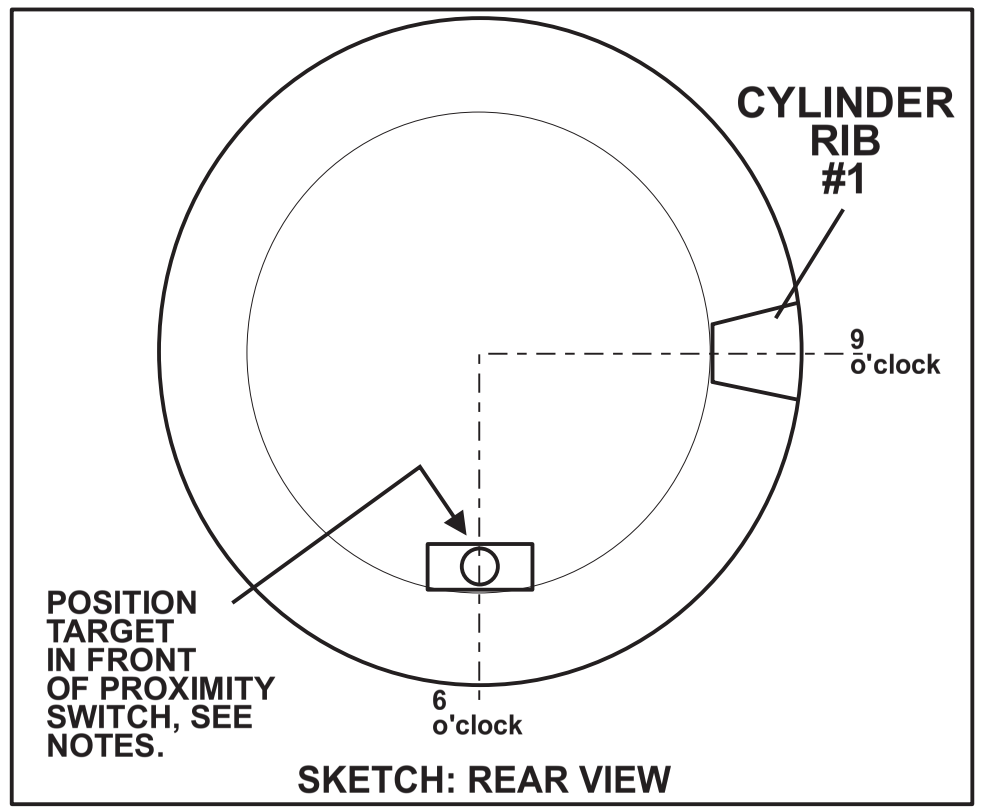
Balancing brackets mount to pulley through access holes.



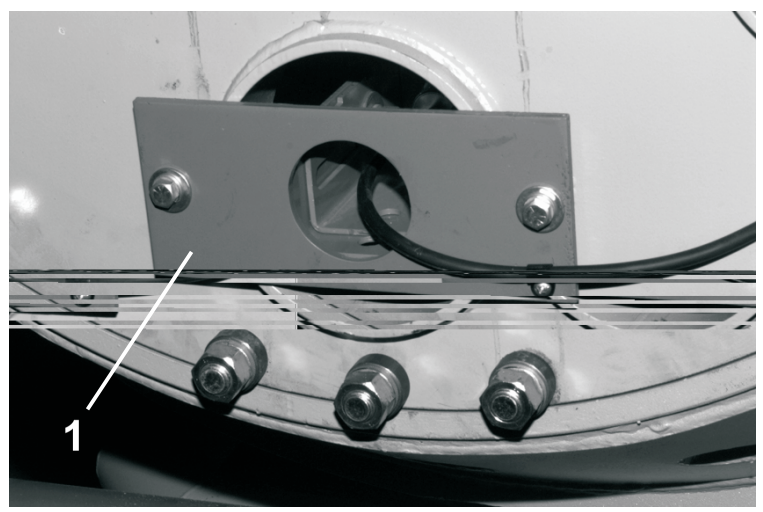
NOTES:

1) POSITION BALANCING BRACKETS AND TARGET ON PULLEY SO CYLINDER RIB #1 IS IN THE 9 O'CLOCK POSITION WHEN THE TARGET BRACKET ACTUATES THE PROXIMITY SWITCH.

2) THE COUNTER WEIGHT SHOULD BE POSITIONED ON BALANCING BRACKETS 180 DEGREES FROM THE TARGET BRACKET.



SKETCH: REAR VIEW



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Parts List—Balancing Bracket 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----------	
all	A	GEB65001	INST=ELE BALANCING BRKTS	
			----------COMPONENTS----------	
all	1	W3 65223	*WELD=PLATE-E BAL MNT	
All	2	03 65223B	CHNL=E BAL MNT BRKT PROC SWT	
all	3	15K050	HXCAPSCR 5/16-18UNC2AX1/2 GR5	
all	4	15U241	FLATWASHER 13/32IDX1+3/4ODX14G	
all	5	15U278	LOCKWASHER MEDIUM 7/16 ZINCPL	
all	6	15G185	HXNUT 5/16-18UNC2B SAE ZINC GR	
all	7	15K083	HXCAPSCR 3/8-16 UNC2AX1/2 GR5	
all	8	15U240	FLATWASHER(USS STD) 3/8" ZNC P	
all	9	15U255	LOCKWASHER MEDIUM 3/8 ZINCPL	
all	10	15G205	HXNUT 3/8-16UNC2B ZINC GR2	
all	11	03 65224	12.375 TARGET MNT BRKT	
all	12	03 BZ2X2F	2"TARGET BALANCE PROX SW	
all	13	03 65222	PULLEY COUNTERWEIGHT- 8 OZ	
all	14	15K041	HXCAPSCR 1/4-2OUNC2AX1 GR 5 ZI	
all	15	15K046	HXCAPSCR 1/4-20 UNC2A X 2"GR5	
all	16	15U185	FLATWASHER(USS STD) 1/4" ZNC P	
all	17	15U180	LOCKWASHER MEDIUM 1/4 ZINCPL	
all	18	15G164NE	HEXLOKNUT NYL 1/4-20 UNC2A SS.	

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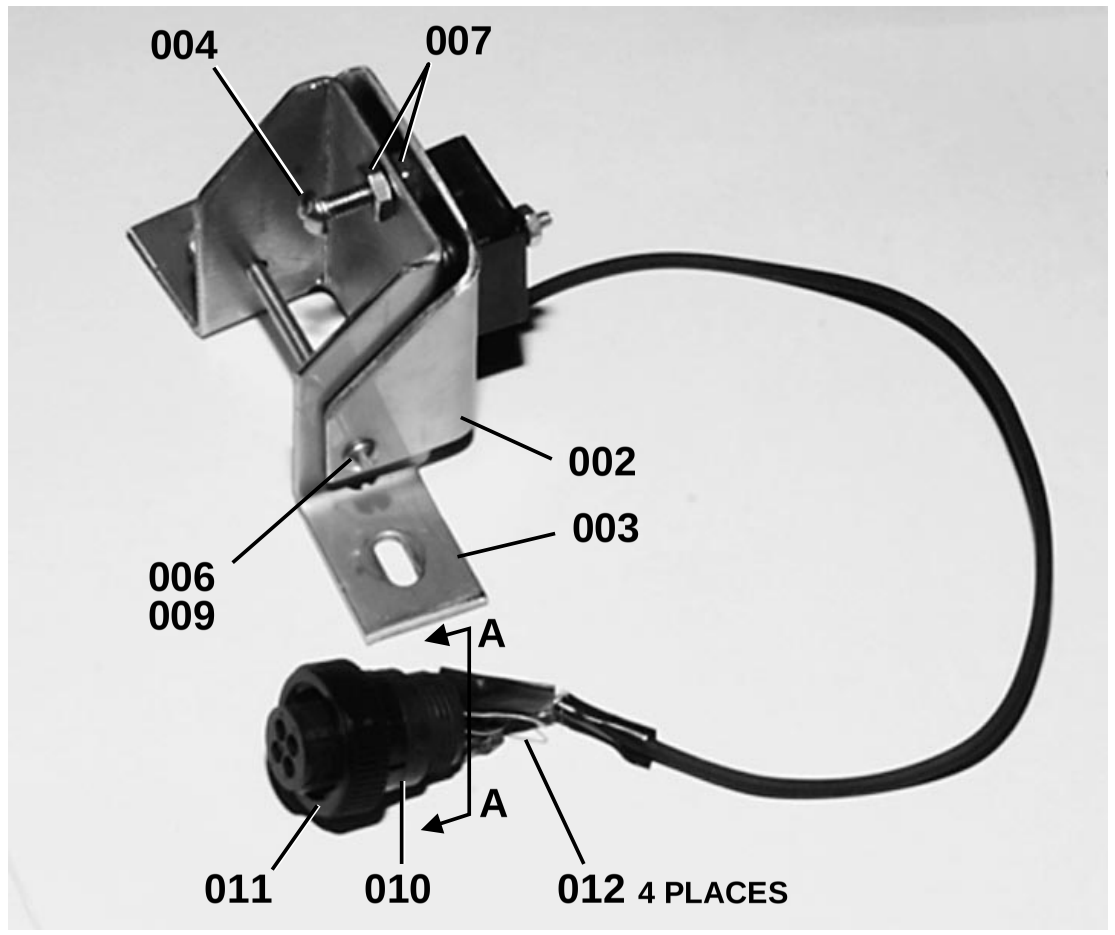
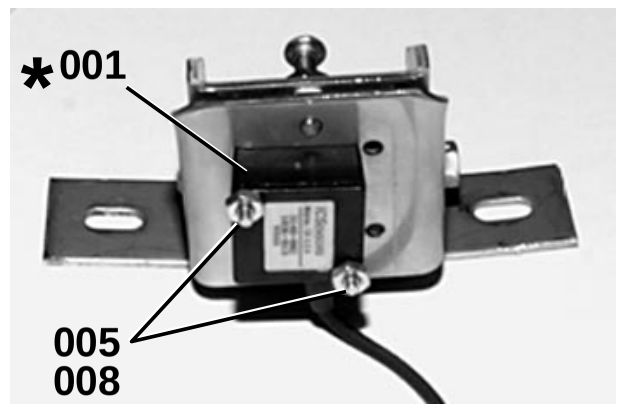
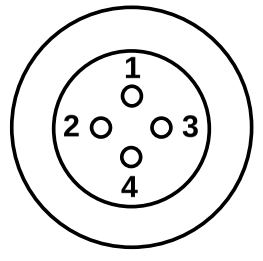
DRAWING
(See other page for parts list, if applicable.)

ACCELEROMETER ASSEMBLY
64046E6N/J6N/D6N 72046E5N/J5N 72058J5N







VIEW A-A

PIN CONNECTIONS

1 = RED (+12 VDC)
2 = WHITE OR BLUE (OUTPUT)
3 = BLACK OR GREEN (GROUND)
4 = SHIELD

* Fragile! Do not strike, drop, or bump this part.

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PARTS LIST
(See other page for drawing.)

ACCELEROMETER ASSEMBLY
64046E6N/J6N/D6N 72046E5N/J5N 72058J5N

ITEM	PART NUMBER	DESCRIPTION	HOW PART IS USED IN ASSEMBLY (Only if pertinent)
00A	EACCLRM1	94102L ASSMBLY:ACCELROMETER O-5VOC	REFERENCE ASSEMBLY
001	30K205B	ACCELROMETER 0-2G IC.SENSOR #3145-2	
002	03 BU1X23	94247B BRKT:ACCELERAMETER ADJUSTMNT	
003	03 BU2X43	94286B BRKT:ACCELERAMETER MTG BASE	
004	15N095	RDMACSCR 8-32UNC2X3/4 SS18-8	
005	15N020	RDMACSCR 4-40 UNC2AX3/4 ZINC GR5	
006	15N071B	RDMASCR 6-32UNC2A2+1/4 SS 18-8	
007	15G105	HEXMACSCRNUT 8-32UNC2 SS18-8	
008	15G020	HXMACHSCRNUT 4-4OUNC2BZINC GR2	
009	15G072	HXCTRLOKNUT 6-32IFI100 ZINC GR2	
010	09BC04BRLQ	CIRCULAR 4PIN CONN PLUG(FEMALE PIN)	
011	09BC04CRLQ	CIRCULAR 4PIN CONN RECPT(MALE PINS)	
012	09BT23MCLN	FEM TERM .062 TIN(LOOSE) #66601-1	
		******** 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.

LITHO IN USA

Excursion Switch Installation

64040, 64050, 64046E6N/J6N 72058J2N/D5N

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

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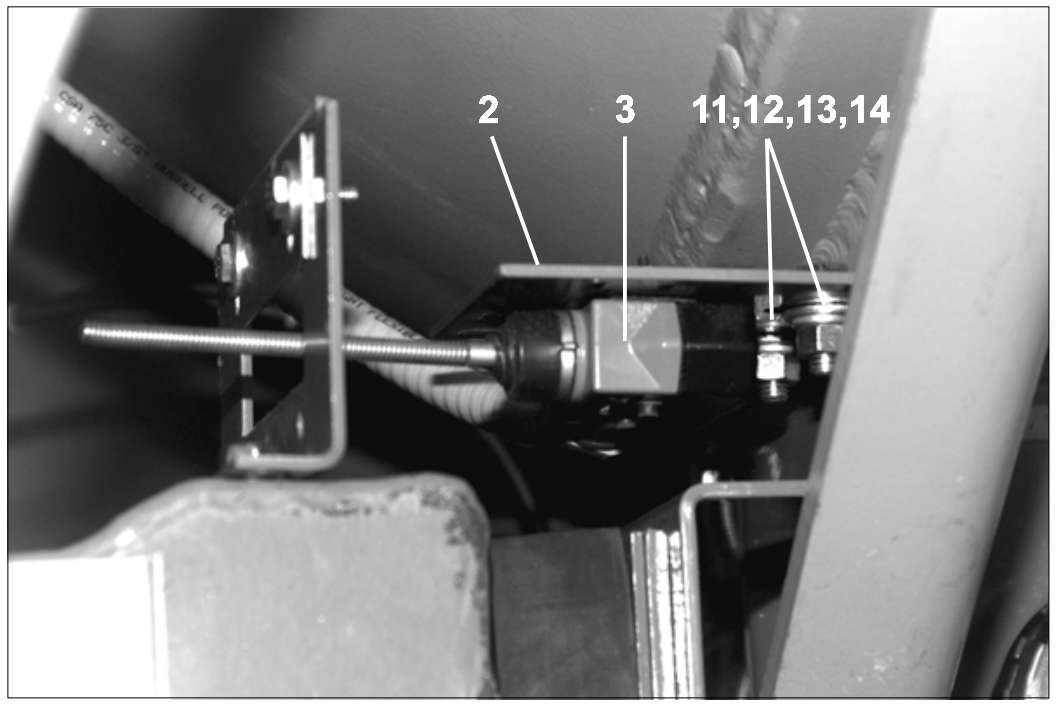
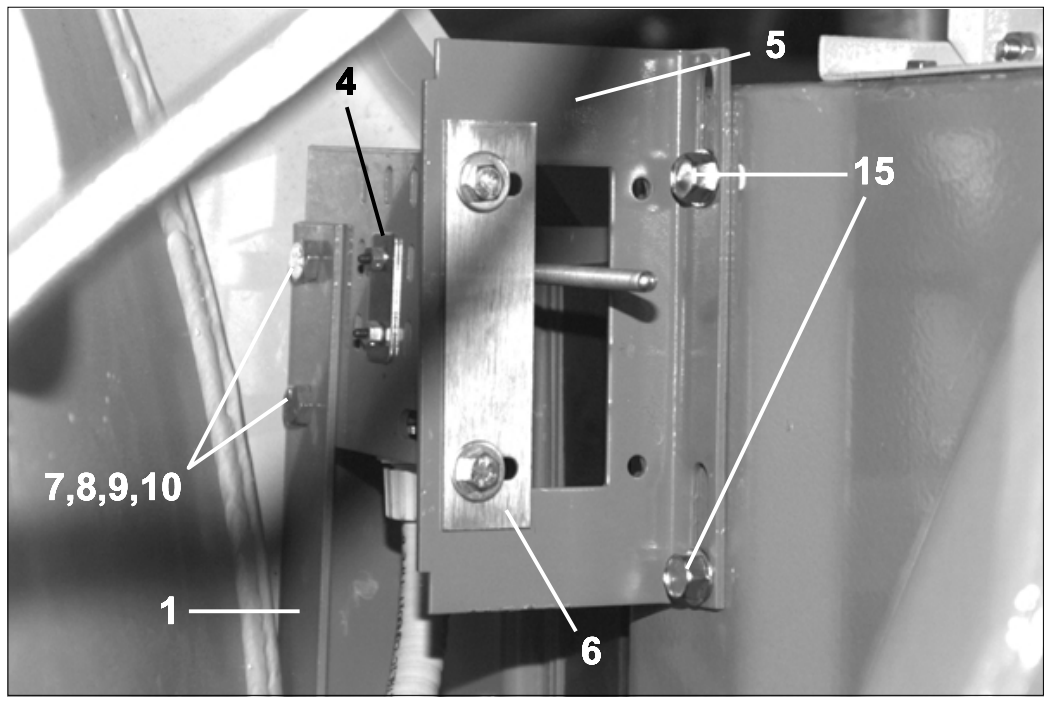


Top View



Rear View

Parts List—Document Name

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	GES65001	93442L INST=EXCURSION SWITCH NP	
			----------COMPONENTS----------	
All	1	03 65233	99197B E-SWITCH MNT ANGL SHELL	
All	2	02 15783A	83173A PLATE=EXCURSION SW MTG	
All	3	09R008ASTD	82026B 09R008A+MOUNTING HDWRE+INST	
All	4	02 10391	63113B COVER STRIP=MICRO SW #6-8	
All	5	03 65234	99466B E-SWITCH WINDOW ANGL T.F.	
All	6	03 65234B	99466B EXCURSION WINDOW PLATES	
All	7	15K039	HXCAPSCR 1/4-20OUNC2AX3/4 Gr5 Z	
All	8	15G165	HXNUT 1/4-2OUNC2BSAE ZC Gr2	
All	9	15U185	FLATWASHER(USS STD) 1/4” ZNC P	
All	10	15U180	LOCKWASHER MEDIUM ¼ ZINCPL	
All	11	15K085	HEXCAPSCR 3/8-16INC2AX3/4 Gr5	
All	12	15G205	HXNUT 3/8-16UNC2B ZINC Gr2	
All	13	15U240	FLATWASHER(USS STD) 3/8” ZNC P	
All	14	15U255	LOCKWASHER MEDIUM 3/8 ZINCPL	
All	15	15P185	TRDCUT-F HXHD 1/4-20UNC2AX3/4	

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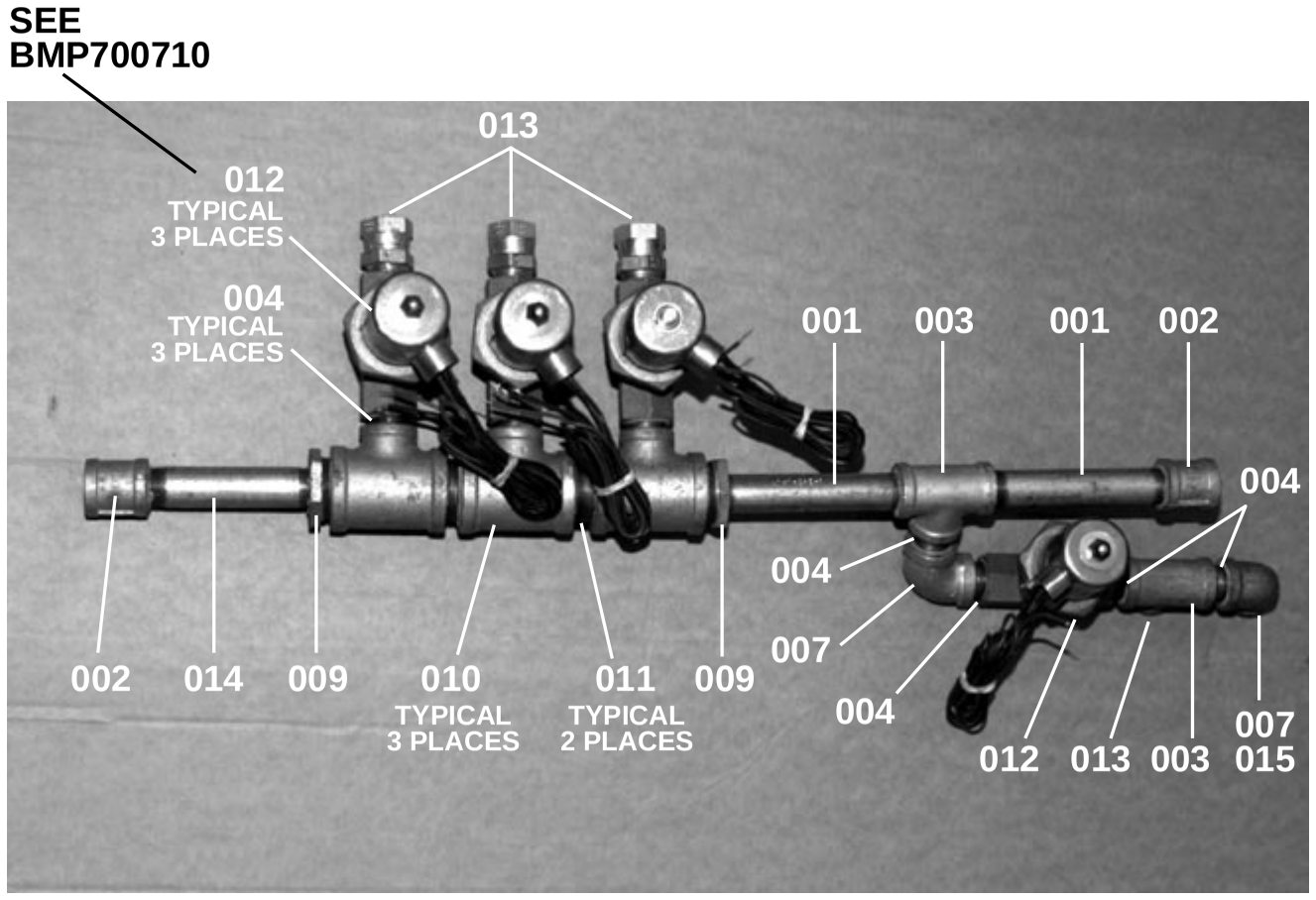
DRAWING
(See other page for parts list, if applicable.)

BALANCING VALVES
64046E6N/J6N/D6N 72046E5N/J5N 72058J5N



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PARTS LIST
(See other page for drawing.)

BALANCING VALVES
64046E6N/J6N/D6N 72046E5N/J5N 72058J5N

ITEM	PART NUMBER	DESCRIPTION	HOW PART IS USED IN ASSEMBLY (Only if pertinent)
00A	AVW65005	94023B ASSY=BALANCING VALVES	REFERENCE ASSEMBLY
001	5N0P06AG42	NPT NIPPLE 3/4X6 TBE GALSTL SK40	
002	5SCC0PNF	NPT COUP 3/4 GALMAL 150#	
003	5S0PNFA0K	NPT TEE 3/4X3/4X1/2" GALMAL 150#	
004	5N0PCLSG42	NPT NIPPLE 3/4XCLS TBE GALSTL SK40	
007	5SL0KNFA	NPT ELBOW 90DEG 1/2" GALMAL 150#	
009	51A036M	HEXPIPBUSH 1+1/4X3/4 GALVMAL 125#	
010	5S1ENFA0P1	NPT TEE 1.25X1.25X3/4" GALMAL 150#	
011	5N1ECLSG42	NPT NIPPLE 1.25XCLS TBE GALSTL SK40	
012	96P053A37	05Z 3/4"VAL 120V HAYS 2110-6021GWIS	
013	51X019	UNION STRADAPT 3/4" PH#0107-12-12	
014	5N0P05AG42	NPT NIPPLE 3/4X5 TBE GALSTL SK40	
015	5SP0PHFSS	NPT PLUG 3/4 SQ SOLID STL/ZINC	
		******** 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.

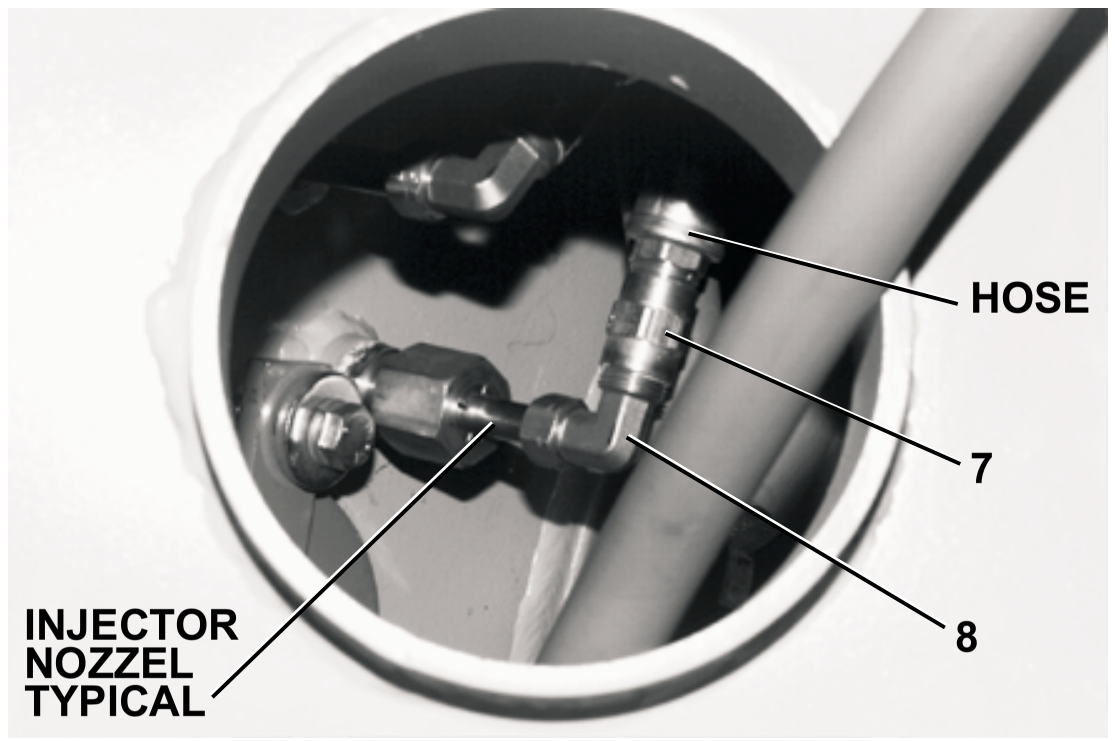
LITHO IN USA

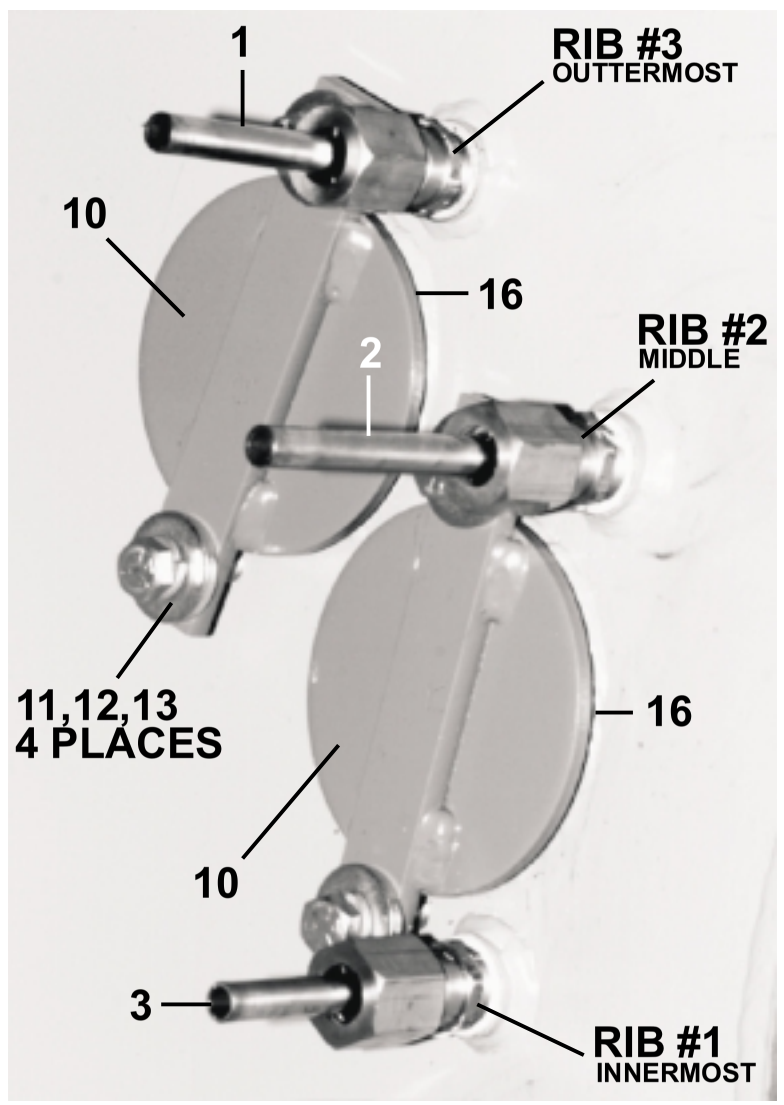
Balancing Nozzels

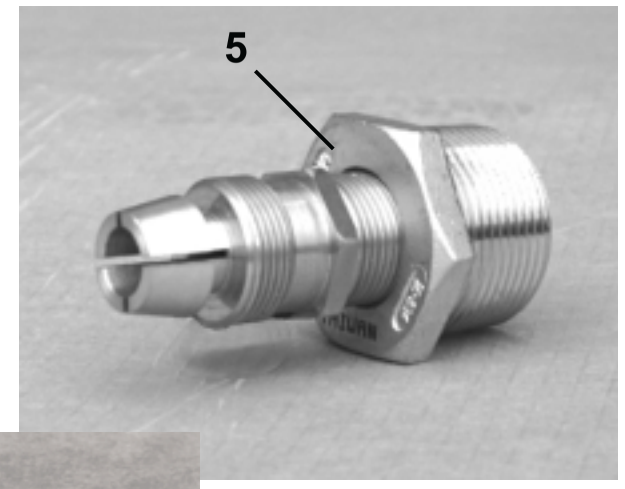
64040/64050E6N 64046E6N/J6N/D6N 72046E5N/J5N 72058J5N

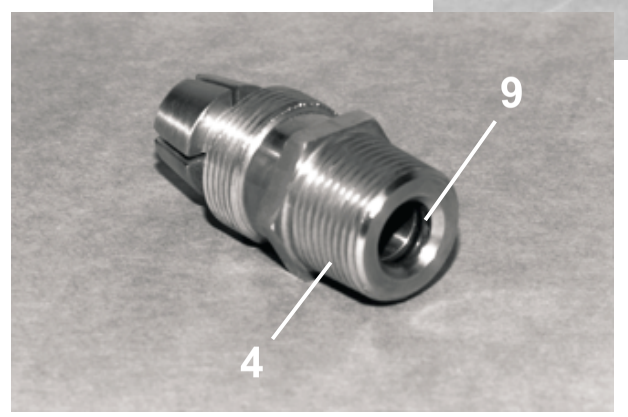
Pellerin Milnor Corporation
P. O. Box 400, Kenner, LA 70063-0400

Litho in U.S.A.

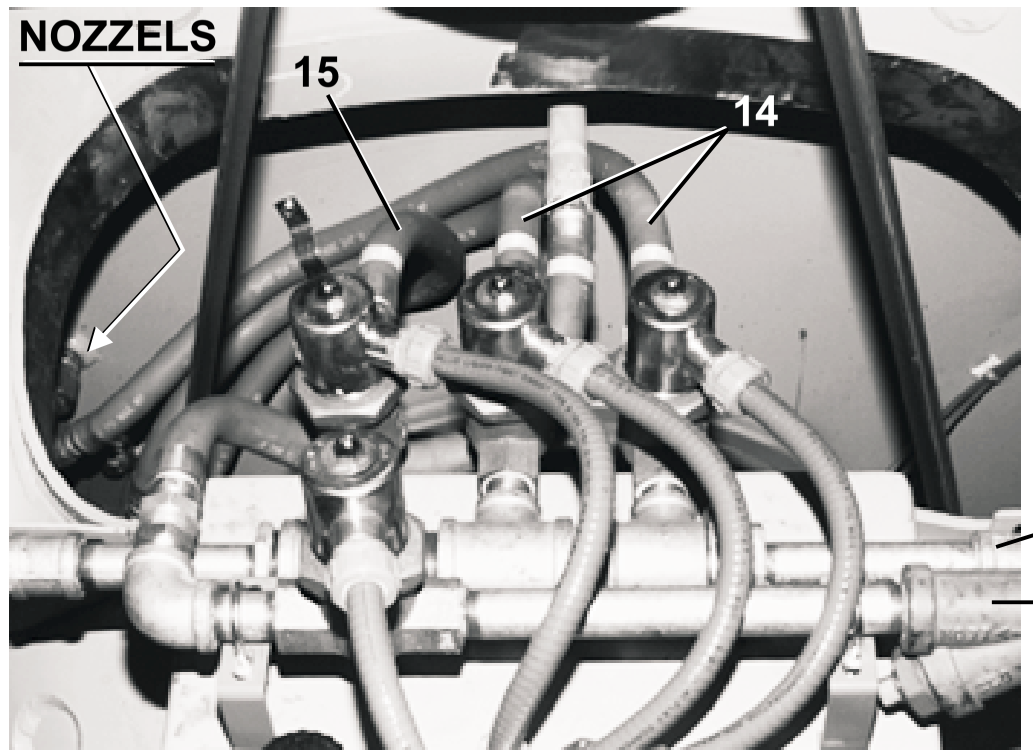






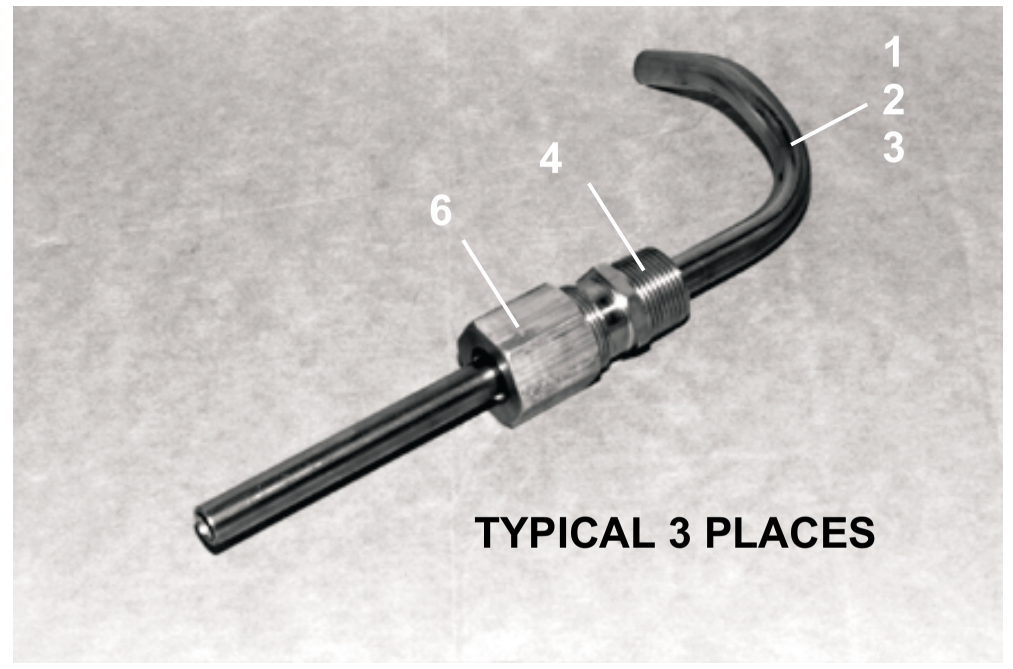


64040, 64050
ONLY



BALANCING VALVES

COOLDOWN (OPTIONAL)



TYPICAL 3 PLACES

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

Parts List—Balancing Nozzels

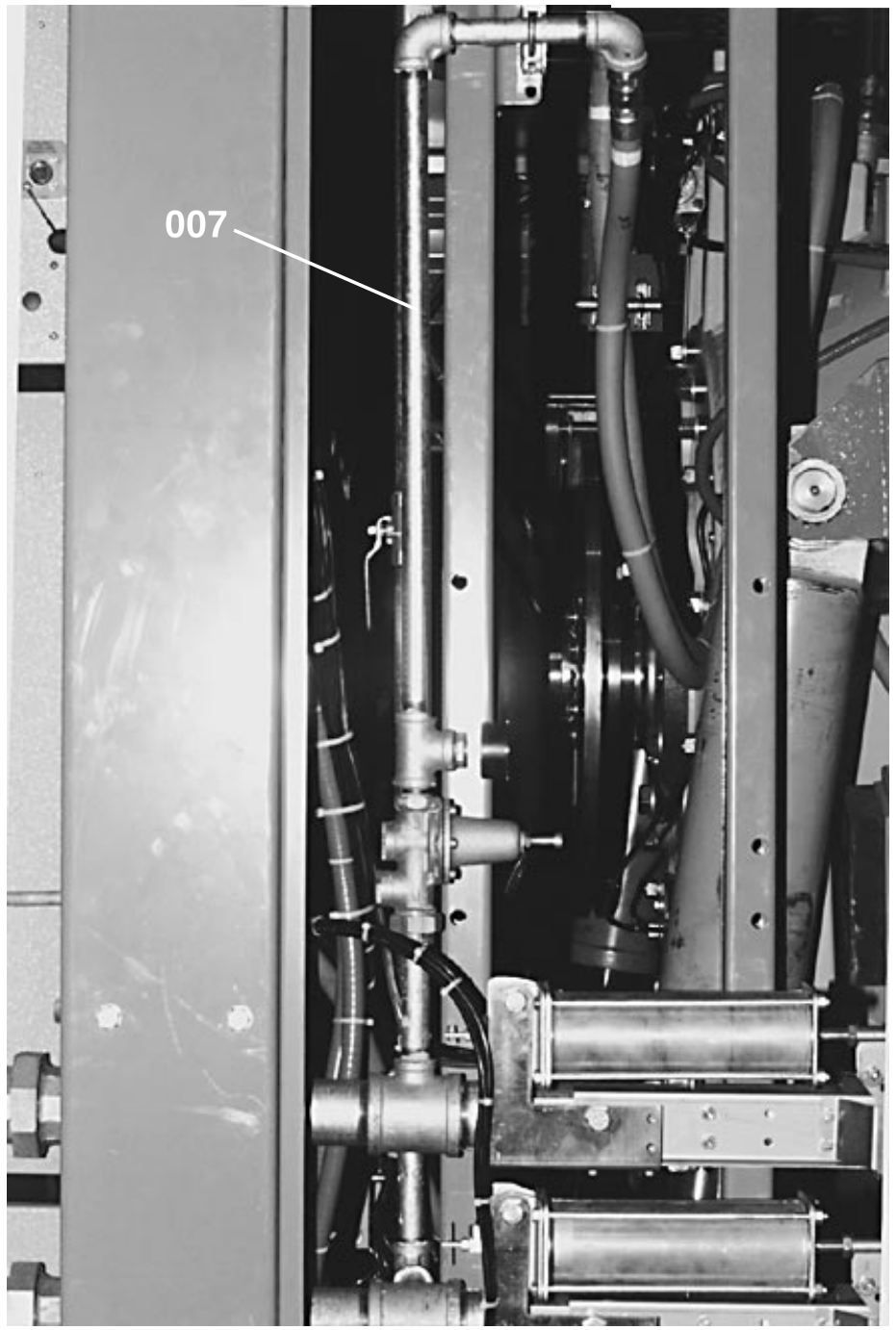
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

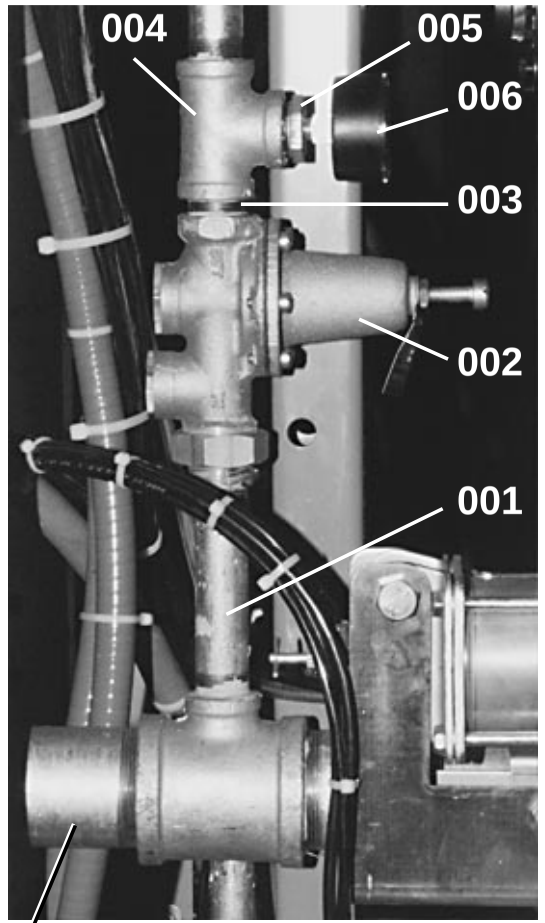
Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	AVW65005B	ASSY=BALANCING NOZZELS	64046, 72058
	B	AVW60005	PRTS=BALANCING NOZZLES	64040,64050
			----------COMPONENTS----------	
A	1	05 10004	INJECTOR SHORT NOZLE SHORT BDY	
B	1	05 10004C	99447B INJECTOR LONG NOZLE LONG BD	
Al	2	05 10004A	INJECTOR SHORT NOZLE MED BDY	
B	2	05 10004B	99447B INJECTOR SHORT NOZLE LONG BD	
B	3	05 10004A	99447B INJECTOR SHORT NOZLE MED BD	
all	4	03 48062A	COLLET RETAINER=BAL NOZZLE	
B	5	5SB1E0PSFO	NPTHEXBUSH 1.25X3/4 30SS 150	
all	6	03 48063A	NUT=BAL NOZZLE COLLET RTNR	
all	7	5SCC0KBE	NPT COUP 1/2 BRASS 125#	
all	8	53A046B	EL90 1/2TXMP PH#8-DBU	
all	9	60C110	ORING 1/2IDX3/32CS BUNA70 #112	
all	10	Y5 20100	*HAND HOLE COVER	
all	11	15K173A	HXCAPSCR 1/2-13UNC2AX1.75 GR5	
all	12	15U300	LOKWASHER REGULAR 1/2 ZINC PLT	
all	13	15U280	FL+WASHER(USS STD)1/2 ZNC PL+D	
all	14	60E086E30A	WATERHOSE 30"LG+3/4&1/2 ENDS	
all	15	60E086E33A	WATERHOSE 33"LG+3/4&1/2 ENDS	
all	16	20C047	ADHES.3M #1099 INDUST QUARTS	

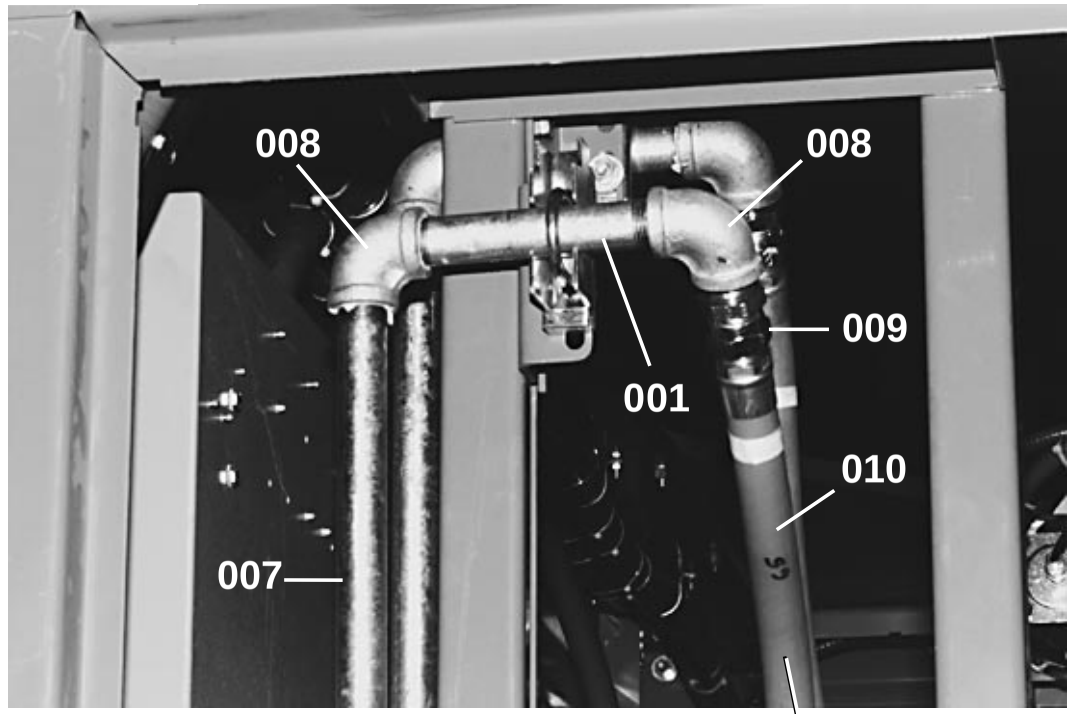
PELLERIN MILNOR CORPORATION
700 JACKSON STREET/POST OFFICE BOX 400
KENNER, LOUISIANA 70063-0400 USA

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

BALANCING VALVES MAIN SUPPLY LINE
64046E6N/J6N/D6N 72046E5N/J5N 72058J5N







LITHO IN USA

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

PARTS LIST
(See other page for drawing.)

BALANCING VALVES MAIN SUPPLY LINE
64046E6N/J6N/D6N 72046E5N/J5N 72058J5N

ITEM	PART NUMBER	DESCRIPTION	HOW PART IS USED IN ASSEMBLY (Only if pertinent)
00A	AVW65005A	94026B ASSY=BAL VALS+SUPLY MAIN LN	REFERENCE ASSEMBLY
001	5N0P06AG42	NPT NIPPLE 3/4X6 TBE GALSTL SK40	
002	96J031D	01Z 3/4" PRESREGULTR SET 28# FEM-UN	REPAIR KIT 96V031DK
003	5N0PCLSG42	NPT NIPPLE 3/4XCLS TBE GALSTL SK40	
004	5S0PNFA	NPT TEE 3/4" GALMAL 150#	
005	5SB0P0CNFA	HEXPIPBUSH 3/4X1/8 GALV 150#	
006	30N101	07Z PRESSGAUGE 1/8"BACKCONN O-60PSI	
007	5N0P24AG42	NPT NIPPLE 3/4X24 TBE GALSTL SK40	
008	5SL0PNFA	NPT ELBOW 90DEG 3/4" GALMAL 150#	
009	51X019	UNION STRADAPT 3/4" PH#0107-12-12	
010	60E086E65A	94031N HOSE ASSY=3/4"X65"L W/ENDS	
		******** 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.

LITHO IN USA

Section 10

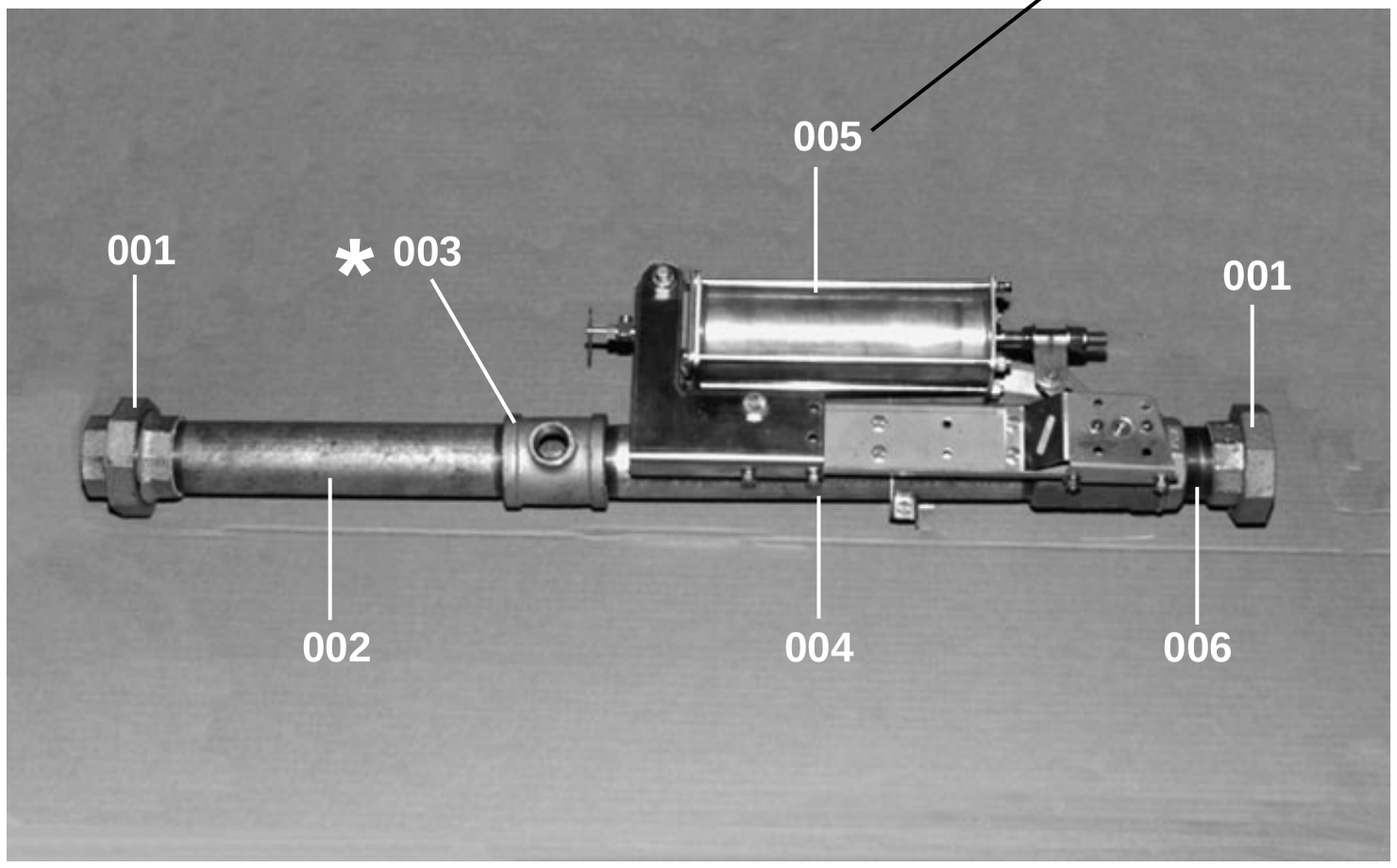
Water

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

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

WATER INLET ASSEMBLY
64046E6N/J6N/D6N 72046E5N/J5N 72058J5N

*** FOR "COLD WATER ONLY" POSITION TEE STRAIGHT UP. FOR "HOT WATER FOR BALANCING" POSITION TEE 90 DEGREES TO THE INSIDE.**



LITHO IN USA

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

PARTS LIST
(See other page for drawing.)

WATER INLET ASSEMBLY
64046E6N/J6N/D6N 72046E5N/J5N 72058J5N

ITEM	PART NUMBER	DESCRIPTION	HOW PART IS USED IN ASSEMBLY (Only if pertinent)
00A	AVW65000	94052B ASSY=1 H2O VALVE	REFERENCE ASSEMBLY
001	5SU2ANF	NPT UNION 2" GALMAL 150#	
002	5N2A12AG42	NPT NIPPLE 2X12 TBE GALSTL SK40	
003	5S2ANFA0P1	NPT TEE 2X2X3/4" GALMAL 150#	
004	5N2A15AG42	NPT NIPPLE 2X15 TBE GALSTL SK40	
005	96D088BCSL	92177S 2.00WAT BVAL+ACT/BR/NC/ST/LH	
006	5N2ACLSG42	NPT NIPPLE 2XCLS TBE GALSTL SK40	
		******** END OF PARTS LIST ********	

How to Read Parts List

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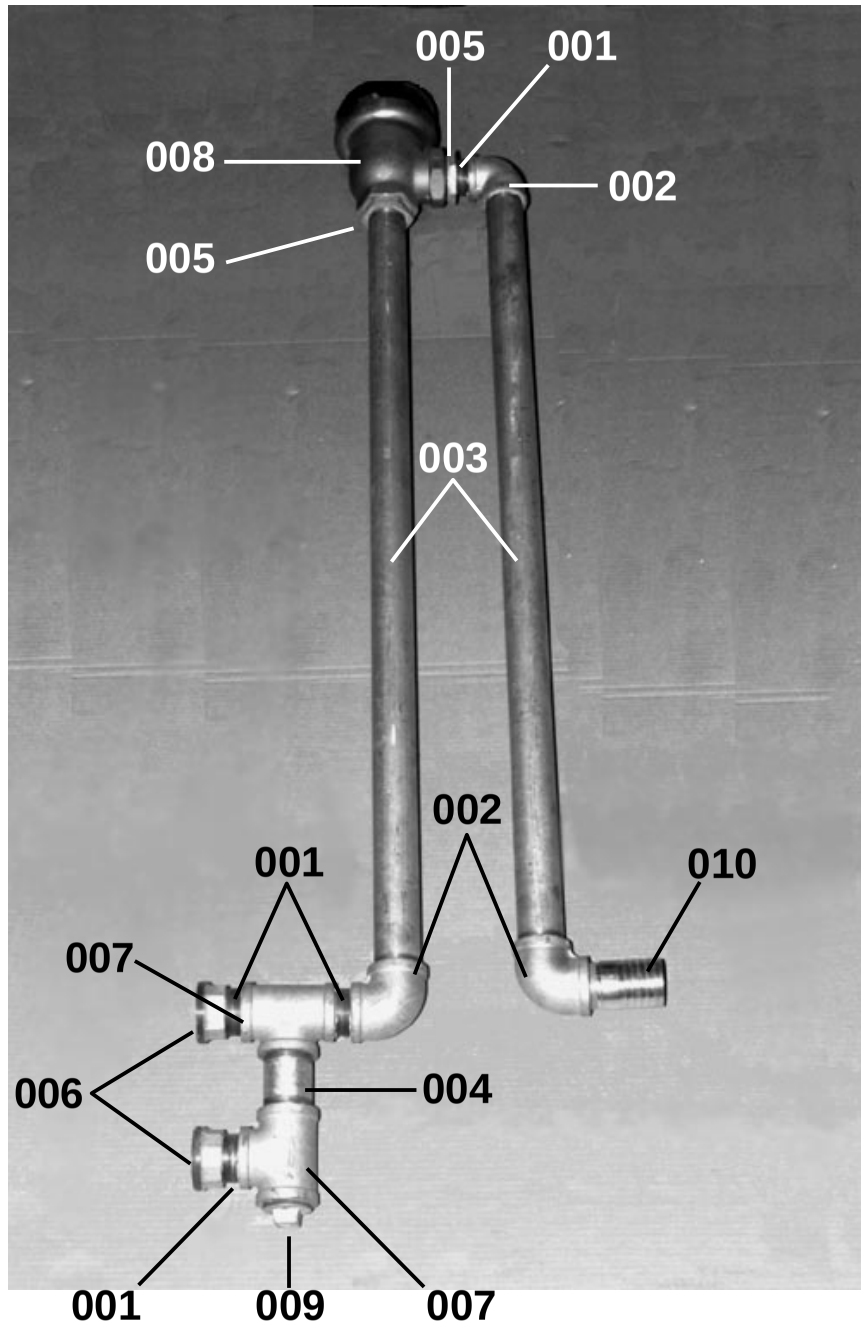
LITHO IN USA

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

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

SIPHON BREAKER PIPING
64046E6N/J6N/D6N 72046E5N/J5N



LITHO IN USA

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

PARTS LIST
(See other page for drawing.)

SIPHON BREAKER PIPING
64046E6N/J6N/D6N 72046E5N/J5N

ITEM	PART NUMBER	DESCRIPTION	HOW PART IS USED IN ASSEMBLY (Only if pertinent)
00A	AVW65007	94052B ASSY=SIPHONBKR PIP 6446E/T6N	REFERENCE ASSEMBLY
001	5N2ACLSG42	NPT NIPPLE 2XCLS TBE GALSTL SK40	
002	5SL2ANFA	NPT ELBOW 90DEG 2" GALMAL 150#	
003	5N2A52AG42	NPT NIPPLE 2X52"TBE GALSTL SCH40	
004	5N2A04AG42	NPT NIPPLE 2X4 TBE GALSTL SK40	
005	51A060	HEXPIPBUSH 2+1/2X2 GALMAL 150#	
006	5SU2ANF	NPT UNION 2" GALMAL 150#	
007	5S2ANFA	NPT TEE 2" GALMAL 150#	
008	SA 03 008A	78272# SCUPPER ASSY=2+1/2"SIPHON	
009	51P060	PLUG PIPE SQ 2"GALCORED CI 125#	
010	02 15847C	85426B ADAPTER,CARBSTL2-1/2HOSX2NPT	
		******** 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:

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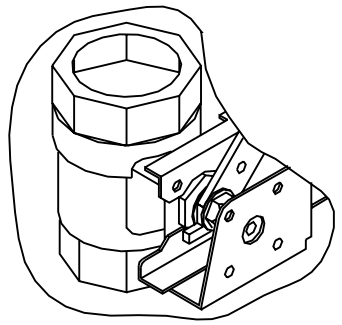
LITHO IN USA

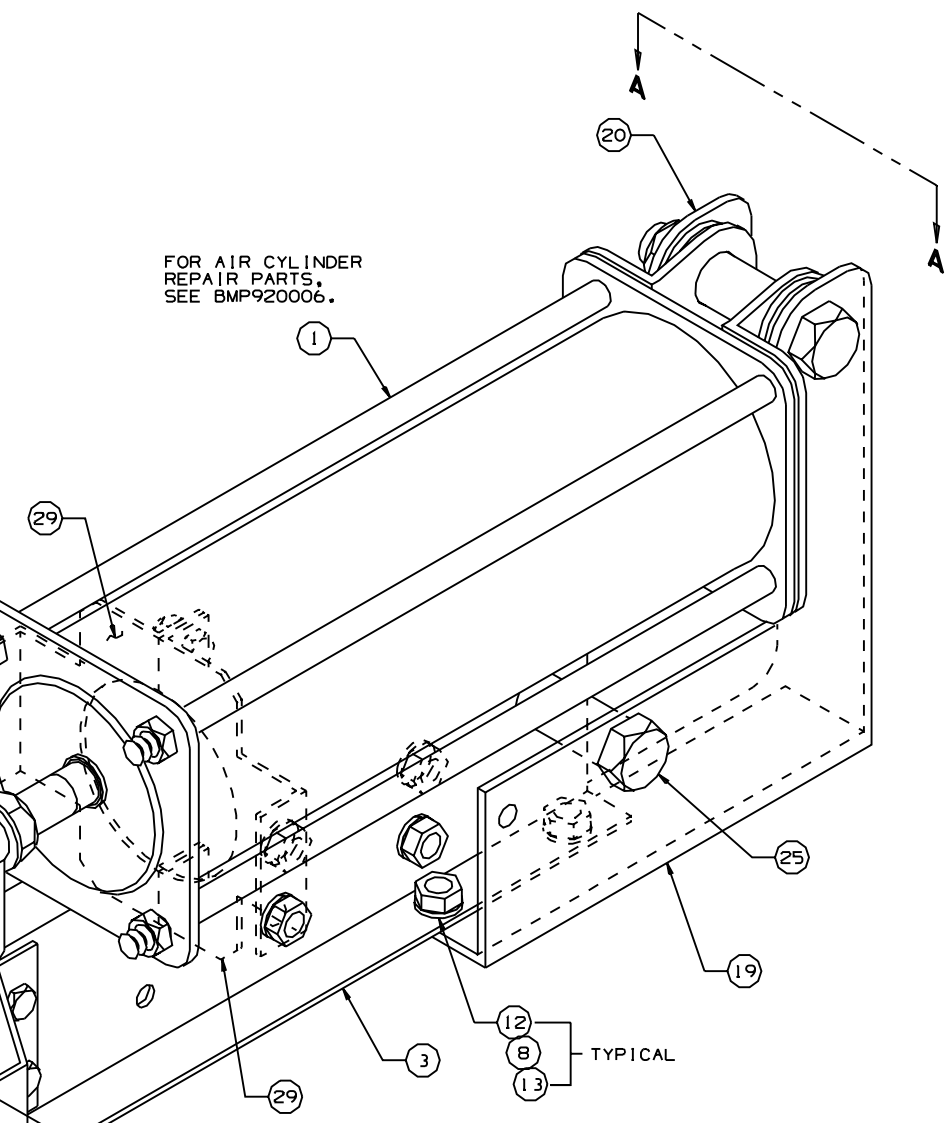
Universal Actuators & Mounting Hardware for Watts Ball Valves - New Pivot

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

Litho in U.S.A.

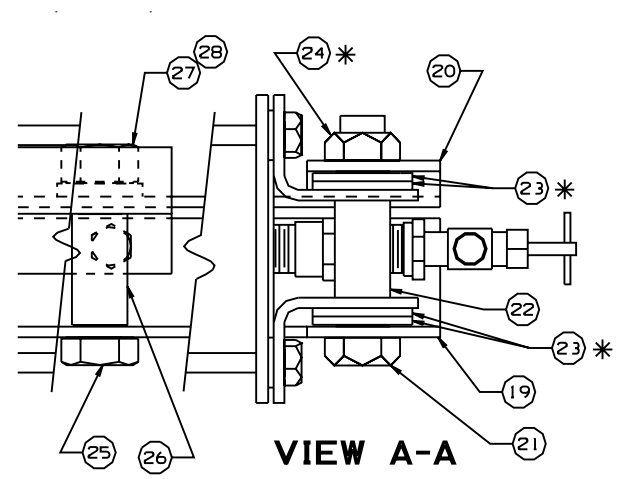


90° VALVE SET

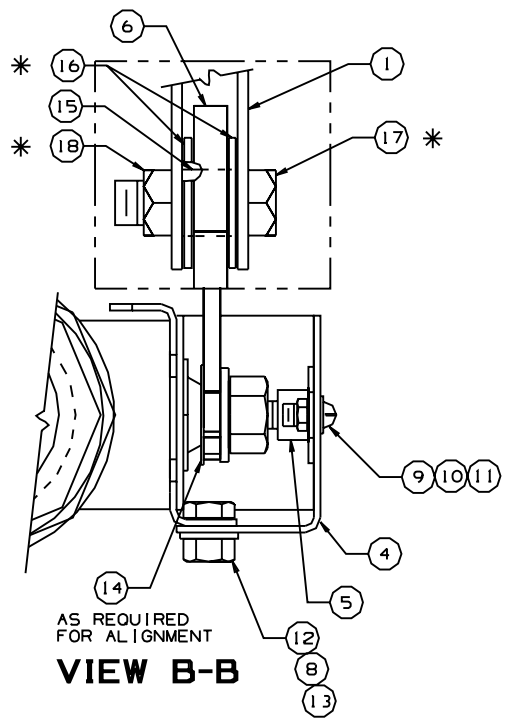


FOR PROPER ALIGNMENT OF ASSEMBLY:

1. WITH THE BALL IN ITS FULLY CLOSED POSITION AND THE ACTUATOR IN ITS FULLY RETRACTED POSITION, ADJUST ALIGNMENT NUT UNTIL THE CRANK ALIGNMENT HOLE IS 100% IN LINE WITH THE BEARING SUPPORT ALIGNMENT HOLE AND THE SOCKET HEXHEAD SCREW. THEN LOCK WITH LOCKNUT. THE ASSEMBLY MUST CLOSE 100%.

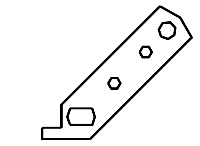


VIEW A-A

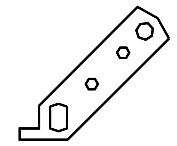


AS REQUIRED FOR ALIGNMENT

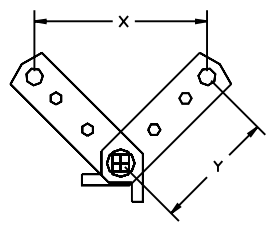
VIEW B-B



NORMALLY OPEN CRANK (ITEM 6)



NORMALLY CLOSED CRANK (ITEM 6)



STROKE DIMENSIONS

SIZE	X	Y
2" VALVES	3.89	2.75

NOTES:

1)RIGHT HAND ASSEMBLY IS SHOWN, LEFT HAND ASSEMBLY IS OPPOSITE.

2) FOR 90 DEGREE VALVE SET, VALVE IS ROTATED 90 DEGREES.

3) ASSEMBLE SO THAT THE LINKAGE IS FREE TO MOVE IN THE SPACER, THIS MEANS THAT THERE SHOULD BE DAYLIGHT BETWEEN THE CRANK AND EACH ADJACENT WASHER WITHOUT EXCESSIVE CLEARANCE.

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

Litho in U.S.A.

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	96D086SCSL	92000Z 1.25WAT BVAL+ACT/SS/NC/ST/LH	
	BG	96D086SCSR	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	93513S 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	96D088SCSR	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	96D088SCSL	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=3.0ODX3.89ST171/176CD	
DE-DG, DK-DL	1	SA 10 057D	95222# AIRCYL=3.0ODX3.89ST171/176SS	
AA-AE	2	96D085WEXS	07Z BALVAL 1" BRZ WATTS#B6400SSZ107	
AF	2	96D085WSS	07Z BALVAL 1" SS WATTS S8000-Z107	
BA-BD	2	96D086WEXS	08Z BAVAL 1+1/4BRZ WATS#B6400SSZ107	
BE-BJ	2	96D086WSS	08Z BAVAL 1+1/4"SS WATTS S8000-Z107	
CA-CC	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	3	03 01634A	94053# ACTUATOR CHANNL SUPPORT-LEFT	
AB,AD,AE, AF	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	4	03 01632A	90507# ACTUATOR BEARING SUPPRT-LEFT	
AB,AD-AF, CD	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	5	54E001PABA	89281B ASSY=1/4"PRESSBEARING	
BA-BJ, CA-CC,CF, DA-DL	5	54E002PABA	89281B ASSY=5/16"PRESSBEARING	
AA,AB,AF, CD	6	03 01631	91507B+VALVE CRANK N.C.WATTS 1.0"	
AC-AE	6	03 01631A	88381B VALVE CRANK N.O.WATTS-1.0"	
BA,BB,BE, BF,BG,CA, CB,CE	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 1/4-2OUNC2AX7/16 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	

Watts Ball Valves and Repair Kits

Pellerin Milnor Corporation
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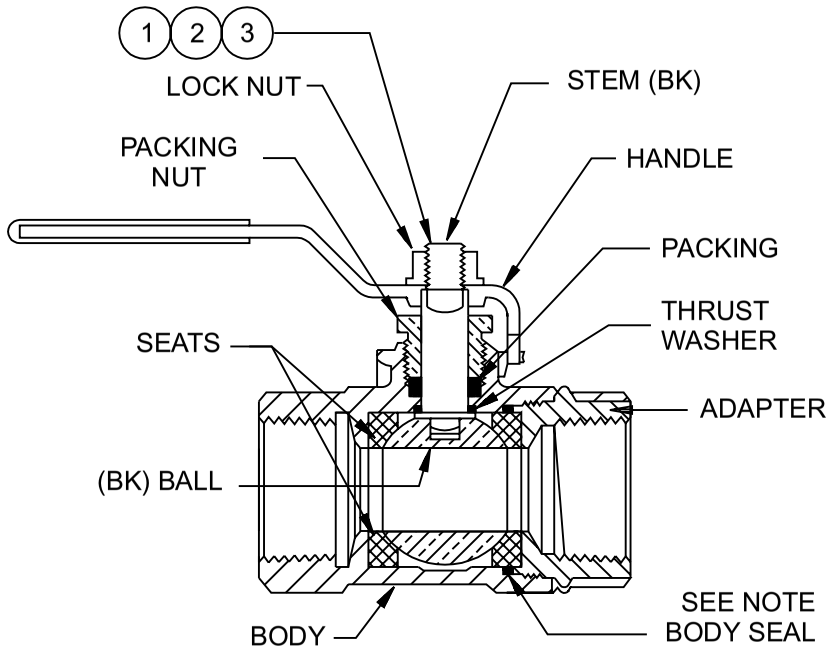
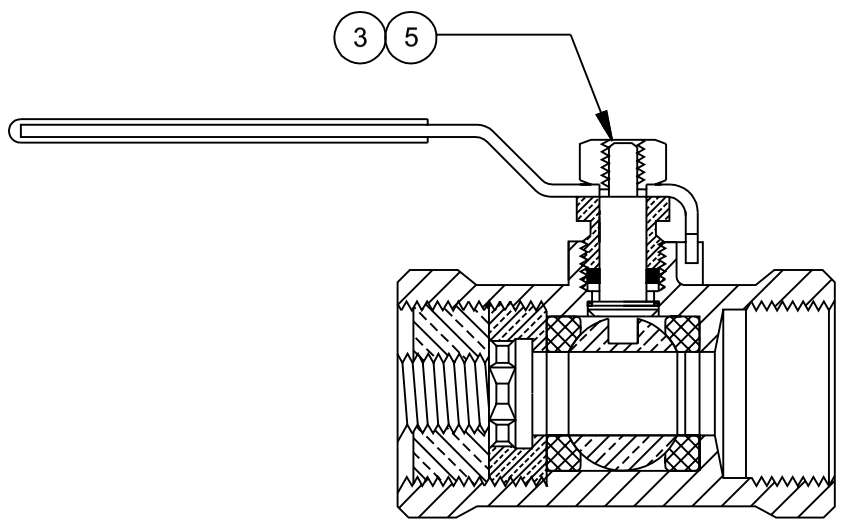
BMP920007/96067V (1 of 2)
Litho in U.S.A.

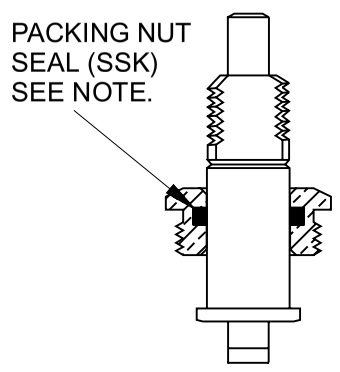
BALL VALVES WITHOUT ACTUATOR PADS FOR MANUAL OPERATION



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

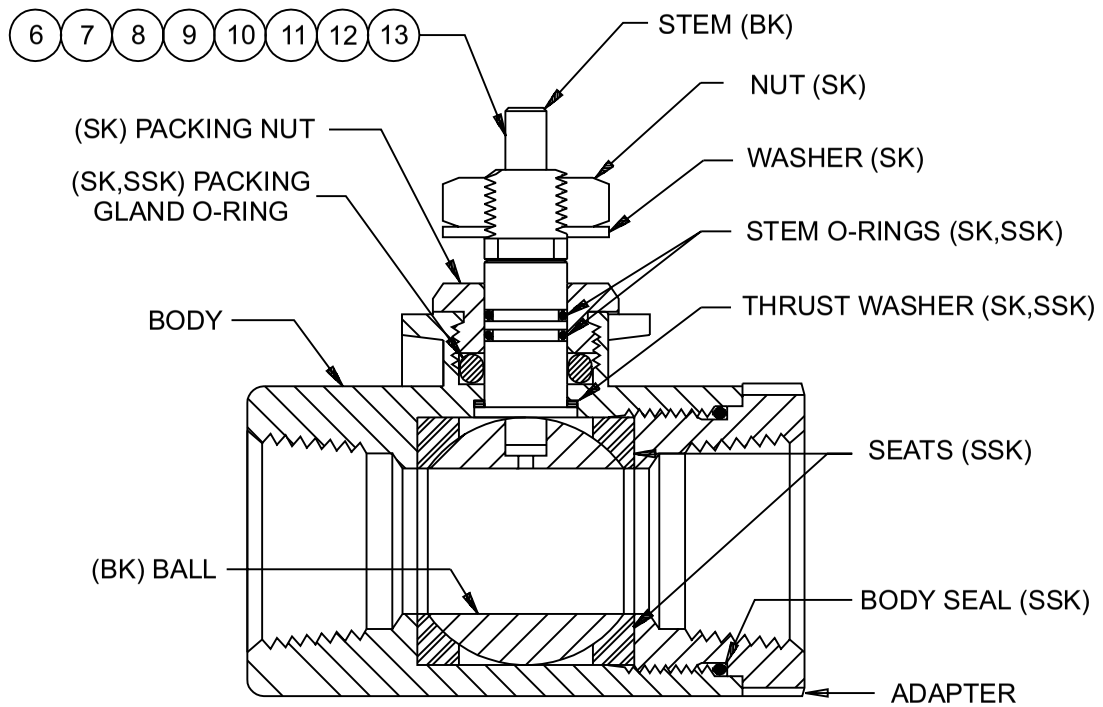


3/4",1"
BRONZE
NO REPAIR KITS



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

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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 WATS#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	

Parts List, cont.—Watts Ball Valves and Repair Kits

Used In	Item	Part Number	Description	Comments
all	008SSK	96V086SSK	02Z REPKIT 1.25BALVALSSK-02-RK-Z107	
all	9	96D086WSS	08Z BAVAL 1+1/4"SS WATTS S8000-Z107	1-1/4"STAINLESS-AIR OPER.
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 WATS#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 WAT2SSK-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 WAT2SSK-02-RK-Z107	

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

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

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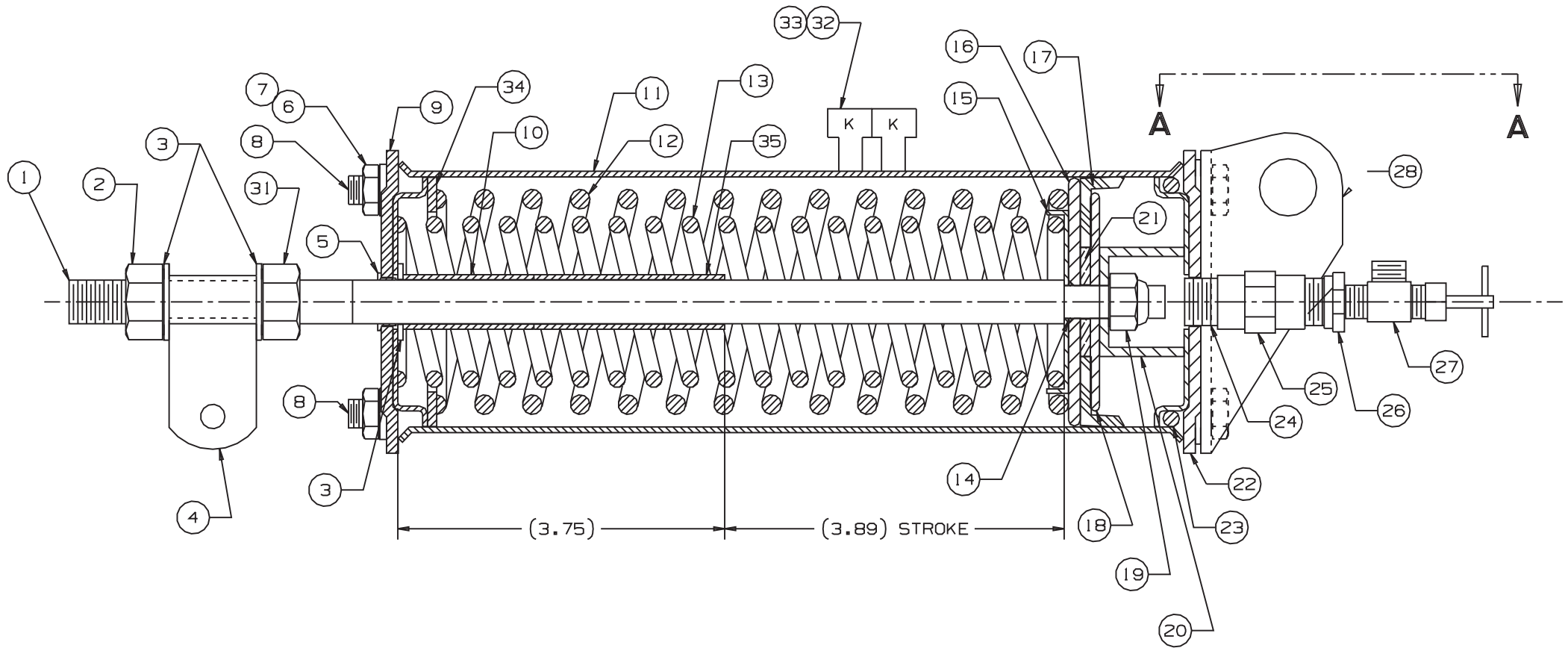

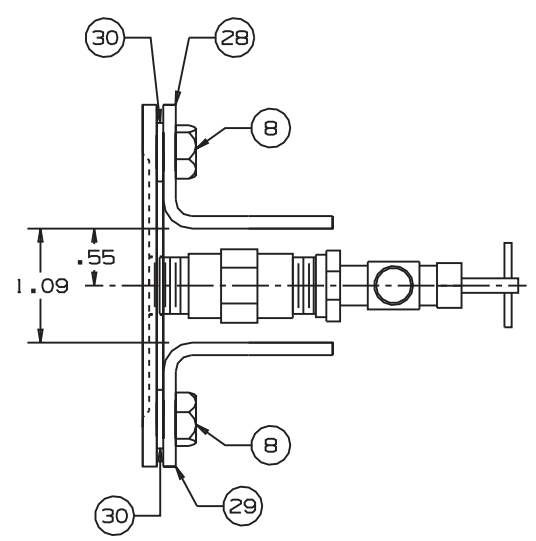

VIEW A-A

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=3.0ODX3.89ST171/176CD	FOR 2” BALLVALVES
	B	SA 10 057D	95222# AIRCYL=3.0ODX3.89ST171/176SS	FOR 2” STAINLESS BALLVALVES
	C	SA 10 056F	92000Z AIRCYL=2.38ODX2.70STX20.5#CD	FOR 1,1.25,1.5 BALLVALVES
	D	SA 10 056G	92000Z 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 BRAKE	
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	
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=BRAKE2.1OD11FL15.5#/”	
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=BRAKE1.5OD10.3FL17#/”	
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	

Parts List, cont.—Air Cylinders for 2" Watts Ball Valves

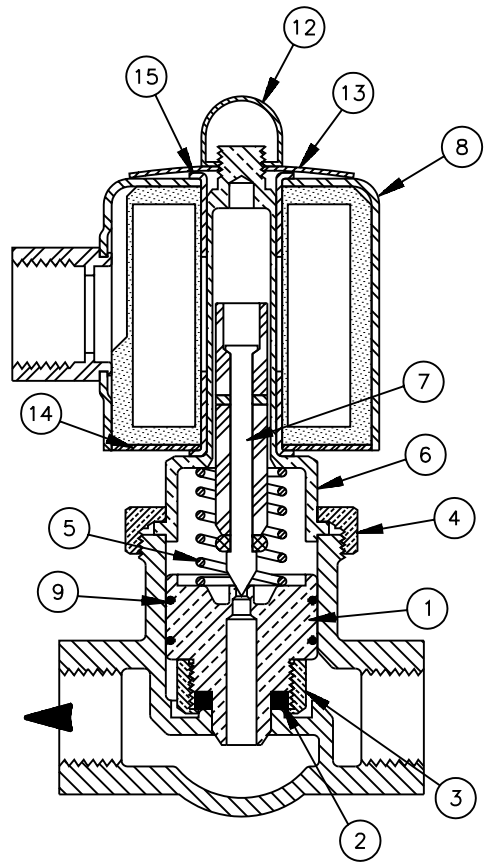
Used In	Item	Part Number	Description	Comments
C,D	15	02 18651	73171A WASHER=2 WAY BRAKE CYL	
A,B	16	X3 01619A	92066# MACH=3"ACYL BRASS PISCUP WSH	
C,D	16	02 02105B	92253B 2.38”ACYL BRASS PISCUP WASHR	
A,B	17	02 19302	93356B PISTON CUP 2+7/81D CYLINDER	
C,D	17	02 02194	93217B PISTONCUP=DUMPVALVE 2+3/8”	
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	5SCC0EBE	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	
all	32	20L601K	ID TAG NAT'L #1614 ALUM EMB LET "K"	
all	33	27B2400K0N	SPACER ROLL.5ID .687L .062T STL/ZNC	
all	34	03 01620E	92136B.WASHER=2.86ODX2.06IDX.105THK	

Hays Electric Inlet Valves

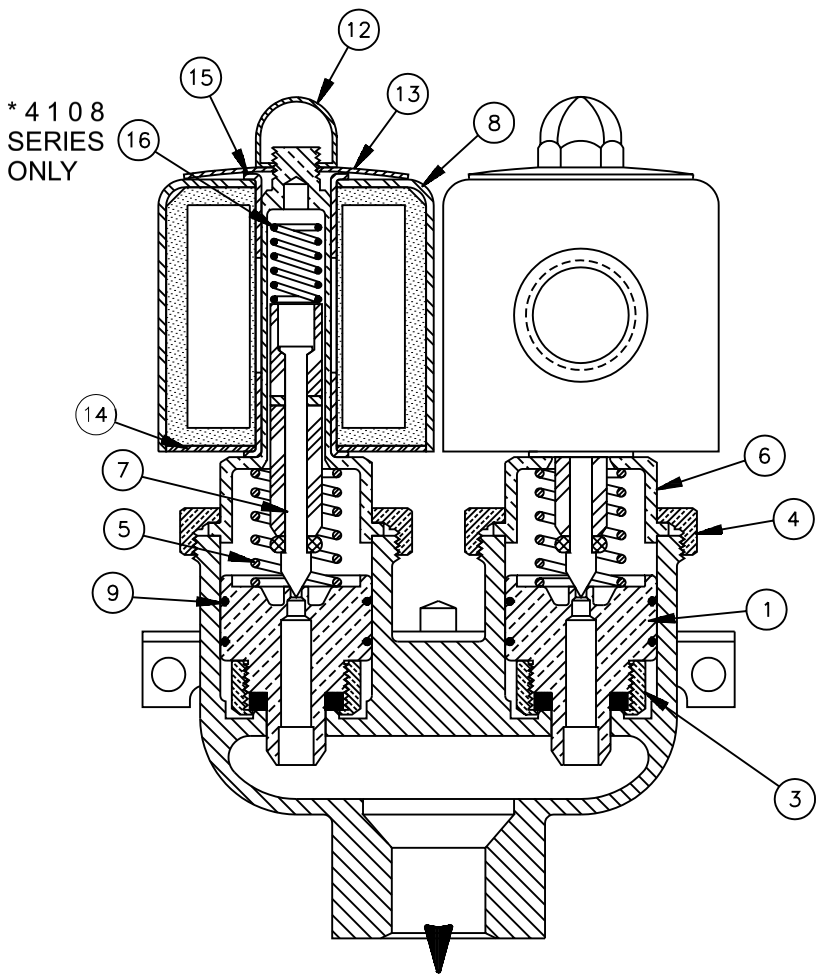
Pellerin Milnor Corporation
P. O. Box 400, Kenner, LA 70063-0400

Litho in U.S.A.

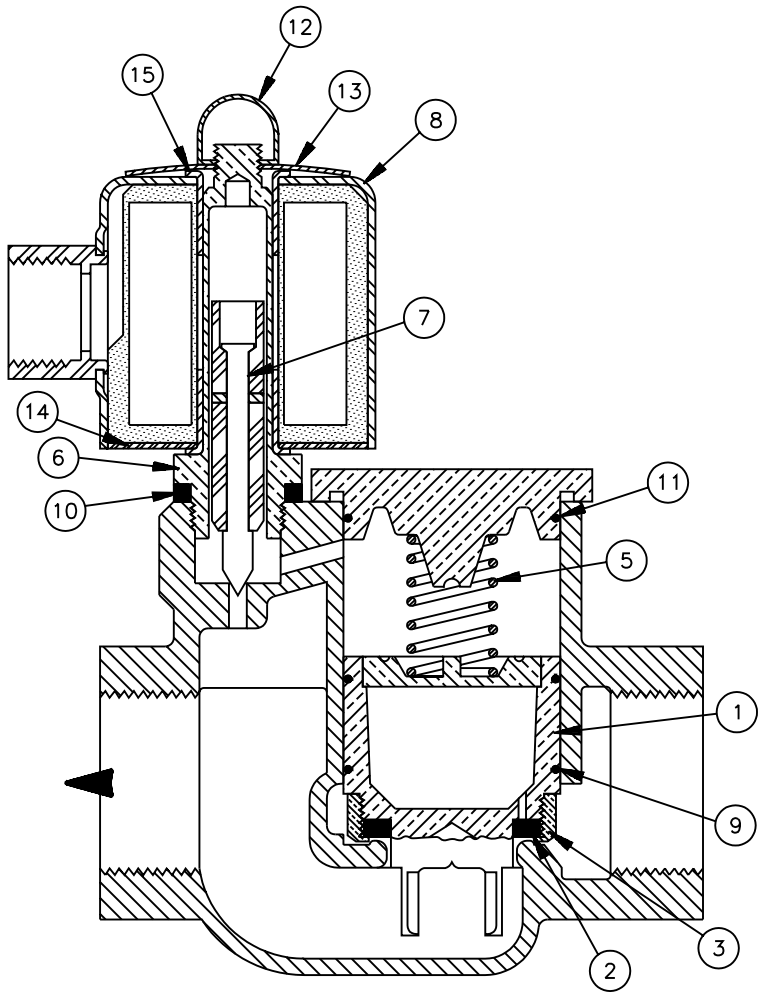
NOTE:
HAYS 4108 SERIES DUOVALVE IS REPLACED BY THE 3108 SERIES(SHOWN). IF REPLACEMENT PARTS ARE NEEDED FOR THE OBSOLETE 4108 SERIES SEE PARTS LIST ON REVERSE SIDE.



00S,00W,00X,00XX
3/8" BALANCING & 3/4" VALVES



00T,00U,00V
1/2" DUO VALVES



00Y,00Z,00ZZ
1-1/4" VALVES

GENERAL MAINTENANCE:

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

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

Pellerin Milnor Corporation
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Parts List—Hays Electric Inlet 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----------	
	S	96P014	02Z 3/8" VALVE 120V HAYS 2195-0055	
	T	96P016	10Z 1/2" DUOVAL 120V HAYS3108-6021	
	U	96P016A24	08Z 1/2" DUOVAL 24V HAYS3108-6421	
	V	96P016A71	05Z 1/2" DUOVAL 240V HAYS3108-6121	
	W	96P053	05Z 3/4"VAL 24V HAYS 2110-6421IS	
	X	96P053A37	06Z 3/4"VAL 110V HAYS #2110-6021IS	
	XX	96P053A71	3/4" HAYS VALVE 240V60/50C FACTMADE	
	Y	96P151	09Z 1+1/4" VAL 24V HAYS 2110-6421IS	
	Z	96P151A37	05Z 1+1/4" VAL 110V HAYS2110-6021IS	
	ZZ	96P151A71	1.25" HAYSVALVE 240V60/50C FACTMADE	
			----------COMPONENTS----------	
S	1	96V245	PISTON ASSY HAYS #7735505	
T-V	1	96V216	PISTON-TEFLON FOR HAYS STYLE 3108	
W-XX	1	96V222	PISTON ASSY HAYS 7730004 FOR 96P053	
Y-ZZ	1	96V224B	PISTON ASSY HAYS #7643101=96P151	
all	1	96V216A	PISTON-TEFLON FOR HAYS STYLE 4108	OBSOLETE 4108 DUOVALVE
S-V,	2	96V247	SEATWASHER HAYS #8222301 96P014+16	OBSOLETE 4108 DUOVALVE ALSO
W-XX	2	96V225	SEAT WASHER HAYS #8249801	
Y-ZZ	2	96V225A	SEAT WASHER HAYS #84048 FOR 96P151	
S-V,	3	96V248	SEATWASHER NUT HAYS#82222 96P014+16	OBSOLETE 4108 DUOVALVE ALSO
W-Z	3	96V226	SEAT WASHER NUT HAYS #86030 =96P053	
S-V	4	96V246	COUPLING NUT HAYS #76303 96P014+16	
W-Z	4	96V254	COUPLING NUT HAYS #76028 = 96P053	
S-V,Y-ZZ	5	96V244	PISTON SPRING FOR HAYS STYLE 3108	
W-XX	5	96V222A	PISTON SPRING HAYS 82488	
all	5	96V244A	PISTON SPRING HAYS 4108 HAYS #88108	OBSOLETE 4108 DUOVALVE
S-V	6	96V242	BONNET FOR HAYS 3108 HAYS#83021	
W-XX	6	96V258	BONNET HAYS #73026 FOR 96P053	
Y-Z	6	96V260	BONNET HAYS #83192 FOR 96P151	
S onlY	7	96V243	PLUNGER ASSY TEFLON TIP HAYS #74327	
T-ZZ	7	96V223	PLUNGER HAYS #7319503	
all	7	96V223A	PLUNGER ASSY FOR HAYS STYLE 4108	OBSOLETE 4108 DUOVALVE

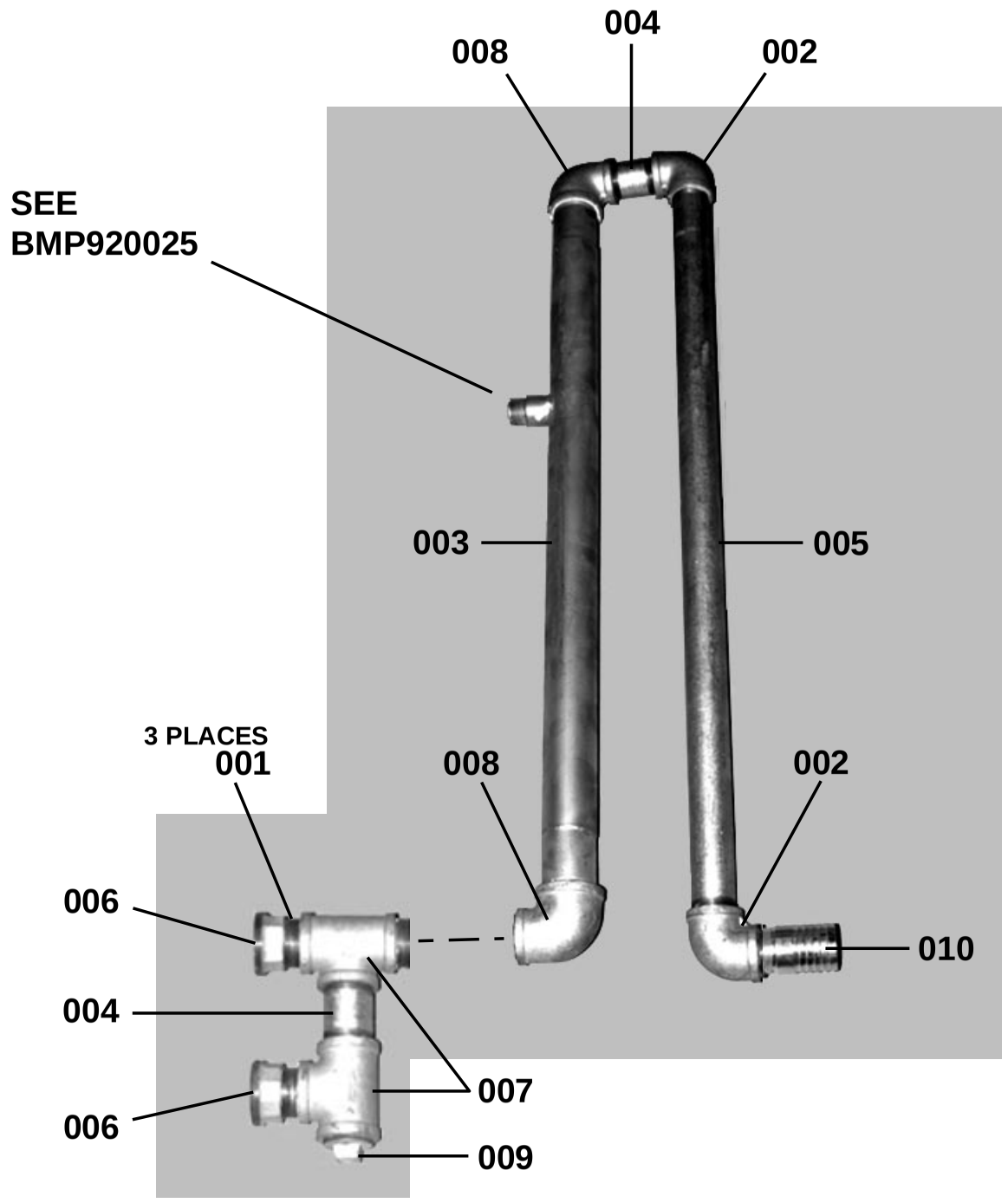
Parts List, cont.—Hays Electric Inlet Valves

Used In	Item	Part Number	Description	Comments
S-T,X,Z	8	96V211	COIL 120V50/60C FOR HAYS STYLE 3108	
U,W,Y,ZZ	8	96V210	COIL 24V50/60C FOR HAYS STYLE 3108	
V,XX	8	96V212	COIL 240V50/60C FOR HAYS STYLE 3108	
S-V,	9	96V217	TEFLON SPLIT RING 1/2" HAYS#8502901	OBSOLETE 4108 DUOVALVE ALSO
W-XX	9	96V222T	TEFLON SPLIT RING HAYS #8503002	
Y-ZZ	9	96V224T	TEFLON SPLITRING 1 1/4"HAYS#8503102	
Y-ZZ onlY	10	96V229	BONNET GASKET HAYS #82224= 96P151	
Y-Z onlY	11	96V261	O-RING (SEAL CAP) HAYS#87407=96P151	
all	12	96V250	PALNUT HAYS #3069-PC	
all	13	96V251	SPRING WASHER HAYS #83600	
all	14	96V264	BOTTOM PLATE (COIL) HAYS#8223601	
all	15	96V262	FERRULE (COIL SLEEVE) HAYS #82239	
all	16	96V244PS	PLUNGER SPRING FOR HAYS STYLE 4108	OBSOLETE 4108 DUOVALVE ONLY
all	17	96V250A	COIL RETAINER HAYS4108 HAYS #82958	(NOT SHOWN) OBSOLETE 4108 DUOVALVE

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

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

FLOW METER PIPING
64046E6N/J6N 72046E5N/J5N 72058J5N



LITHO IN USA

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

PARTS LIST
(See other page for drawing.)

FLOW METER PIPING
64046E6N/J6N 72046E5N/J5N 72058J5N

ITEM	PART NUMBER	DESCRIPTION	HOW PART IS USED IN ASSEMBLY (Only if pertinent)
00A	AVW65006	94052B ASSY=FLOWMETER PIP 6446E/T6N	REFERENCE ASSEMBLY
001	5N2ACLSG42	NPT NIPPLE 2XCLS TBE GALSTL SK40	
002	5SL2ANFA	NPT ELBOW 90DEG 2" GALMAL 150#	
003	W3 64077	92631C*FLOWMETER MANIFOLD	
004	5N2A04AG42	NPT NIPPLE 2X4 TBE GALSTL SK40	
005	5N2A48AG42	NPT NIPPLE 2X48 TBE GALSTL SK40	
006	5SU2ANF	NPT UNION 2" GALMAL 150#	
007	5S2ANFA	NPT TEE 2" GALMAL 150#	
008	5SL2KNFA2A	NPT ELBOW 90DEG 2.5X2" GALMAL 150#	
009	51P060	PLUG PIPE SQ 2"GALCORED CI 125#	
010	02 15847C	85426B ADAPTER,CARBSTL2-1/2HOSX2NPT	
		******** 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.

LITHO IN USA

Paddlewheel Flow Sensor

Pellerin Milnor Corporation
P. O. Box 400, Kenner, LA 70063-0400
BMP920025/92662V (1 of 2)
Litho in U.S.A.

Identification and Description

The flow sensor is installed in a pipe line to measure flow rate. The flow passing by the flow sensor paddlewheel rotates the paddlewheel, moving the magnets past a coil in the transducer body. An AC voltage is induced in the coil by the rotating magnets of the paddlewheel.

Both frequency and amplitude of the output of the coil are directly proportional to the velocity of the fluid flow in the pipe. A complete cycle occurs every time two of the paddlewheel blades go by the coil; therefore, two entire cycles are generated for each paddlewheel rotation.

Safety Instructions

⚠ DANGER ⚠

SHOCK HAZARD will cause death or severe injury.

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

⚠ CAUTION ⚠

Turn off fluids before removing flow sensor from pipe line.

Maintenance

The flow sensor requires minimal care. Check your flow sensor every three months until actual maintenance intervals can be determined. After removing flow sensor:

1. Paddlewheel must turn freely, if not, see troubleshooting below.
2. Inspect flow sensor electrical connections and cable.
3. Check O-rings and lubricate with G.E. Silcone Compound G660 or similar. Keep paddlewheel and pin free of lubrication (replacement paddlewheels and other parts are available from manufactuer).

Troubleshooting

The paddlewheel is designed to rotate on the shaft; the shaft should not rotate with respect to the housing. The paddlewheel must turn freely. If it does not, clean the paddlewheel assembly as follows:

1. Remove the flow sensor from the pipe and insert the plug into the pipe fitting. Clean any external debris from the paddlewheel.
2. Using a small flat-bladed screwdriver, gently pry one of the paddlewheel mounting ears away from the pin (see FIGURE 2).
3. When one end of the pin is free, gently work the paddlewheel and pin out of the remaining mounting ear.
4. Throughly clean the pin, paddle, and pin holes with a wire brush and/or toothpick along with alcohol and/or soap and water.
5. To reinstall the paddlewheel and pin, reverse steps 1, 2, and 3.
6. After cleaning, the paddlewheel should spin freely without binding or sticking.

FIGURE 2: REMOVAL OF PADDLEWHEEL PIN

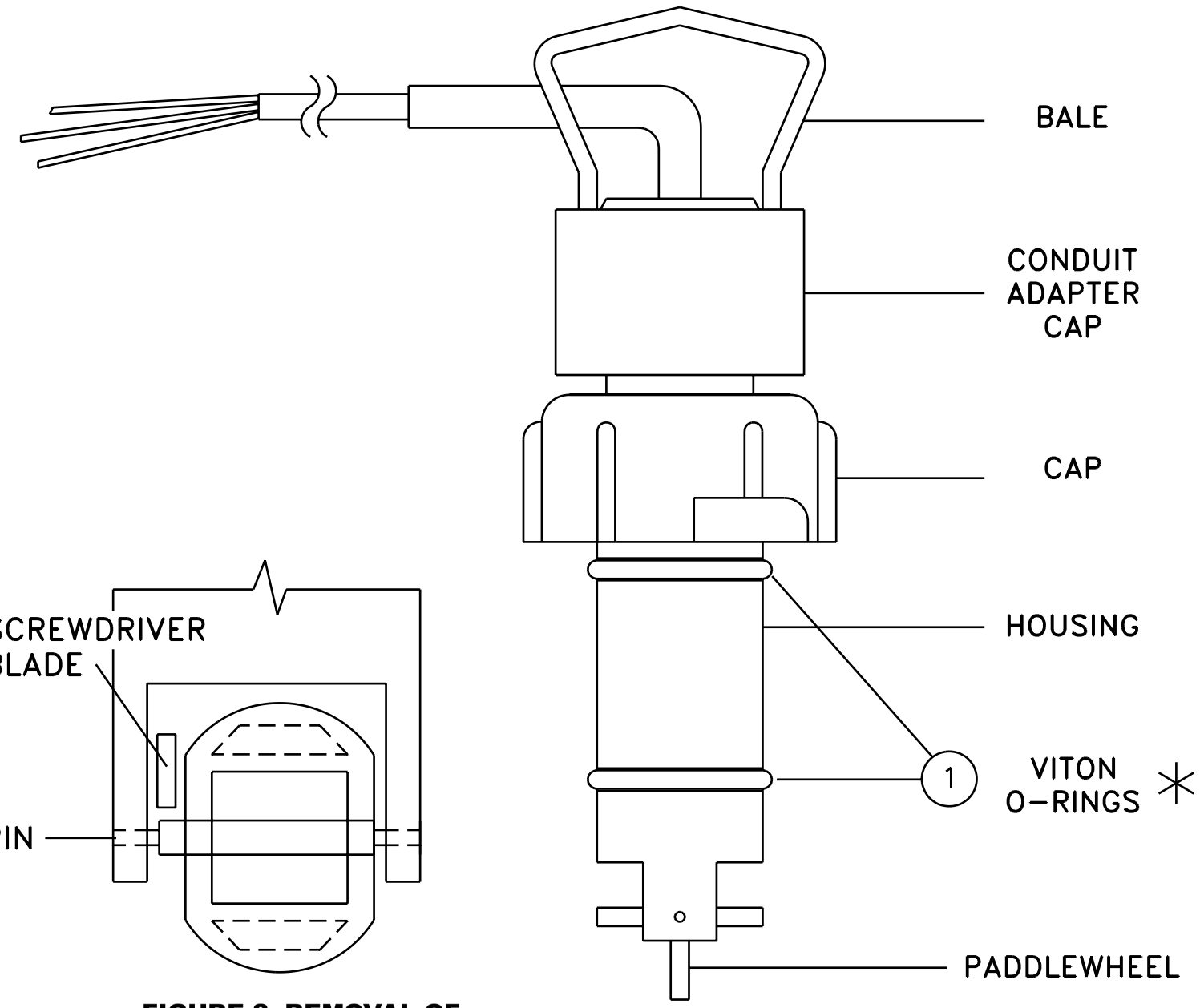


FIGURE 1: FLOW SENSOR

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

Litho in U.S.A.

Parts List—Paddlewheel Flow Sensor

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
	00A	30F515	FLOW SENSOR SIGNET #MK515-PO	COMPLETE FLOW SENSOR
	001	30F515R01	VITON O-RING FOR FLOW SENSOR SIGNET	REPAIR KIT O-RINGS (2PER)

Parts List, cont.—Paddlewheel Flow Sensor

Used In	Item	Part Number	Description	Comments

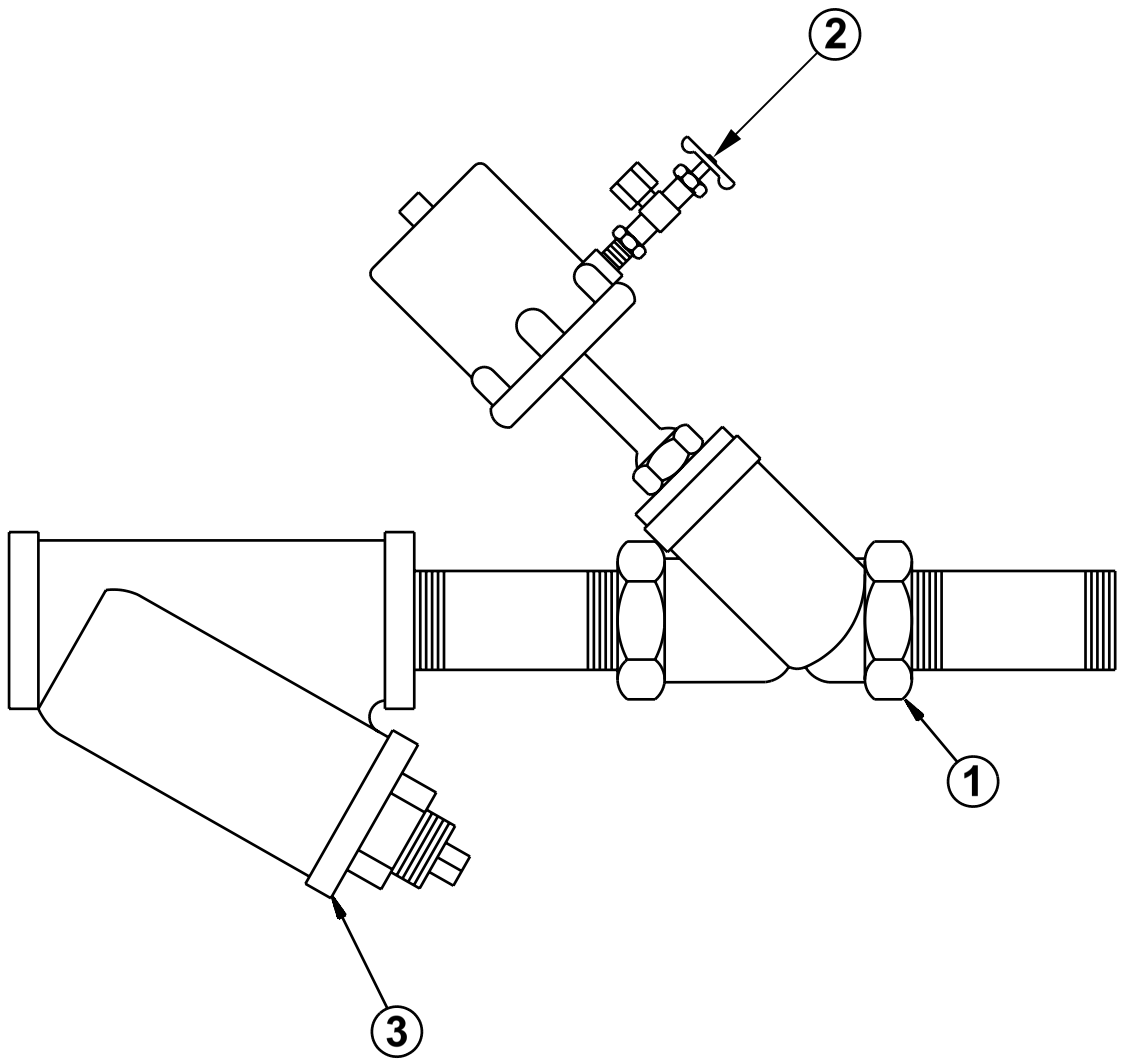
Section 11

Steam

Burket Steam Valve

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

Litho in U.S.A.



Parts List—Burket Steam Valve

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

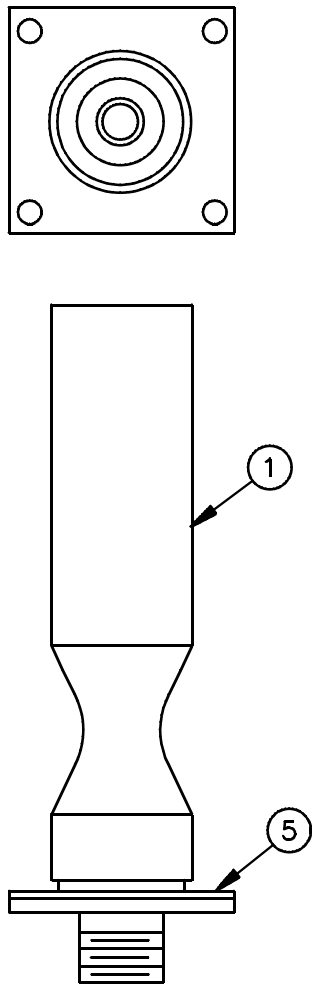
Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	W	96D0009ER1	02Z REPAIRKIT 3/4" STEAM VALVE	KIT FOR 001A
	X	96D0011ER1	02Z REPAIR KIT 1.25" STEAM VALVE	KIT FOR 001B
	Y	96D0011ER2	ACTUATOR HOUSING FOR BURKET #251	KIT FOR 001B
	Z	96D0011ER3	REPAIR KIT MULLER 1.25 VALVE #554	KIT FOR 001B
			----------COMPONENTS----------	
all	1	96D0009E	03Z 3/4"NPT N/C STEAMVAL ANGLE BODY	3/4"
all	1	96D0011E	08Z 1/25"NPT N/C STEAMVAL ANGLEBODY	1-1/4"
all	2	96H018	NEEDLE VALVE	
all	3	51T030	01Z Y-STRAINER 3/4" CAST IRON	USED WITH 001A
all	3	51T060	01Z Y-STRAINER 1+1/4" CAST IRON	USED WITH 001B

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

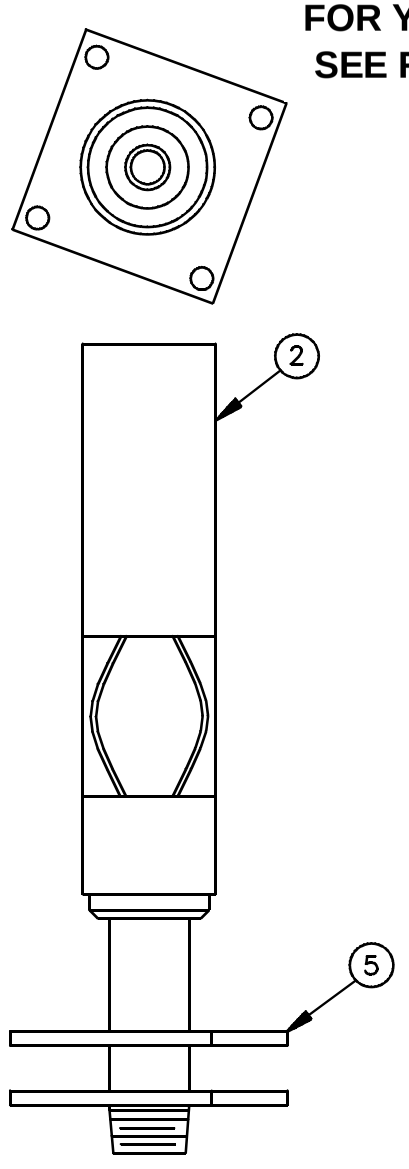
DRAWING
(See other page for parts list, if applicable.)

STEAM SPARGER ASSEMBLIES

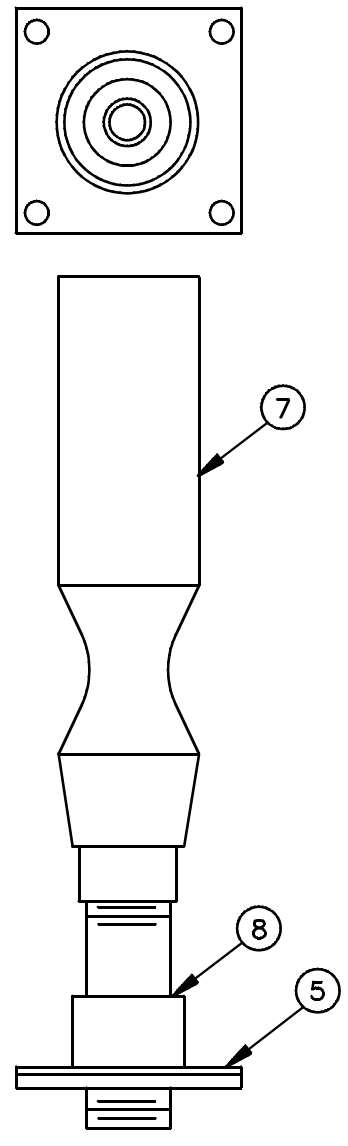
NOTE: TO DETERMINE ASSEMBLY NUMBER FOR YOUR MACHINE SEE REVERSE SIDE



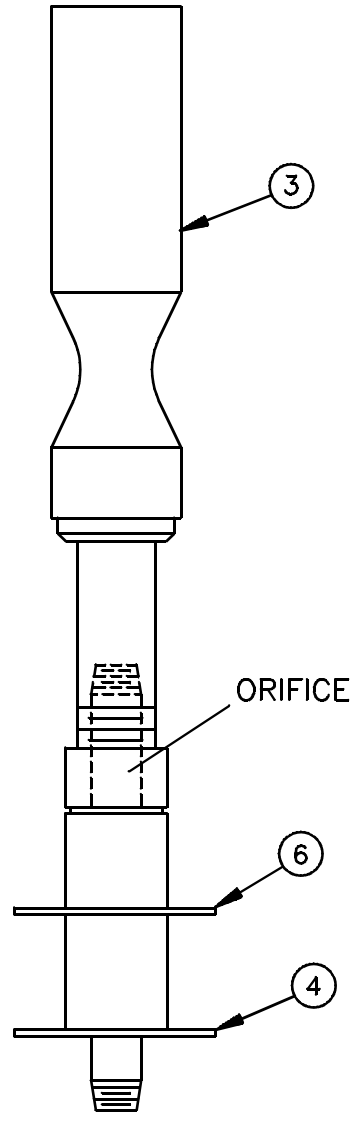
ASS14001
ASS25001
ASS52001
ASS52001D
ASS65001



ASS29001



ASS64001



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

LITHO IN USA

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

PARTS LIST
(See other page for drawing.)

STEAM SPARGER ASSEMBLIES

ITEM	PART NUMBER	DESCRIPTION	HOW PART IS USED IN ASSEMBLY (Only if pertinent)
00A	ASS14001	91533@*STM SPARGER 5/8 ORIFICE 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 SPARGER3/40RFICE	7244DBN,WTL,WTN
00D	ASS52001D	900921*72TILT/DYE/DAN ST.SPAR 3/40R	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 3/40RFICE TPIPE	6446E6N,J6N 7258J5N
00H	ASS60005A	92612T*ASSY=STM MIXER .5 ORF-24.5"L	CBW .5" ORIFICE 24.5"L
00I	ASS60006A	92612#*ASSY=STM MIXER .75 ORF-24.5L	CBW .75" ORIFICE 24.5"L
00J	ASS60007A	92612T*ASSY=STM MIXER .5 ORF-21.5"L	CBW .5" ORIFICE 21.5"L
00K	ASS60008A	92612#*ASSY=STM MIXER .75 ORF-21.5L	CBW .75" ORIFICE 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	00A-00G
		******** END OF PARTS LIST ********	

LITHO IN USA

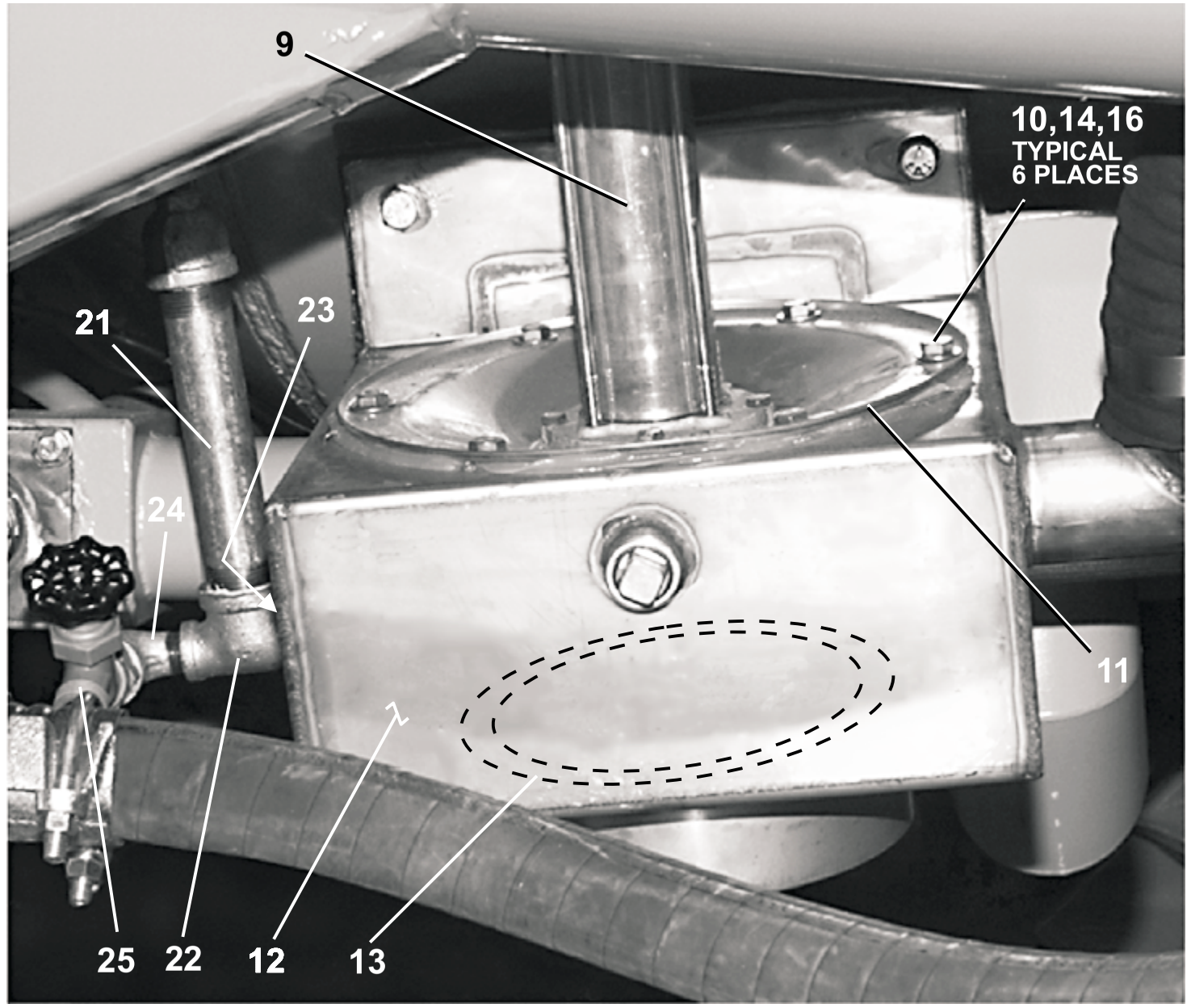
Section 12

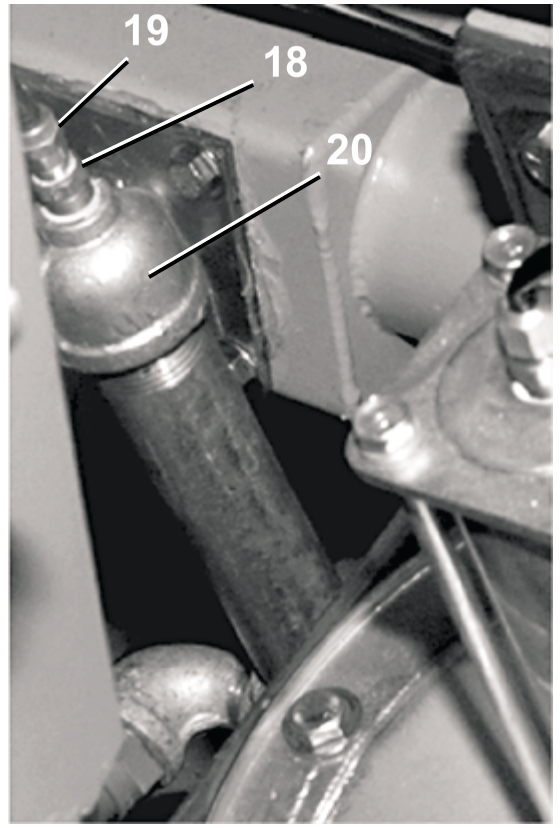
Drain

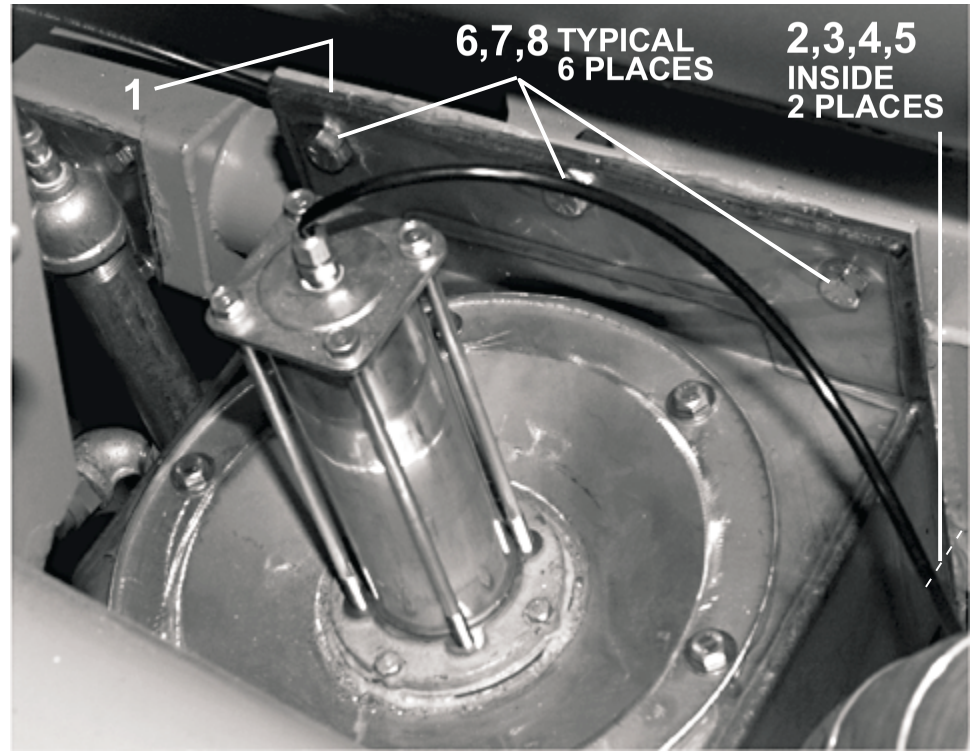
8” Dump Valve Assembly & Installation

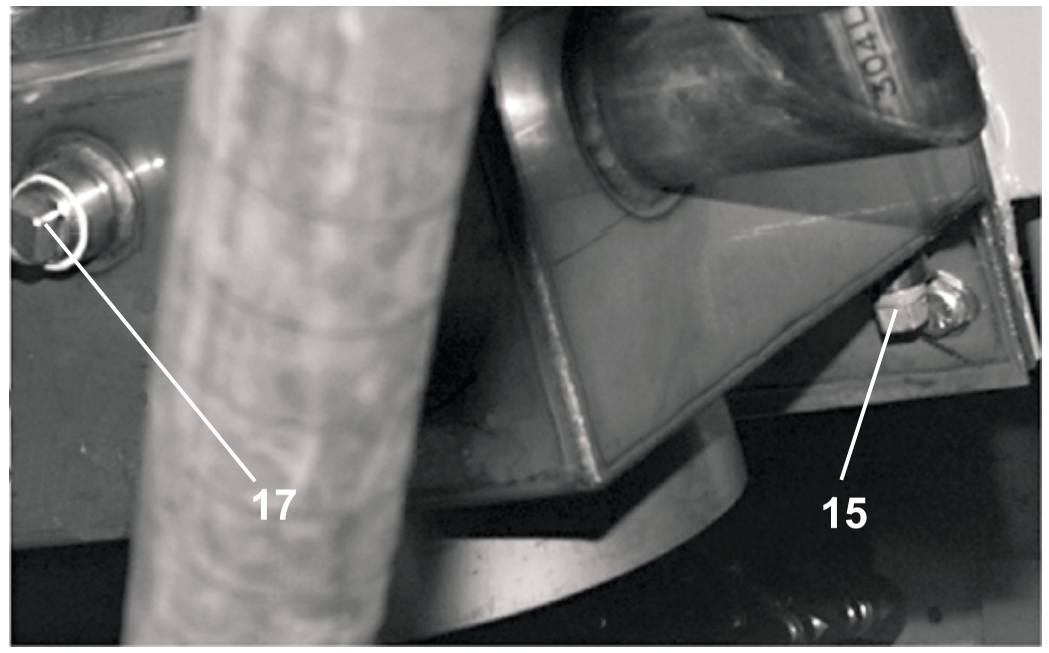
Pellerin Milnor Corporation
P. O. Box 400, Kenner, LA 70063-0400

Litho in U.S.A.









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

Parts List—8” Dump Valve Assembly

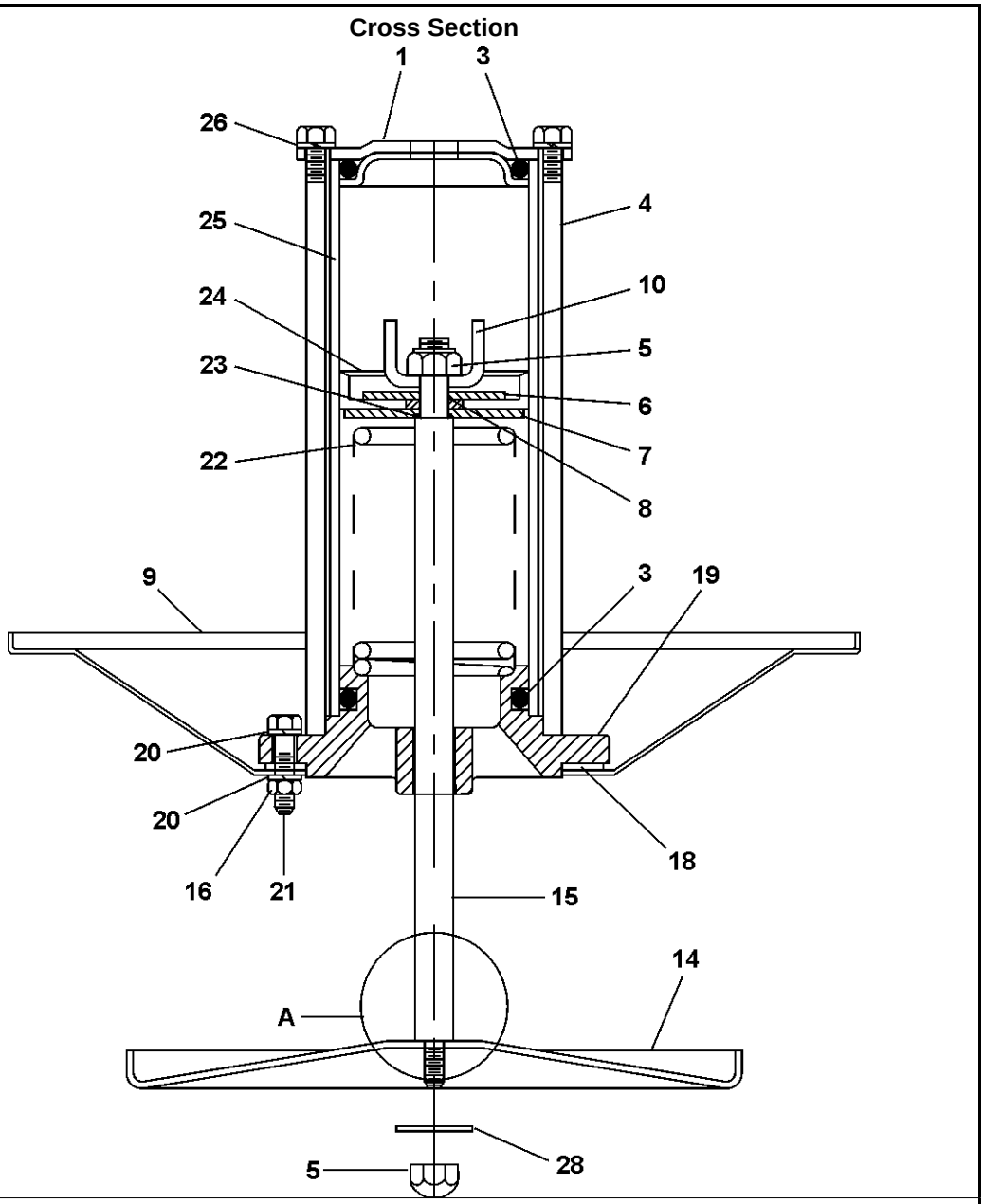
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	GVD65001J	INST=8"DUMPVAL DBLACTB 6446J	64046J6N,7258J2N
	B	GVD60001	INSTALL=8”DUMPVAL 6440E6N	64040,64050
	C	GVD65001	INSTALL= 8"DUMPVAL 6446E6N	64046,72046,72058
	D	AVD65001	ASSY= 8" DUMPVAL 6446E6N	64040,64050 64046,72046,72058
	E	AVD65001J	ASSY=8"DUMPVAL DBLACTB 6446J	64046J6N,7258J2N
	F	AD 15 090A	AIRCHAMBER PRESWITCH INSTALL	ALL MODELS
	G	SA 28 124	8”SGL DMPVALVE 4244+52+60	4244,5238,6044
			----------COMPONENTS----------	
A,B,C,G	1	02 18107	GASKET=8"FLANGED DUMP VALVE	
A,B,C	2	15K153	HXPSCR 1/2 WCX1.25S.S.	
A,B,C	3	24G032N	ROLLED WASH.50ID NYLTITE 50W	
A,B,C	4	15U310	LOKWASHER REGULAR 1/2 SS18-8	
A,B,C	5	5SP0KGFSS	NPT PLUG 1/2 SOSOLID GALSTL	
A,B,C	6	15K151	HXCAPSCR 1/2-13UNC24X1.25 GR5	
A,B,C	7	15U300	LOKWASHER REGULAR 1/2 ZINC PLT	
A,B,C	8	15G230	HXNUT 1/2-13UNC2B SAE ZINC GR2	
D,E,G	9	SA 28 158	* BONNET+AIRCYL=8"SS DUMPVALV	
E	9	SA 28 158J	ASSY=DBL ACT 8"SS BON+AIRCYL	
D,E,G	10	24G030N	ROLLED WASH.379ID NYLTITE 37W	
D,E,G	11	02 18104	GASKET=8"DUMP VALVE BONNET	
D,E,G	12	W2 18931C	*BODY=8" DUMPVALVE 6446E6N	
D,E,G	13	02 18068	9 SEAT-RESILIENT=8"DUMPVALVE	
D,E,G	14	15K086	HXCAPSCR 3/8-16NCX3/4 SS18-8	
D,E,G	15	5SP0KGFSS	NPT PLUG 1/2 SOSOLID GALSTL	
D,E,G	16	15U200	FLATWASHER(USS STD) 5/16"ZNC P	
D,E,G	17	5SP0PBESC	PLUG PIPE SQ 3/4" BRASS CORED	
F	18	5SB0E0CBEO	NPTHEXBUSH 1/4X1/8 BRASS 125#	
F	19	53A047H	MALCON 5/16X1/8POLY PH#68P-5-2	
F	20	5SR1A0ENF	NPT RED 1X1/4 GALMAL 150#	
F	21	5N1A07AG42	NPT NIP 1X7 TBE GALSTL SK40	
F	22	5S0KNFA1A	NPT TEE 1/2X1/2X1" GALMAL 150#	
F	23	5N0KCLSG42	NPT NIP 1/2XCLS TBE GALSTLSK40	
F	24	5SL0PNFC0K	NPT 90D STREET 3/4X1/2 GAL150#	
F	25	96DB0PNA	HOSEBIBB 3/4" MALEINLT CELCON	

BIIFGM28 (Published) Book specs- Dates: 20100722 / 20100722 / 20100806 Lang: ENG01 Applic: IFG

Bonnet Assembly

Figure 1: Bonnet and air cylinder



Legend

A. Detailed views: Bumper, O-ring, Washer

Figure 2: Detailed views: Bumper, O-ring, Washer

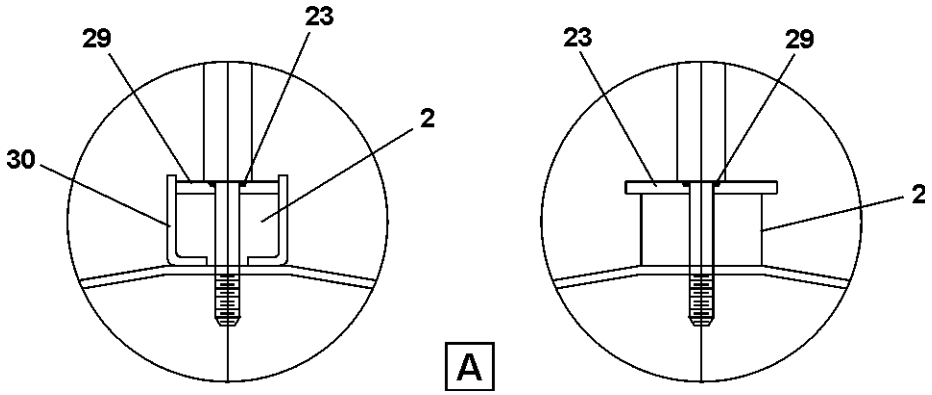


Table 1: Parts List—Bonnet Assembly

Find the assembly for your machine and the letter shown in the "Item" column. The components for your machine will show this letter or the word "all" in the "Used In" column. The numbers shown in the "Item" column are those shown in the illustrations.				
Used In	**Item**	**Part Number**	**Description/Nomenclature**	**Comments**
Assemblies				
	A	SA 28 158	Assembly, Bonnet and air cylinder	
Components				
all	1	02 02101	Cylinder head	
all	2	02 16021C	Bumper	
all	3	60C132	O-ring, 2X3/16	
all	4	02 10585D	Bolt, 5/16-18X7.875	
all	5	15G220	Nut, 3/8-24	
all	6	02 02085	Washer, Upper, .381X2"	
all	7	02 02105B	Washer, Piston cup, .378X2.38"	
all	8	02 02185	Washer, Compression limit, .39X3/4"	
all	9	02 18931E	Casting, Bonnet	
all	10	03 01313	Stop	
all	14	02 18796	Disk	
all	15	02 16021I	Stem	
all	16	15G168	Nut, 1/4-20	
all	18	02 18931F	Gasket	
all	19	X2 02743	Bonnet	
all	20	24G020N	Washer, Nylon, 1/4	
all	21	15K041S	Bolt, 1/4-20X1	
all	22	03 06429	Spring	
all	23	60C106	O-ring, 5/16X1/16	
all	24	02 02194	Piston cup, 2+3/8"	
all	25	02 02068	Air cylinder	
all	26	15U210	Washer, Lock, 5/16	
all	28	15U245	Washer, Flat, 3/8"	
all	29	02 16021E	Washer, 3/8X1.25	
all	30	02 16021D	Retainer	

— End of BIIFGM28 —

Dual Dump Valve Assembly

64046E6N/J6N/D6N 7258J2N

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

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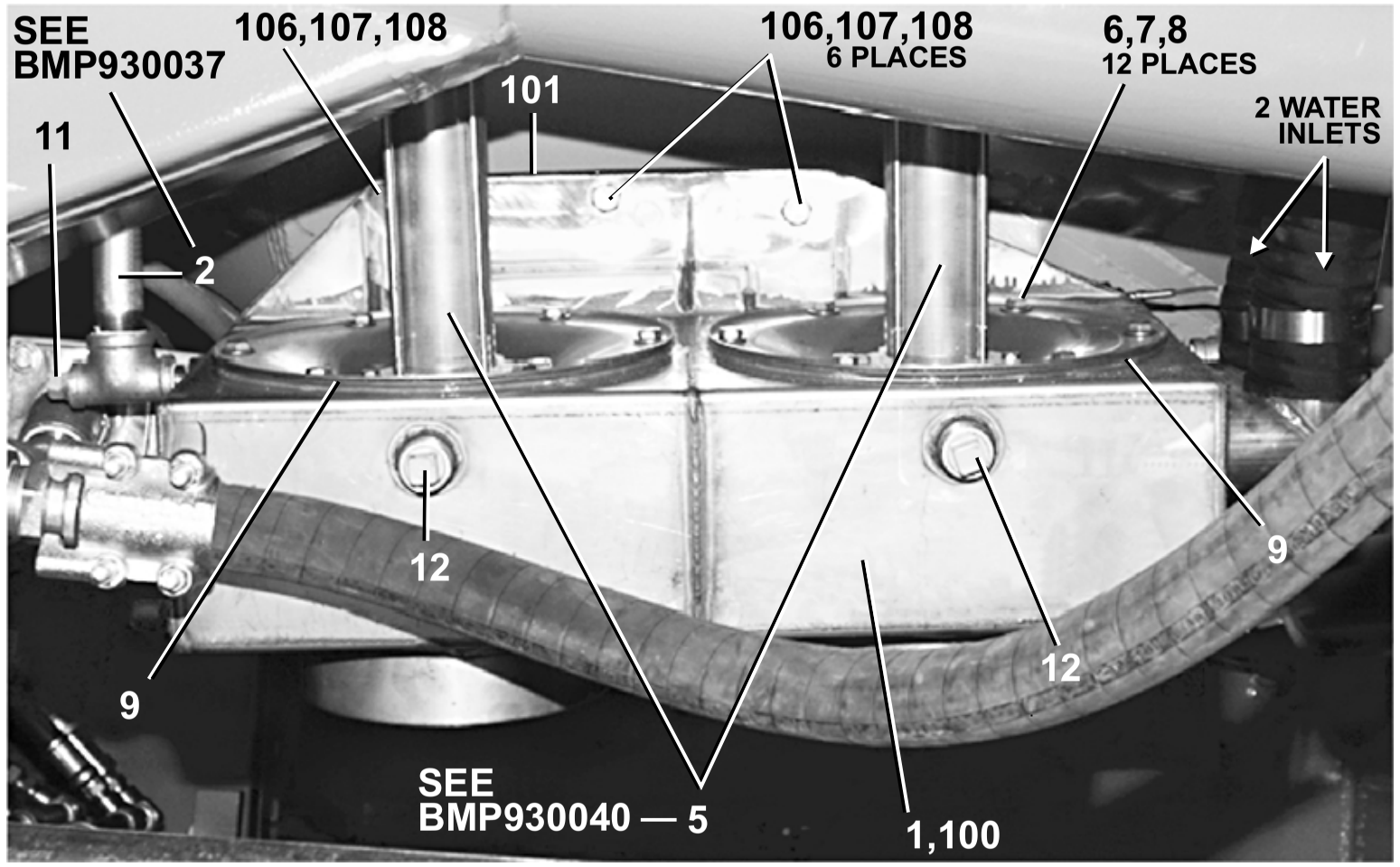

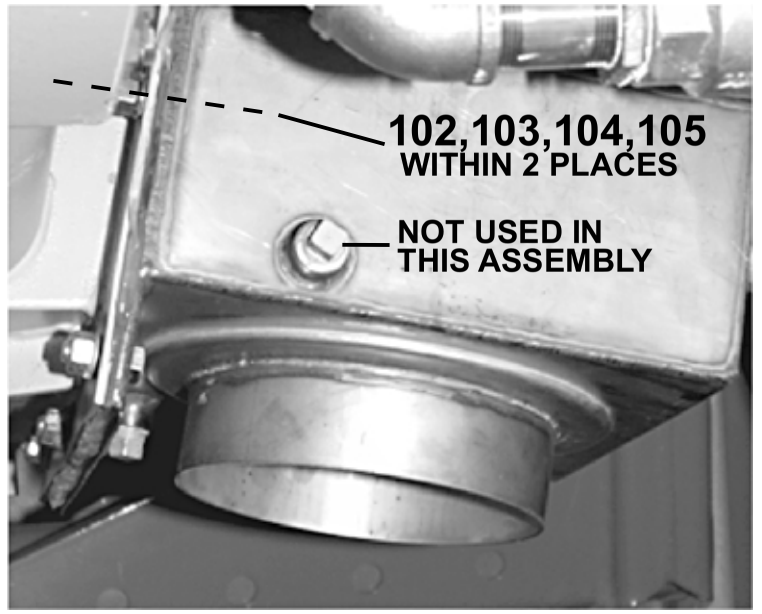

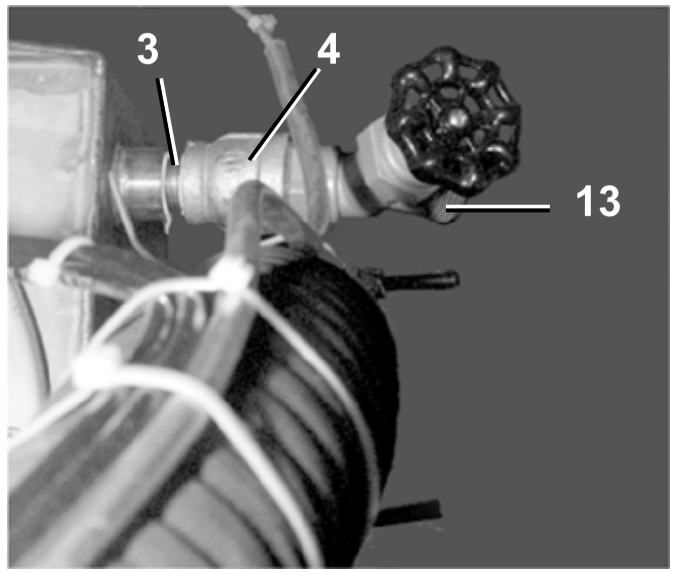

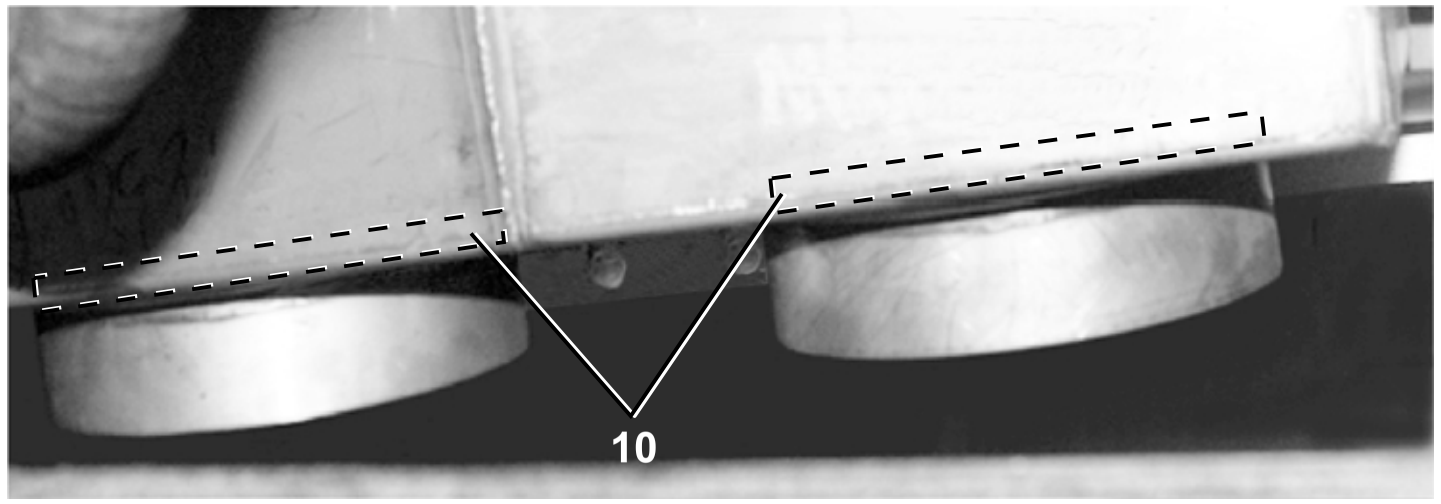

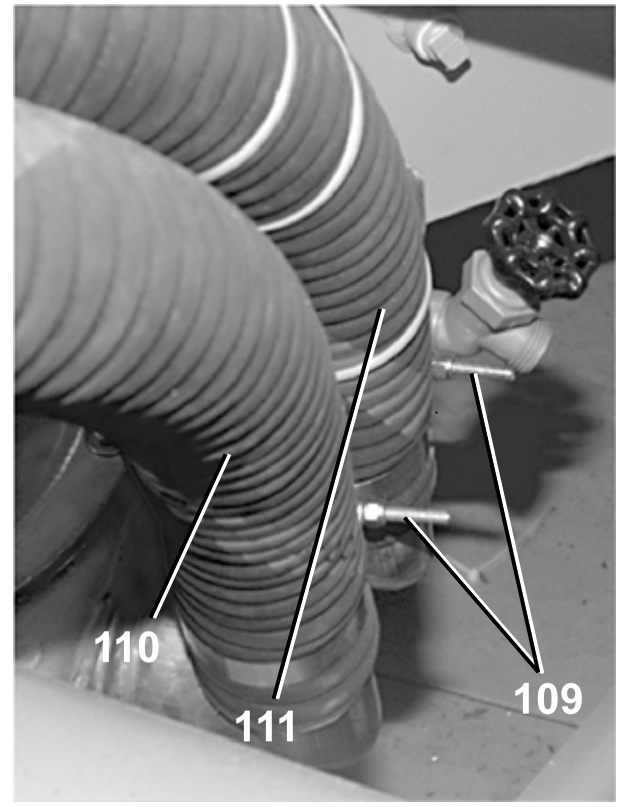

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Parts List—Dual Dump Valve Assembly

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	AVD65002	92000Z ASSY=DUAL-DUMPVAL 6446E6N	
	B	AVD65002J	ASSY=DUALDMPVL DBLACTB 6446J	
			----------COMPONENTS----------	
A	1	W2 18931F	*BODY, 8"DUALDUMP=6446E6N	
B	1	W3-65500B	*BODY 8"DUALDUMP 11GA	
all	2	AD 15 090A	AIRCHAMBER PRESWITCH INSTALL	
all	3	5N0KCLSG42	NPT NIP 1/2XCLS TBE GALSTLSK40	
all	4	5SR0P0KNF	NPT RED 3/4X1/2 GALMAL 150#	
A	5	SA 28 158	* BONNET+AIRCYL=8"SS DUMPVALV	
B	5	SA-28-158J	ASSY=DBL ACT 8"SS BON+AIRCYL	
all	6	24G030N	ROLLED WASH.379ID NYLTITE 37W	
all	7	15K086	HXCAPSCR 3/8-16NCX3/4 SS18-8	
all	8	15U200	FLATWASHER(USS STD) 5/16"ZNC P	
A	9	02 18104	GASKET=8"DUMP VALVE BONNET	
B	9	02 18104D	GSKT=8"DPVAL BON RED SILICON	
A	10	02 18068	9 SEAT-RESILIENT=8"DUMPVALVE	
all	11	5SP0KGFSS	NPT PLUG 1/2 SOSOLID GALSTL	
all	12	5SP0PBESC	PLUG PIPE SQ 3/4" BRASS CORED	
all	13	96DB0PNA	HOSEBIBB 3/4" MALEINLT CELCON	
all	101	02 18107	GASKET=8"FLANGED DUMP VALVE	
all	102	15K153	HXPSCR 1/2 WCX1.25S.S.	
all	103	24G032N	ROLLED WASH.50ID NYLTITE 50W	
all	104	15U310	LOKWASHER REGULAR 1/2 SS18-8	
all	105	15G225	HEXNUT 1/2-13UNC2 SS18-8	
all	106	15K151	HXCAPSCR 1/2-13UNC24X1.25 GR5	
all	107	15U300	LOKWASHER REGULAR 1/2 ZINC PLT	
all	108	15G230	HXNUT 1/2-13UNC2B SAE ZINC GR2	
all	109	27A075	T-BOLT HOSECLAMP 2.75"-3.06"	
All	110	60E301A48A	HOSE= *2.5"2D PE X48"	
all	111	60E301A64A	HOSE= *2.5"ID PE X 64"	
all	112	60E328A18A	HOSE-8"1DX18"LONG GATES 4175EC	
All	113	27A092	HOSECLAMP S.S.SCR 7+1/8-10"	

8” & 10” Stainless Dump Valve

42044WP2/CP2/SP2/SP3/NP2 52038WP1 60044WP2/WP3/SP2/SP3
72044WP1/D5N 72058SP2

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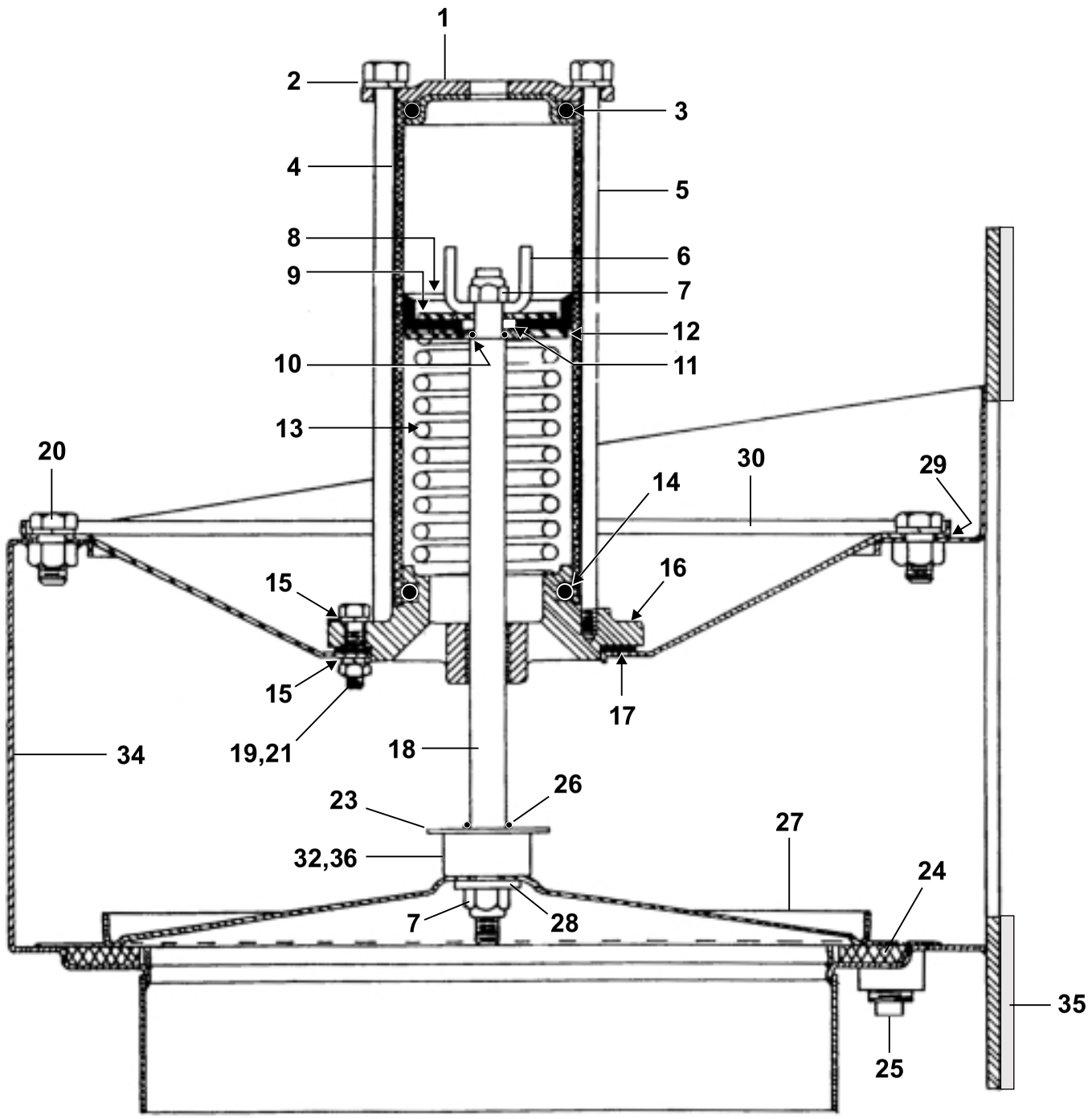

Parts List—8” & 10” Stainless Dump Valve

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
	A	SA 28 124	*8"SGL.DUMPVALVE 4244+52+60	42044WP2/CP2/SP2/SP3/NP2 52038WP1 60044WP2/WP3/SP2/SP3
	B	SA 36 015	10"SGL.DUMP VALVE 72WE+SG+WT	72044WP1/SP2, 72058D5N
	C	SA 28 158	* BONNET+AIRCYL=8"SS DUMPVALV	8" DUMP VALVE
	D	SA 36 044	* BONNET+AIRCYL=10"SS DUMPVAL	10" DUMP VALVE
			----------COMPONENTS----------	
CD	1	02 02101	CYLHEAD W/TAPPED HOLE	
CD	2	15U210	LOKWASHER MEDIUM 5/16 ZINCPL	
CD	3	60C132	ORING 2"IDX3/16CS BUNA70 #329	
CD	4	02 02068	AIRCYL-STAINLESS=DUMPVALVE	
CD	5	02 10585D	TIE BOLT=5/16-18X7.875 PLTD	
CD	6	03 01313	STOP=AIR CYL W/2+11/16STROKE	
CD	7	15G220	LTHX THIN LOKNUT 3/8-24 SSNTE	
CD	8	02 02194	PISTONCUP=DUMPVALVE 2+3/8"	
CD	9	02 02085	UP WASHER=2"OD=PISTON CUP	
CD	10	60C106	ORING 5/16ID 1/16CS BUNA70#011	
CD	11	02 02185	WASHER=PISTON CUP COMP LIMIT	
all	12	02 02105B	XXXX	
CD	13	03 06429	SPRING=2.11ODX6.5FL 64#/"	
CD	14	60C132	ORING 2"IDX3/16CS BUNA70 #329	
CD	15	24G020N	ROLLED WASH.252ID NYLTITE 25W	
CD	16	X2 02743	BONNET=2"DUMP VALVE	
CD	17	02 18931F	GASKET=DUMPVALVE-1/60+72WEHU	
CD	18	02 16021I	DUMPVAL STEM-4"+8"316SS	
CD	19	15G168	SQNUT 1/4-20UNC2 SS18-8	
all	20	15K086	HXCAPSCR 3/8-16NCX3/4 SS18-8	
CD	21	15K041S	HEXCAPSCR 1/4-20UNC2AX1 SS18-8	
CD	23	02 16021E	WASHER 3/8IDX1.250D DUMPVAL	
A	24	02 18068	9 SEAT-RESILIENT=8"DUMPVALVE	
B	24	03 06084	SEAT-RESILIENT=10"DUMPVALVE	
A	25	5SP0KGFSS	NPT PLUG 1/2 SOSOLID GALSTL	
CD	26	60C106	ORING 5/16ID 1/16CS BUNA70#011	
AC	27	02 18796	DISC-8" DUMP VALVE S/S	
BD	27	03 06083	DISC-10"DUMP VALVE S/S	
all	28	15U245	FLTWASH 3/8 STD COMM 18-8 SS	
A	29	02 18104	GASKET=8"DUMP VALVE BONNET	
B	29	03 06086G	GASKET=10" DUMP VALVE BONNET	
A	30	02 18931E	BONNET-8"DUMP VALVE	8" DUMP VALVE
B	30	03 06086F	BONNET=10"DUMP VALVE	10" DUMP VALVE
CD	32	02 16021C	BUMPER=DUMP VALVE BONNET	
CD	33	02 16021D	DUMP VALVE BUMPER RETAINER	
A	34	W2 18931	*BODY=8"DUMPVALV=4244,60,52	8" DUMP VALVE
B	34	W3 06086	*BODY=10"DUMP VALVE 72WE,SG,T	10" DUMP VALVE
A	35	02-18107	GASKET=8"FLANGED DUMP VALVE	8" DUMP VALVE
B	35	03 06085D	GASKET=10"FLANGEDUMP72D 8050	10”DUMP VALVE

Section 13

Pneumatics

SERVICING AIR CYLINDERS

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

Maintenance procedures require:

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

⚠ CAUTION ⚠

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

☞ **Follow maintenance instructions carefully.**

☞ **Wear eye protection.**

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

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

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

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

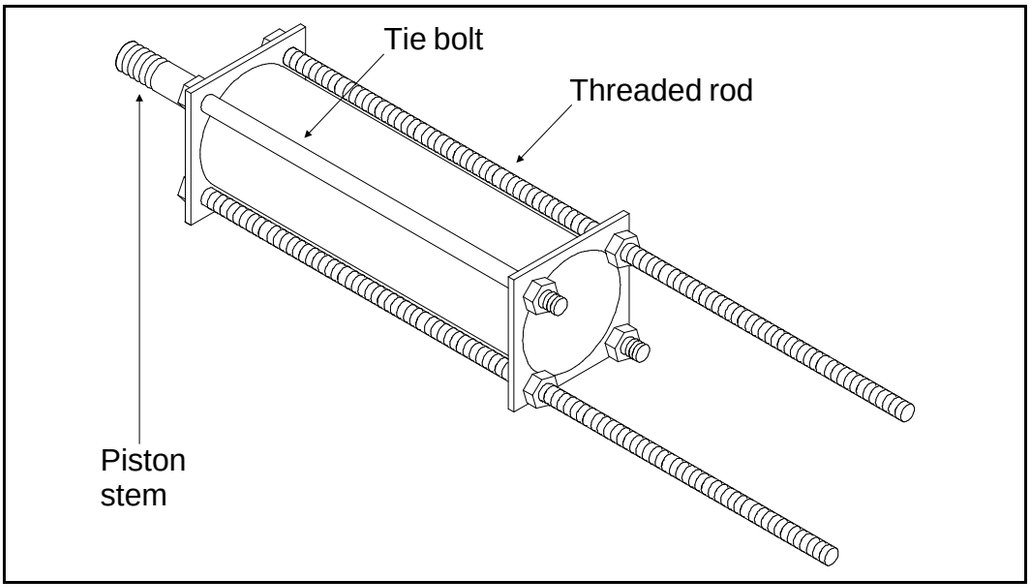

FIGURE 1 (MSSM0130AE)
Using Threaded Rods

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

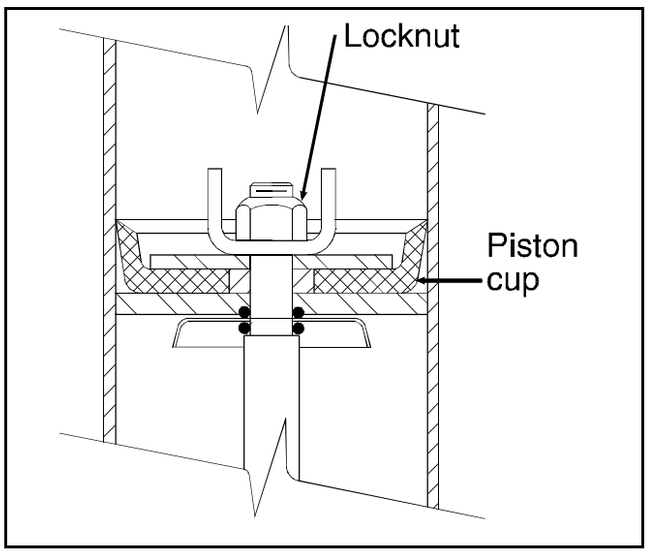

FIGURE 2 (MSSM0130AE)
Correct Piston Cup Shape

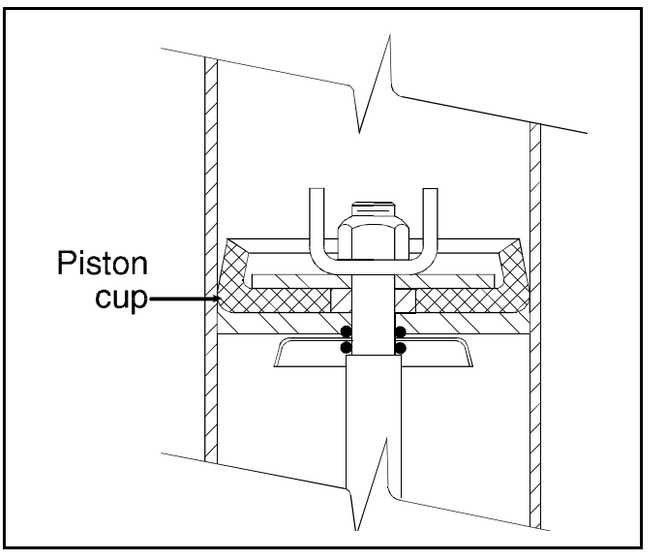

FIGURE 3 (MSSM0130AE)
Distorted Piston Cup Shape

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

Air Cylinder Assemblies

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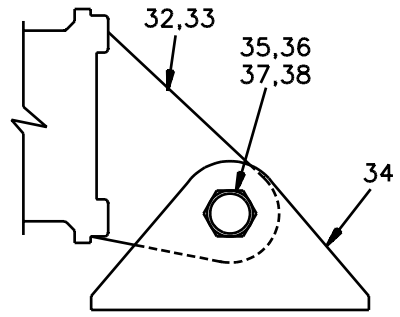
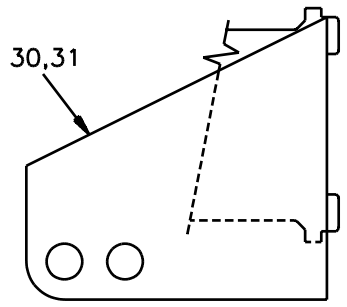
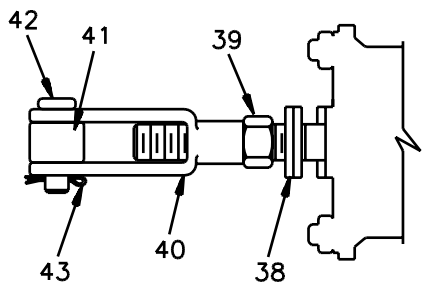
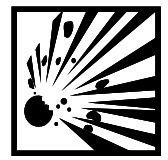




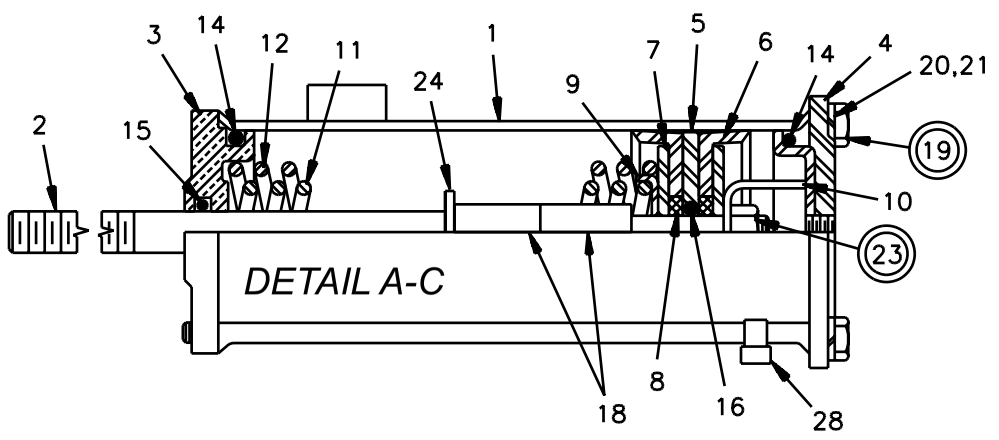


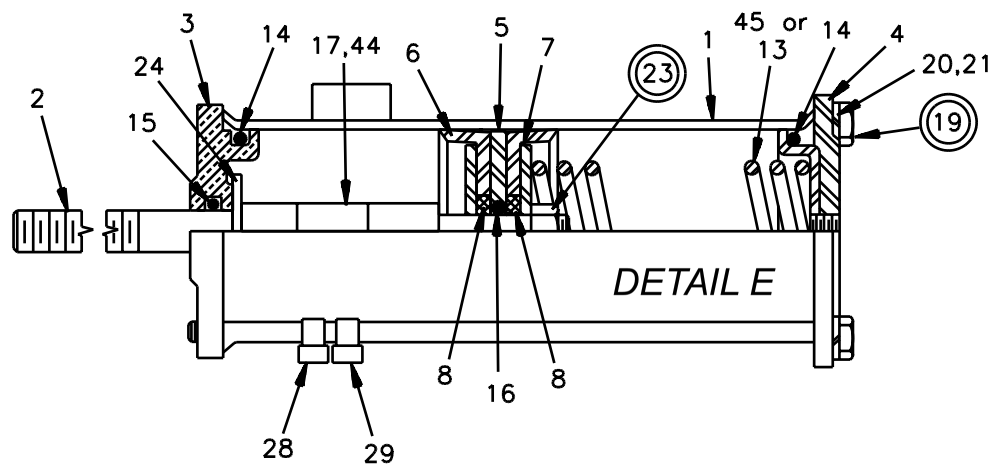
AIR CYLINDER MOUNTING HARDWARE

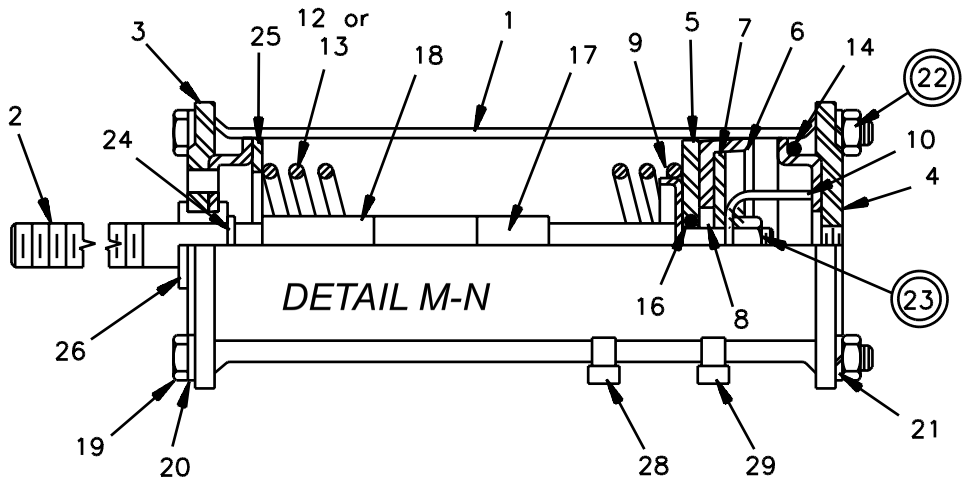
⚠ WARNING ⚠

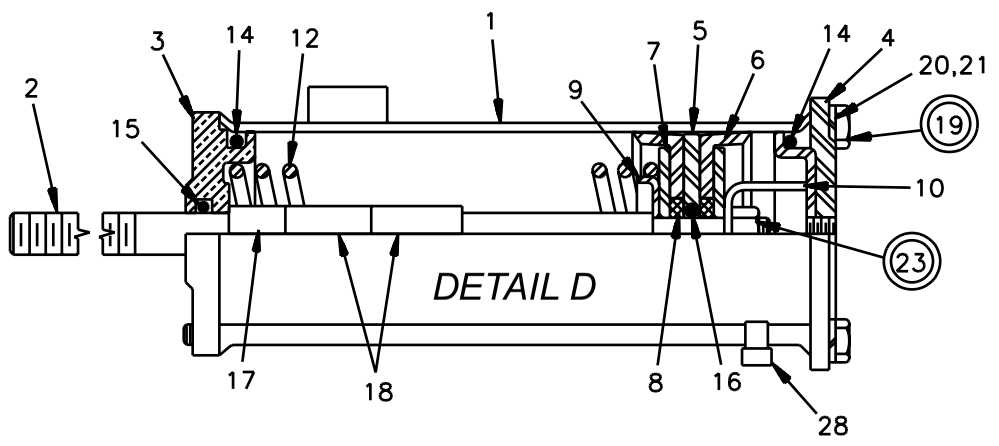


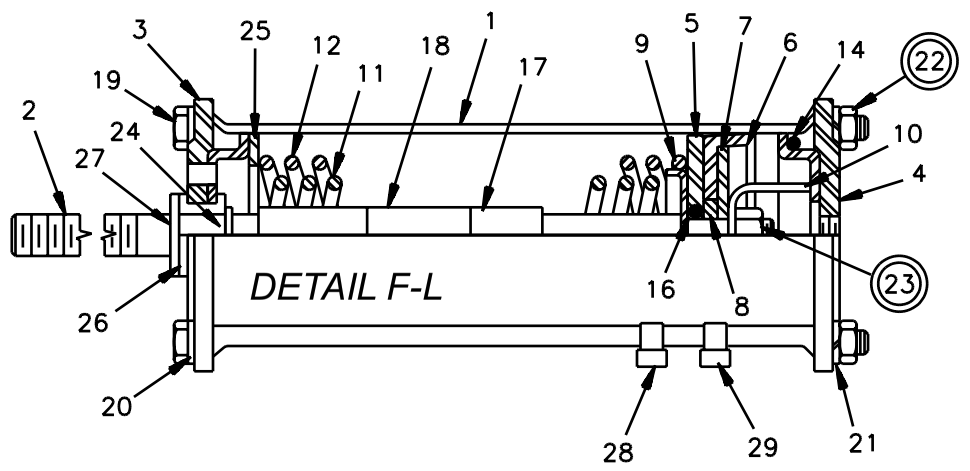
EXPLOSION HAZARD - Air cylinder can burst apart with great force.
Circled items are under high spring tension.
Follow maintenance instructions MSSM0130AE carefully.

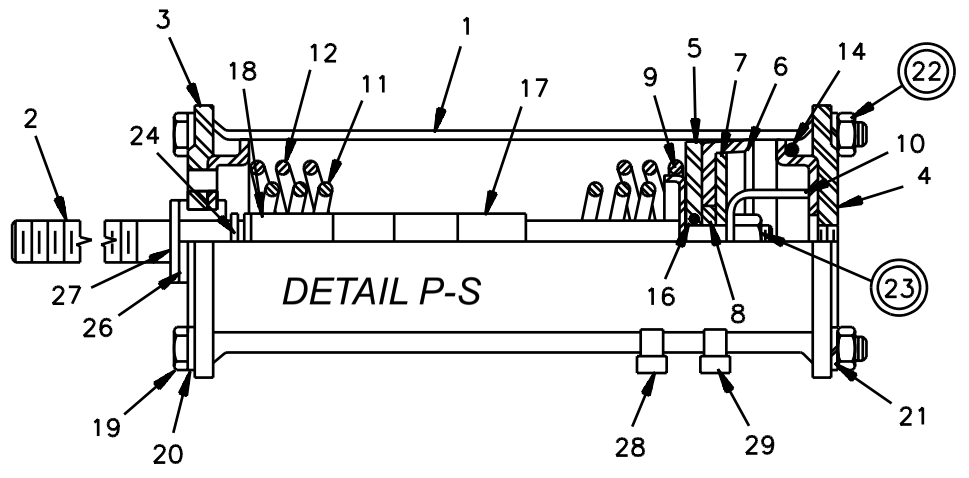












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Parts List—Air Cylinder Assemblies

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

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	SA 36 035	89483V* AIRCYL=BRAKE ASSY	72WP2,WP3,WE3
	B	SA 28 128	89483T* BRAKE AIRCYL 2-WAY 60+72SGU	60+72SP2,SP3
	C	SA 28 152	89483V* BRAKE AIRCYL 2-WAY 60WE2+3	60WP2,WP3,D3A,DA3
	D	SA 10 019A	89483U* BRAKE AIRCYL,2-WAY=42WE+DAU	4231/4244 WP2/WP3 CP2/CP3 NP2/NP3 SP2/SP3
	F	A52 00200	89463U* BRAKE AIRCYL=7244 TILT ONLY	72DA1/L/N,DBN, WTL/N,WP1
	G	SA 10 019Q	89483T*BRAKE CYL ASSY=4226QWE+DYA	4226DP1,DA1,DYP,D5P
	H	AAC14001A	90000Z AIRCYL-LONG= 42S6PSG	3621+26Q6X 4226Q4X,Q6X
	I	A76AC001A	89463T AIR CYL.2-3/8 BORE 2"STROKE	5840TG2,TS1,TT1
	J	A76AC001B	89463@ AIR CYL.2-3/8 BORE 3"STROKE	5840TG2,TS1,TT1
	K	A75 01200	89463T*AIR CYL. DAMPER = 3"STROKE	5858+80TG1/2,TS1,TT1
	L	A75 01300	89463U*AIR CYL. DAMPER = 2"STROKE	5858+80TG1/2,TS1,TT1
	M	SA 10 019	89497U* BRAKE AIRCYL=BALCOM+DIVCYL	
	N	AAC14001	90041U*AIRCYL=RATE 50-91 STRK 2.09	3621F8P
	P	A25 00600	89457V* BRAKE AIRCYL=52WE1 +52TILT	52LWN/H,WTL/N,WP/E1,DYA
	Q	AAC64001	894613*AIRCYL=BRAKE ASSY 6442	64BTL,BTN,BHP, DA1,DAL,DAN
	R	AAC65001	93481B AIRCYL=BRAKE ASSY 6446E6N	6446,7246,7258,M7E 4244SP2 SM
	S	AAC58001	95000Z AIRCYL=BRAKE ASSY 7258J2N	7258J2N
			----------COMPONENTS----------	
A-D	1	W2 18646	93344L*CYLINDER-AIR=DOUBLEACT BRAKE	
F-S	1	02 02068	94266A AIRCYL-STAINLESS=DUMPVALVE	
A-D,F-G,S, I-K,M-Q	2	02 18650	96431B STEM=2 WAY AIRCYLINDER BRAKE	
H	2	03 06313A	96431# STEM=AIR CYL 304SS	
L	2	02 18650A	96417B STEM-AIRCYL.UPLOCK PRESS	
R	2	02 18650B	97362B STEM=2WAY AIRCYL BRAKE 7.88L	
A-D	3	02 18660	CYLHEAD-BRASS=2WAY AIRCYL	
F-Q	3	02 02546	CYLHEAD=SLIDESTEM	
R	3	06 20702E	91227B FLOW NOT ACTUATOR CYL HEAD	
S	4	02 02101	71334A CYLHEAD W/TAPPED HOLE	
ALL	5	02 02105	91522A PISTON CUP WASHER STNLS STL	
S	5	02 02105B	92253B 2.38"ACYL BRASS PISCUP WASHR	
ALL	6	02 02194	93217B PISTONCUP=DUMPVALVE 2+3/8"	
ALL	7	02 02085	75161A UP WASHER=2"OD=PISTONCUP	

Parts List, cont.—Air Cylinder Assemblies

Used In	Item	Part Number	Description	Comments
ALL	8	02 02185	79237A WASHER=PISTON CUP COMP LIMIT	
A-D,F-Q,S	9	02 18651	73171A WASHER=2WAY BRAKECYL	
A-D,F-Q,S	10	03 01313	70219A STOP=AIR CYL W/2+11/16STROKE	
A-C,F-L,P-Q S	11	02 15880	96471B SPRING=BRAKE1.5OD10.3FL17#/"	
A,D,F-M,Q,S	12	02 15881	96471# SPRING=BRAKE2.1OD11FL15.5#/"	
N	13	02 17023	83392B SPRING-SS=DUMP 1.5OD8FL21#/"	
ALL	14	60C132	ORING 2"IDX3/16CS BUNA70 #329	
A-D	15	60C110	ORING 1/2IDX3/32CS BUNA70 #112	
ALL	16	60C106	ORING 5/16ID 1/16CS BUNA70#011	
D,G-J,L-N Q,S	17	27B240	SPCRROLL.5ID.813L.062T STLZNC	
A,C-D,F-Q,L S	18	27B250	SPCRROLL.5ID1.5L.062T STLZNC	
S	19	02 10585E	91142# TIE BOLT=5/16-18X8.25LG PLTD	
ALL	19	02 10585E	91142# TIE BOLT=5/16-18X8.25LG PLTD	
R ONLY	19	W6 20702F	90293B*FLOW NOT VLV=AIR-CYL ROD WLD	
ALL	20	15U200	FLATWASHER(USS STD) 5/16"ZNC PLT	
ALL	21	15U210	LOKWASHER MEDIUM 5/16 ZINCPL	
F-Q	22	15G185	HXNUT 5/16-18UNC2B SAE ZINC GR2	
ALL	23	15G220	02Z LTHX THIN LOKNUT 3/8-24 SSNTE	
A,C,F-G,I-J L,Q,S	24	15U243	FLAWASHER 7/8ODX33/64IDX16GA ZINCPL	
F-N	25	15U520	FLAT WASHER 2+3/8X1+41/64X12GA ZINC	
F-Q,S	26	54E220	NYLNR 8L2FF BUSH 1/2X9/16X.140	
F,K,I-J,Q,S	27	17B012	EXTRETRING IND#1000-50-ST-ZD ZINC	
A	28	20L601R	ID TAG NAT'L #1614 ALUM EMB LET "R"	
B	28	20L601U	ID TAG NAT'L #1614 ALUM EMB LET "U"	
C	28	20L601P	ID TAG NAT'L #1614 ALUM EMB LET "P"	
D	28	20L601X	ID TAG NAT'L #1614 ALUM EMB LET "X"	
S	28	20L601J	ID TAG NAT'L #1614 ALUM EMB LET "J"	
F,H,Q,S	28	20L601A	ID TAG NAT'L #1614 ALUM EMB LET "A"	
G	28	20L601Q	ID TAG NAT'L #1614 ALUM EMB LET "Q"	
M	28	20L601F	ID TAG NAT'L #1614 ALUM EMB LET "F"	
N	28	20L601D	ID TAG NAT'L #1614 ALUM EMB LET "D"	
P	28	20L601V	ID TAG NAT'L #1614 ALUM EMB LET "V"	
K	28	20L601V	ID TAG NAT'L #1614 ALUM EMB LET "V"	
I-J,L	28	20L601E	ID TAG NAT'L #1614 ALUM EMB LET "E"	
F,I-L	29	20L601A	ID TAG NAT'L #1614 ALUM EMB LET "A"	
G-H	29	20L601F	ID TAG NAT'L #1614 ALUM EMB LET "F"	

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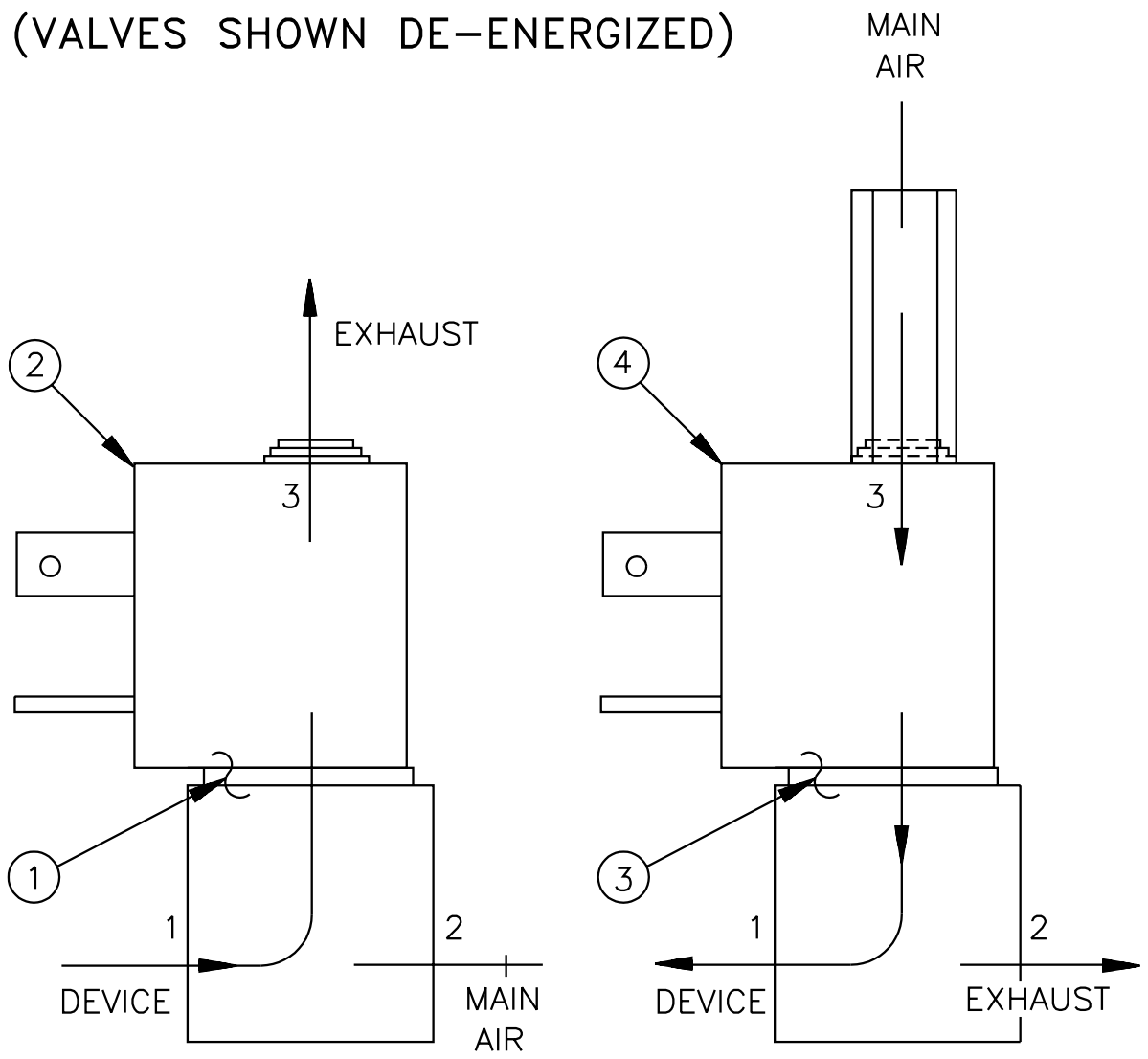
Parts List, cont.—Air Cylinder Assemblies

Used In	Item	Part Number	Description	Comments
N	29	20L601C	ID TAG NAT'L #1614 ALUM EMB LET "C"	
Q	29	20L601D	ID TAG NAT'L #1614 ALUM EMB LET "D"	
ALL	30	03 06309	70310C RIGHTMOUNT=BRAKE CYL ZNC	RIGHT
ALL	31	03 06308	70310C LEFTMOUNT=BRAKE CYL ZINC	LEFT
ALL	32	02 02550	97437ABRKT=AIRCYL-RIGHT ZINC/CAD	RIGHT
ALL	33	02 02547	LT BRACKET=AIRCYL CAD	LEFT
ALL	34	02 02556	SUPPORT=AIRCYL CADSTL	
ALL	35	27B2750L0T	01Z SPC RROLL.562ID.937L.048T ZNK	
ALL	36	15K206	HEXCAPSCR M5-.8X40MM 18-8SS	
ALL	37	15G235F	HXFNJAMNUT 9/16-12UNC2B ZINC GR2	
ALL	38	15U280	01Z FL+WASHER(USS STD)1/2 ZNC PL+D	
ALL	39	15G230	HXNUT 1/2-13UNC2B SAE ZINC GR2	
ALL	40	17A020	ADJ CLEVIS MACHINED 1/2-13 ZINC PLT	
ALL	41	17A065	01Z EYEEND 1/2-13 X2.25 ZINC	
ALL	42	17A040	CLEVISPIN 1/2"X1+3/8" DRILLED	
ALL	43	15H030	STDCOTTERPIN 3/32X3/4 ZINCPL	
ALL	44	27B34010SZ	SPCRROLL.512ID.625L.062T STLZC	
ALL	45	02 17024	94302B SPRING-SS=DUMP 1.5OD4FL40#/"	

3-Way Pilot Valves

Pellerin Milnor Corporation
P. O. Box 400, Kenner, LA 70063-0400
BMP900032/91182V (1 of 1)
Litho in U.S.A.



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

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	

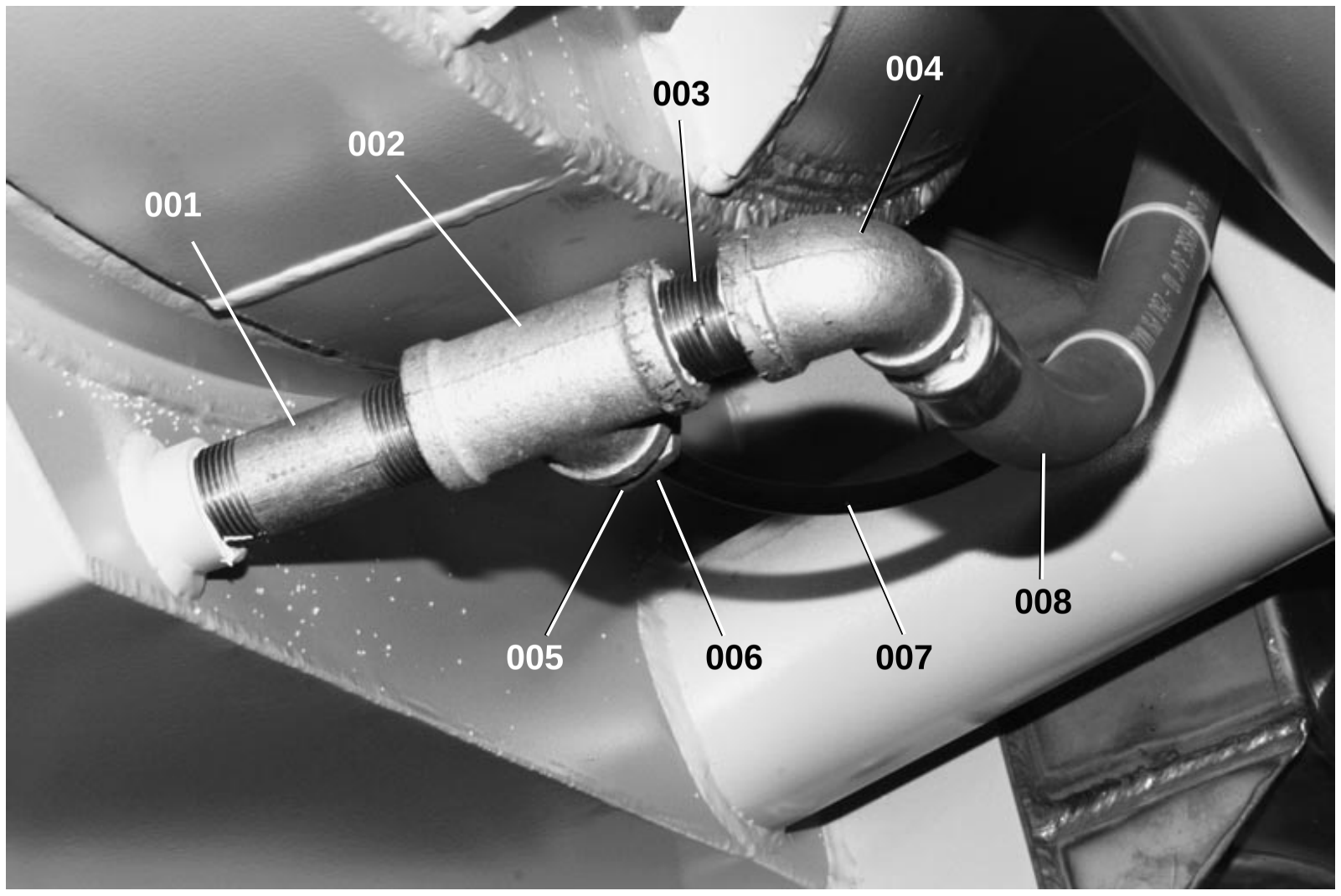
Section 14

Control and Sensing Assemblies

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

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

PIPING WATER LEVEL SENSOR
64046E6N/J6N/D6N 72046E5N/J5N 72058J5N



LITHO IN USA

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

PARTS LIST
(See other page for drawing.)

PIPING WATER LEVEL SENSOR
64046E6N/J6N/D6N 72046E5N/J5N 72058J5N

ITEM	PART NUMBER	DESCRIPTION	HOW PART IS USED IN ASSEMBLY (Only if pertinent)
00A	ALL65001	94026B ASSY=PIPING H2O LEVEL SENSOR	REFERENCE ASSEMBLY
001	5N0P05AG42	NPT NIPPLE 3/4X5 TBE GALSTL SK40	
002	5S0PNFA	NPT TEE 3/4" GALMAL 150#	
003	5N0PCLSG42	NPT NIPPLE 3/4XCLS TBE GALSTL SK40	
004	5SL0PNFA0K	NPT ELBOW 90DEG 3/4X1/2" GALMAL150#	
005	5SB0P0GNFO	NPTHEXBUSH 3/4X3/8 GALMAL 150#	
006	53A047H	MALECONN.5/16X18 POLYFLO-PH#68P-5-2	
007	60E005	TUBING 5/16"OD POLY-FLOW#55P-FOOT	
008	60E086E75A	94031N HOSE ASSY=3/4"X75"L W/ENDS	
		******** 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).

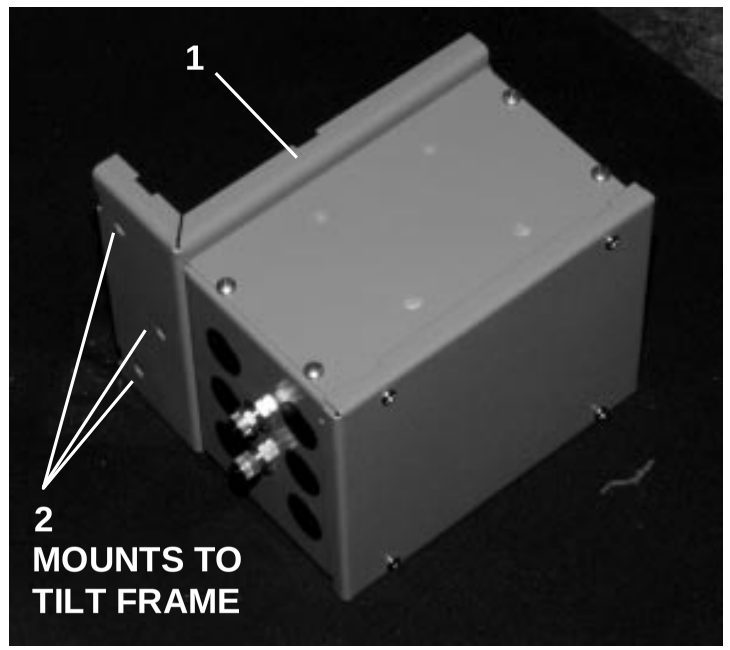
Component Item Numbers—For any item on the drawing (e.g., item ①), there may be several corresponding items on the parts list (e.g., 001A, 001B, 001C, etc.) which are similar components on different assemblies. "How Part Is Used In Assembly" identifies which components apply to your machine, by listing 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.

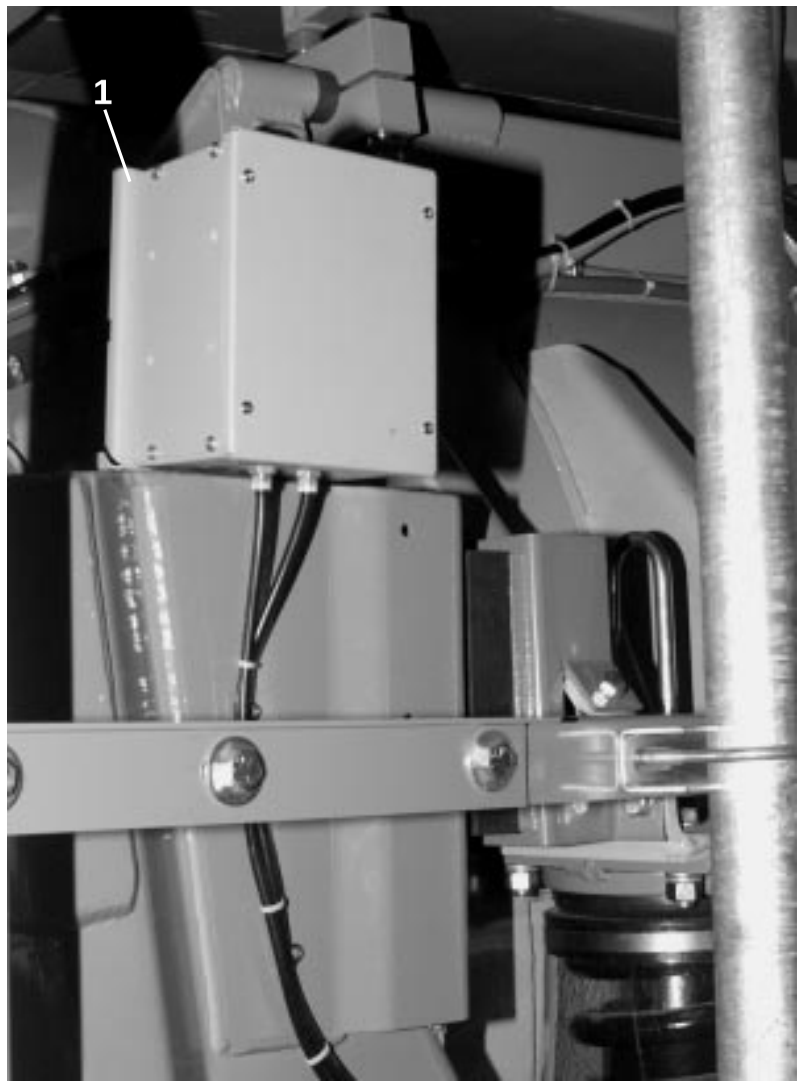
LITHO IN USA

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

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

LEVEL SENSOR MOUNTING BRACKETS
64046E6N/J6N 72058J5N





LITHO IN USA

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

PARTS LIST
(See other page for drawing.)

LEVEL SENSOR MOUNTING BRACKETS
64046E6N/J6N 72058J5N

ITEM	PART NUMBER	DESCRIPTION	HOW PART IS USED IN ASSEMBLY (Only if pertinent)
00A	GLL65001	93000Z LEVEL SENSOR MNT BRKTS	REFERENCE ASSEMBLY
001	03 65189	93046C LEVEL BOX SUPPORT BRKT 64046	
002	15P185	TRDCUT-F HXHD 1/4-20UNC2AX3/4 ZNC	
		******** 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.

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LITHO IN USA