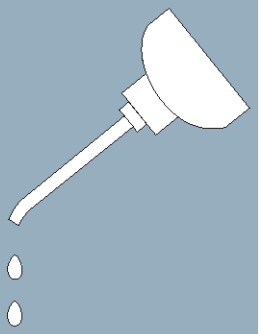
Published Manual Number/ECN: MPI6836HAE/2023365A
- **Publishing System: TPAS2**
- **Access date: 09/07/2023**
- **Document ECNs: NOT latest**

Installation and Service

68036H5N, 68036H5K



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

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

Table of Contents
MPI6836HAE/23365A

Table of Contents, continued
MPI6836HAE/23365A

PELLERIN MILNOR CORPORATION
LIMITED STANDARD WARRANTY

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

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

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

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

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

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

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

BMP720097/19036

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 —

BIUUUD14 (Published) Book specs- Dates: 20170713 / 20170713 / 20170713 Lang: ENG01 Applic: UUU

Trademarks of Pellerin Milnor Corporation

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

Table 1: Trademarks

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

— End of BIUUUD14 —

Safety 1

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 Red Safety Support(s) for Maintenance

1. What Safety Supports are Provided and Why

These machines are provided with two safety stands that can be folded down from within a channel that is part of the shell weldment when the machine is in the wash position. If the machine has an automatic loading elbow (dryel), it is provided with a safety bar that can be inserted when the dryel is up.

Use the safety support(s) whenever the maintenance to be performed requires you to place any part of your body in or near the path of the vertically moving portion of the machine. When not in use, stow the safety supports as explained herein.

Figure 1: Safety Stands for Rubber Spring-resting, Hydraulic-tilt Washer-extractor Models (stowed shown at top, deployed shown at bottom)

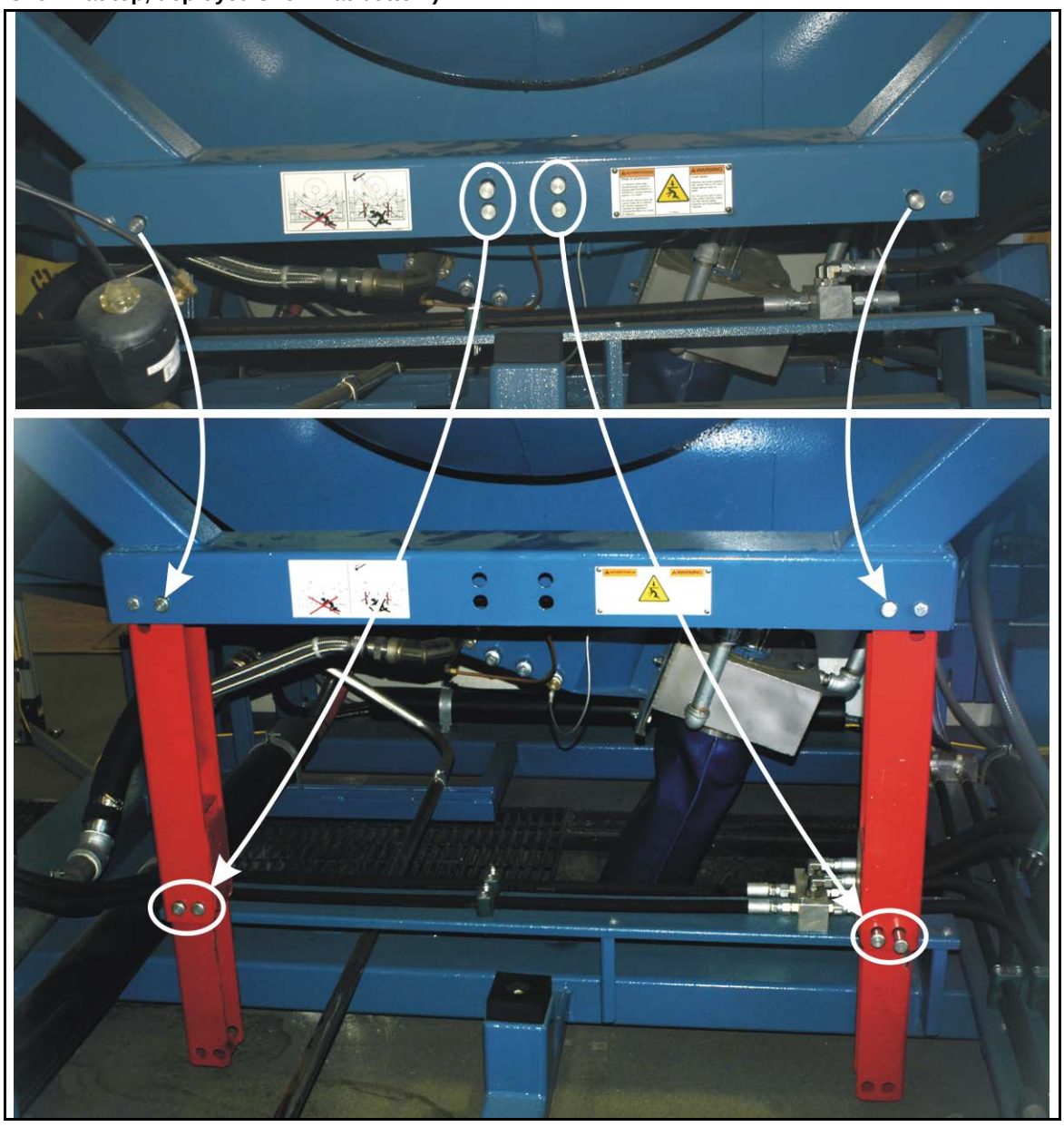
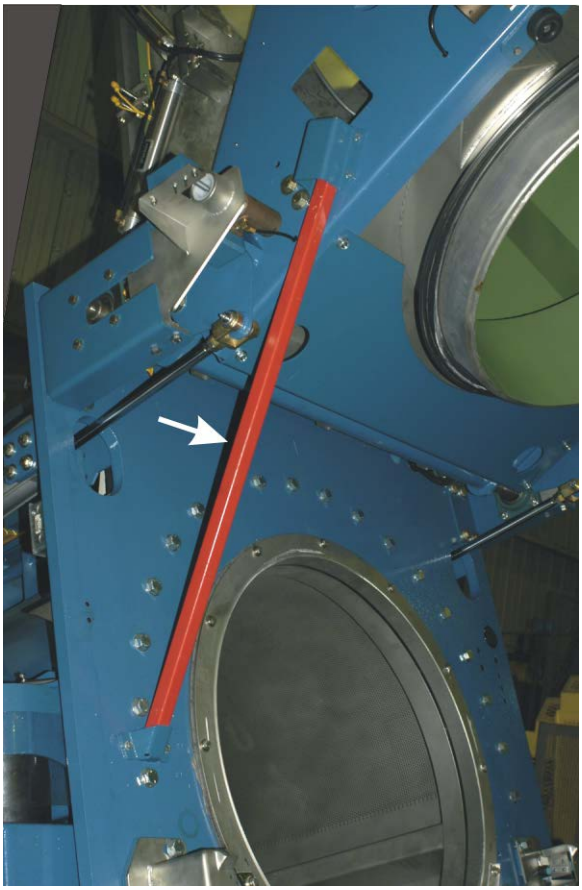


Figure 2: Safety Bar for Rubber Spring-resting, Hydraulic-tilt Washer-extractor Models with a Dryel



WARNING 1: Crush Hazard—The safety supports provide protection against the drifting down of the vertically moving portion of the machine during maintenance in the event of a leak in the hydraulic system. They are not intended to restrain the machine from coming down under power.

- Never work in or near the path of the vertically moving portion of the machine unless the safety supports are deployed and power is locked out/tagged out.
- Do not attempt to rest the safety stands on the floor by tilting the machine back under power.
- Maintain the safety support(s) in good condition.
- Where a pair of safety supports is provided, always use both safety supports.
- When not in use, stow these safety components in the location provided on the machine.

2. How to Deploy the Safety Support(s)

2.1. Put the Machine In Position to Accept the Safety Support(s)—At the controls, put the machine in the wash position (the shell is horizontal).

2.2. Put the Safety Support(s) in Position—Lower the safety stands from within the channel as follows:

1. Remove the cotter pins from all six retaining pins.

2. While holding either safety stand to take the weight off of the retaining pins, remove the three pins and allow the safety stand to rotate down to the vertical position. The lower section of the safety stand will fall to the floor.
3. Lift the lower portion of the stand just enough to insert two retaining pins so the lower and upper portions of the safety stand lock together.
4. Insert the third retaining pin into the hole that prevents the stand from rotating.
5. Repeat these steps for the other safety stand. **Do not attempt to rest the safety stands on the floor by tilting the machine.**

2.3. **Deploy the Dryel Safety Bar if Appropriate**—If the machine uses a dryel for automated loading, use the safety bar for any mainteance that requires the dryel to be up. After you put the dryel in the up position, insert the safety bar first into the holding bracket on the dryel, then in the bracket on the shell front. A location is provided on the machine for stowing the safety bar when not in use.

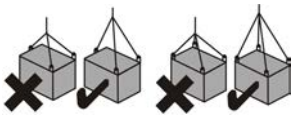
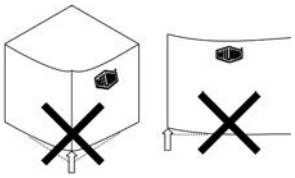
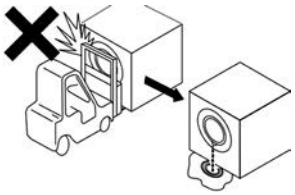
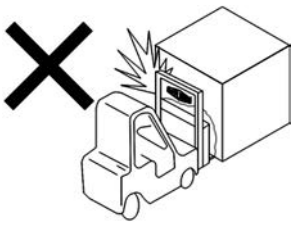
— End of BIUUUS06 —

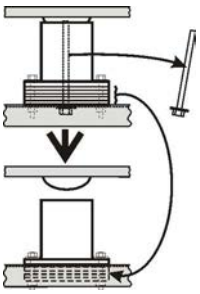
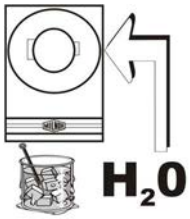
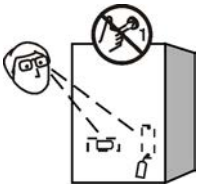
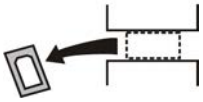
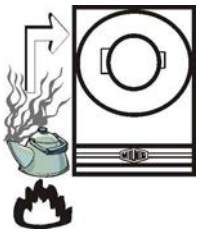
Understanding the Tag Guidelines for the Models Listed Below

68036H5N 68036H5W

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

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

Display or Action	Explanation
	Read the manual before proceeding. This symbol appears on most tags. The machine ships with a complete set of manuals. The safety, installation, and electrical schematic manuals are particularly important to installers.
	B2TAG88005: This carefully built product was tested and inspected to meet Milnor® performance and quality standards by
	B2TAG94078: Do not forklift here; do not jack here; do not step here—whichever applies.
	B2TAG94079: Rig for crane lifting (either 3-point or 4-point, depending on the number of lifting eyes provided) using a steep angle on the chains (closer to vertical than horizontal).
	B2TAG94084: Do not lift from one corner of the machine, as this can cause the frame to rack, damaging it.
	B2TAG94099: Do not strike the shell door when fork-lifting. This can cause the door to leak.
	B2TAG94118: Do not strike shipping container during fork-lifting. Fragile components inside.

Display or Action	Explanation
	B2T2000028: Relocate shims as shown. Do not start machine until this is done.
	B2T2001013: Hot water connection.
	B2T2001014: Cold water connection.
	B2T2001028: Look for tags inside the machine. These tags may identify shipping restraints to be removed or components to be installed. Do not start the machine until these actions are completed.
 	B2T2002013: Do not start the machine until shipping restraints are removed. This tag will appear on the outside of the machine to alert you to the presence of internal shipping restraints. A tag will also appear on the restraint to help identify it. Most, but not all shipping restraints display the color red. Some shipping restraints are also safety stands. Do not discard these.
	B2T2004027: Steam connection (optional)

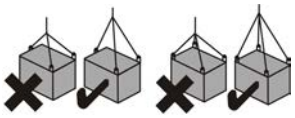
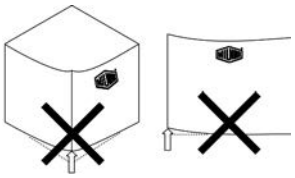
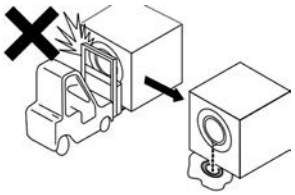
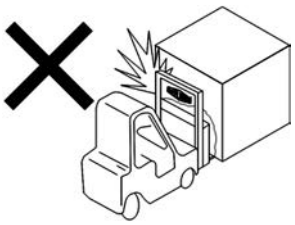
— End of BIUUUI02 —

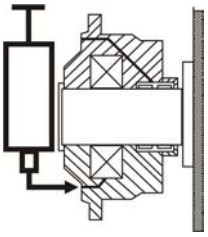
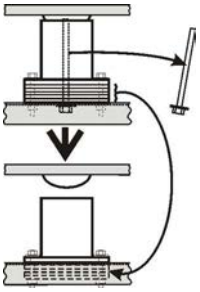
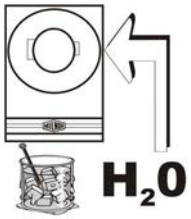
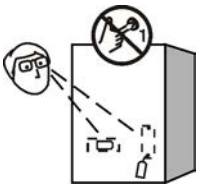
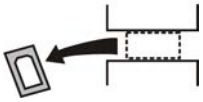
Understanding the Tag Guidelines for the Models Listed Below

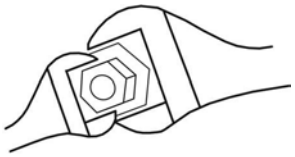
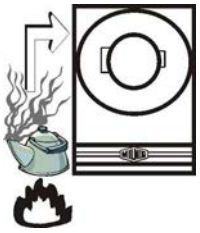
68036H5K

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

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

Display or Action	Explanation
	Read the manual before proceeding. This symbol appears on most tags. The machine ships with a complete set of manuals. The safety, installation, and electrical schematic manuals are particularly important to installers.
	B2TAG88005: This carefully built product was tested and inspected to meet Milnor® performance and quality standards by
	B2TAG94078: Do not forklift here; do not jack here; do not step here—whichever applies.
	B2TAG94079: Rig for crane lifting (either 3-point or 4-point, depending on the number of lifting eyes provided) using a steep angle on the chains (closer to vertical than horizontal).
	B2TAG94084: Do not lift from one corner of the machine, as this can cause the frame to rack, damaging it.
	B2TAG94099: Do not strike the shell door when fork-lifting. This can cause the door to leak.
	B2TAG94118: Do not strike shipping container during fork-lifting. Fragile components inside.

Display or Action	Explanation
	B2TAG96007: Add grease here. Refer to the preventive maintenance schedule in the service manual.
	B2T2000028: Relocate shims as shown. Do not start machine until this is done.
	B2T2001013: Hot water connection.
	B2T2001014: Cold water connection.
	B2T2001028: Look for tags inside the machine. These tags may identify shipping restraints to be removed or components to be installed. Do not start the machine until these actions are completed.
 	B2T2002013: Do not start the machine until shipping restraints are removed. This tag will appear on the outside of the machine to alert you to the presence of internal shipping restraints. A tag will also appear on the restraint to help identify it. Most, but not all shipping restraints display the color red. Some shipping restraints are also safety stands. Do not discard these.

Display or Action	Explanation
	B2T2003001: Hold the side of the connection stationary with a wrench as you tighten the connection with another wrench. Otherwise, you may twist components, such as valves, damaging them.
	B2T2004027: Steam connection (optional)

— End of BIUUUI02 —

BIUUUM04 (Published) Book specs- Dates: 20180109 / 20180109 / 20180109 Lang: ENG01 Applic: UUU

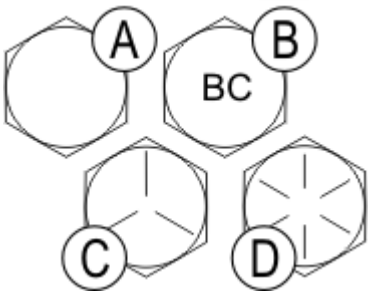
Torque Requirements for Fasteners

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

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

Figure 1: The Bolts in Milnor® Equipment

The Marks on Bolt Heads



Legend

A. SAE Grades 1 and 2, ASTM A307, and stainless steel
B. Grade BC, ASTM A354
C. SAE Grade 5, ASTM A449
D. SAE Grade 8 and ASTM A354 BD

1. Torque Values

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

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

1.1. Fasteners Made of Carbon Steel

1.1.1. Without a Threadlocker

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

	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
Dimension	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 Standard Fasteners Larger Than 5/16-inch Diameters and No Lubricant

	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
Dimension	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 with Maximum 5/16-inch Diameters and No Lubricant

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

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

	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
Dimension	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 a Threadlocker

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

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

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

Table 6: Torque Values if You Apply LocTite 222

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

Table 7: Torque Values if You Apply LocTite 242

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

Table 8: Torque Values if You Apply LocTite 262

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

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

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

Table 10: Torque Values if You Apply LocTite 277

	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
Dimension	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	
Dimension	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

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

2. Preparation

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

- Use threadlocker and primers with sufficient airflow.
- Do not use flammable material near ignition sources.

1. Clean all threads with a wire brush or a different tool.
2. Remove the grease from the fasteners and the mating threads with solvent. Make the parts dry.

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

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

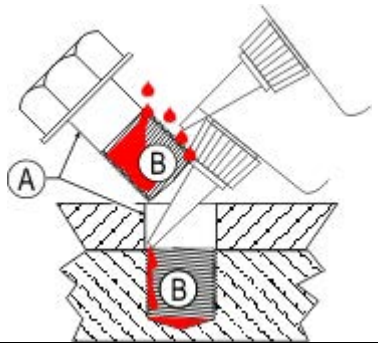
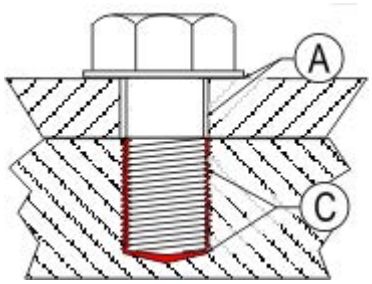
3. How to Apply a Threadlocker

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

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

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

Figure 2: Blind Hole

Application	Coverage
	

Legend

A. No threadlocker here
B. Apply here
C. Fill all space with threadlocker

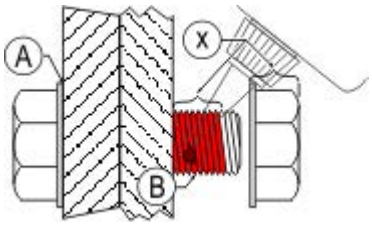
3.1. Blind Holes

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

3.2. Through Holes

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

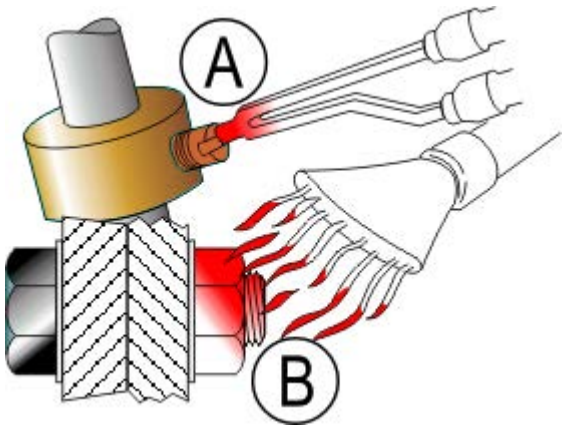
Figure 3: Through Hole

Application	Legend
	**A.** No threadlocker here **B.** Apply the threadlocker to this area **x.** Nut depth

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

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

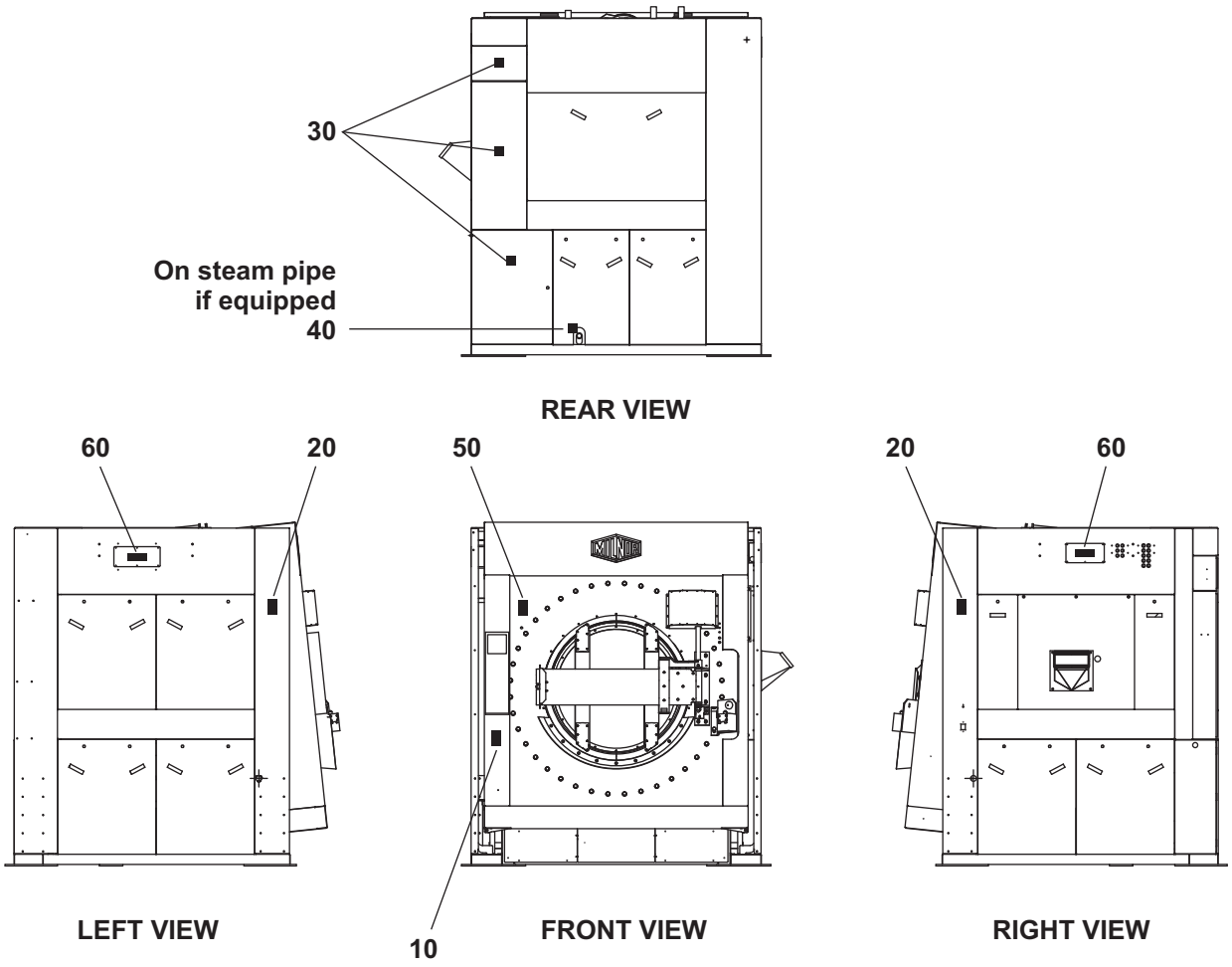
Figure 4: Disassembly

Apply Heat to a Small Area	Legend
	**A.** How to apply heat to a small fastener **B.** How to apply heat to a large fastener

— End of BIUUUM04 —

Safety Placard Use and Placement

68036H5N, 68036H5K



Notes:

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

Safety Placard Use and Placement

68036H5N, 68036H5K

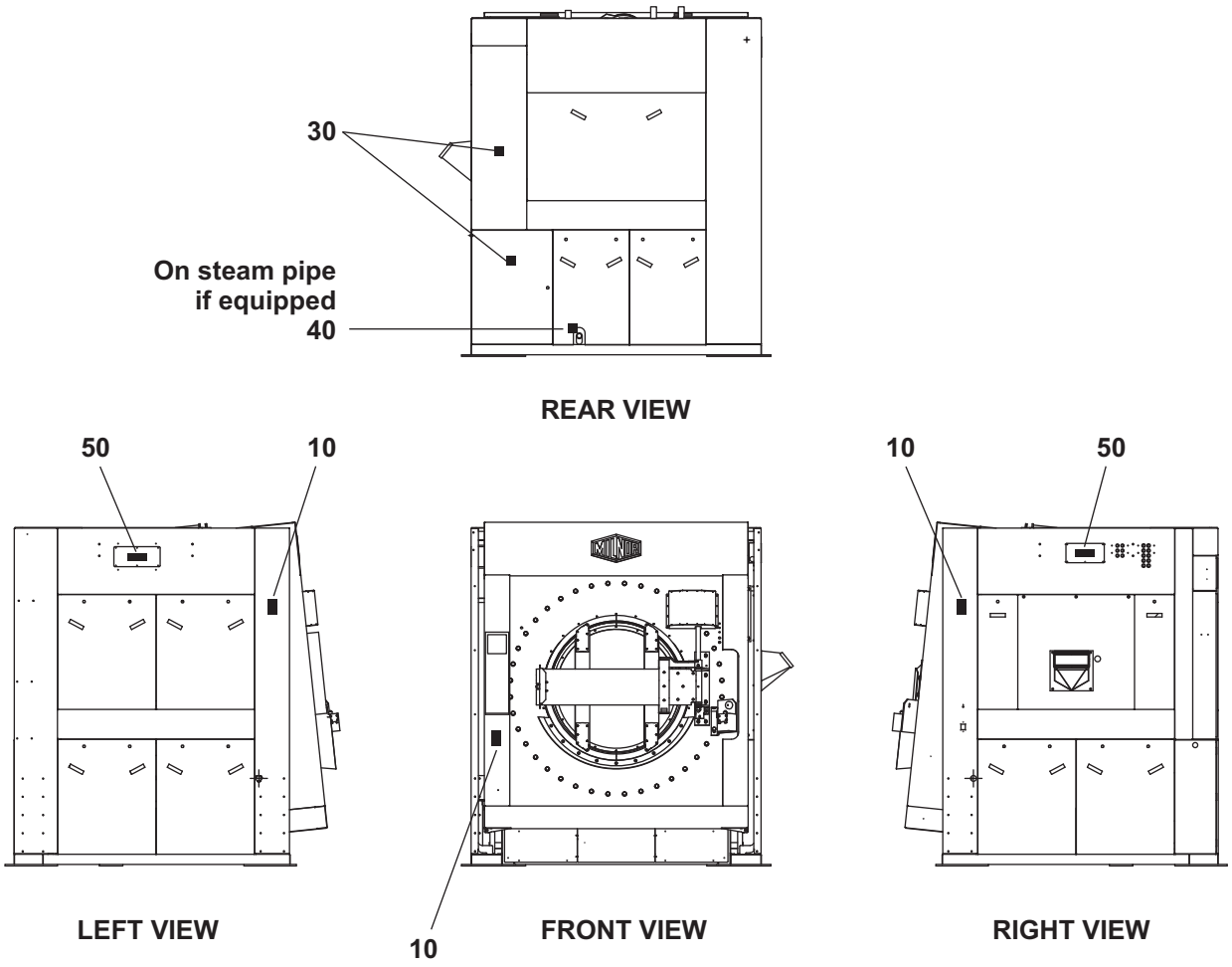
Parts List—Safety Placard Use and Placement

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

Used In	Item	Part Number	Description	Comments
----------ASSEMBLIES----------				
----------COMPONENTS----------				
all	10	01 10583F	NPLT:HYD TILT W/E WARNINGS FR	
all	20	01 10630A	NPLT:TILT CRUSH HAZARD-TCATA	
all	30	01 10377A	NPLT:ELEC HAZARD LG-TCATA	
all	40	01 10685A	NPLT:BURN HAZARD WARN-TCATA	
all	50	01 10699A	NPLT:SERV HZRD-PLYEST-TCATA	
all	60	01 10375B	NPLT:ELEC HAZARD SMALL-TCATA	

Safety Placard Use and Placement - ISO

68036H5N, 68036H5K



ISO placards are shown on this page.

Notes:

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

Safety Placard Use and Placement - ISO

68036H5N, 68036H5K

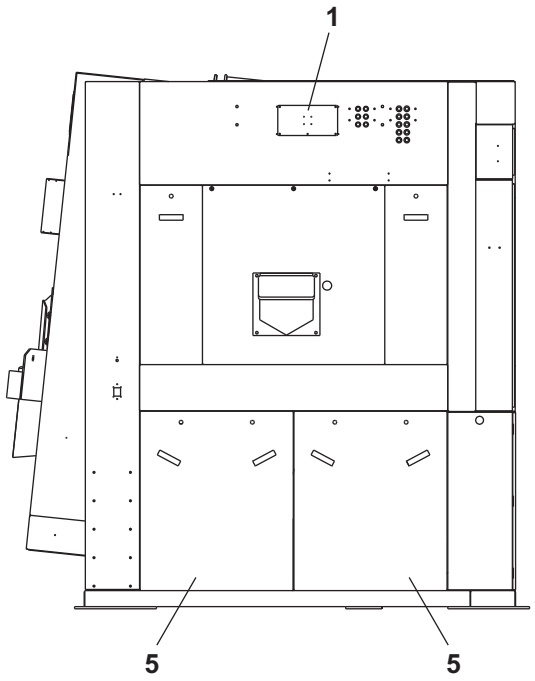
Parts List—Safety Placard Use and Placement ISO

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

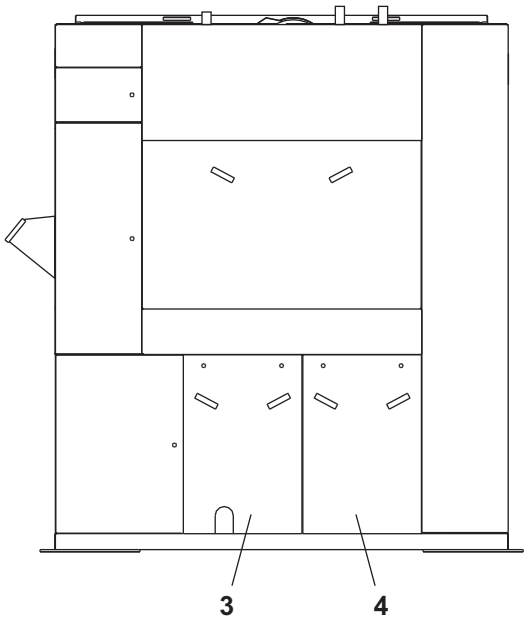
Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
			----------COMPONENTS----------	
all	10	01 10629Y	NPLT:TILT W/E-F WARNGS FRT-ISO	
all	20	01 10630A	NPLT:TILT CRUSH HAZARD-TCATA	
all	30	01 10377	NPLTE:"WARNING" 4X4	
all	40	01 10649X	NPLT:HOT BEHIND CVR WARN-ISO	
all	50	01 10375	NPLTE:"WARNING" 2X2	

Guards and Covers

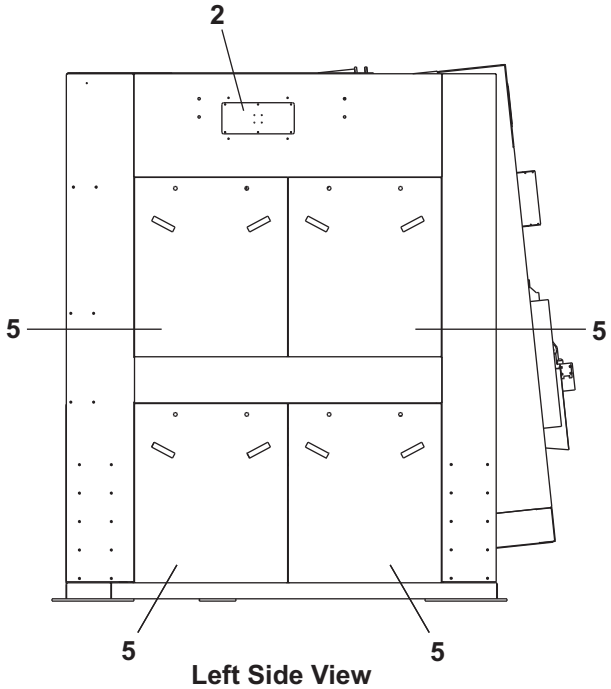
68036H5N, 68038H5K



Right Side View



Rear View



Left Side View

Guards and Covers

68036H5N, 68038H5K

Parts List—Guards and Covers

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

Used In	Item	Part Number	Description	Comments
----------			----------ASSEMBLIES----------	----------
	A	GHG68004	INST=OUTER HOUSE 6836F5A	
----------			----------COMPONENTS----------	----------
all	1	02 03993B	MANIFOLD COVER RT UPPER PLT 4840F7A	
all	2	02 22115D	COVER=VALVE SET	
all	3	A68 22472A	ASSY=COSM DOOR VINYL 6836F5A	
all	4	A68 22460A	ASSY=COSM DOOR PNL VINYL 6836F5A	
all	5	A68 22453A	ASSY=COSM DOOR PNL VINYL 6836F5A	

Installation 2

48040H_, 68036H_, & MWF100_ Washer Extractor Installation

1. Handling

Note 1: Once the machine is given to the carrier for delivery, it is solely the responsibility of the carrier to ensure that no damage occurs during transit. In addition to readily apparent damage, carriers are liable for concealed damage. Do not hesitate to file a claim with the carrier if the machine is damaged in any way during shipment. Milnor will be glad to assist you in filing your claim, but is not responsible for any shipping damage to the machine once it has been delivered to the carrier in good condition.

1. Remove the protective coverings (leaving the machine on shipping skids) and examine carefully for possible shipping damage. If the machine is damaged, notify the transportation company immediately.
2. Attach chains as shown in Figure 2.

Figure 1: Where To Lift

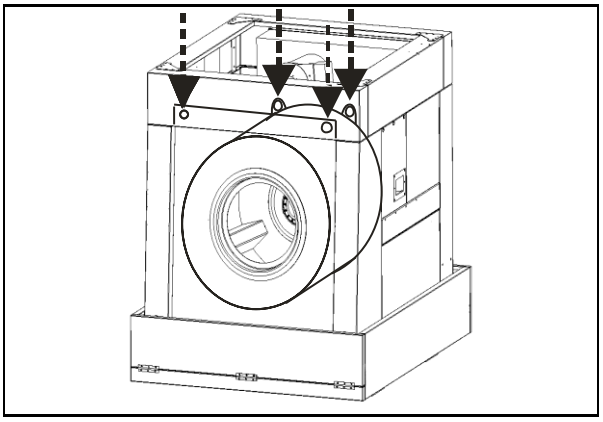
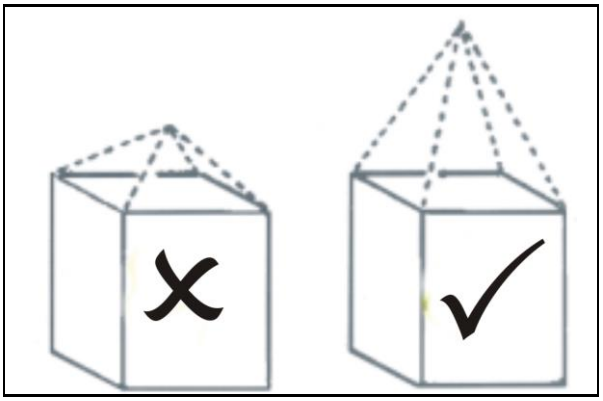


Figure 2: Rigger liable for damages



CAUTION 1: Machine damage hazard—Improper placement of pickup chains can cause direct or indirect damage to machine.

- Use a 4 point pickup (as shown in Figure 2)
- Use long pickup chains to prevent racking and/or twisting machine frame

2. Moving the Machine into Place

1. Use skids for fork lifting. If possible, leave the machine on shipping skids until it is near its final position. Once skids are removed, carefully place forks under base. Do not allow the forks to come in contact with valves, piping, motors, etc., located under the machine. Do not push or hit the shell front when uncrating or installing the machine as it may cause the door to leak.
2. Never push, pull, lift, jack, or exert pressure on any components that protrude from the machine frame (shell front, door, electric boxes, controls, guards, conduits, conveyors, piping, valves, drains, vents, tilt frames, etc.).
3. Do not pull on door conduit to help move the machine as the door switch may require readjustment.

3. Site Requirements

3.1. Space Requirement

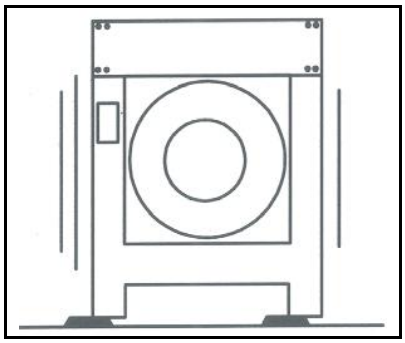
1. All openings and corridors through which equipment must pass during installation must be large enough to accommodate the width and the height of the machine as shown on the dimensional drawings. It is occasionally possible to reduce the overall dimensions by removing piping or other special modifications. Consult Milnor for additional information.
2. Sufficient clearance must be provided for normal operation and maintenance procedures.

3.2. Operational Requirements

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

3.3. Foundation Requirement—The floor and/or all other support components must have sufficient strength and rigidity with due consideration for the natural or resonant frequency thereof to withstand the fully loaded weight of the machine, including the wet goods and any repeated sinusoidal (rotating) forces generated during its operation. Determining the suitability of floors, foundations, and other supporting structures normally requires analysis by a qualified structural engineer.

Figure 3: Vibration warning



CAUTION 2: Machine damage hazard—Improperly installed suspension type machines can "walk" out of position during extract (Figure 3), endangering personnel and damaging equipment.

- Roughen floor. Install anchor bolts and grout under all base pads to prevent "teeter-totter" and sideways movement.
- Remove shipping restraints after machine is in place. Failure to remove all restraints (usually painted red) will cause malfunctions and damage. Restraints may be located behind access covers. These include, but are not limited to:
- Cylinder hold-down bolts, brackets, straps and/or blocking. Replace all fasteners which are part of the machine structure.
- Vibration safety switch restraint.

4. Setting Procedures

To protect against lateral creeping of the machine during operation (due to vibration), roughen the area of the floor where the grout will be applied. Anchor bolts are required.

1. With the machine near the final location, unbolt the shipping skids. Observing all precautions, lift the machine off its skids and lower the machine onto blocking. Shim the blocking until the machine is level and approximately l" (25) clearance exists under each base pad. Install anchor bolts as shown on the dimensional drawing, but do not tighten bolts until grout is completely dry.
2. Apply grout between the existing foundation floor and the base pads, observing the following considerations:
   - Use only industrial strength non-shrinking grout. Pack or trowel by hand.
   - If the grout after mixing is too thin (causing it to flow from under the base pads) install temporary cardboard framing around pads to retain the grout until it cures.

CAUTION 3: Vibration and Malfunction Hazard—Voids under the base pads can magnify vibration and cause unsatisfactory operation.

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

3. Tighten anchor bolts evenly using only one-quarter turn on each bolt before moving to the next one. While tightening, frequently skip from front to back and right to left to insure uniform tension. After tightening all bolts, check each bolt at least twice during the first week of operation.

5. Before Running Machine

CAUTION 4: Machine Damage Hazard—Machine can be damaged if shipping restraints are improperly utilized. These include various bolts, brackets, weldments and safety stands (painted red), and the vibration safety switch (tie wrapped).

- DO NOT remove shipping restraints until installation is complete.
- DO remove all shipping restraints before operating machine.

All machines are shipped with the shell locked to the mid frame by four hold down ring weldments (two per side). Each weldment consists of a cone and cup arrangement. When shipped, the shell mounted cone and the mid-frame mounted cup are locked together using a center bolt and shims inserted under the weldment cup (Figure 4). Remove the center bolt and shims before placing machine in service. Re-install the weldment as shown in Figure 4 and store the shims underneath the mid frame as shown in Figure 5. Retain center bolts in the event that the machine is moved.

Figure 4: The hold down weldment

Cone-can weldment as shipped, locking the shell and mid frame together

Cup weldment when setup for operation

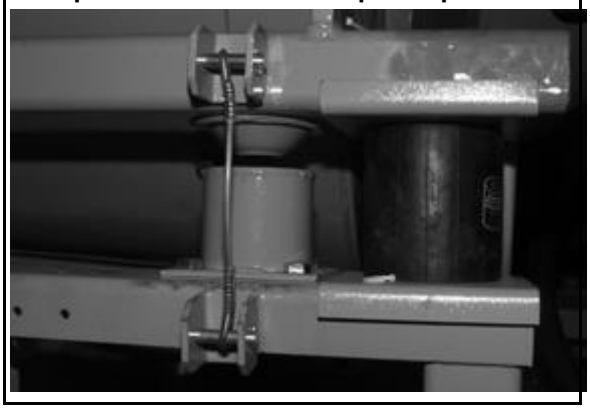
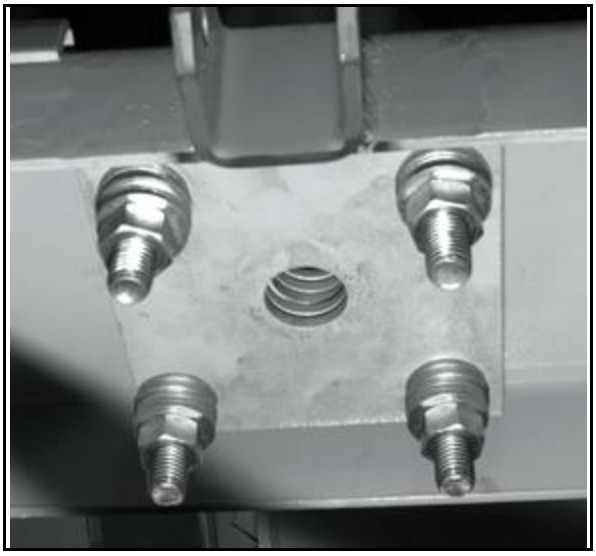


Figure 5: Shims stored under the mid frame



6. Before Tilting Machine

WARNING 5: Crush/Sever hazard—Tilting mechanisms can crush or sever parts of your body caught in them.

- Install 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 tilted machine - even if the safety stands are installed.

WARNING 6: Crush/Sever hazard—Tilt machines with tilt wheels/cradles may lunge forward or rearward and even fall over if the non-tilted ends are raised out of their cradles - killing/injuring personnel and/or damaging property.

- NEVER manually tilt (lift) both ends of the machine at the same time. One end must always be seated in its cradle.
- ALWAYS visually inspect the tilt wheels to be sure they are all fully seated in their cradles before each manual tilt up.
- Pneumatic valve manual operation must be done by trained competent maintenance personnel who thoroughly understand the system and all the consequences of manual operations.
- ALWAYS understand beforehand all the consequences of manually operating pneumatic valves.
- NEVER permit operation with malfunctioning tilt limit switches

Tilting machines leave the factory with 4 hold-down bolts (two per side) locking the tilting mid-frame to the floor frame (Figure 7). Remove these bolts after machine is anchored and grouted, service connections are complete and all other installation steps are complete.

Figure 6: Safety stand in place

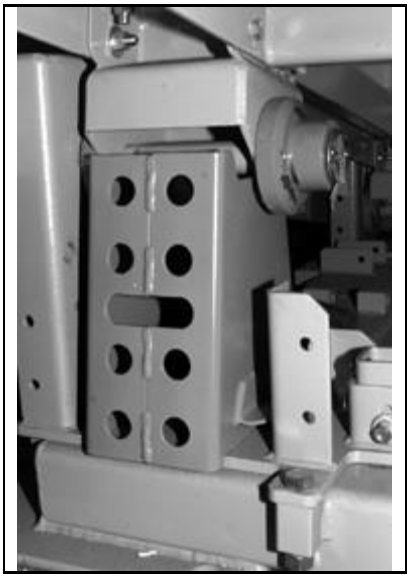
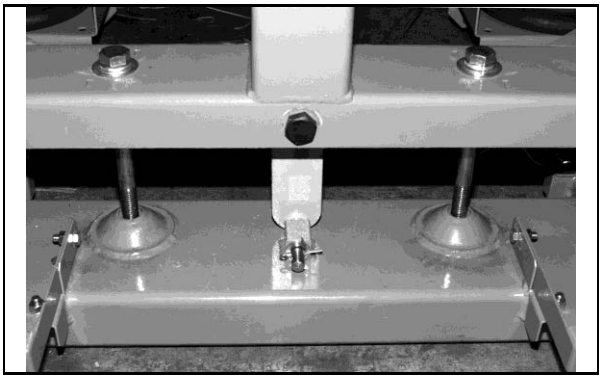


Figure 7: Tilting Mid Frame to Floor Locking Bolts



— End of BIIFLI01 —

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

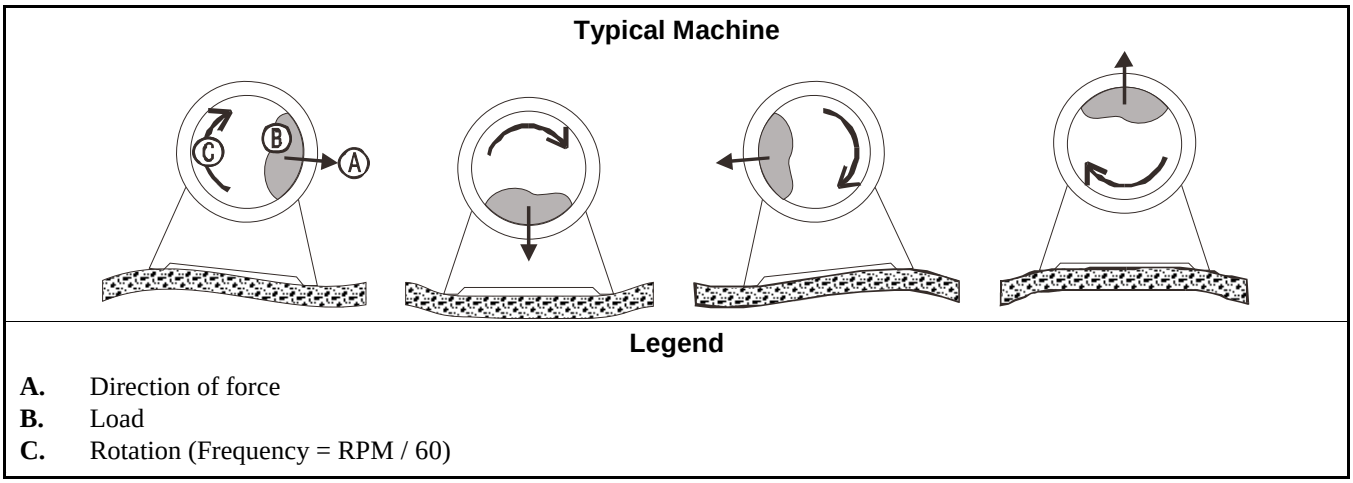
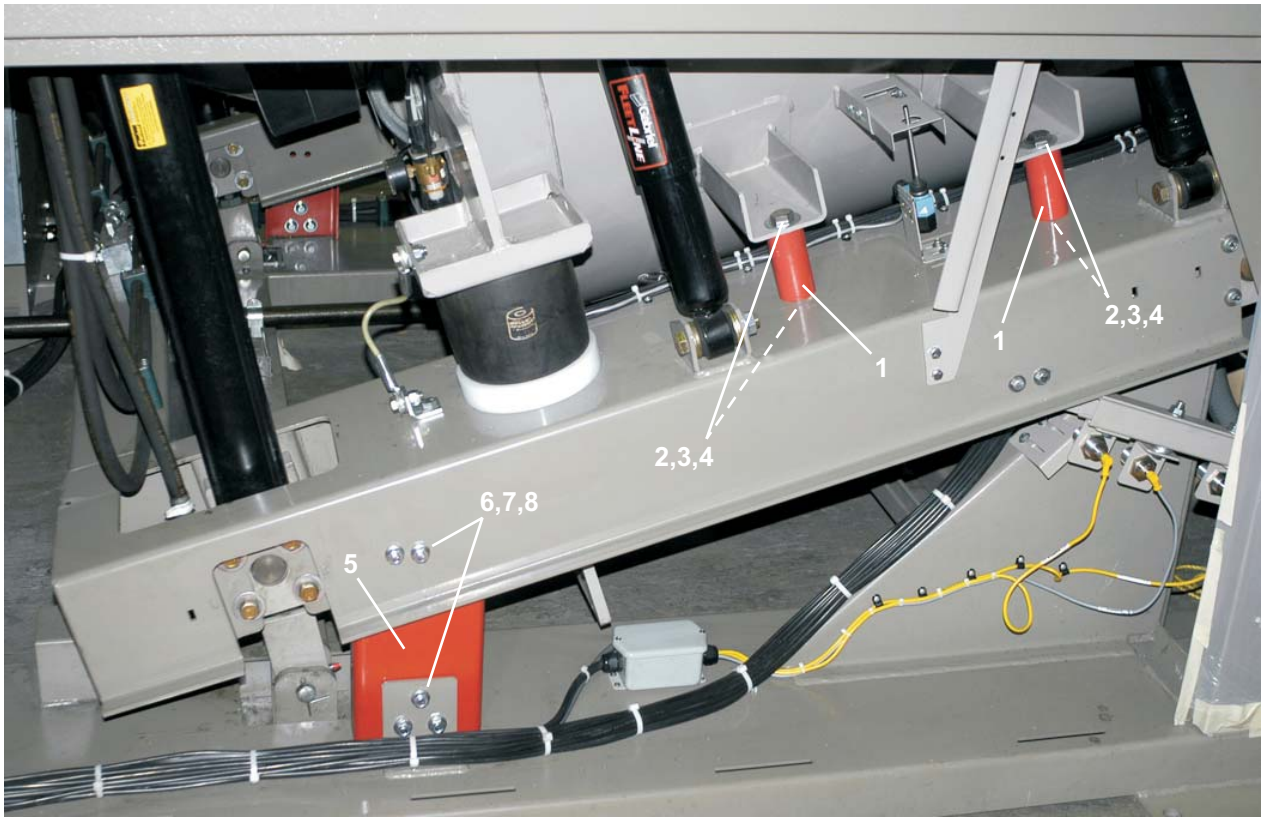


Figure 1 above is intended to depict both on-grade and above-grade installations and is equally applicable to flexibly-mounted washer-extractors, as well as to rigid models installed either directly on a floor slab or on a foundation poured integrally with the slab. Current machine data is available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

Shipping Brackets

68036H5N, 68036H5K



Parts List—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	GSB68001	INSTL=SHIP/SAFETY BRKT, 6836F5A	
			----------COMPONENTS----------	
all	1	02 22425	4840F7A SHIPPING BRKT	
all	2	15K235ES	HEXCAPSCR 3/4"-10X6 SS #70375	
all	3	15U492	FLTWSH1+15/32ODX13/16IDX.125ZC	
all	4	15G244A	HEXNUT 3/4-10UNC2B BRASS	
all	5	02 22423A	6836F5A SHIPPING BRKT	
all	6	15K129	HEXFLGSCR 1/2-13X1-1/4ZN. GR 5	
all	7	15U280	FL+WASHER(USS STD)1/2 ZNC PL+D	
all	8	15G222B	HEXFLGNUT 1/2-13 ZINC SERRATED	

BIIFUI01 (Published) Book specs- Dates: 20130129 / 20130129 / 20130129 Lang: ENG01 Applic: IFG IFH

Service Connections

Required service connections (depending on the machine model and optional equipment) are as follows:

1. Piped inlets and outlets are as listed in the “Table of Piped Inlets” and “Table of Piped Outlets.” The sizes and locations of piped inlets and outlets are shown on the dimensional drawings for the machine.
2. Electric power connections.

1. Requirements for Piped Connections

1. Inlet pressures must be within the minimum/maximum range specified. Pressures outside of the specified range may cause the machine to operate inefficiently or malfunction, and may damage machine components.

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

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

2. When connecting water and steam inlets, always install unions and shut-off valves at the point of connection to permit removal of the machine components for servicing, if necessary.
3. If available, use hot water for the supply injector connection. Hot water supply must be 10 PSI minimum (0.70 kilogram/centimeter) and must not contain steam. After making the connection, set the pressure regulator for a maximum of 28 PSI (1.96 kilograms/centimeter), when there is no water flow.
4. If valve is accidentally piped to the wrong water line, merely interchange the air tube (if valve is air operated). Never interchange any electrical connections.
5. Some of the water inlet and/or steam valves on machines may be of the “ball valve” construction. The flow rate of a ball valve is far greater than that of an equal size globe valve. Do not use globe type shut-off valves in front of ball valves unless the globe valve is selected in accordance with the following table.

CAUTION 2: Machine Damage Hazards—Pumped chemical systems, if not properly installed, can cause corrosion damage.

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

Table 1: Valve sizes and their equivalents

Ball valve size	Equivalent globe valve size
1-1/4" normal flow	2-1/2"
1-1/2" normal flow	2-1/2"
2" normal flow	3"

2. Piped Inlet Specification

Piped inlet requirements are as follows (see dimension drawings for sizes and locations of connection points):

Table 2: Table of Piped Inlets

Description of Connections	Source Requirements	Piping Specifications, Comments
Compressed air--hydraulic tilting and non-tilt models	1/4" NPT, 85 - 110 PSI (5.97 - 7.73 kg.sq. cm.)	Pipe material per plumbing code
Cold water inlet	2" NPT 10 - 75 PSI (0.7 -5.27 kgs.sq. cm.)	
Hot water inlet		
Steam inlet	1 - 1/4" NPT 30 - 115 PSI (2.10 - 8.08 kgs. sq. cm.)	
Compressed air--air tilting models	3/4" NPT 85 - 110 PSI (5.97 - 7.73 kg.sq. cm.)	
Compressed air--hydraulic tilting and non-tilting models	1/4" NPT 85 - 110 PSI (5.97 - 7.73 kg.sq. cm.)	

2.1. Piped Outlet Specification—Piped outlet requirements are as follows (see dimensional drawings for sizes and locations of connection points):

Table 3: Table of Piped Outlets

Description of Connections	Destination Requirements or Description	Piping Specifications
Drain	8" OD (not tilted)	Rubber hose, PVC, or other approved material per plumbing code
Vent	4" Diameter	

2.2. Precautions for Electrical Connections

WARNING 3: Electrocution Hazard—Contact with high voltage can kill or seriously injure you.

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

1. Connections must be made by a competent electrician.
2. See the fuse and wire sizing information in the schematic manual and on the machine nameplate.
3. “Stinger leg” if any, must be connected to terminal L3, never to terminals L1 or L2.
4. Only use BUSSMAN FUSETRON FRN (up to 250V), FRS (up to 600V), or similar lag fuses. The nameplate fuse sizes must not be applied to standard fuses.
5. See nameplate for fuse and wire size. For wire runs more than 50 feet (15.24 meters), increase by one wire size per each additional 50 feet.
6. Make the power and liquid supply electrical connections within junction box on the rear of the machine.
7. Verify all motor rotation as shown in FIGURE 1 (See the operating and troubleshooting manual for more information). If the cylinder turns in the wrong direction, see note below.

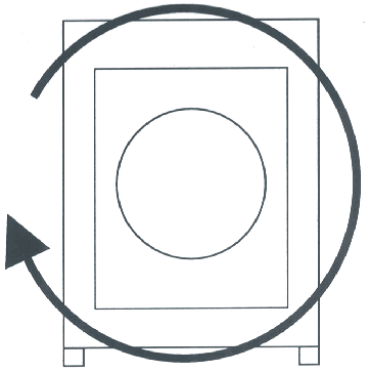
> **Note 1:** Before shipping, all motors are properly phased for correct rotation. It is possible to reverse the direction of rotation in a three-phase machine by interchanging the incoming power leads. Therefore, the rotation of a three-phase machine must be observed and corrected when the machine is first installed. If it is necessary to reverse the rotation, simply swap the incoming power lines to the

machine (never move L3 if L3 is a stinger leg). Never attempt to reconnect motors or the motor control devices.

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

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

Figure 1: Rotation Direction during Drain and Extract



2.3. Electric Power Connections—The customer must furnish a remotely mounted switch with lag type fuses, circuit breakers and wiring between the electrical service box and the junction box on the machine. The sizes of these fuses and wires, along with the motor fuses supplied with the machine, depend on the machine voltage. See the fuse and wire sizing information in the schematic manual and on the machine nameplate.

— End of BIIFUI01 —

Drive Pulley and Belt Maintenance

BNUUUM02.C01 0000274598 B.2 A.2 2/4/20, 8:08 AM Released

Figure 1. Examples of drives this instruction applies to: one or more V-belts, attached V-belts and tooth belts

NOTICE: "Remove power from the machine" means use the necessary safety procedure for your location. In the USA, this is the OSHA lockout/tagout (LOTO) procedure. More local requirements can also apply.

WARNING: **Risk of Injury or death** — A machine in operation without safety guards is dangerous. Drive belts can pull in your body or clothing.

- ▶ Remove power from the machine when you do work on the mechanisms.
- ▶ Stay out of the machine frame when you do a test on the machine.
- ▶ Replace all covers before you put the machine into operation.

TIP: Read these documents from the Gates Corporation (`www.gates.com`) to know more about pulley and belt maintenance: "Belt Drive Preventive Maintenance & Safety Manual" and "Preserve your investment - Check Engine Belts Often."

1. Pulley Requirements

BNUUUM02.C02 0000274597 B.2 A.2 2/4/20, 8:08 AM Released

- Keep pulleys free of dirt, oil and other contamination.
- Replace pulleys with groove damage.
- Align pulleys and shafts.
- Keep run-out in tolerance.

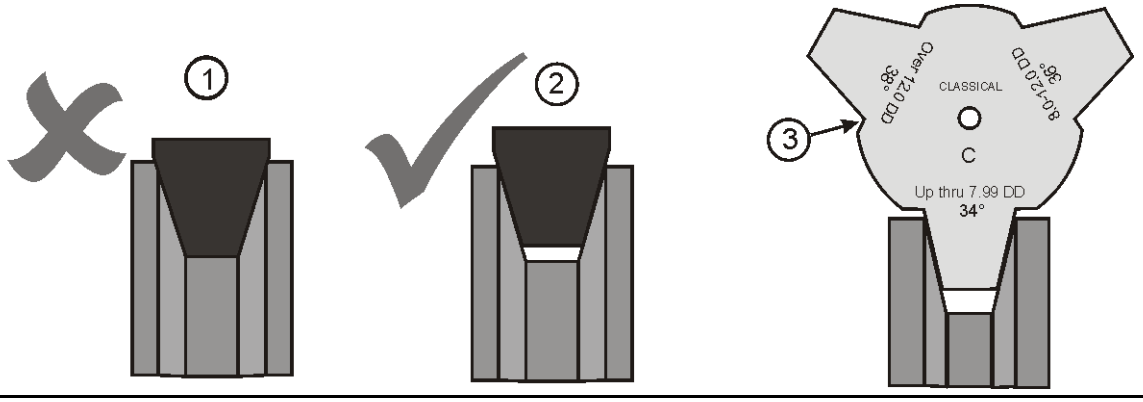
1.1. Condition of Grooves on Pulleys

BNUUUM02.C03 0000274611 B.2 A.2 2/4/20, 8:08 AM Released

Replace a pulley if:

- the grooves have burrs, cracks, or worn areas that can cause damage to the belts.
- the belts touch the bottom of the groove at any point (Figure 2, page 2).

Figure 2. Pulley Groove Condition



Legend

1. Incorrect: Too much pulley wear. The belt touches the bottom of the groove.
2. Correct: The belt does not touch the bottom of the groove.
3. Use a sheave (pulley) gage to see if grooves are worn.

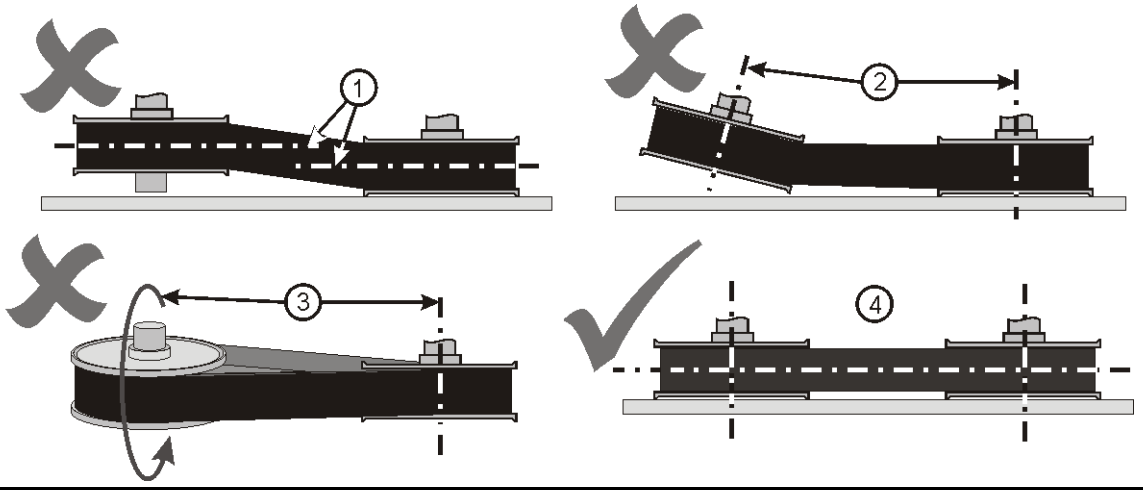
1.2. Pulley and Shaft Position

BNUUUM02.C04 0000274609 B.2 A.2 2/4/20, 8:08 AM Released

Align To adjust parts until they are in a correct position to other parts.

- Always align components when you replace a motor, bearing housing, pulley, or belt.
- The belts must not twist or make unusual noises or show vibration.

Figure 3. Pulley and Shaft Position



Legend

1. Not aligned: Pulley grooves are in different planes.
2. Not aligned: Pulley grooves are in different planes and shafts are not parallel.
3. Not aligned: Pulley shafts are not parallel (not at the same slope).
4. Aligned: Pulley grooves are in the same plane and shafts are parallel.

1.3. Keep Run-Out in Tolerance

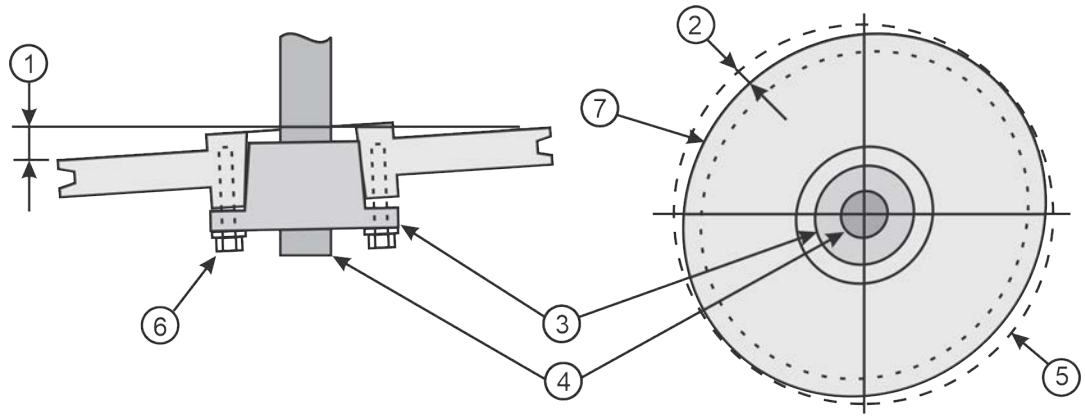
BNUUUM02.C05 0000274606 B.2 A.2 2/4/20, 8:08 AM Released

Axial run-out The difference between the minimum and maximum distance between the face of a pulley and a plane perpendicular to the pulley shaft (Figure 4, page 3, item 1). Incorrect installation or damage can cause a pulley to be not at a 90 degree angle to the shaft.

Radial run-out The difference between the minimum and maximum diameter in one turn (Figure 4, page 3, item 2). If a force causes damage to a pulley, it can bend. It will not have a circular shape.

Figure 4. Run-out

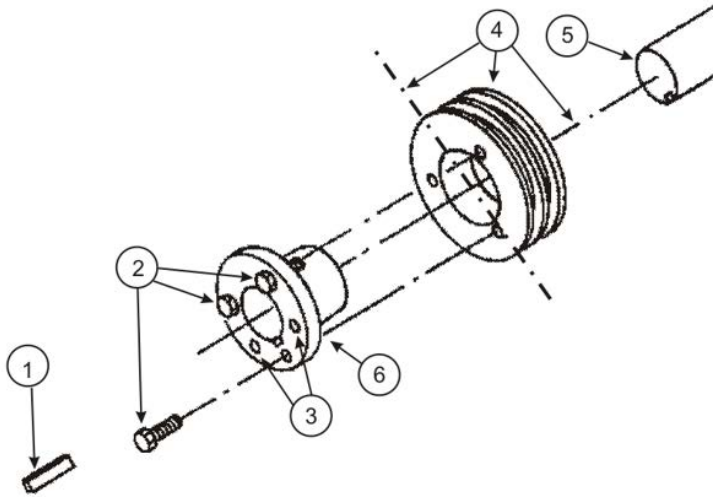
Views of Axial and Radial Run-out



Legend

1. Axial run-out. This pulley is bent or not perpendicular to the shaft. This condition must not be more than 1 mil for each inch (0.1 mm for each dm) of the pulley diameter.
2. Radial run-out. This pulley is not circular. This condition must be less than 10 mils (0.25 mm).
3. Bushing
4. Shaft
5. A circle
6. Bushing bolts
7. Sheave

Figure 5. Typical Pulley Assembly

View of Pulley Components	Legend
	1. Key 2. Bushing bolts. Tighten bolts in a pattern that gives the same torque. This will give minimum axial run-out. 3. Push-off holes 4. Pulley. Measure the radial run-out of the pulley after you assemble. Make sure that the center of the pulley is the same as the center of the shaft. 5. Shaft. Make sure that the shaft is not bent. 6. Bushing

2. Belt Requirements

BNUUUM02.C06 0000274605 B.2 A.2 2/4/20, 8:08 AM Released

- Replace damaged belts.
- The pulleys must stay aligned when you adjust the belt tension.
- Do not use belts made from cut belts.
- For a drive with more than one belt:
  - Replace all of the belts together.
  - Do not mix new and used belts.
  - Do not mix belts from more than one manufacturer.

CAUTION: **Risk of damage —** A screwdriver or metal tool can cause damage to the belt.

▶ Do not push the belt on with a tool.

2.1. Condition of Belts

BNUUUM02.C07 0000274604 B.2 A.2 2/4/20, 8:08 AM Released

Slippage when the pulley turns more quickly than the belt can move

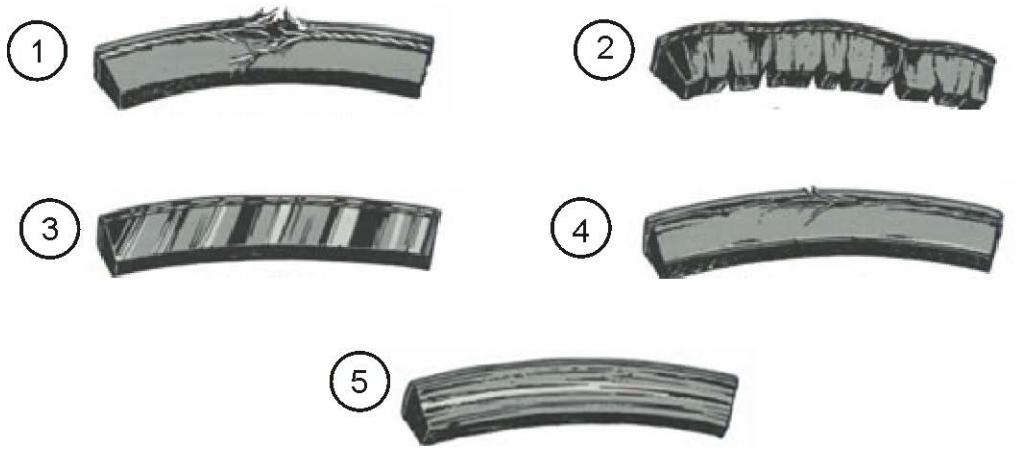
Slippage occurs if belts are not aligned (see Section 1.2 , page 2) or by incorrect tension explained in Section 1.2 , page 2. Slippage can cause belts to become too hot. Belts must not have a temperature more than than 140F (60° C).

TIP: The belt storage area must be cool and dry with no sun light.

TIP: New and used belts can look the same. These belts will have different strength properties and a small difference in length.

Figure 6. Types of Belt Damage

What to Look For



Legend

1. Broken cord—The belt was pushed across the groove with a metal tool.
2. Cracks—The belt is too large for the pulley.
3. Shiny sidewalls—slippage, oil, grease.
4. The belt layers disconnect—oil, grease.
5. Bands on sidewalls—rough surface or particles in the pulley groove.

2.2. Tension of Belts

BNUUUM02.C08 0000274657 B.2 A.2 2/4/20, 8:08 AM Released

This data does not apply to belts where a spring holds the correct belt tension. Manual tension adjustment is not necessary for this type of drive.

The correct belt tension is the lowest tension that prevents belt slippage with a full load condition. If the belt is too tight, this can cause damage to the belt, the pulleys, bearings, and other drive components. If the belt is too loose, this can cause belt slippage. Incorrect belt tension or belt slippage can cause components to make an unusual noise.

When you install a new belt, use these rules to get the correct belt tension:

- Set the tension of the belt when you replace a motor, bearing housing, pulley, or belt.
- Replace all belts on a pair of pulleys when you replace one of them.
- After adjustment, operate the machine in all of its standard conditions to make sure that the belt operates correctly. For example, operate a washer-extractor in its full speed range with a full load of wet goods.
- Adjust the tension when you first install a belt. Do the adjustment again after 24 and 48 hours of operation. All belts will become longer after a short time. A V-belt will move down in the grooves of the pulleys. These conditions will cause the tension to decrease.

When you do scheduled maintenance, examine the belts for correct tension. With operation, belts become longer.

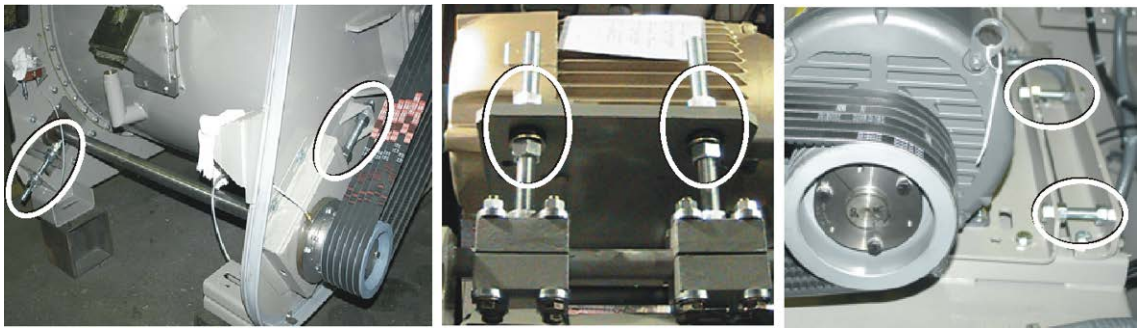
3. The pulleys must stay aligned when you adjust the belt tension

BNUUUM02.C09 0000274654 B.2 A.2 2/4/20, 8:08 AM Released

Some tension mechanisms do not have an effect on pulley and shaft requirements. Pulleys will stay aligned when you adjust them. Figure 7, page 6 is an example of these. Where tension mechanisms are a pair of threaded rods, you must adjust the nut, on each rod carefully. If not, the pulleys will not stay aligned. Examples of this type are shown in Figure 8, page 6.

Figure 7. A Tension Mechanism that will not Change the Angle of the Pulleys

Figure 8. Some Pairs of Tension Mechanisms that Can Change the Angle of the Pulleys



4. How to Do Maintenance on Pulleys and Belts

BNUUUM02.C10 0000274653 B.2 8/23/23, 9:45 AM Released

Table 1. Typical Tools for Pulley and Belt Maintenance

Tool	Function	Related Data
Torque wrench	Make the bushing bolts the same torque to get the minimum axial run-out.	Figure 5, page 4, item 2
Laser, straight edge, or string	Align pulleys	Tools are listed in order of preference. Section 1.2 , page 2 and Figure 9, page 8
Bubble level	Align shafts	Section 1.2 , page 2 and Figure 10, page 9
Dial indicator	Measure run-out	Section 1.3 , page 3 and Figure 11, page 9
Sheave (pulley) gage	Examine pulley wear	Figure 2, page 2.
Infrared thermometer	Examine belt temperature	Section 2.1 , page 4.

4.1. Typical Steps to Replace Pulleys and Belts

BNUUUM02.C11 0000274652 B.2 A.2 2/4/20, 8:08 AM Released

Preparation Remove power from the machine.

Belt removal Use the belt tension mechanism to decrease the distance between the pulleys until you have sufficient clearance. Figure 7, page 6 and Figure 8, page 6 show typical belt tension mechanisms.

Pulley removal On the typical type of pulley and bushing shown in Figure 5, page 4, use the push-off holes to remove the pulley easily. On special types of pulleys (example: large drive pulley and cone), look at the parts document in the maintenance manual for more data. Some pulleys are too heavy for only one person to hold.

Pulley installation Figure 5, page 4 shows the typical pulley and bushing components. Make sure that you keep run-out tolerances when you assemble and tighten the components.

Belt installation Decrease the distance between the pulleys to put the belt on easily. Assemble the components carefully. Make sure that the components are aligned. Adjust the belt tension so the belt is tight.

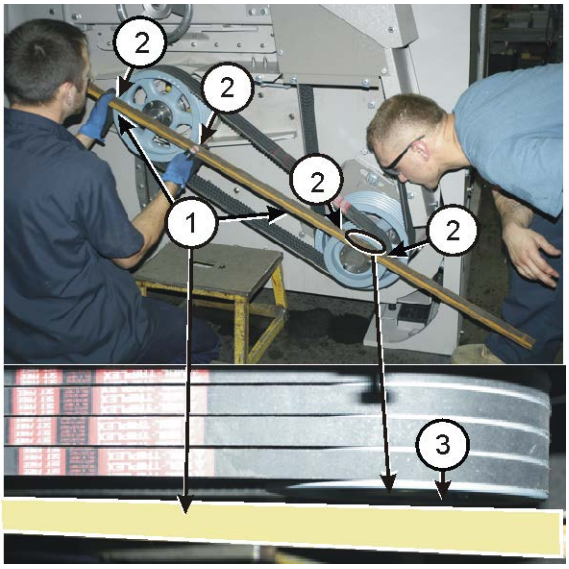
Test Before you connect power again, make sure that you remove all tools. Operate the machine with a full load. If the belts slip, increase belt tension with the machine shut down and power removed. Then test again. Make sure that the machine is safe before you put it into regular operation.

4.2. Examples of Procedures Used at the Milnor® Factory to Align Pulleys

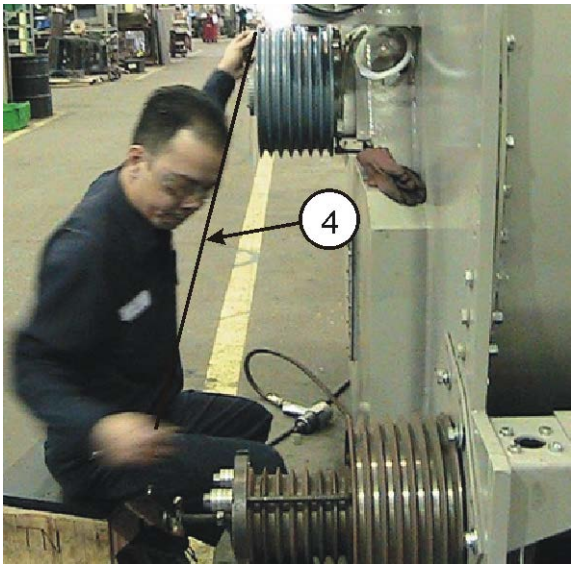
BNUUUM02.C12 0000274686 B.2 A.3 3/6/20, 4:49 PM Released

Figure 9. Use a straight edge, a string, or a laser to make sure that all pulleys are in the same plane.

Straight edge



String



Legend

1. Straight edge.
2. Four points where the straight edge must touch the pulleys.
3. Space between the straight edge and the pulley. This shows that the pulleys are not in the same plane.
4. You can use a string as a straight edge if you hold it tight.
5. Magnet-mounted laser
6. Three targets to point the laser at.

Laser

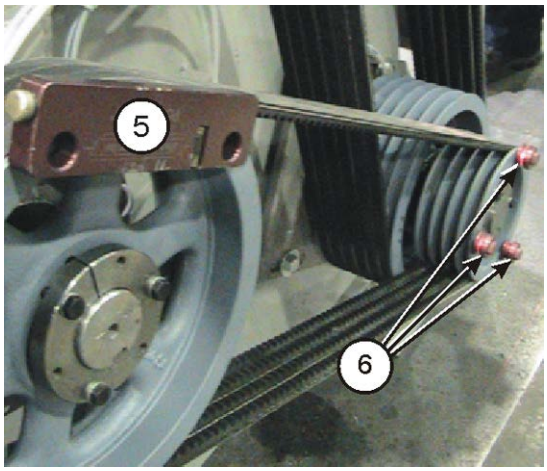


Figure 10. Use a level to make sure that the pulleys are at the same slope.

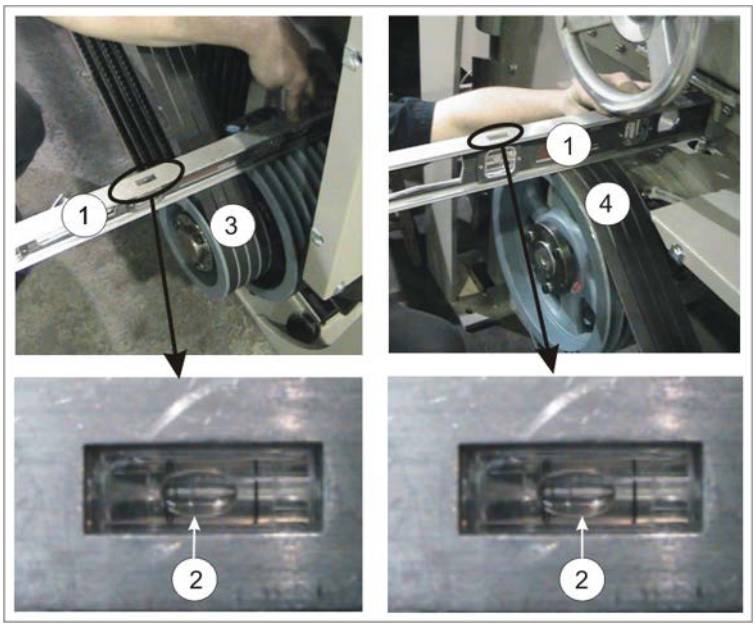
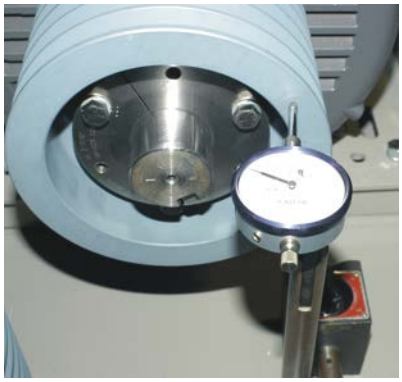
A level on the top of two pulleys	Legend
	1. Bubble level: Use this tool to make sure that the slopes of pulleys are equal. This is to make sure that you do not have the condition in Figure 3, page 2, item 3. Mechanisms shown in Figure 8, page 6 can change the pulley slopes. 2. If the slopes of the pulleys are equal, the bubble will be in the same position for each pulley. The bubbles do not have to be in the center of the level. 3. A pulley 4. A second pulley on the same drive

Figure 11. Dial indicator used to find the axial and radial run-out of a pulley.

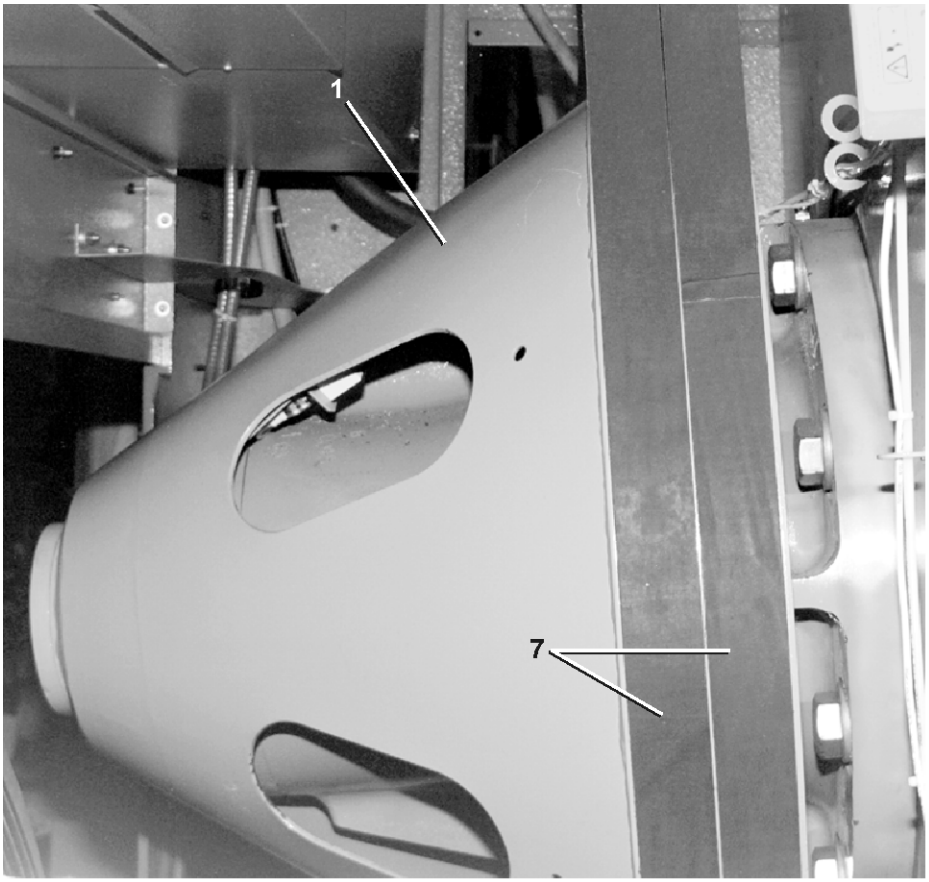
Axial Run-out (1)	Radial Run-out (2)	Legend
		1. Dial indicator in position to measure axial run-out 2. Dial indicator in position to measure radial run-out

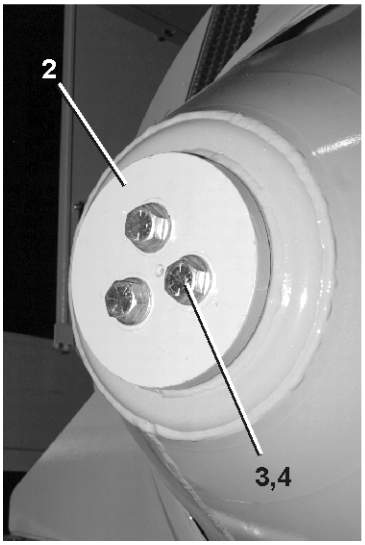
End of document: BNUUUM02

Drive 3

Drive Components Identification: 68036F5N, 68036H5N, 68036H5K

Figure 1: General Views





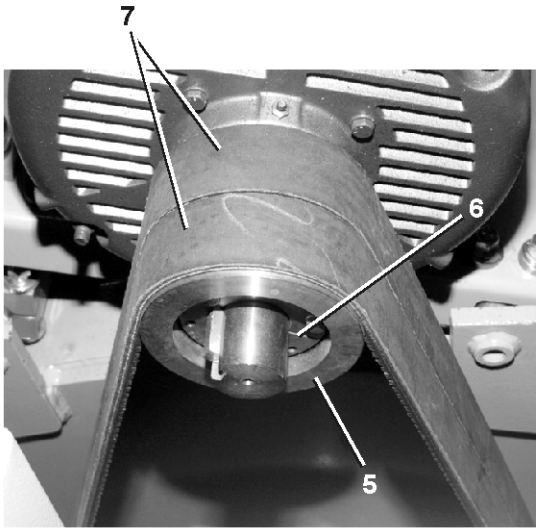


Table 1: Parts List—Drive Components Identification

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	D68 00250	Drive chart: 6836F5_	
Components				
all	1	X2 04428A	Pulley	
all	2	X2 21923	Pull-up plate	
all	3	15K232A	Bolt	
all	4	15U321H	Washer	
all	5	56050B8SK	V-pulley, SK	
all	6	56Q1RSK	Bushing, SK	
all	7	56VB171XB4	V-belt	

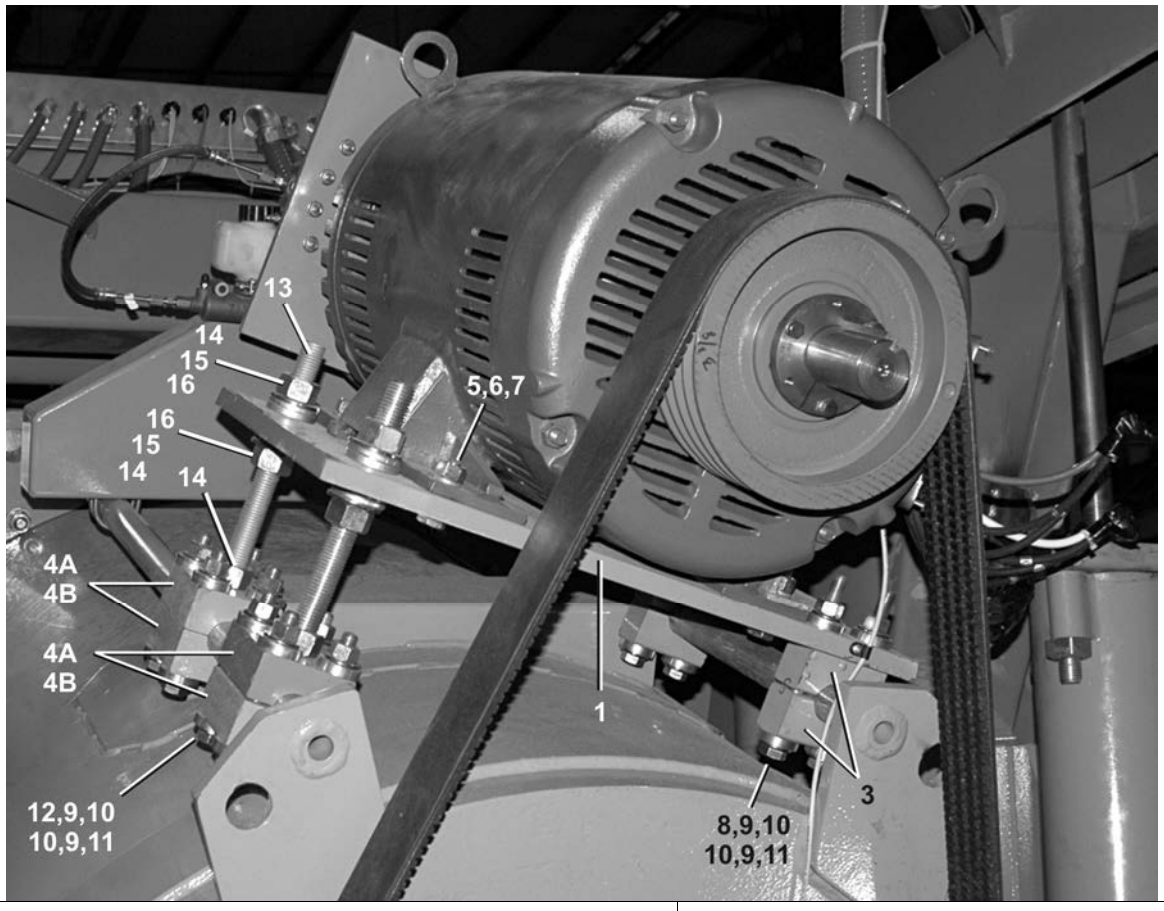
— End of BIIFGM06 —

BIIFLM06 (Published) Book specs- Dates: 20140320 / 20140320 / 20140320 Lang: ENG01 Applic: IFL IFG IFT IH4

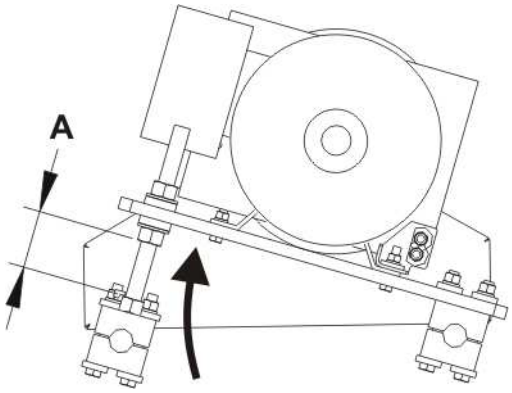
Drive Motor Installation

Figure 1: Drive Motor Installation: 48040F7_, 48040H7_, M7V48036_, M7V48040_, M9V4840_,6836F5_, 6836H5_

General View



Adjust the bolts to put the necessary tension on the belts.



Legend

A. The necessary dimension for a new belt.
A. (M9V4840_) = 3" (76)
A. (48040F7_,H7_) = 3 1/2" (89)
A. (68036F5N, 68036H5N) = 2 3/4" (70)

Figure 2: Drive Motor Installation: 48040H7N (shown)

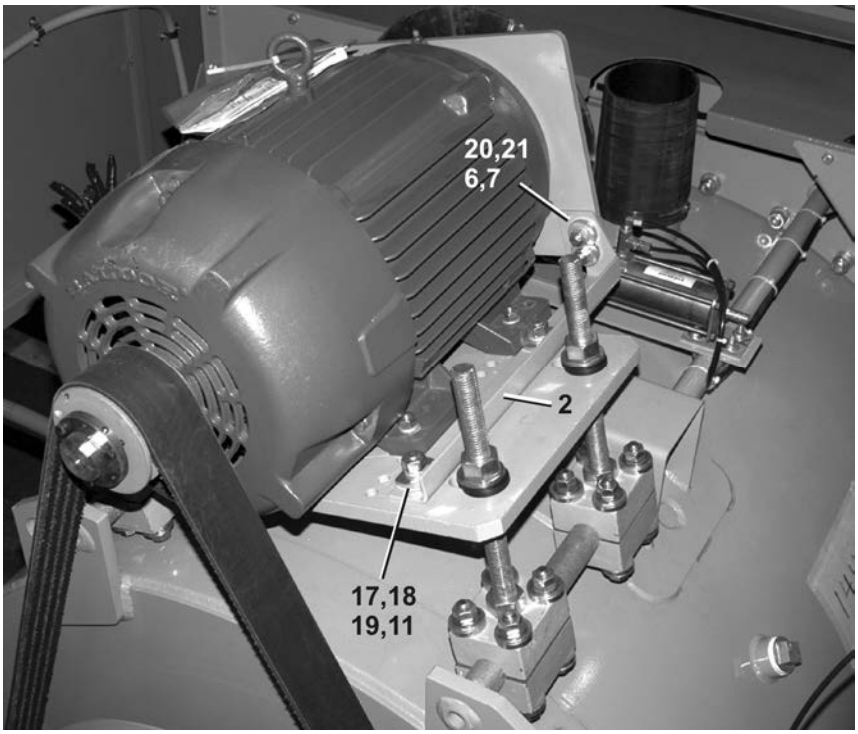


Figure 3: Drive Motor Installation: 68036F5N

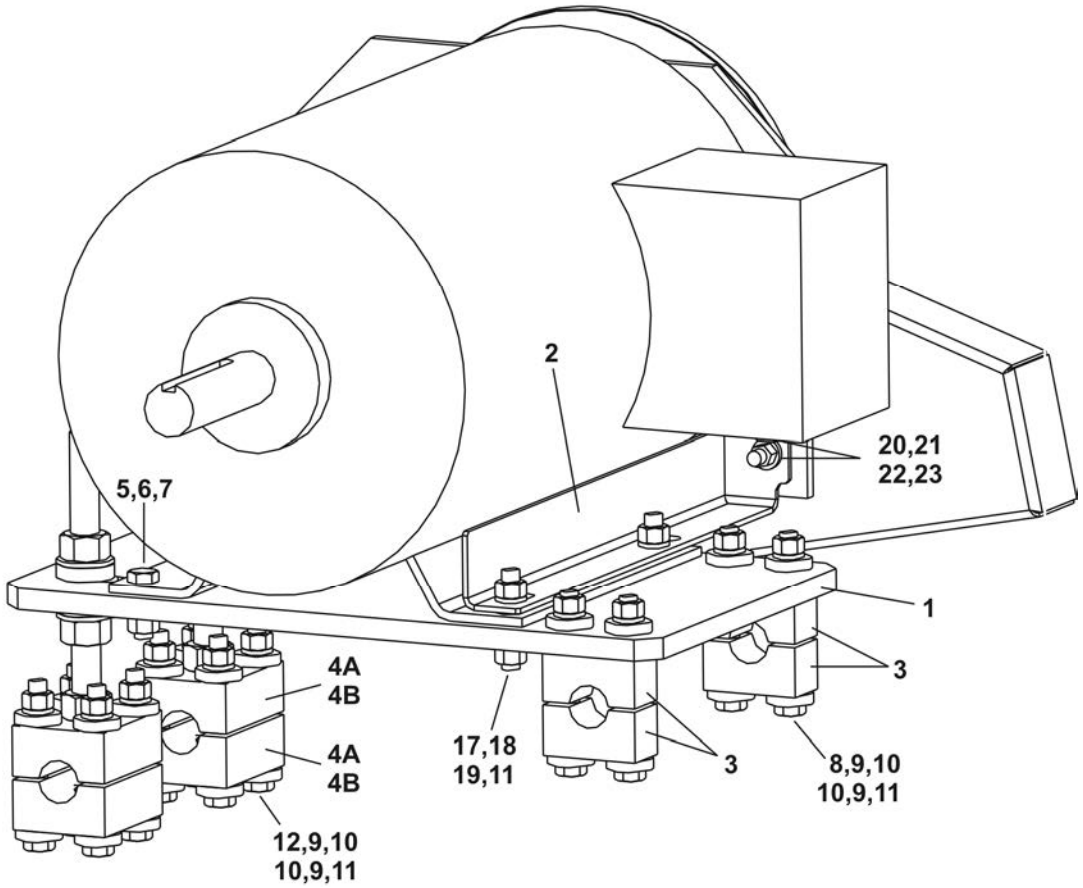


Table 1: Parts List—Drive Motor Installation

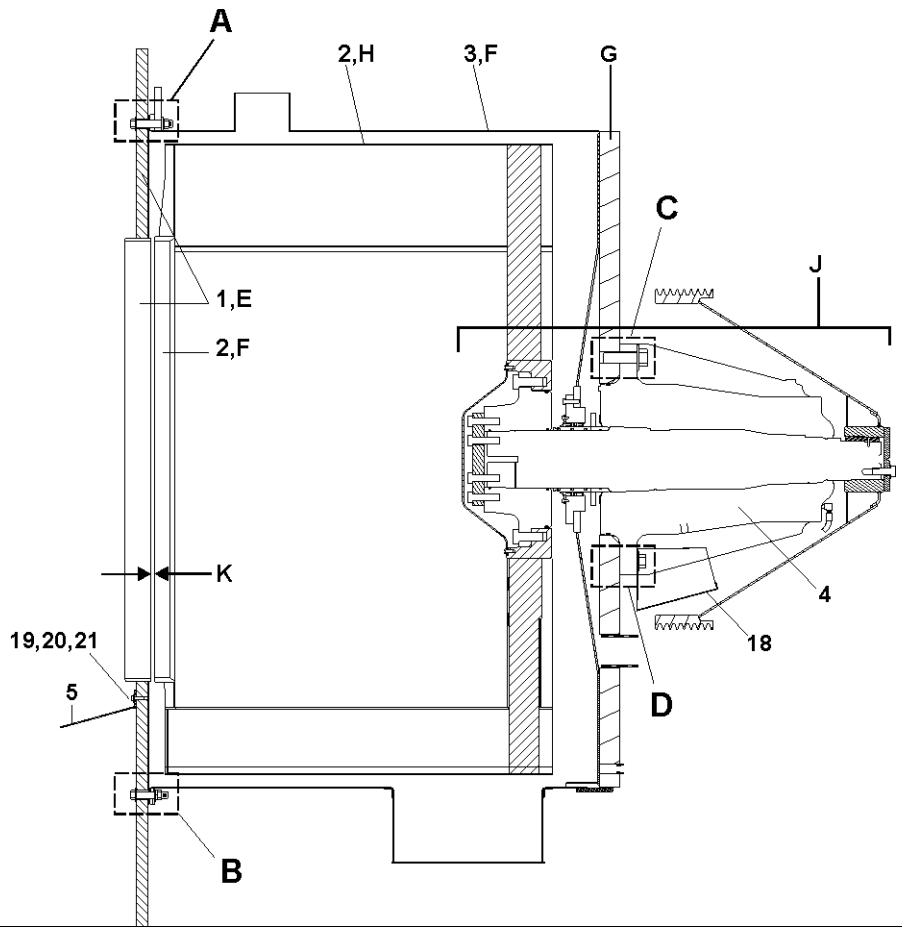
Find the assembly for your machine and the letter shown in the "Item" column. The components for your machine will show this letter or the word "all" in the "Used In" column. The numbers shown in the "Item" column are those shown in the illustrations.				
Used In	**Item**	**Part Number**	**Description/Nomenclature**	**Comments**
Assemblies				
	A	GBD4840M	Installation Group; Drive motor support	M7V4836_, M7V4840_, M9V4840_
	B	ADB4840F2	Installation Group; Drive motor support	4840H7_
	C	GDB6836E	Installation Group; Drive motor support,	6836F_, 6836H5_
Components				
all	1	03 17130	Motor plate	
B	2	02 21859C	Torque arm	
A	2	W3 17131	Torque arm	
C	2	W3 17131B	Torque arm	
all	3	02 11311B	Pivot clamp	
all	4A	X2 11311P	Jack bolt clamp	
all	4B	C2 11311C	Jack bolt clamp	
all	5	15K191A	Bolt; Hex head; 1/2-13X2.5	
all	6	15U300	Washer; Lock; 1/2	
all	7	15G230	Nut; Hex; 1/2-13	
all	8	15K227D	Bolt; Hex head; 5/8-11X6	
all	9	15U316	Washer; Flat; 5/8	
all	10	17W030	Washer; Spherical; 5/8	
all	11	15G238	Nut; Hex; 5/8-11	
all	12	15K227B	Bolt; Hex head; 5/8-11X5.5	
all	13	17R031A13A	Threaded rod; 1-8 X 13"	
all	14	15G250	Nut; Hex; 1-8	
all	15	15U393	Washer; Flat; 1"	
all	16	17W060	Washer; Spherical; 1"	
all	17	15K226L	Bolt; Hex head; 5/8-11X3.5	
all	18	02 11603A	Washer; Clipped; 5/8	
all	19	15U315	Washer; Lock; 5/8	
all	20	15K171B	Bolt; Hex head; 1/2-13X1+3/4	
all	21	02 11603C	Washer; Clipped; 1/2	

— End of BIIFLM06 —

Cylinder Installation 68036F5N, 68036H5N, 68036H5K, 68036M5K, 72046M5K

Figure 1: Cylinder Installation

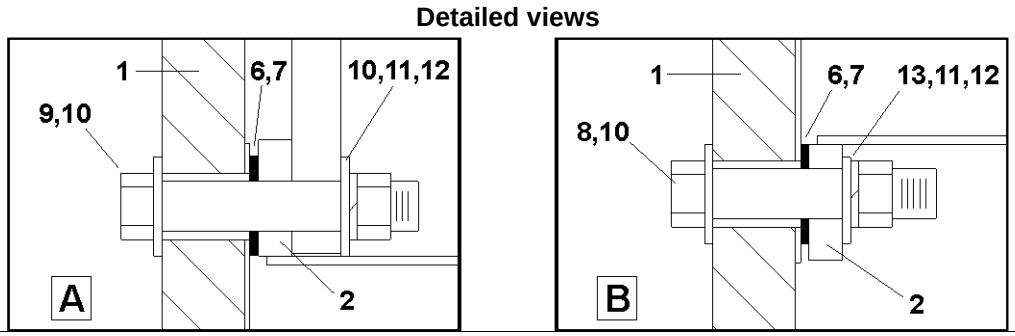
Cross Section



Legend

- **A.** Detailed view, Top connection between the shell front and the shell side sheet
- **B.** Detailed view, Bottom connection between the shell front and the shell side sheet
- **C.** Detailed view, Connection between the shell rear and the bearing housing, Top
- **D.** Detailed view, Connection between the shell rear and the bearing housing, Bottom
- **E.** Shell front
- **F.** Cylinder
- **G.** Shell rear
- **H.** Shell
- **J.** Cylinder and Bearing Installation, See the document BIIFGM07.
- **K.** This dimension must be in this range: 0.3125 inches [8mm] - 0.375 inches [10mm].

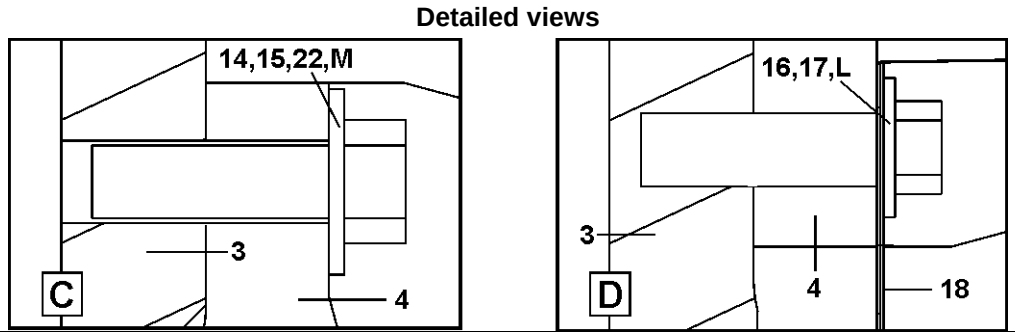
Figure 2: Shell front, Shell, Cylinder



Legend

A. Detailed view, Top connection between the shell front and the shell side sheet
B. Detailed view, Bottom connection between the shell front and the shell side sheet

Figure 3: Shell rear, Bearing housing

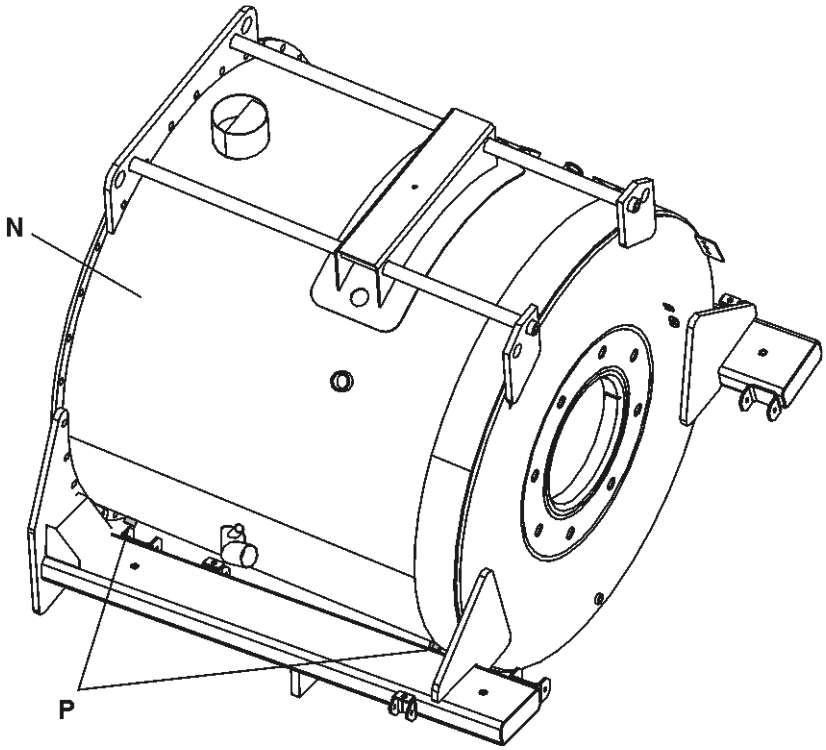


Legend

C. Detailed view, Connection between the shell rear and the bearing housing, Top
D. Detailed view, Connection between the shell rear and the bearing housing, Bottom
L. 2 instances
M. 8 instances

Figure 4: Shell

Top view



Legend

N. Shell

P. There are four plugs in the shell. There are two on each side of the shell. For maintenance, replace the plugs with the bolts that hold the cylinder.

Cylinder Installation 68036F5N, 68036H5K, 68036H5K, 68036M5K, 72046M5K

Table 1: Parts List—Cylinder Installation

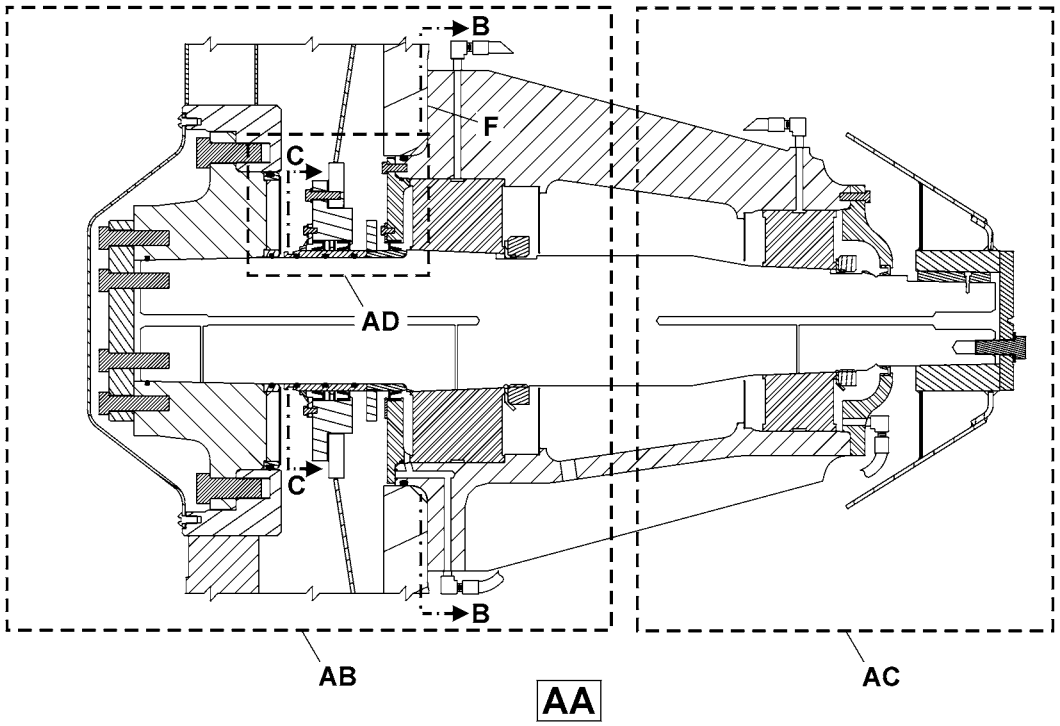
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	GSF68002	INST=SHELLFRNT W/48DOOR, 6836	68036F5N/H5K/M5K
	B	GSF72001	7246M5K SHELLFRONT INSTALL	72046M5K
			----------COMPONENTS----------	
A	1	W2 04445A	WLMT=SHELL FRNT 48-DR, 6836	
B	1	W2 25045	7246M5K SHELLFRONT WLMT	
A	2	ACA6836LDS	ASSY=CYL NO-BAL 48"DR, 6836F	
B	2	ACA7246M5K	7246M5K CYLINDER ASSEMBLY	
A	3	W2 04430A	WLMT=SHELL NO-BAL, 6836F	
B	3	W2 25020A	7246M5K JACK SHELL WELDMENT	
A,B	4	GBM6836E	INST=MAIN BRG HSE, 6836E	
all	5	W3 65338A	*WLMT=LOAD/UNLOAD SCOOP W/TUB	
A	6	02 04449A	GSKT=73+1/2BC 6836 1/16 THK	
B	6	02 25049A	7246M5K SHELLFRONT GASKET=1/16" THK	
Al	7	02 04449B	GSKT=73+1/2BC 6836 1/8 THK	
B	7	02 25049	7246M5K SHELLFRONT GASKET=1/8" THK	
all	8	15B211	HXCAPSCR 3/4-10X3+1/2 GRD.8 ZN	24 PLACES
all	9A	15K235CA	HXCAPSCR 3/4-10X4 GR8 ZINC	15 PLACES
all	9B	15K235G	HEXCAPSCR 3/4-10UNC2AX5" GR8	1 PLACE
all	10	15U492	FLTWSH1+15/32ODX13/16IDX.125ZC	
all	11	15U340	LOCKWASH MEDIUM 3/4 ZINCPL	
all	12	15G240	HXNUT 3/4-10UNC2B SAE ZINC GR2	
all	13	15U494	3/4SAE CLPFW.812IDX1.5ODX.135T	
all	14	15K309	HEXCAPSCR 1.25-7UNC X 4.0 ZINC	
all	15	15U600	FLTWASH 1+1/4 HARD ASTM F436	
all	16	15U393	FLTWASH 1" HARD ASTM F436	
all	17	15K255ZN	HXCPSCR1"-8UNCX1.5"L GR5 ZNPLT	
all	18	02 04398	SHIELD=BEARING DRIP, 6836E	
all	19	15U241	FLATWASHER 13/32IDX1+3/4ODX14G	
all	20	15U255	LOCKWASHER MEDIUM 3/8 ZINCPL	
all	21	15K105	HXCAPSCR 3/8-16UNC2A1.25 GR5 P	
all	22	20C007G	THDLOCKSEAL LCT24231 RMUBL50CC	

Bearing Housing

68036F5N, 68036H5N, 68036H5K, 68036M5K, 72046M5K

Figure 1. Overview Cylinder, Shell, Bearing and Pulley



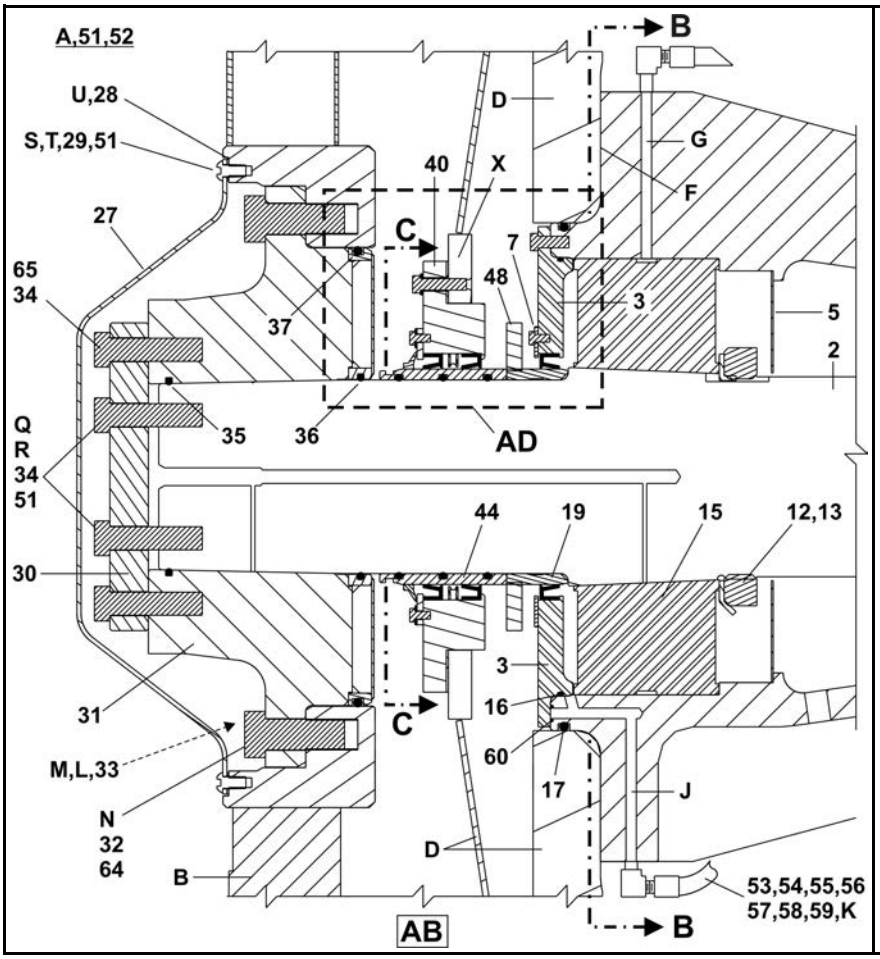
Legend

AA. Cross Section, Cylinder, Shell, Bearing and Pulley
AB. Cross Section, Detail view of the bearing housing front
AC. Cross Section, Detail view of the bearing housing rear
AD. Detailed view, Seal sleeve
F. Refer to the document, BPWH6B02

Bearing Housing

68036F5N, 68036H5N, 68036H5K, 68036M5K, 72046M5K

Figure 2. Detail View of the Bearing Housing Front



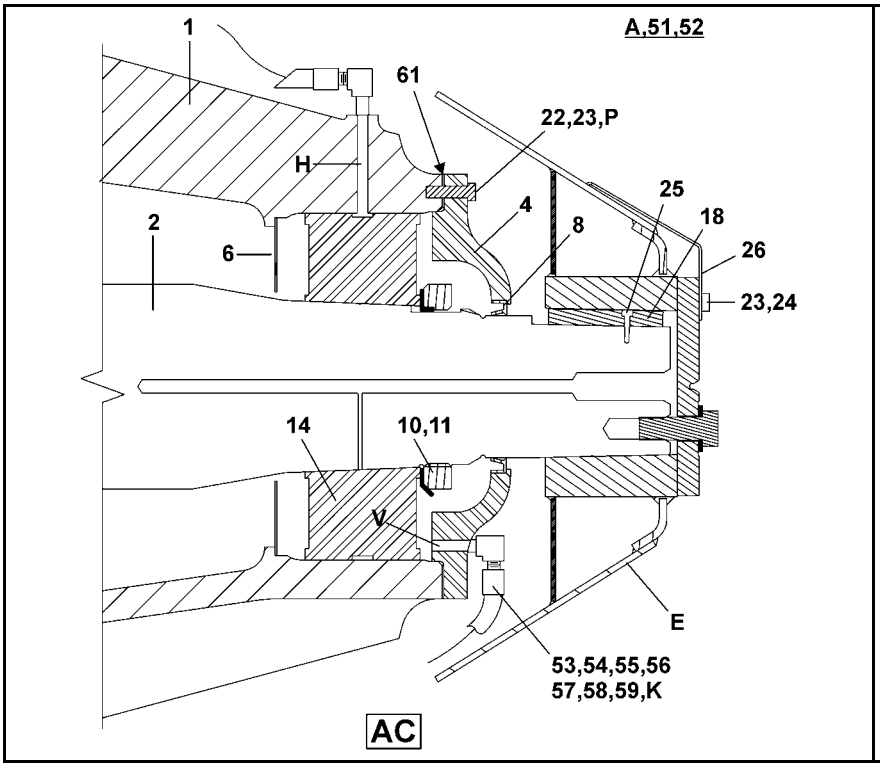
Legend

A.	Apply primer and adhesive to all bolts.
AB.	Cross section, Detail view of the bearing housing front
AD.	Detailed view, Seal sleeve.
B.	Cylinder
D	Shell rear
G.	Grease inlet for the front bearing
J.	Grease outlet for the front bearing
K.	5 instances
L.	not shown
M.	4 instances
N.	8 instances
Q.	12 instances
R.	Torque to 375+/- 10 Ft. Lbs.
S.	20 instances
T.	Torque to 8 +/- .5 Ft. Lbs or 96 +/- 5 In. Lbs.
U.	Apply silicone to the hub side of the gasket.
X.	Static ring of the shell rear

Bearing Housing

68036F5N, 68036H5N, 68036H5K, 68036M5K, 72046M5K

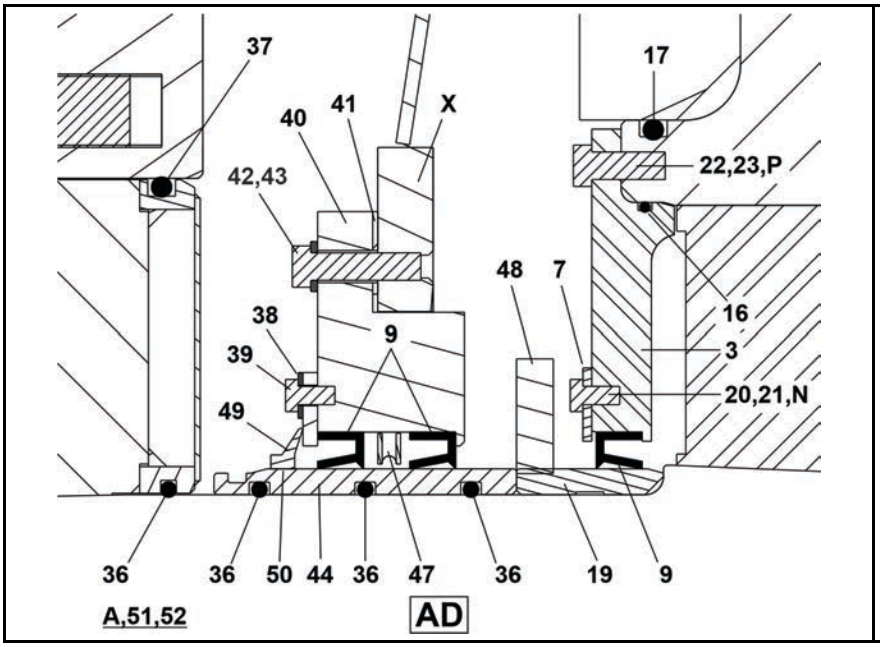
Figure 3. Detail View of the Bearing Housing Rear



Legend

A.	Apply primer and adhesive to all bolts.
AC.	Detailed view, Bearing housing rear
E.	Pulley
H.	Grease inlet for the rear bearing
J.	Grease outlet for the rear bearing
K.	instances 5
L.	not shown
M.	instances 4
P.	instances 10
V.	Grease outlet for the rear bearing

Figure 4. Seal Sleeve



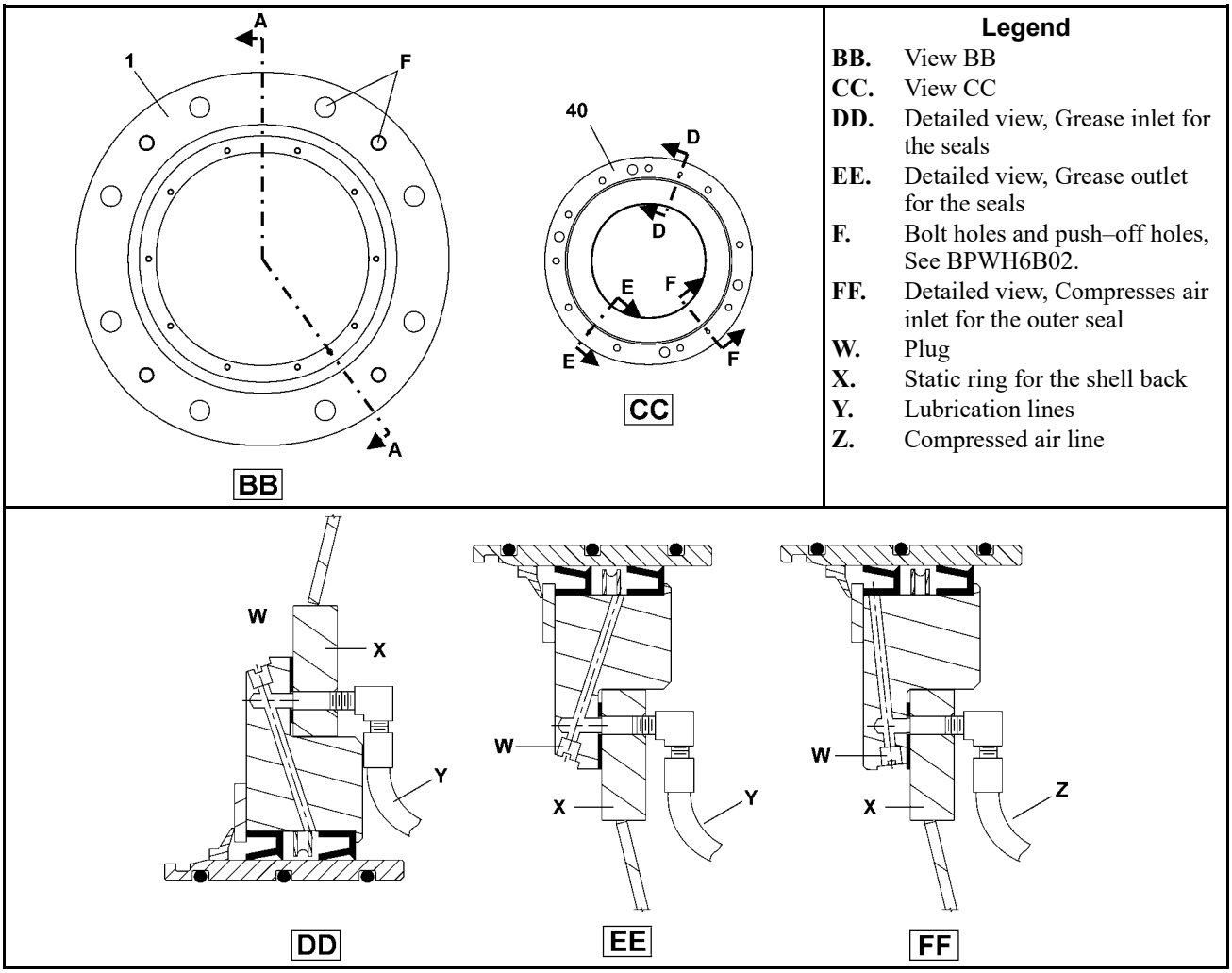
Legend

A.	Apply primer and adhesive to all bolts.
AD.	Detail view, Seal sleeve
N.	instances 8
P.	instances 10
X.	Static ring of the shell rear

Bearing Housing

68036F5N, 68036H5N, 68036H5K, 68036M5K, 72046M5K

Figure 5. Bearing Housing Lubrication and Air Ports



Legend

- **BB.** View BB
- **CC.** View CC
- **DD.** Detailed view, Grease inlet for the seals
- **EE.** Detailed view, Grease outlet for the seals
- **F.** Bolt holes and push–off holes, See BPWH6B02.
- **FF.** Detailed view, Compresses air inlet for the outer seal
- **W.** Plug
- **X.** Static ring for the shell back
- **Y.** Lubrication lines
- **Z.** Compressed air line

Table 1. Parts List—Bearing Housing

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
			Reference Assemblies	
	A	GBM6836E	INST=MAIN BRG HSE, 6836E	All Models
	B	ABM6836E	ASSY=BRN HOUSE, STD, 6836E	All Models
	C	ABM60010HS	PRTS=STNRD CYL/SHAFT MNT HUB	All Models
	D	ABM60010SS	PRTS=STANDARD FRONT SEALS	All Models
	E	ABM6836EV	ASSY=BRN HOUSE,VITON,6836E	Viton, All Models
	F	ABM60010HV	PRTS=VITON CYL/SHAFT MNT HUB	Viton, All Models
	G	ABM60010SV	PRTS=VITON FRONT SEALS	Viton, All Models

Bearing Housing

68036F5N, 68036H5N, 68036H5K, 68036M5K, 72046M5K

Parts List—Bearing Housing (cont'd.)

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
			Components	
all	1	X2 04390	MACH=BEARING HOUSING, 6836E	
all	2	X2 04391	MACH=MAIN SHAFT, 6836E	
all	3	X2 04392	MACH=FRONT SEAL HOLDER,6836E	
all	4	X2 04395	MACH=REAR SEAL HOLDER, 6836E	
all	5	02 04393	FRONT GREASE SHIELD, 6836E	
all	6	02 04394	REAR GREASE SHIELD, 6836E	
all	7	02 04396	SEAL RETAINER, HOUSING,6836E	
all	8	24S114	SEAL 4.5X5.5X.50 JM# 9170 LUP	
all	8	24S114V	SEAL 4.5X5.5X.50 JM#9170LUP-V	
B	9	24S130	SEAL 7.0X8.0X.625 JM#6862 NITR	
E	9	24S130V	SEAL 7.0X8.0X.625JM#19636LUPVI	
all	10	56AHN26	AN26 BEARING LOCKNUT	
all	11	56AHW26	W26 BEARING LOCKWASHER	
all	12	56AHN34	AN34 BEARING LOCKNUT	
all	13	56AHW34	W34 BEARING LOCKWASHER	
all	14	56S22326C3	SPHROLGRG SKF #22326 CCK/C3W33	
all	15	56S22334C4	SPHROLGRG SKF#22334 CCK/C4W33	
B	16	60C280	ORING 14.0ID 1/8CS BN70-280	
E	16	60C280V	ORING 14.0ID 1/8CS VITON-280	
all	17	60C461	ORING 16.0ID 1/4CS BN70-461	
all	18	X2 21816	MACH=PULLEY KEY, 4840F	
all	19	X3 60084	SLEEVE=GREASE SEAL PRESSFIT	
all	20	15U181	LOCKWASHER MEDIUM 1/4 SS18-8	
all	21	15N158	HEXCAPSCR 1/4-20NCX1/2SS18-8	
all	22	15K095B	HEXCAPSCR 3/8-16X1" GRADE8 ZIN	
all	23	15U240L9	FLTWASH 3/8 HARD ASTM F436	
all	24	15K095C	HXCAPSCR 3/8-16X1.25 GR.8 ZN.	
all	25	15N091	PANHDMACHSCR 8/32UNC2X1/2 S/S	
all	26	02 04456	PULLEY PHOTOEYE BRKT, 6836E	
all	27	X3 60085	COVER CYL/SHAFT MNT HUB	
all	28	03 60085A	GASKT=CVR CYL/SHT HUB	
all	29	15K086E	BUTSOKCAPSCR 3/8-16X3/4SS NYPT	
all	30	X3 60089	MACH=WASHER CYL/SHAFT MNT HUB	
all	31	Y3 60082R	MACH=CYL/SHFT MNT HUB-REMAN	
all	32	15K235K	HEXCAPSCR 1-14X3 GR 8 ZINC	
all	33	15Q125A	GRUB SCREW NYLON 1-8X5/8	
all	34	15K233A	HEXCAPSCR 3/4-16X2.5 GR8 ZINC	
B	35	60C159W	ORING 6.0ID 3/16CS BUNA70#361	
E	35	60C159X	ORING 6.0IDX3/16 VITON70 -361	
B	36	60C160DB	ORING 6.25ID3/16CS BUNA70 -362	

Bearing Housing

68036F5N, 68036H5N, 68036H5K, 68036M5K, 72046M5K

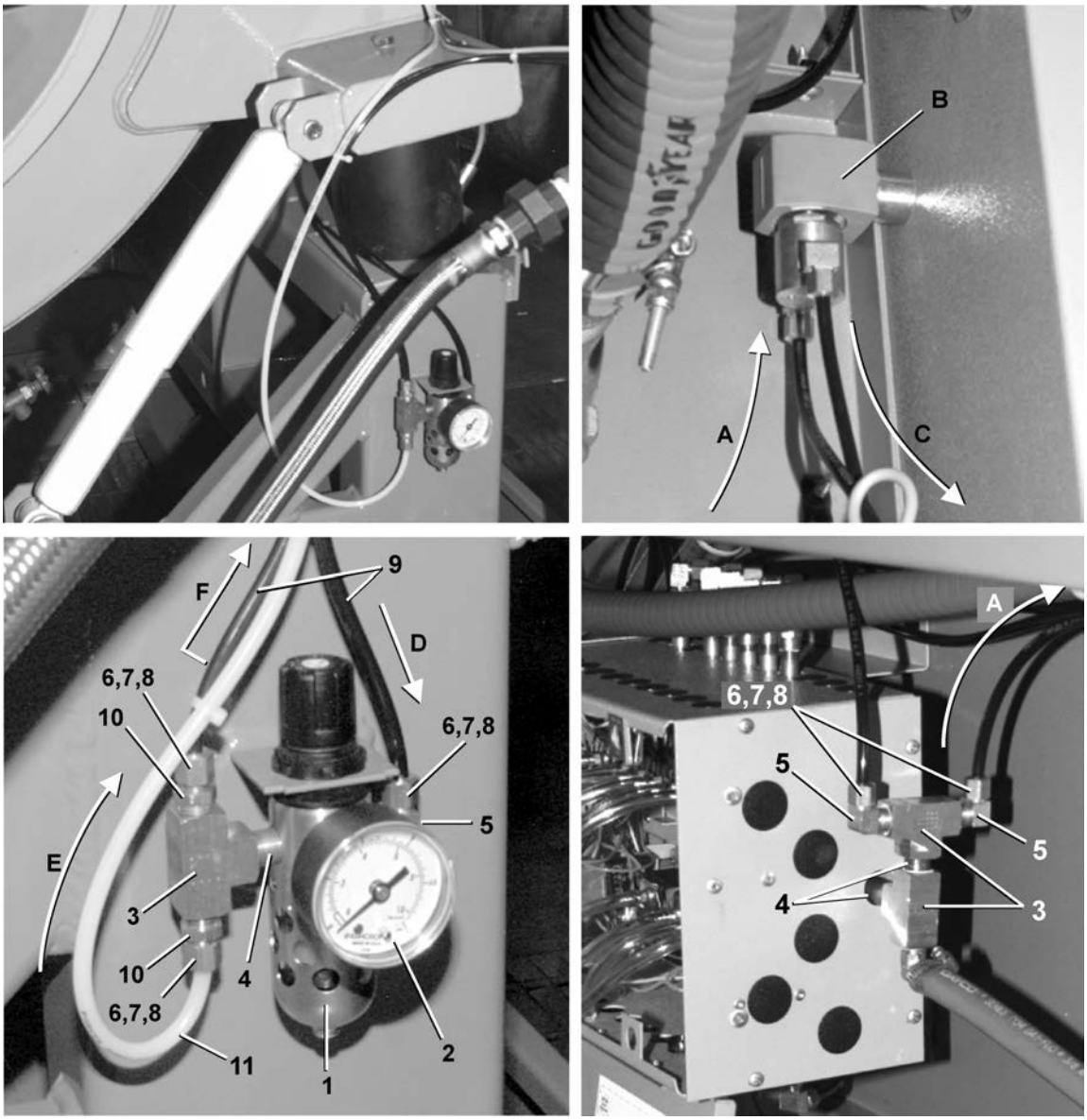
Parts List—Bearing Housing (cont'd.)

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
E	36	60C160DV	ORING 6.25ID3/16CS VITON70#362	
B	37	60C190	ORING 14.0ID 1/4CS BUNA70-457	
E	37	60C190D	ORING 14.0ID 1/4CS VITON -457	
all	38	X3 60088	MACH=EXCLUDER WEAR PLT	
all	39	15K031A	BUTSOKLOKCAPSCR 1/4-20X1/2 188	
all	40	X3 60087	MACH=FRONT SEAL HOLDER	
all	41	03 60087A	GSKT=FRNT SEAL HOLDER	
all	42	15U250	SEALWASHER 3/8" S/S PARKER #60	
all	43	15U260	LOCKWASHER MEDIUM 3/8 SS18-8	
all	44	X3 60084A	SLEEVE=H2O SEAL O-RING	
all	47	24S130LR	LANTERN RING=7X8X.313	
all	48	03 60106	SLINGER=BRG FRNT SEALS	
B	49	24S146	SEAL 7.0X8.0X.437 TYPE SSW NIT	
E	49	24S146V	SEAL 7.0X8.0X.437 TYPE SSW VIT	
all	50	20C003A	ADHESIVE BLK MAX 1OZ LOC#38050	
all	51	20C007G	THDLOCKSEAL LCT24231 RMUBL50CC	
all	52	20C006N	PRIMER LOCQUIC-N 60Z #76456	
all	53	5SB0E0CBEO	NPTHEXBUSH 1/4X1/8 BRASS 125#	
all	54	53A501	TUBE INSERT .163"OD #63PT-4-40	
all	55	53A500	SLEEVE DELRIN 1/4"OD#60PT-4	
all	56	53A059A	NUT 1/4"BR.HOLYOKE AND #61A-4	
all	57	53A031B	BODY-EL90MALE.25X1/8 #269C-42B	
all	58	53A007B	BODYFEMCON.25X.25COMP#B66A-4B	
all	59	60E004TC	TUBING NYL(NAT)1/4"ODX.17ID	
all	60	60C107	ORING 3/8ID 1/16CS BUNA70#012	
all	61	03 17190	GASKET=REAR SEAL, 4840M7	
all	62	60E004TE	1/4"OD X.170"ID NYL(BLK)TUBING	
all	63	5SP0CBEHS	NPT PLUG 1/8 HXCTRSNK BRASS	
all	64	15U393	FLTWASH 1" HARD ASTM F436	
all	65	15U321H	FLTWASH 3/4 HARD ASTM F436	

Air Injection Components

Figure 1. Air Flow Components

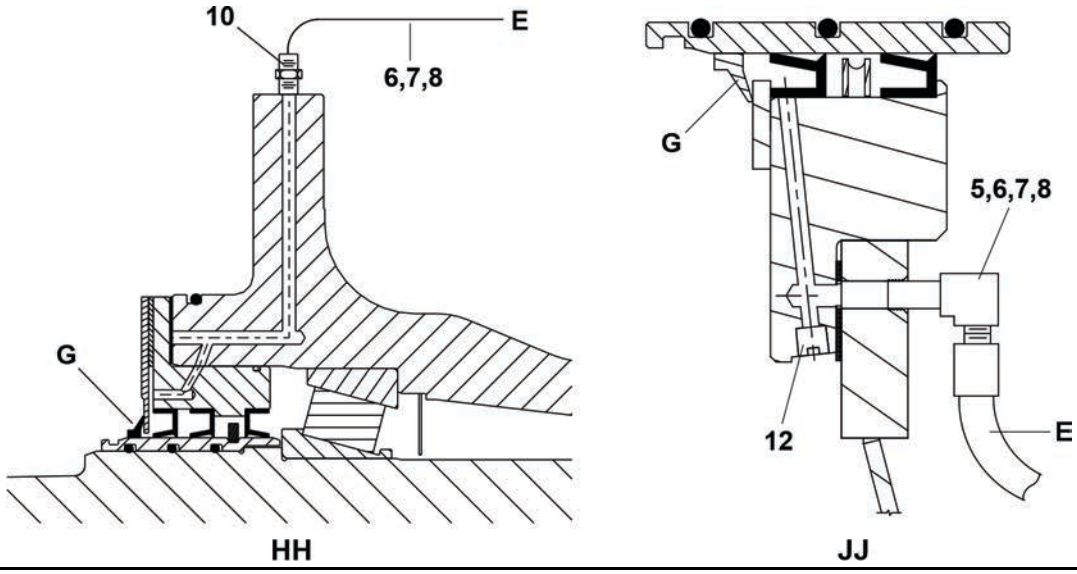


Legend

A. Compressed air to the bearing seal coil
B. Bearing seal coil
C. Compressed air to the pressure regulator
D. Compressed air from the bearing seal coil
E. Compressed air to the bearing
F. Compressed air to the bearing pressure switch

Air Injection Components

Figure 2. Air Flow in the Bearing Housing



Legend

E. Compressed air to the outer seal.
G. Outer seal
HH. Cross section view of the bearing's air port (Models: 48040F7N, F7B, F7W, F7N)
JJ. Cross section view of the bearing's air port (Models: 68036F5N, H5N, H5K, M5K & 72046M5K)

Table 1. Parts List—Air Injection Components

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	AIR58003	AIR58003 AIR INJECT ASSY=BNG HOUSE	
Components				
all	1	96J019G	96J019G 1/4"FILTERREG 0-60PSI	
all	2	30N095	30N095 PRESSGAUGE 1/8"BACKCN.0-15PSI	
all	3	51V015	51V015 TEE 1/4 FGDBRASS 101T7-444	
all	4	5N0ECLSBE2	5N0ECLSBE2 NPT NIP 1/4XCLS TBE BRASS 125#	
all	5	53A031B	53A031B BODY-EL90MALE.25X1/8 #269C-42B	
all	6	53A059A	53A059A NUT 1/4"BR.HOLYOKE AND #61A-4	
all	7	53A500	53A500 SLEEVE DELRIN 1/4"OD#60PT-4	
all	8	53A501	53A501 TUBE INSERT .163"OD #63PT-4-40	
all	9	60E004TE	60E004TE 1/4"OD X.170"ID NYL(BLK)TUBING	
all	10	53A005B	53A005B BODYMALCON1/4X1/8COMP #B68A-4A	
all	11	60E004TC	60E004TC TUBING NYL(NAT)1/4"ODX.17ID	

BIEUUM01 (Published) Book specs- Dates: 20120629 / 20120629 / 20120629 Lang: ENG01 Applic: HDU IFL IFG IFS IHU IEU PVU MXC MXD

Disk Brake Maintenance

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

NOTICE P1: "Remove power from the machine" means use the necessary safety procedure for your location. In the USA, this is the OSHA lockout/tagout (LOTO) procedure. More local requirements can also apply.

You can do these types of maintenance on the disk brake:

- do an inspection of the brake as specified in the maintenance schedule,
- replace the friction pads,
- do an overhaul on the calipers,
- replace the hydraulic fluid,
- adjust the connection between the brake cylinder and the air cylinder.

For the first four types of maintenance, you must remove air from (bleed) the hydraulic circuit.

Section 6 tells how to operate the disk brakes. You can use it in some of the types of maintenance in this procedure.

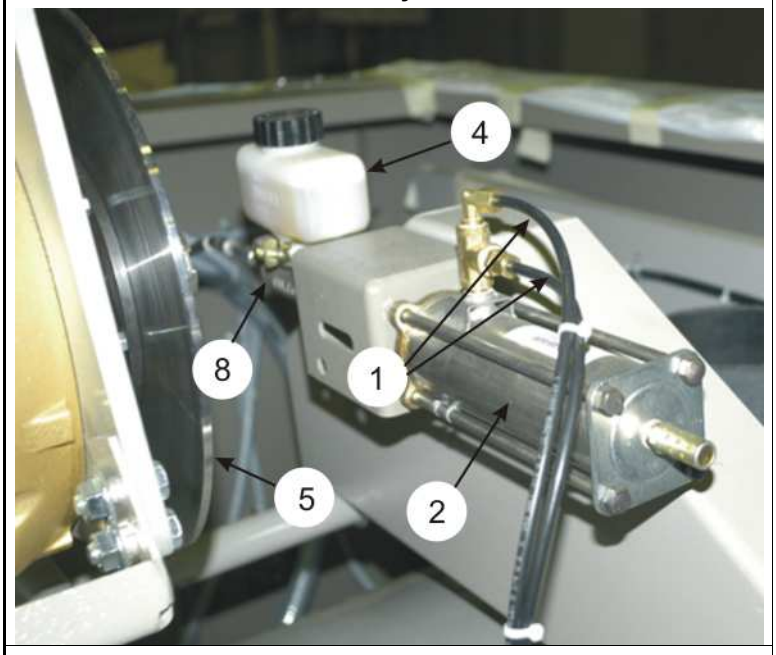
WARNING 2: Risk of injury or death —A machine in operation without safety guards is dangerous.

- You must be an approved maintenance technician.
- Use special caution when this instruction tells you to do work with electrical power on. Remove power from the machine for all other maintenance. Obey safety codes.
- Replace all guards and covers.

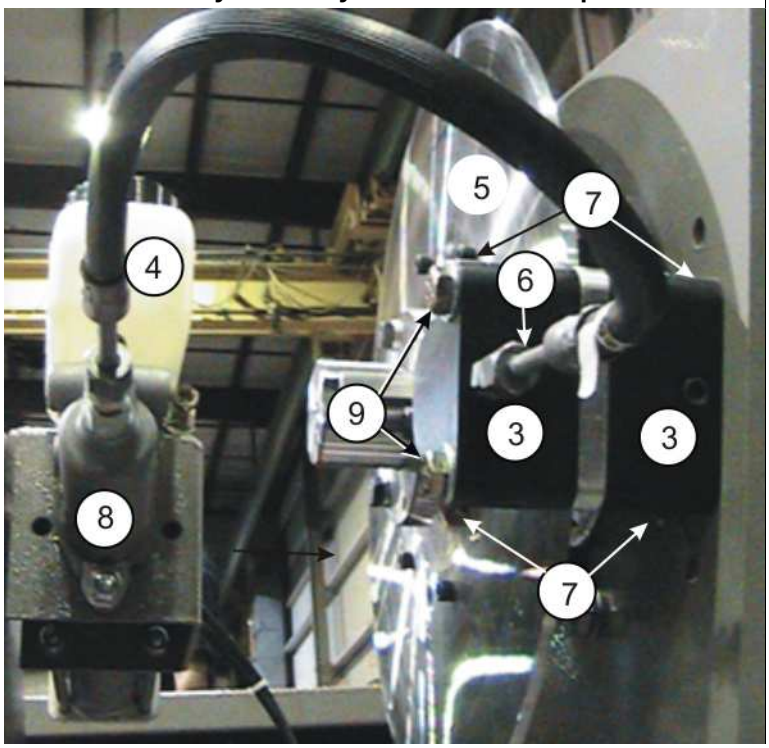
Tip: During parts of this procedure when you open up the calipers or hydraulic lines, put a cloth under the calipers to catch hydraulic fluid and parts that will fall. For safety, fully remove spilled hydraulic fluid after brake maintenance. This will help you easily identify leaks.

Figure 1: A typical hydraulic brake system

The air cylinder



The hydraulic cylinder and the caliper



Legend

1. Tubing for air
2. Air cylinder
3. Caliper body halves (Figure 2, item 2)
4. Hydraulic reservoir
5. Rotor disk
6. Hydraulic inlet
7. Valves to drain fluid and bleed the brake
8. Hydraulic cylinder
9. Bolts to attach the caliper (Figure 2, item 1)

1. The Inspection of the Brake

Note 1: The brakes shown in this document can look different from your equipment.

Note 2: Do this inspection when the maintenance schedule tells it is necessary. Do this inspection after you replace friction pads or do a caliper overhaul.

1.1. Examine the fluid in the reservoir. —Change the hydraulic fluid if it smells, has contamination, or has an unusual color. See Section 4.

> **Note 3:** Brake fluid can become defective from heat in the brake system. Brake fluid absorbs water from air. Water in the brake system causes corrosion.

If necessary, add new DOT 3 fluid to 0.25 inch (6.35 millimeters) from the top of the reservoir. Follow the precautions on the container.

1.2. Examine the rotor disk surface (Figure 1, item 5). —Replace the disk if it is worn or if it is not flat.

1.3. Examine the brake pads (Figure 2, item 4). —To do this, you will remove/replace the calipers and bleed the hydraulic system. See Section 3 and Section 4.

1. **Remove power from the machine (see Notice P1).**
2. Remove the bolts (Figure 1, item 9) that attach the caliper halves (Figure 1, item 7).
3. Remove the caliper halves.
4. Replace the pads as told in Section 2 if
   - the pads make an unusual noise when you apply the brake
   - if the rotor is worn or damaged
   - if the pad thickness is less than 1/16 inches (2 mm) (Figure 2, item 14) above the mounting screw (Figure 2, item 3). Always replace the two brake pads at the same time.
5. Put the caliper halves in their positions on the brake assembly. Tighten the mounting bolts to 30 foot-pounds (41 Newton-meters).
6. Bleed the hydraulic systems as told in Section 4.4.
7. Supply electrical power to the machine.

1.4. Examine the condition of all of the brake system.

1. Make sure that brake mounting components are tightly installed.
2. Make sure that fittings are tight. Make sure that there are no leaks.

2. How to Do a Friction Pad Replacement

You must have the necessary replacement friction pads for your machine. Refer to the brake parts document in your machine manual. You will find part numbers for components or overhaul/repair kits. The overhaul/repair kit contains O-rings, pads, and other components.

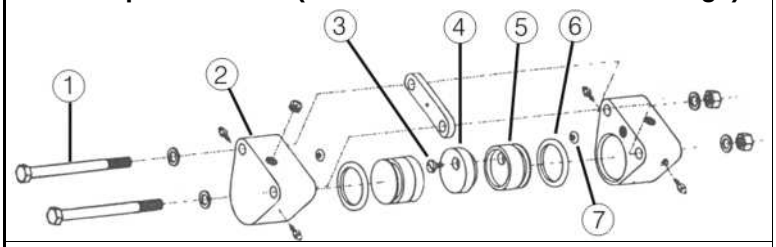
1. **Remove power from the machine (see Notice P1).**
2. Remove the used fluid. See Section 4.3.
3. Remove the two bolts that attach the caliper (Figure 1, item 9) and the two caliper halves (Figure 1, item 3) to get access to the friction pads. Do not disconnect the hydraulic line (Figure 1, item 6).
4. If there are leaks, see Section 3 "How to Do a Caliper Overhaul " before you continue.
5. Replace each friction pad:
   a. Remove the brass screw (Figure 2, item 3) that attaches the pad to the piston.
   b. Attach the new pad to the piston. Tighten the screw.
   c. Make sure that the screw head is fully in the recess in the pad.
6. Make sure that the connection o-rings are clean and in their positions (Figure 2, item 7).

7. Put the caliper halves in their positions on the brake assembly. Tighten the mounting bolts to 30 foot-pounds (41 Newton-meters).
8. Bleed the brake. See Section 4 "How to Change Hydraulic Fluid and Remove (Bleed) Air from the Brake Circuit ".
9. Supply electrical power to the machine.

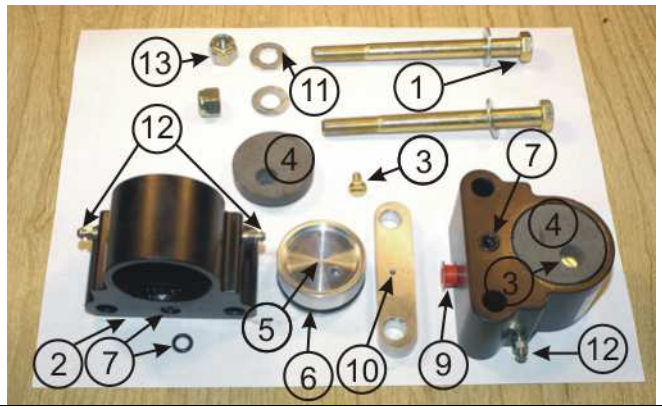
3. How to Do a Caliper Overhaul

Figure 2: The Caliper Components

The Expanded View (Shows the Piston and the O-rings)



The Caliper and the Pad



Legend

1. The bolts to attach the caliper (Figure 1, item 9)
2. Caliper body halves (Figure 1, item 3)
3. Brass screw
4. Friction pad
5. Piston
6. The Piston O-ring
7. The connection O-ring and its position
8. Plug for the hydraulic inlet
9. A hydraulic inlet (connected on one caliper, a plug (item 8) on the other)
10. The hole in the spacer
11. Washer
12. One of the four valves to bleed the fluid
13. Nut
14. The pad thickness must be more than than 1/16 inches (2 mm) above item 3

Fittings for the Hydraulic Inlet

Look at the pad thickness above the top of the screw

Tip: Hydraulic fluid flows from one caliper to the other caliper. Fluid flows through the connection O-rings (Figure 2, item 7) and the hole in the spacer (Figure 2, item 10). When you disconnect the calipers, hydraulic fluid can flow from the hole at the connection O-rings. Air can get in the line. After you connect the calipers, you must bleed the system.

You must have the necessary kit for the overhaul of your machine. Refer to the brake parts document in your machine's manual.

1. **Remove power from the machine (see Notice P1).**
2. Get access to the caliper halves (see Section 2).
3. Do an overhaul on each caliper:
   a. Remove and discard the connection O-rings (Figure 2, item 7) on the caliper bodies.
   b. Apply compressed air to the fitting for the hydraulic inlets (see Figure 2, item 8) to push the pistons out.
   c. Replace the piston O-rings (Figure 2, item 6).
   d. Put the pistons in the caliper body. Carefully tap the pistons with a wood or rubber hammer to install it.
   e. Replace the connection O-rings. (Figure 2, item 7)
   f. Replace the friction pads (see Section 2).
4. Replace the caliper halves as specified in Section 2.
5. Bleed the brake circuit (see Section 4).
6. Supply electrical power to the machine.

4. How to Change Hydraulic Fluid and Remove (Bleed) Air from the Brake Circuit

4.1. Risks and Precautions

WARNING 3: Risk of injury —Machine power must be on for these procedures.

- Stay away from operating mechanisms.

CAUTION 4: Risk of injury and damage —This procedure releases pressurized brake fluid.

- Keep brake fluid out of your eyes and mouth. Wear eye protection.
- Follow procedures carefully to prevent damage to the face of the disk or the pistons.

CAUTION 5: Risk of malfunction . —Air in hydraulic fluid will compress. Compressed air in the brake line will cause brake malfunctions.

- Remove (bleed) air from the brake circuit before you operate the machine.

4.2. Requirements —These personnel and items are necessary for this procedure:

- two technicians
- an 8-ounce container of new brake fluid
- Alternative procedures to remove air and used brake fluid:
  - » a suction pump (faster procedure) (see Figure 3)
  - » with pressure in the hydraulic cylinder and gravity (see Figure 4)

Tip: The Vacula suction pump can do the work more quickly than by gravity and pressure in the hydraulic cylinder. It is also cleaner because all of the hydraulic fluid goes into the container supplied. It helps you not spill the hydraulic fluid.

- If you use a suction pump as shown in Figure 3, follow the manufacturer's instructions.
- If you use the tools as shown in Figure 4, follow the instructions in Section 4.3 and Section 4.4.

Figure 3: Pumps Used to Remove Hydraulic Fluid Quickly

Alternative Pumps for Suction of Hydraulic Fluid

1

2

Legend

1. A manual suction pump
2. The Vacula suction pump uses compressed air and holds used hydraulic fluid.

Figure 4: Typical Tools to Remove Air (Bleed) Brakes and Used Hydraulic Fluid

These tools use gravity and pressure in the hydraulic cylinder	Legend
	**1.** a clean 12 ounce container **2.** a flexible hose to attach from the bleed valves to a container **3.** a wrench for the bleed valves (Figure 2, item 12) **4.** a suction device to remove brake fluid from the reservoir

4.3. Use the tools in Figure 4 to remove the used hydraulic fluid and clean the line. —Do these steps:

1. Use a suction tool (Figure 4, item 4) to remove the used fluid from the reservoir. Clean the contamination.
2. Connect the tubing (Figure 4, item 2) and container (Figure 4, item 1) to the valve on the caliper (Figure 1, item 7).
3. Open the valve.
4. Add new fluid to flush out the lines.
5. Apply/release the brake (See Section 6) approximately 5 to 15 times. This will flush the used fluid out of the lines.
6. Close the valve.

Note 4: These steps will cause air to go into the line.

4.4. Add new hydraulic fluid and remove (bleed) air from the brake circuit.

Note 5: This procedure uses pressure in the hydraulic cylinder and the tools in Figure 4.

1. Fill the reservoir with new DOT 3 brake fluid. When you do the remaining steps, continue to add new fluid to the reservoir. Do not let the reservoir become more than half empty. You must make sure that the reservoir has fluid to prevent air flow into the system from the reservoir.
2. Apply electrical power to the machine. Release the brake.
3. See the part of the machine reference manual that tells how to operate the outputs manually.

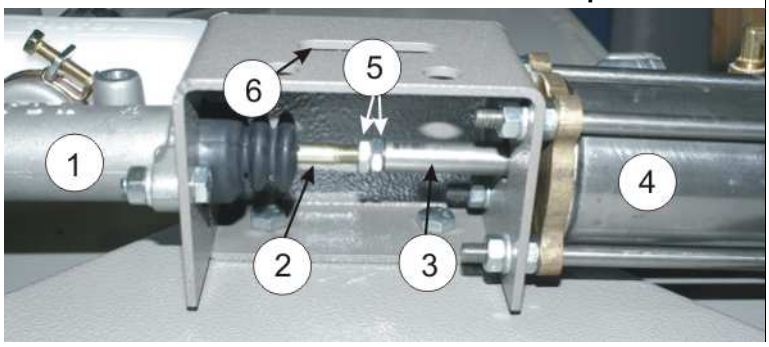
4. Put a small quantity of new brake fluid (approximately inches (50 mm)) in the 12 ounce container (Figure 4, item 1).
5. Do these steps for each bleed valve (Figure 1, item 1) . Two technicians are necessary. This will move the fluid in one direction and push air out of the line:
   a. Attach a clean tube to the valve. Put the other end in the container (Figure 4, item 1) below the fluid.
   b. Make sure that the reservoir is full of fluid.
   c. Apply the brake (See section 6).
   d. Open the bleed valve. (Figure 2, item 12)
   e. Look for air bubbles in the container when you push the air and fluid out through the tube.
   f. Close the valve.
   g. Release the brake.
   h. Continue the steps b through g until no more air comes out of the line.
6. Add fluid to the top of the reservoir. Replace the cap.
7. Operate the brake many times. Make sure that it operates correctly.

5. How to Adjust the Connection between the Brake Cylinder and the Air Cylinder

If you removed the brake cylinder or the air cylinder, you must adjust this connection.

Figure 5: The Connection between the Brake Cylinder and the Air Cylinder

A view of the brake rod and related components

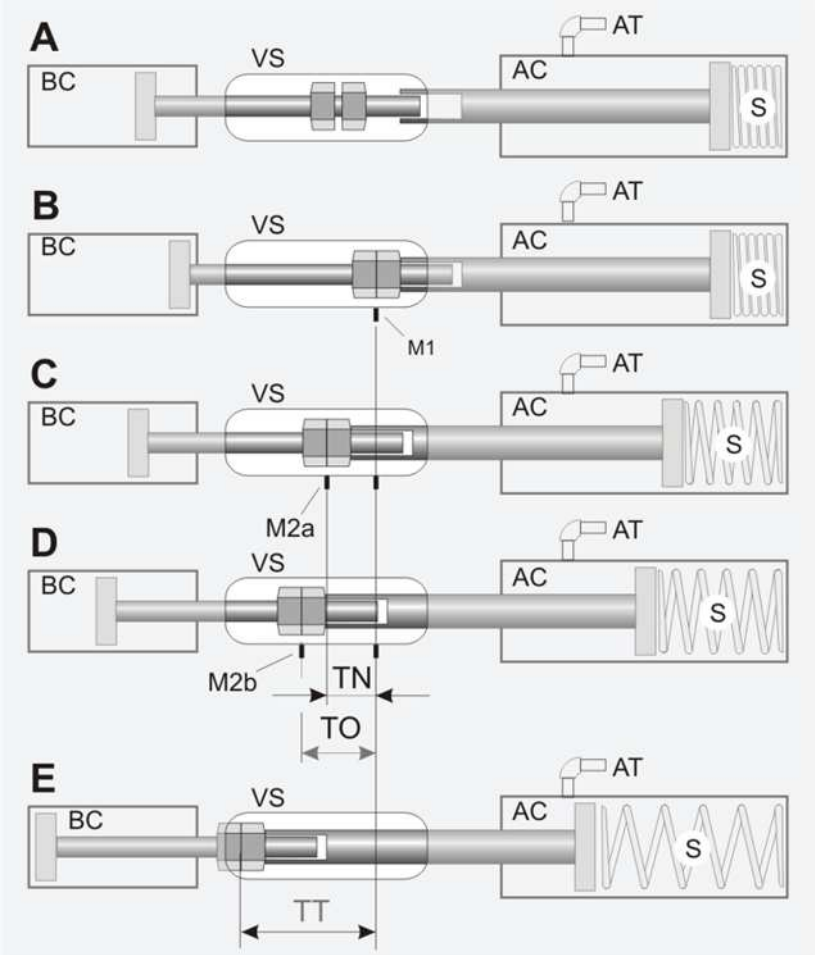


Legend

1. The brake cylinder
2. The rod for the brake cylinder
3. The rod for the air cylinder
4. The air cylinder
5. Two nuts to lock the rods together
6. The slot to see the nuts

Figure 6: The Adjustment between the Brake Rod and the Air Cylinder

Schematic Views of Different Conditions



Legend

AC. Air cylinder (Figure 5, item 4)
BC. Brake cylinder (Figure 5, item 1)
VS. Slot to see the nuts (Figure 5, item 6)
A. Before travel adjustment -- Rods not locked by nuts (Figure 5, item 5)
B. After travel adjustment -- the brake released (See Section 6.2)
C. Brake applied--NEW pads (See Section 6.1)
D. Brake applied--OLD pads
E. This will occur if you apply the brake with the hydraulic line removed
TN. Rod travel, new pads
TO. Rod travel, very worn pads
TT. Full travel with the hydraulic line removed
M1 First mark at the view slot -- the brake released
M2a. Second mark--one possible position -- the brake applied
M2b. Second mark-- a different position -- the brake applied
AT. Air tubing (See Figure 1,1). Air releases the brake.
S. Spring applies the brake

5.1. Adjust for maximum rod travel.

1. Operate the master switch to energize control power.
2. Make sure that the air pressure that releases the brake (Figure 7, item 1) is 85 -100 PSI (5.95 - 07.0 kg/cm-cm).
3. Make sure that the nuts that lock the rods together (Figure 5, item 5) are loose.
4. Release the brake (see Section 6). Let the air cylinder rod fully retract into the air cylinder as shown in Figure 6, A.
5. Turn the brake rod into the air cylinder rod until the brake rod comes out of the brake cylinder fully. See Figure 6, B.
6. Lock the brake rod (Figure 5, item 2) to the air cylinder rod (Figure 5, item 3) with two nuts (Figure 5, item 5).

5.2. Make sure that the brake will continue to operate while the pads wear.

1. Release the brake. On the view slot, put a mark at the position of the lock nuts. (Figure 6, item M1).
2. Apply the brake. See Section 6.
3. Put a mark at the position of the lock nuts when the brake is applied. This can be at position M2a, M2b, or between M2a and M2b. When the pads wear this position will move.
4. Make sure that the distance the rod moves when you apply the brake is 0.75 to 1.0 inches (19-25 mm). If the travel is more than this, the brake piston can hit the mechanical stop before the brake engages fully. This condition is shown in Figure 6 , E (dimension TT).

6. Operation of Brake Systems

Look at the electrical schematics of your machine to find how your brake is controlled. Some machines release the brake when you close the door. Some machines have a control relay to release or apply the brake.

6.1. How to Apply the Brake for Machines with a "Break Release" Output

1. Turn the "brake release" control output off to de-energize the air valve to remove air pressure to the air cylinder (Figure 1, item 1).
2. With no air pressure, a spring in the air cylinder will apply force to the hydraulic cylinder (Figure 1, item 8). This will apply pressure to the brake pads (Figure 2, item 4) against the rotor disk (Figure 1, item 5). (Figure 6, item C,D)

Note 6: If electrical power or compressed air is missing, hydraulic pressure will apply the brake.

6.2. How to Release the Brake for Machines with a "Brake Release" Output

1. Turn the control output called "brake release" on to energize the air cylinder valve.
2. Air pressure compresses the spring and releases the brake. (Figure 6, item B)

6.3. How to Apply and then Release the Brake Quickly —There are two air tubes at (Figure 1, item 1). One supplies compressed air from an air valve. The other sends this compressed air to a pressure switch. If you remove one of the two tubes when compressed air is there, you will apply the brake.

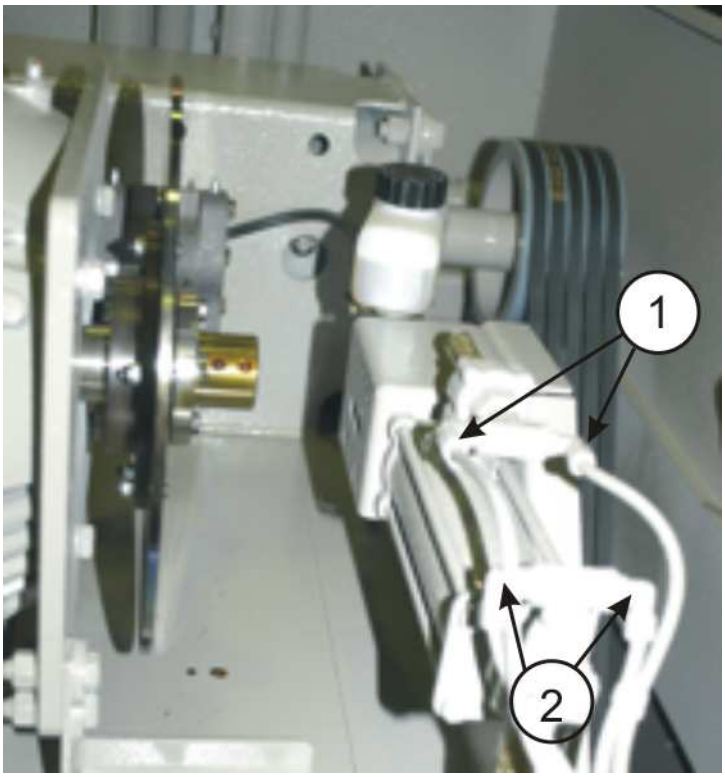
1. Disconnect the air tubing (Figure 1, item 1).

2. Turn the "brake release" output on. The air valve will supply compressed air to one of the tubes. (Figure 1, item 1).
3. Quickly move one of the compressed air tubes (Figure 1, item 1) on and off the air cylinder.
4. After you complete this procedure, connect the air tubing.

6.4. How the Brake Operates on Divided Cylinder Machines

Figure 7: A Typical First and Second Brake on a Divided Cylinder Machine

Two pairs of air tubing connect to different ends of the air cylinder.



Legend

1. Tubing for air that releases the first brake (85 -100 PSI) (5.95 - 07.0 kg/cm-cm)

2. Tubing for air that applies the second brake (10 – 12 PSI) (0.7-0.84 kg/cm-cm)

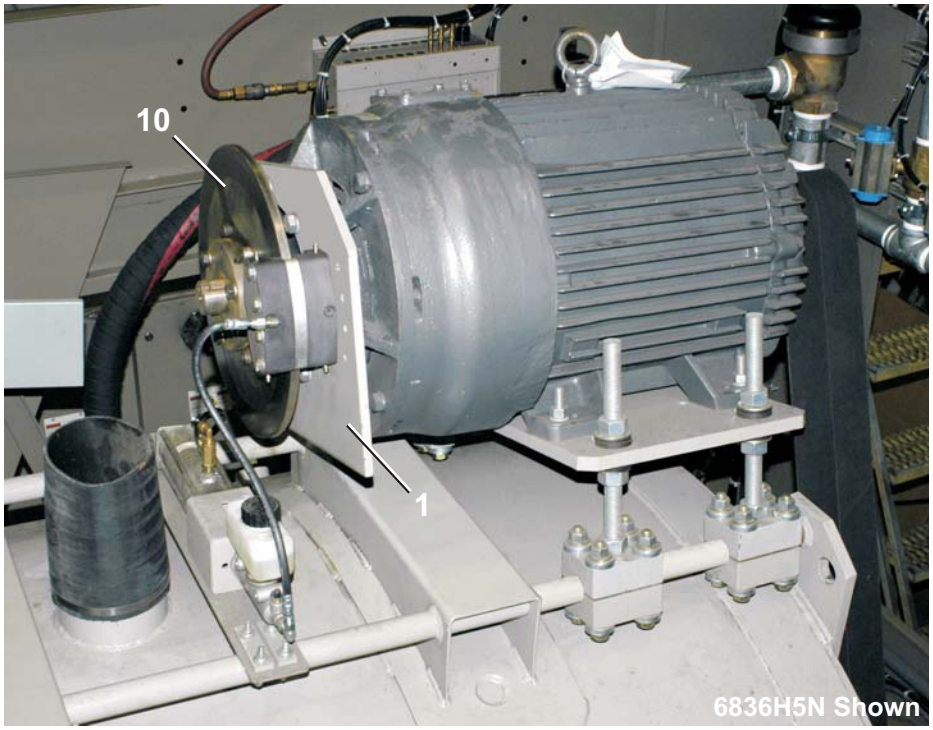
- On divided cylinder machines, two pair of air tubes connect to different ends of the air cylinder.
- When the cylinder turns, air pressure at Figure 7, item 1 compresses the spring and releases the brake.
- When you operate the stop control, air pressure at 1 is removed. Then the spring in the air cylinder applies the brake.
- If you open the door, the 2nd brake is applied. Then the air pressure at Figure 7, item 2 and the spring apply the brake.

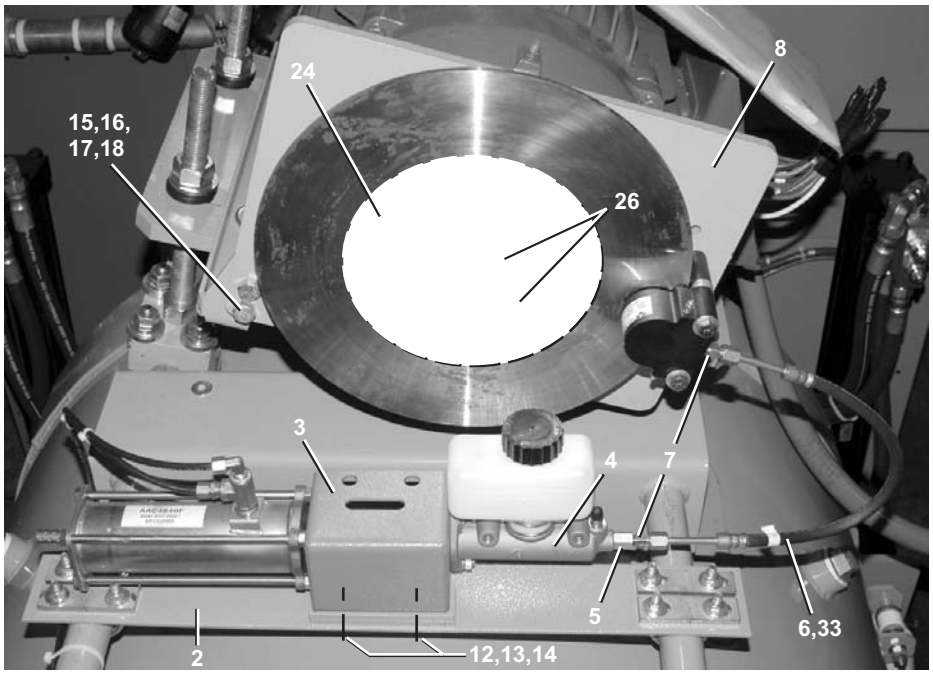
6.5. The Second Brake —If your machine has a second brake which uses air pressure and spring pressure, it will have a pressure regulator. Make sure that you adjust the air pressure of the second brake (Figure 7, item 2) to 10 – 12 PSI (0.7-0.84 kg/cm-cm).

— End of BIEUUM01 —

Disc Brake

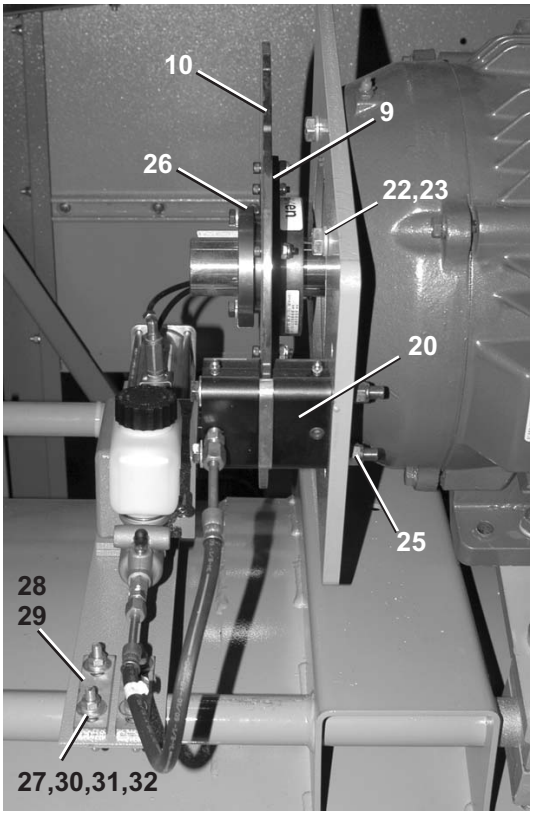
M9V4840_, M7V4836_, 68036F_, 68036H5_, 48040M7K, 68036M5K, 72046M5K



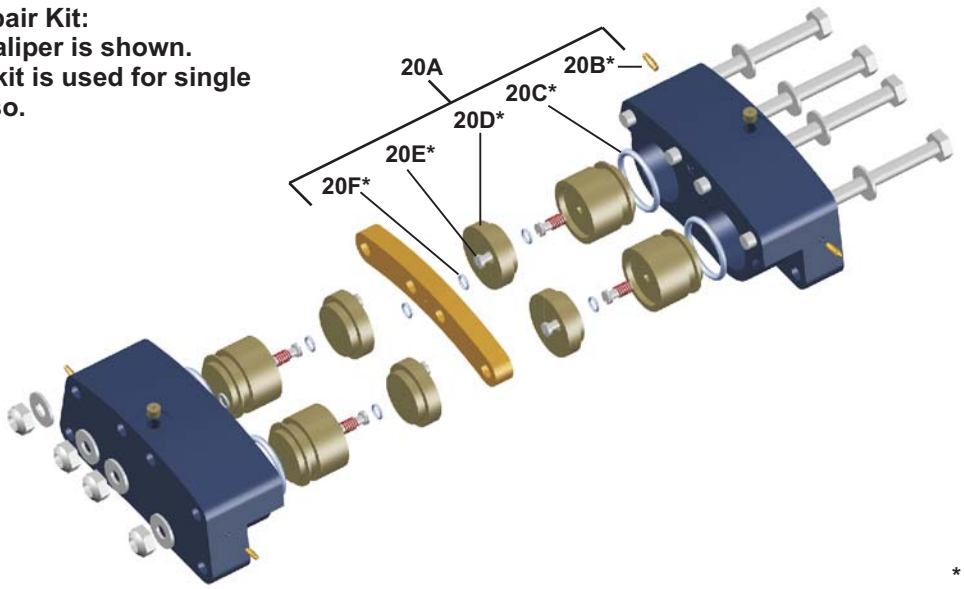


Disc Brake

M9V4840_, M7V4836_, 68036F_, 68036H5_, 48040M7K, 68036M5K, 72046M5K



Caliper Repair Kit:
A double caliper is shown.
The repair kit is used for single calipers also.



*** - 2 per kit**

Disc Brake

M9V4840_, M7V4836_, 68036F_, 68036H5_, 48040M7K, 68036M5K, 72046M5K

Parts List—Disc Brake

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	GBR6836E	INST=DISC BRAKE 6836E	M9V4840, M7V4836 68036F_, 68036H5_
	B	GBR68002	6836M5K DISC BRAKE	6836M5K
	C	GBR72001	7246M5K DISC BRAKE	7246M5K
	D	GBR48003	4840M7K DISC BRAKE INSTALL	48040M7K
			COMPONENTS	
A,D	1	AAC4840F	AIRCYL=BRAKE ASSY, 4840F7	
B,C	1	AAC68001	AIRCYL=BRAKE ASSY, 6836F5A	
all	2	02 22417	48M7 BRAKE+PROX MNT BRKT	
all	3	W3 65238	*WLMT=MASTER BRAKE CYL BRKT	
all	4	54KMC1125U	MASTER CYLINDER	
all	5	52XY0ER004	STRADTUN3/16MJX1/8FP#2405-3-2	
all	6	54KC7961BG	BRAKE HOSE=1/8"X18"OAL #50612	
all	7	52AY0ER003	STR.1/4"MJICX1/8"MP#2404-4-2	
A,C	8	X2 04454	MACH=BRK CALPR MNT PLT,6836	
B	8	X2 04454A	6836M5K BRAKE CALIPER MOUNT PLATE	
ABC	9	X2 04458	BRAKE ROTOR HUB-6836E	
D	9	X2 21867	MACH=CALIPER DISK HUB,4840F	
ABC	10	X2 04459	BRAKE ROTOR-6836E	
D	10	X2 21866	MACH=CALIPER DISK, 4840F	
all	12	15K095	HXCPSCR 3/8-16UNC2AX1 GR5 ZINC	
all	13	15U255	LOCKWASHER MEDIUM 3/8 ZINCPL	
all	14	15G205	HXNUT 3/8-16UNC2B ZINC GR2	
all	15	15K151	HXCAPSCR 1/2-13UNC24X1.25 GR5	
all	16	15U300	LOKWASHER REGULAR 1/2 ZINC PLT	
all	17	15U490	FLTWASH 1+1/2X17/32X1/4 ZINC	
all	18	15G230	HXNUT 1/2-13UNC2B SAE ZINC GR2	
ABC	20	54KC7975	CALIPER HYD D/A 1/2"	
D	20	54KC7974	CALIPER HYD D/A 3/8 DISC RETRACT.	
all	22	15K214E	HXCAPSCR 5/8-11UNC2AX1.5 GR5 Z	
all	23	15U315	LOKWASHER MEDIUM 5/8 ZINCPL	
all	24	15K155A	SKCPSCR-1/2-13X1.5	
all	25	15K086G	HEXCAPSCR 3/8-24UNF X5" GRD. 8	
ABC	26	56Q1RE	1+7/8" BUSH VPUL QD TYPE E	
D	26	56Q1RSK	1+7/8" BUSH VPUL QD TYPE SK	
all	27	27A031C	UBOLT 1.25PIPE 5/16-18 ZINC	
all	28	02 10539	SPACER FOR PIPE ZINC PLATED	
all	29	02 175057	SPACER=BALLVALVE MTG	
all	30	15U210	LOKWASHER MEDIUM 5/16 ZINCPL	
all	31	15U200	FLATWASHER(USS STD) 5/16"ZNC P	
all	32	15G196	HXFLGNUT 5/16-18 ZINC	
all	33	54KC7961BSEAL	SEAL WASHER CONICAL,BRAKE HOSE	

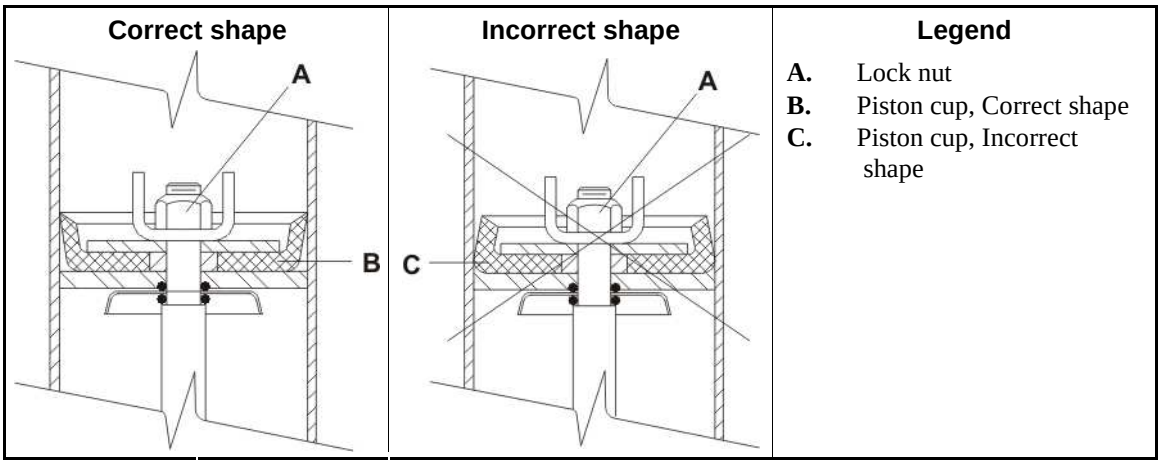
BIIFLM11 (Published) Book specs- Dates: 20150424 / 20150424 / 20150424 Lang: ENG01 Applic: IFL IH4

Air Cylinder Components and Installation

1. How To Get the Correct Piston Cup Shape

The figure that follows shows the correct shape and the incorrect shape of the piston cup. Tighten the locknut only until you can turn the piston cup and the washer on the stem with some resistance. If you tighten the locknut too much, this will cause the incorrect shape. This can stop air cylinder movement.

Figure 1: Compare Piston Cup Shapes



2. Air Cylinder Components

Figure 2: Air cylinder

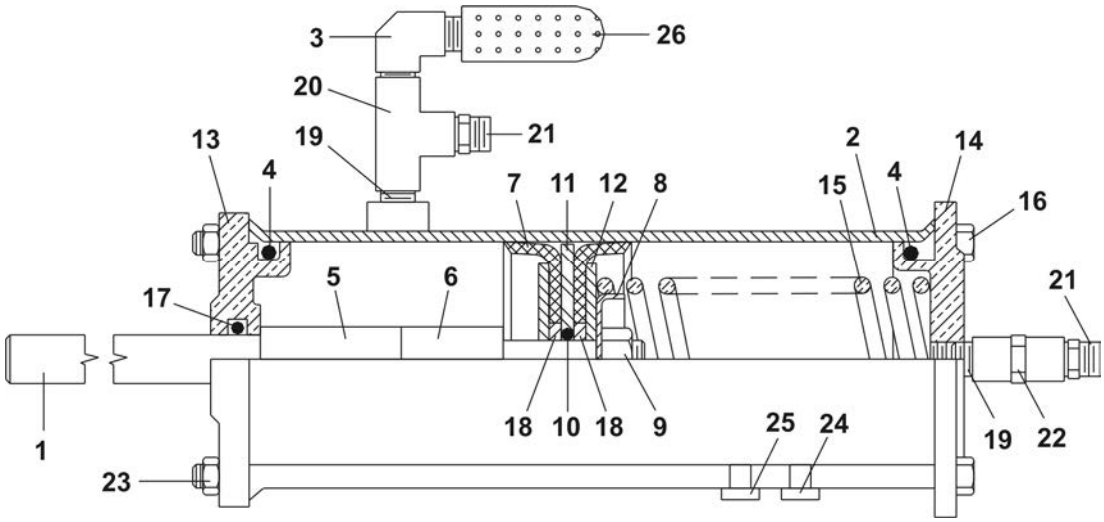


Table 1: Parts List—Air Cylinder Components

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.

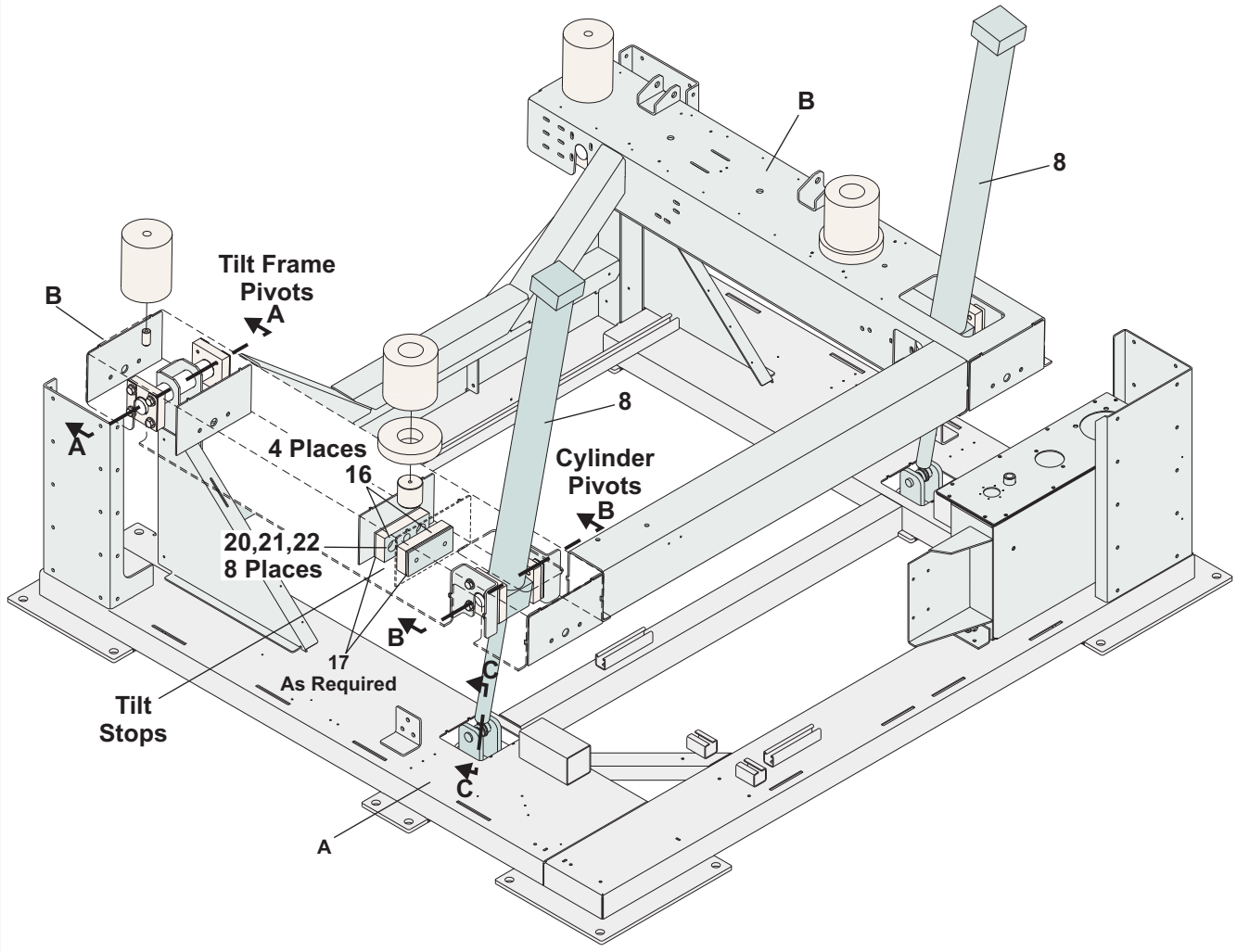
Used In	Item	Part Number	Description/Nomenclature	Comments
			Assemblies	
	A	AAC4840F	Assembly; Air cylinder; Two direction operation; Brake;	4840F_, 4840H_ 68036H_
	B	AAC68002	Spring; Air cylinder; Two direction operation; Brake	6836M5K, 7246M5K
			Components	
all	1	02 18650B	Stem; Air cylinder; Two direction operation; Brake; 7.88L	
all	2	W2 18646	Air cylinder; Two direction operation; Brake	
all	3	53A031XB	Hydraulic fitting; Elbow 90 degrees; 1/4	
all	4	60C132	O-Ring; #329; 2"; 3/16"; Buna-N; 70	
all	5	27B250	Spacer; Rolled; 0.5; .521; 0.636 X 1.5	
all	6	27B34010SS	Spacer; Rolled; 0.5; 0.51; 0.625; 0.062	
all	7	02 02194	Piston cup; Air cylinder; 2+3/8"	
all	8	02 18651	Washer; Flat; 3/8; 1.63 X 0.14	
all	9	15G220	Nut; Nylon insert lock; 8; 24	
all	10	60C106	O-Ring; #011;5/16"; 1/16"; Buna-N; 70	
all	11	02 02105B	Washer; Piston cup; Brass; 2.38"	
all	12	02 02085	Washer; Back-up; Piston cup; 2"OD	
all	13	06 20702E	Cylinder head; Stem side	
all	14	02 02101	Cylinder head; Spring side	
A	15	02 21865	Spring; Air cylinder; Two direction operation; Brake	
B	15	02 17024	Spring; Air cylinder; Two direction operation; Brake	
all	16	W6 20702F	Rod; Air cylinder; Two direction operation; Brake	
all	17	60C110	O-Ring; #011; 1/2"; 3/32"; Buna-N; 70	
all	18	02 02185	Washer; Flat; 3/8; 0.75 X 0.12	
all	19	5N0ECLSBE2	Pipe; 1/4; Close (threads only); Brass	
all	20	51V015	Pipe Fitting; Tee; 1/4	
all	21	53A008B	Hydraulic fitting; Hose end straight connector; 1/4	
all	22	5SCC0EBE	Pipe FittingCoupling; 1/4;	
all	23	15G185	Nut; Hex; 5/16; 18	
all	24	20L601F	Identification tag; "F"	
all	25	20L601X	Identification tag; "X"	
all	26	27A005A	Muffler; 1/4"	

— End of BIIFLM11 —

Frame and Tilt 4

Frame and Pivots

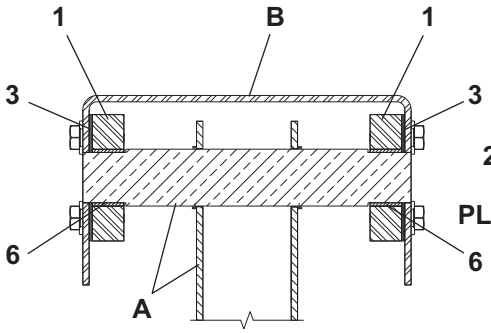
68036H5N, 68036H5K



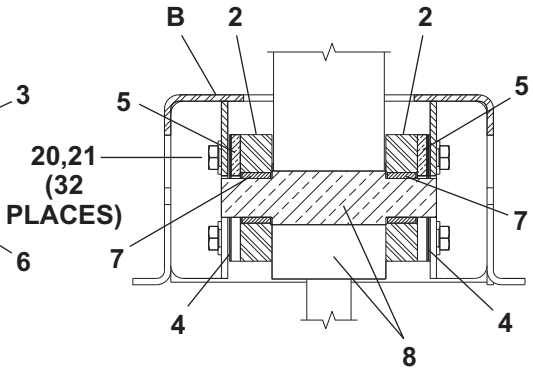
A. Tilt base
B. Tilt frame

Frame and Pivots

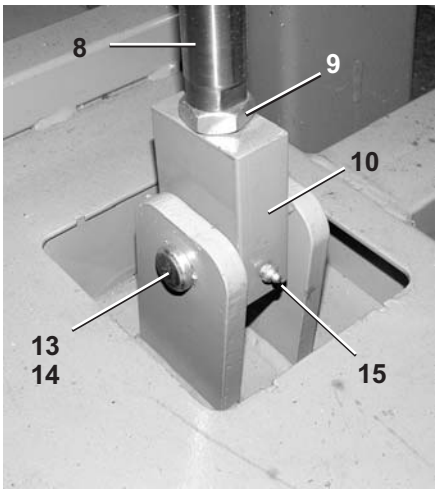
68036H5N, 68036H5K

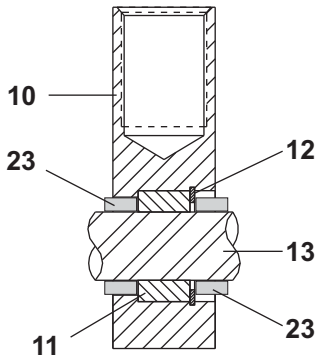


Section A-A
Tilt Frame Pivots



Section B-B
Cylinder Pivots





Section C-C
Cylinder Clevis

A. Tilt base
B. Tilt frame

Frame and Pivots

68036H5N, 68036H5K

Parts List—Frame and Pivots

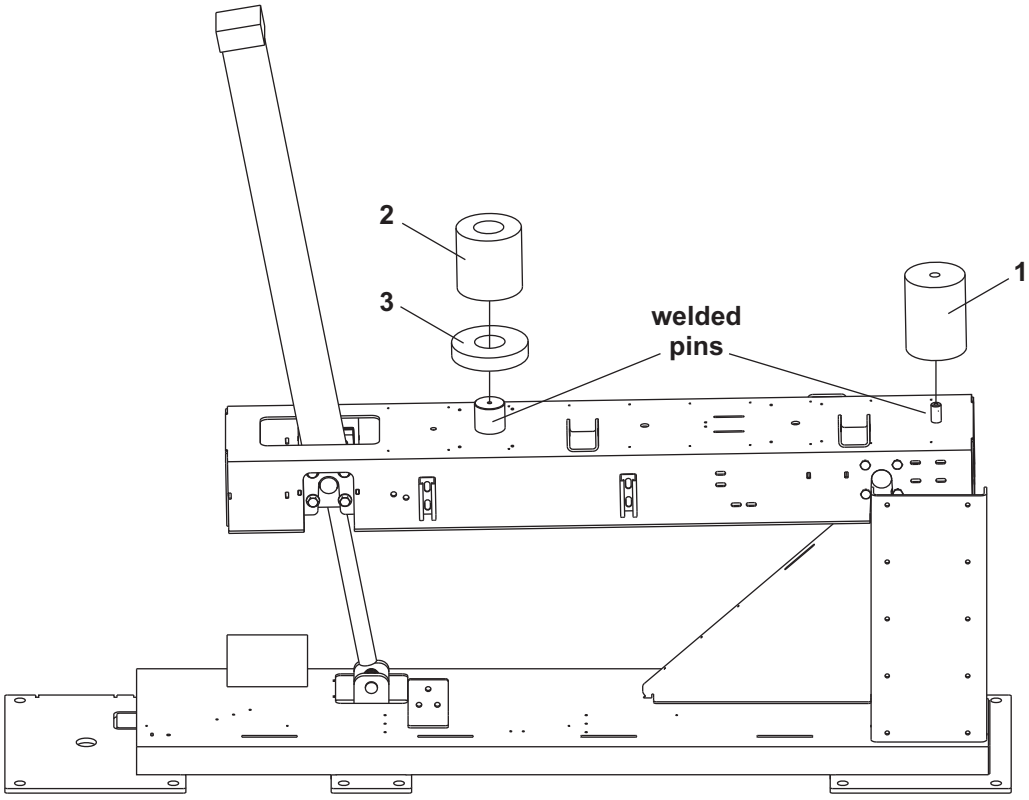
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	GHF68003	INSTALL=FRAME+PIVOTS 6836F7A	6836H5N
	B	GHC68001	INSTALL=HYDRAULIC TILT, 2-WAY, 6836F5A	
			----------COMPONENTS----------	
all	1	02 22293	4840 TILT FRAME BUSHING MOUNT	
all	2	02 22293A	4840 HYD CYL BUSHING MOUNT	
all	3	02 22393	4840F TILT FRAME BUSHNG SPACER	
all	4	02 22393B	4840F TILT FRAME REAR BUSHNG SPACER	
all	5	02 22393C	4840F HYD CYL BUSHING INNER SPACER	
all	6	54E228	2"IDX1.25"LG NON-FRICT BUSHING	
all	7	54E227	1.75"IDX1.25"LG NON-FRICT BUSHING	
all	8	27E163C44A	HYDRAULIC CYL 3.25" BORE X 44" STROKE WITH 9" STOP	
all	9	15G264A	HEXJAMNUT 1+1/4-12UNF 2B ZINC	
all	10	X2 23402A	6836F5A HYDRAULIC CYLINDER CLEVIS END	
all	11	54A702	BALLBUSH 1" RBC#B16-L=NO SEALS	
all	12	17B181	RETRING;INT;1.725;ENDRIES HO162	
all	13	17A102	CLEVIS PIN 1"X4"DRILLED ZINC	
all	14	15H060	STDCOTTERPIN 3/16X2 ZINCPL	
all	15	54M021	GRSFIT 1/8PIPE X 1/4STR 1607-B	
all	16	02 22257	RESTPAD= TILT STOP 4840F HYD	
all	17	03 16426A	LEFT REST PAD :7GA SPACER	
all	17	03 16426B	LEFT REST PAD :1/4 SPACER	
all	17	03 16426C	LEFT REST PAD :3/8 SPACER	
all	18	15K118	HEX FLANGE BOLT 3/8-16X1+3/4 GR8 ZINC	
all	19	15U246	FLATWASHER 1"ODX25/64IDX1/8"30	
all	20	15K191	HXCAPSCR 1/2-13UNC2AX2.5 GR5 Z	
all	21	15U280	FL+WASHER(USS STD)1/2 ZNC PL+D	
all	22	15G234N	HXLOCKNUT NYL 1/2-13UNC2 STL/Z	
all	23	02 22508	SPACER=CLEVIS END-6836FA	

Suspension: Marshmallow Springs & Shocks

68036H5N, 68036H5K

Figure 1: Marshmallow Springs

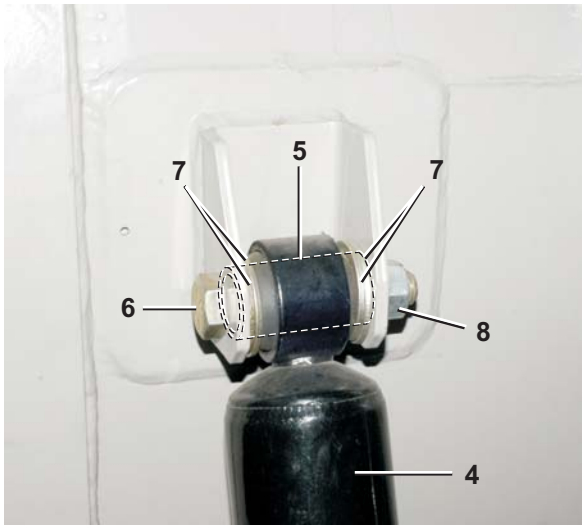


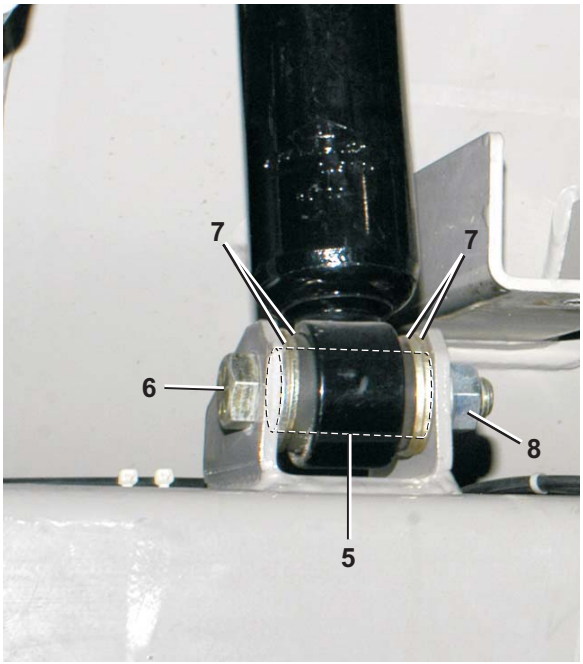
Partial Side View : Marshmallow Springs

Suspension: Marshmallow Springs & Shocks

68036H5N, 68036H5K

Figure 2: Shocks





Typical Shock Installation

Suspension: Marshmallow Springs & Shocks

68036H5N, 68036H5K

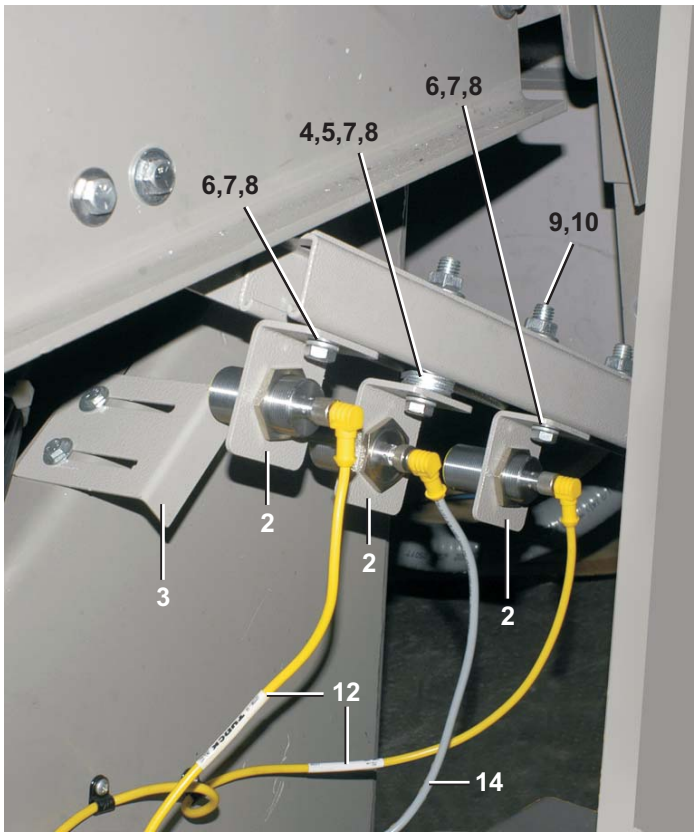
Parts List—Suspension: Marshmallow Springs and Shocks

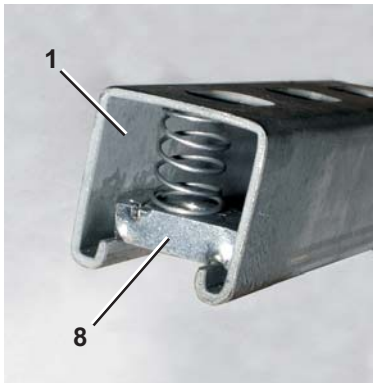
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

Used In	Item	Part Number	Description	Comments
Xx				
----------ASSEMBLIES----------				
	A	GSS68001	INSTL=SHELL+SUSPENSION,6836F5A	
----------COMPONENTS----------				
all	1	60B139	MM SPRG 6X1X10 F#W223580042	
all	2	60B140	MM SPRG 6.5X3X8 F#W223580186	
all	3	X2 04422	REAR MARSHMELLOW RISER,6836E	
all	4	60BS6839	SHOCK ABSORBER #08570007Y	
all	5	X2 04425	SPACER=SHOCK, 6836E	
all	6	15K235CA	HXCAPSCR 3/4-10X4 GR8 ZINC	
all	7	15U393	FLTWASH 1" HARD ASTM F436	
all	8	15G244B	HEXFLGSER L/N 3/4-10 C/H ZINC	

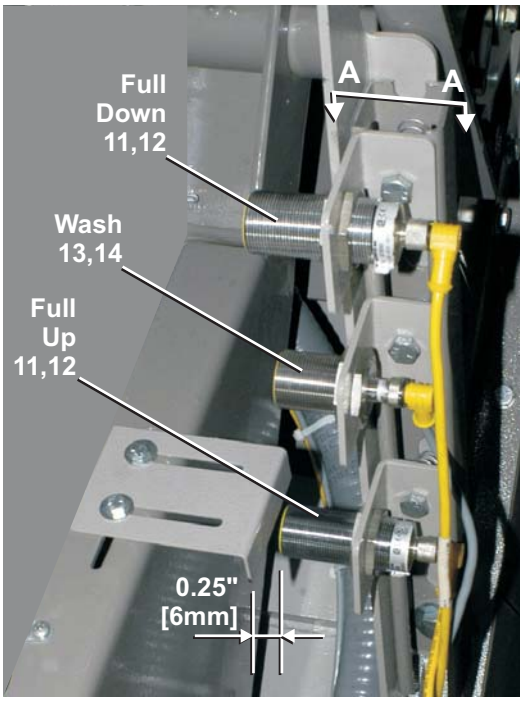
Tilt Limit Switches

6836H5N, 68036H5K





View A-A



Tilt Limit Switches

6836H5N, 68036H5K

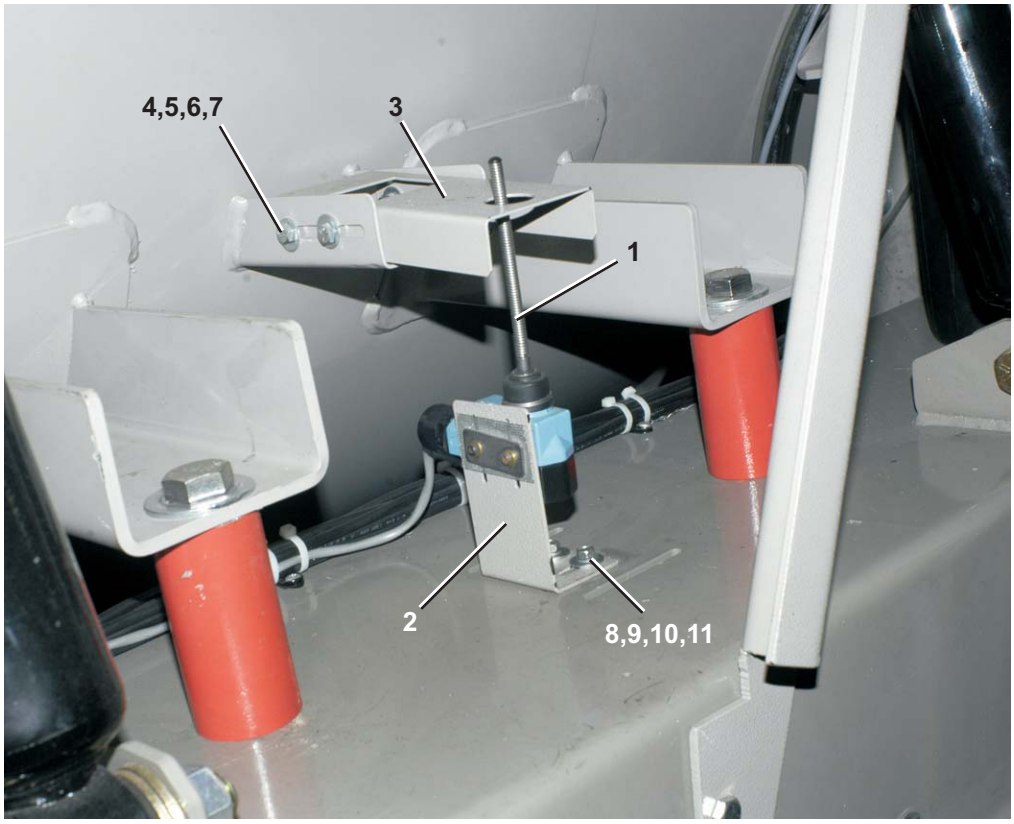
Parts List—Tilt Limit Switches

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

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	APS48002	PROX SWITCH TILT SENSOR ASSY 4840F7A	
			----------COMPONENTS----------	
all	1	03 60250C	UNISTRUT-14"	
all	2	02 22426	4840F7A PROX SWITCH MOUNT BRKT	
all	3	02 22427	4840F7A PROX SWITCH TARGET	
all	4	15K121	HXTAPBOLT 3/8-16UNC2X2" GR5 ZI	
all	5	15U240	FLATWASHER(USS STD) 3/8”ZNC P	
all	6	15K095	HXCPSCR 3/8-16UNC2AX1 GR5 ZINC	
all	7	15U255	LOCKWASHER MEDIUM 3/8 ZINCPL	
all	8	27A0625NLS	CLAMP NUT 3/8-16 W/SPRING	
all	9	15K129	HEXFLGSCR 1/2-13X1-1/4ZN. GR 5	
all	10	15G222B	HEXFLGNUT 1/2-13 ZINC SERRATED	
all	11	09RPS30ADS	PROX SW QK CONN 30M NO-DC SHLD	
all	12	09RPSDC092	CON.90DEG FEMALE DC 3A300V 2M	
all	13	09RPS30DAS	PRXSW QK CONN 30M NC-AC SHLD	
all	14	09RPTAC095	CONN. 90 FEM 3-PIN AC 3A 5M	

Excursion Switch

68036H5N, 68036H5K



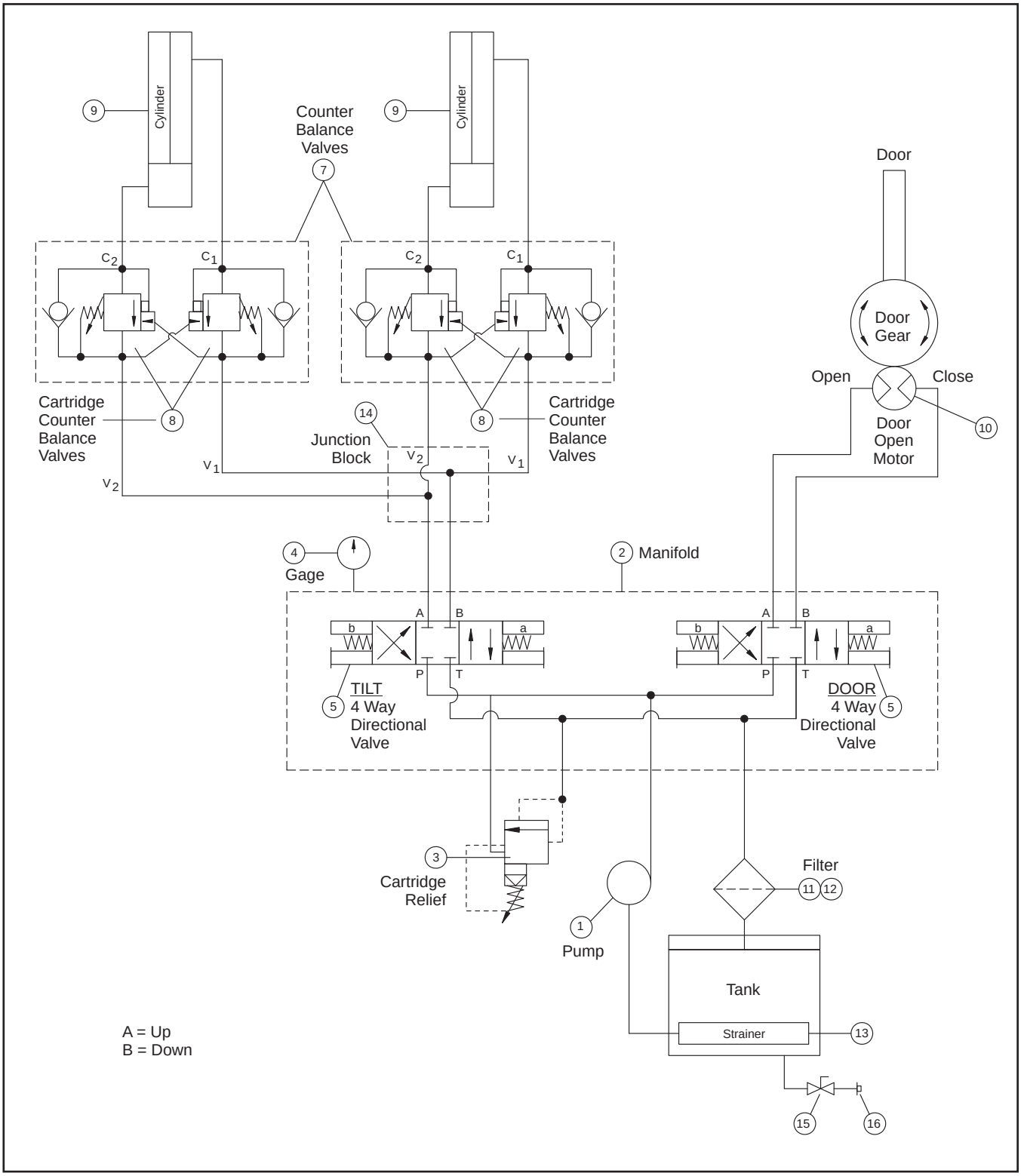
Parts List—Shipping Brackets

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	GES48003	INSTL=EXCURSION SWITCH,4840F7A	
----------	----------	----------	----------COMPONENTS----------	----------
all	1	09R008A	MICSW SPDT BZE6-2RN183	
all	2	02 22428	4840F7A EXCURSION SWITCH BRKT	
all	3	02 21869	EXCURSION PLATE, 4840F	
all	4	15K030	HEXCAPSCR 1/4-20UNC2X1/2 GR5 Z	
all	5	15U185	FLATWASHER(USS STD) 1/4" ZNC P	
all	6	15G177	HXNUT 1/4-28UNF2B SAE ZINC GR2	
all	7	15U180	LOCKWASHER MEDIUM 1/4 ZINCPL	
all	8	15K085	HEXCAPSCR 3/8-16UNC2AX3/4 GR5	
all	9	15G205	HXNUT 3/8-16UNC2B ZINC GR2	

Hydraulic Schematic

68036H5N, 68036H5K



PELLERIN MILNOR CORPORATION

Hydraulic Schematic

68036H5N, 68036H5K

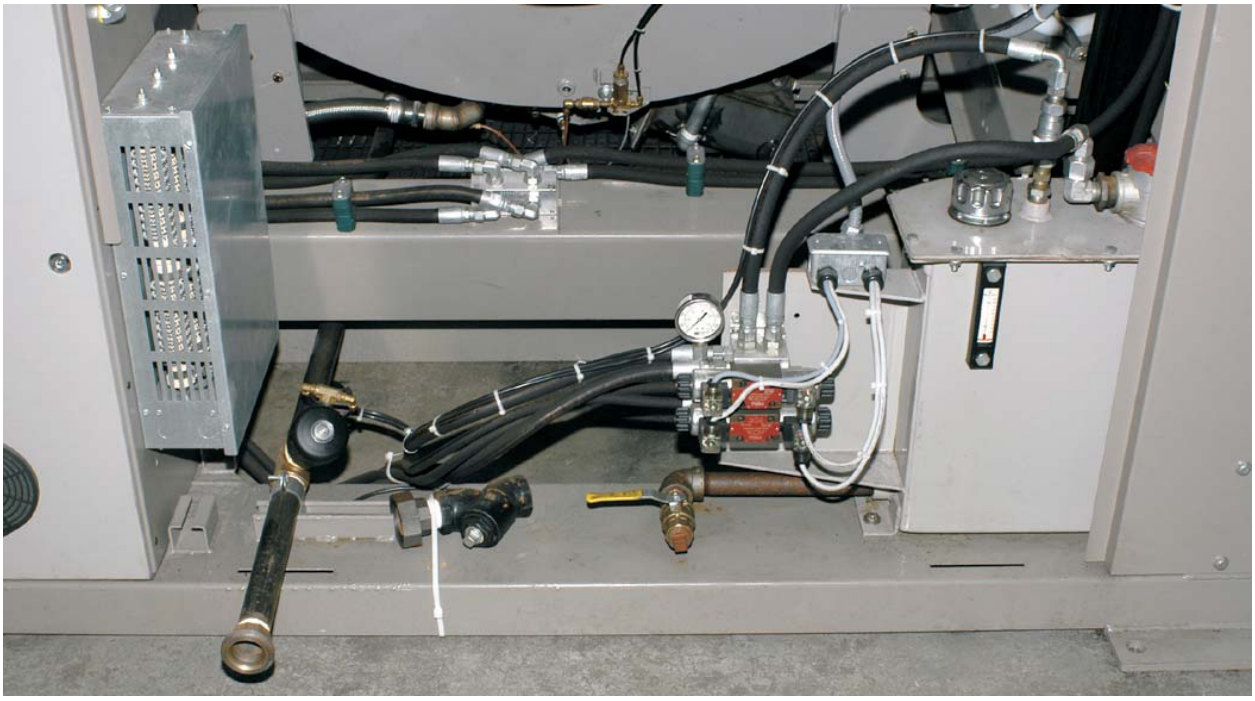
Parts List—Hydraulic Schematic

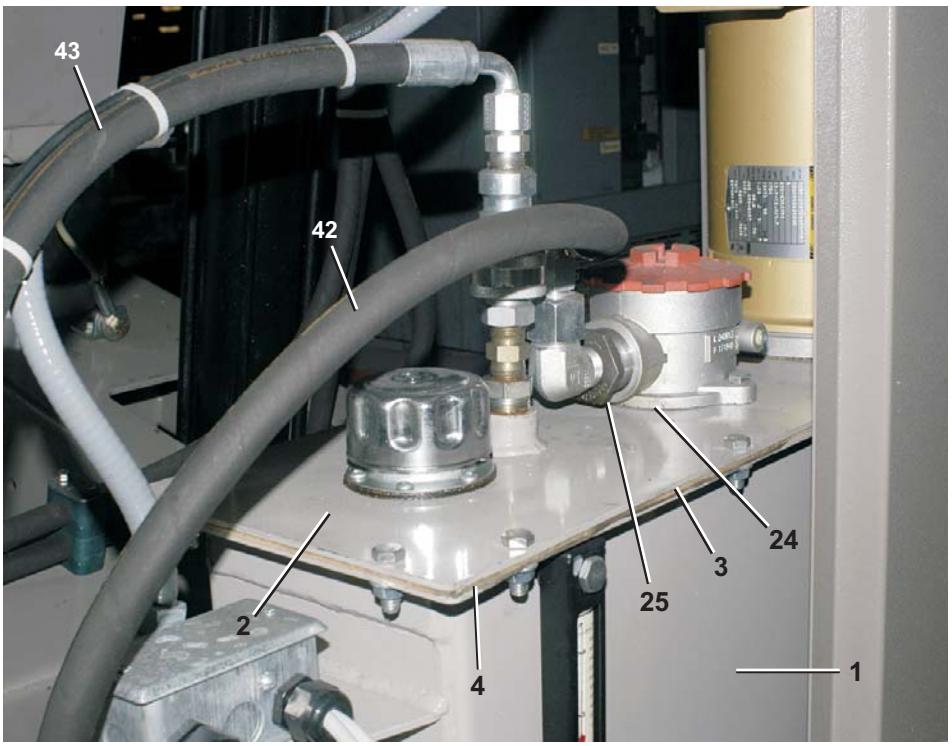
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	GHC68001	INSTALL=HYDRAULIC TILT, 2-WAY, 6836F5A	
	B	GHT68001	INST=HYD MTR/TORQARM RH-6836	
			----------COMPONENTS----------	
all	1	27E5506	GEAR PUMP-RECIRC.PUMP-EATON	
all	2	96DH455C	MANIFOLD, DAMAN AD03P022S/S	
all	3	96DH455D	CART, RELIEF SUN# RDDA-LAN	
all	4	27E731500	LIQFILL GAGE 0-1500PSI/BAR LF25 1-1500-4L	
all	5	96RH714E71	CONTROL VALVE HYTOS RPE3-063Y11-23050E5	
all	7	96DH471	COUNTERBALANCE VALVE-SUN BODY	
all	8	96DH471A	CARTRIDGE-COUNTERBAL.SUN	
all	9	27E163C44A	HYDRAULIC CYL 3.25" BORE X 44" STROKE WITH 9" STOP	
all	10	27E320025	TDRQMOTOR- HYDRAULIC	
all	11	27E7112	INTANK RETURN FILTER 1+1/4"	
all	12	27E7201	FILLER-BREATH-FILT.LHA#ABB-40N	
all	13	27E7105	SUCT.STRAIN=FLO EZY#S-10-100	
all	14	27E797A	JUNCTION BLOCK DAMAN #AJ2700208S	
all	15	96D084	BALL VALVE BRZ 1"BONOMI 171N	
all	16	5SP1ACESC	NPT PLUG 1" SQ CORED BLK CI	

Hydraulic Tilt Components

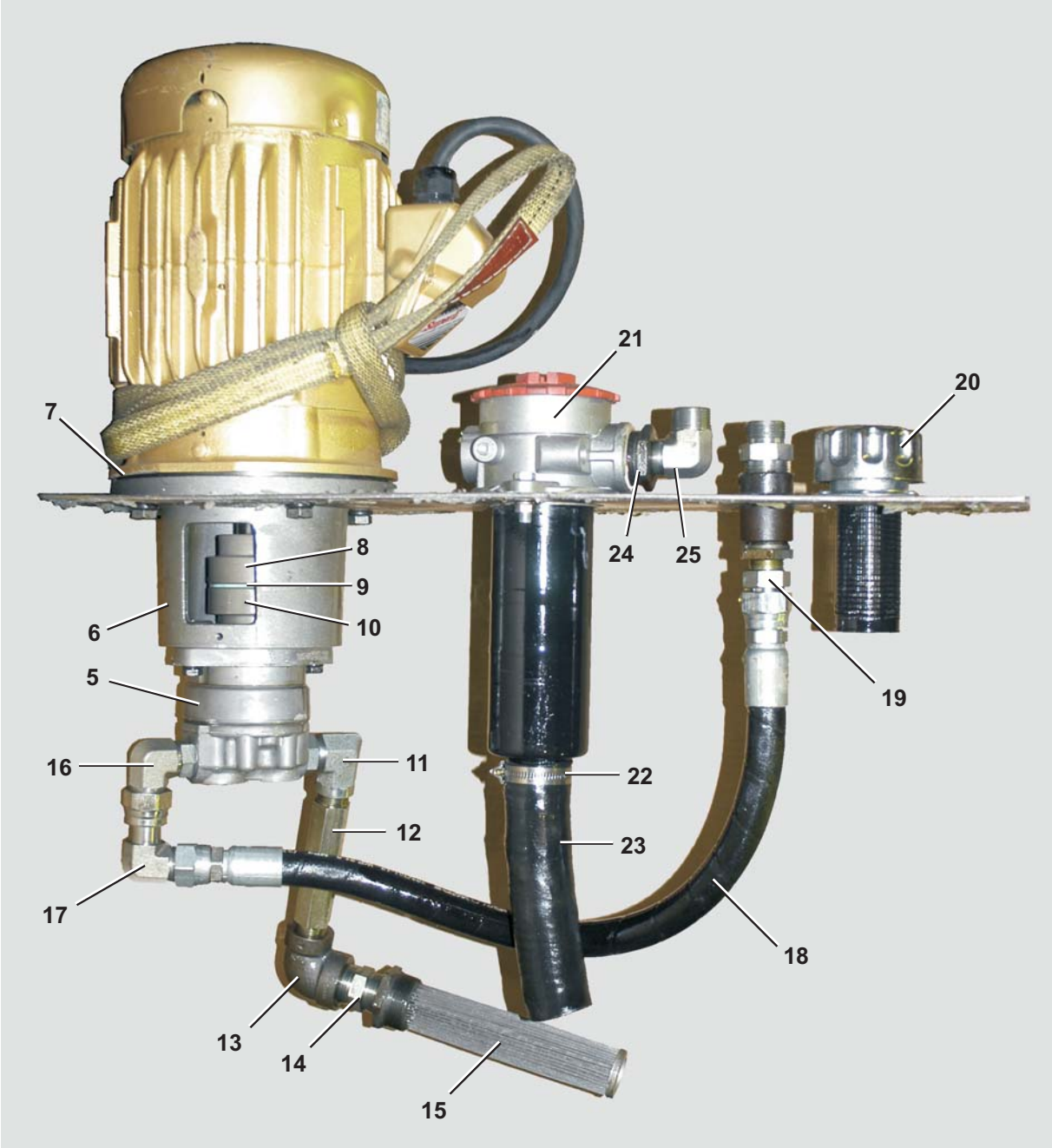
68036H5N, 68036H5K





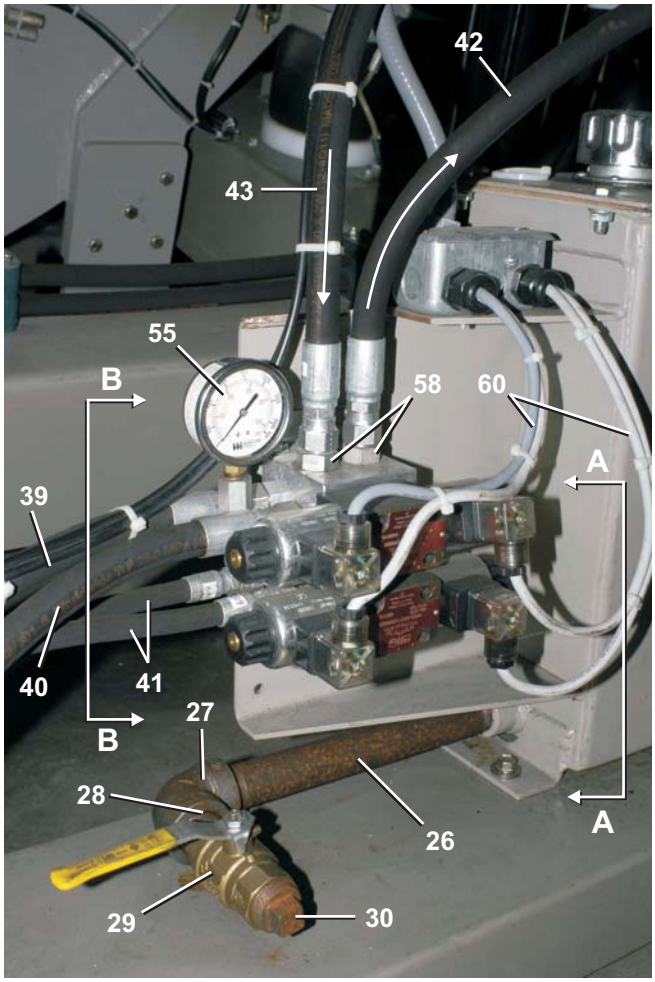
Hydraulic Tilt Components

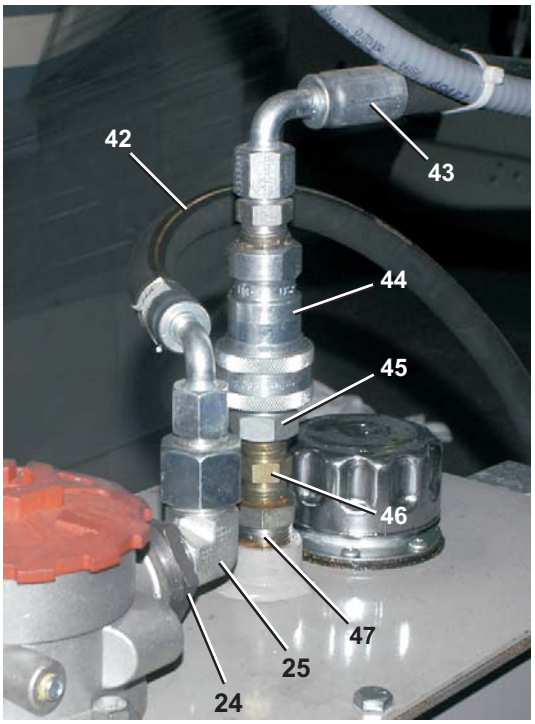
68036H5N, 68036H5K

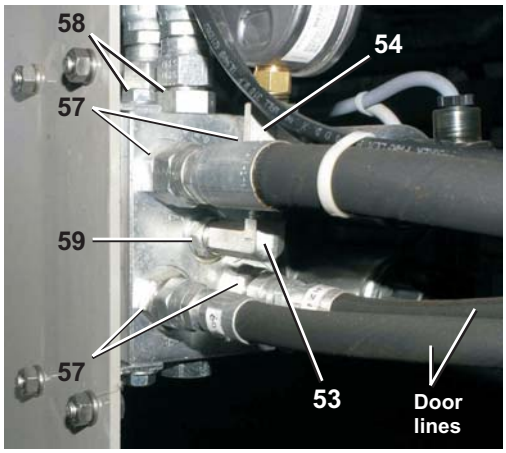


Hydraulic Tilt Components

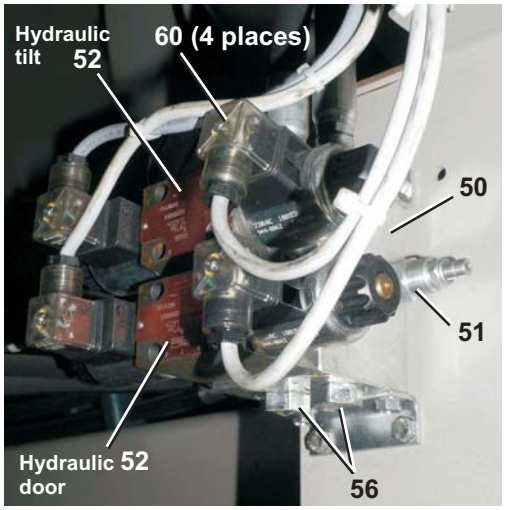
68036H5N, 68036H5K







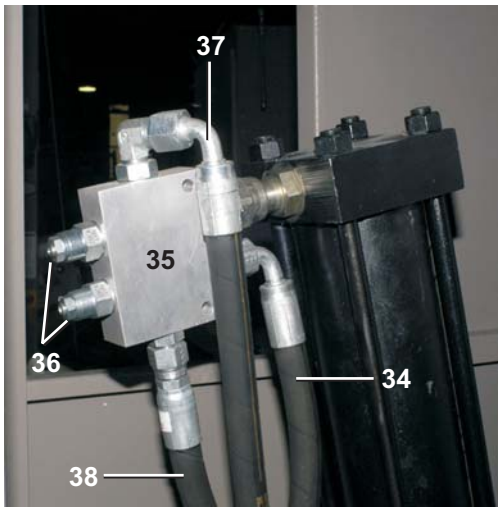
View A-A

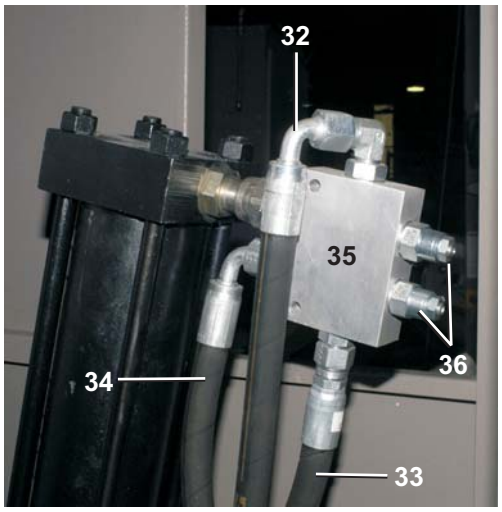


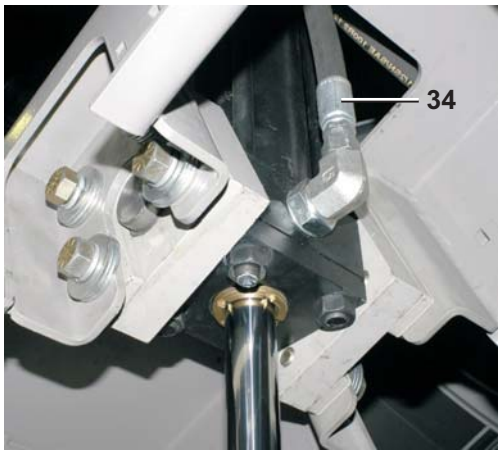
View B-B

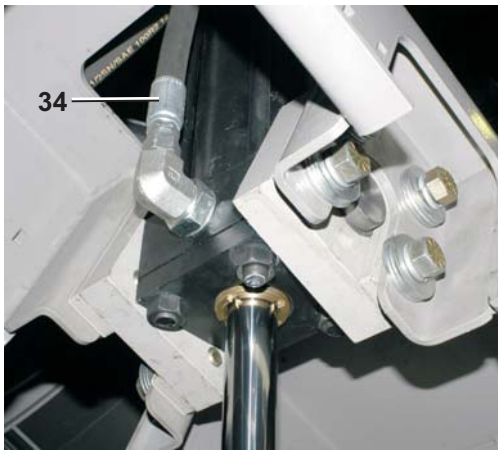
Hydraulic Tilt Components

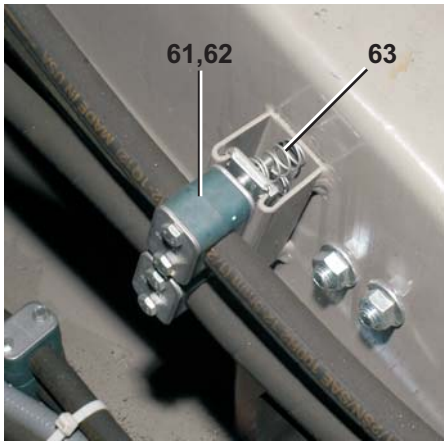
68036H5N, 68036H5K

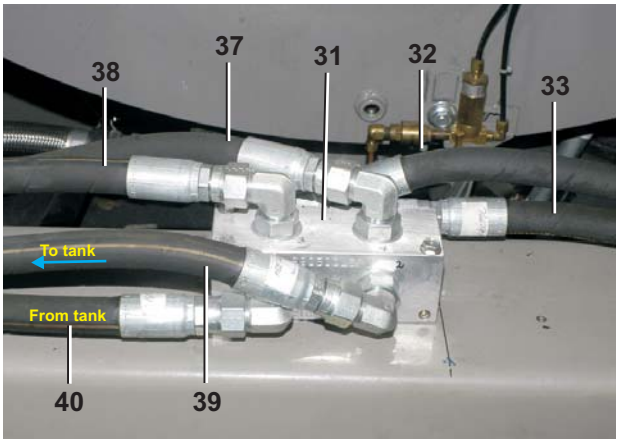












Hydraulic Tilt Components

68036H5N, 68036H5K

Parts List—Hydraulic Tilt Components

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	AHT48001	HYDRAULIC OIL RESERVOIR ASSY-4840F	
	B	AHT68001	68F5A HYDRAULIC HOSE & FITTING ASSY	
			----------COMPONENTS----------	
all	1	W2 22403	HYD OIL TANK WLMT- 4840F	
all	2	W2 22408	HYD TANK TOP WLMT-4840F	
all	3	02 22412	4840F HYDTANK TOP GASKET-LONG SIDE	
all	4	02 22412B	4840F HYDTANK TOP GASKET-SHORT SIDE	
all	5	27E5506	GEAR PUMP-RECIRC.PUMP-EATON	
all	6	27E795	PUMP MOUNT MAGNALOY #M182472A	
all	7	27E796	GASKET MAGNALOY #M182AVG	
all	8	27E793	COUPLING HUB MAGNALOY #M200-10408	
all	9	27E794	COUPLING INSERT-HYTREL MAGNALOY#M270-H5	
all	10	27E792	COUPLING HUB MAGNALOY #M200-02005	
all	11	52JY0PR008	ELB.3/4MORXF #6805-12-12NWO	
all	12	5N0P06AF42	NPT NIP 3/4X6 TBE BLKSTL SK40	
all	13	5SL0PMFA	NPTELB 90DEG 3/4 BLKMAL 150#	
all	14	5N0P01KF42	NPT NIP 3/4X1.5 TBE BLKSTL S40	
all	15	27E7105	SUCT.STRAIN=FLO EZY#S-10-100	
all	16	52ZJ00S009	TUBEFIT90EL3/4X5/8"FACESEAL OR	
all	17	52ZJ00S006	TUBEFIT90EL3/4"#12-C6LO-S	
all	18	60EH50C24B	HYD.HOSE 3/4"+2 X FORSW=24"	
all	19	52ZC0PS001	TUBEFITSTR3/4"#12-FLO-S	
all	20	27E7201	FILLER-BREATH-FILT.LHA#ABB-40N	
all	21	27E7112	INTANK RETURN FILTER 1+1/4"	
all	22	27A082	HOSECLAMP 2.5625-3.5CADSC#HS48	
all	23	60E110	HOSE 1.625"ID WIRE INSERT	
all	24	5SB1E0PMFO	NPTHEXBUSH 1.25X3/4 BLKML 150#	
all	25	52ZJ1AS003	TUBFIT90 1X3/4#16-12C50L0-S	
all	26	5N1A11AF42	NPT NIP 1X11 TBE BLKSTL SK40	
all	27	5SL1AMIA	NPT ELBOW 90DEG 1" BLKMAL 300#	
all	28	5N1ACLSF42	NPT NIP 1X CLS TBE BLKSTL SK40	
all	29	96D084	BALL VALVE BRZ 1"BONOMI 171N	
all	30	5SP1ACESC	NPT PLUG 1" SQ CORED BLK CI	

Hydraulic Tilt Components

68036H5N, 68036H5K

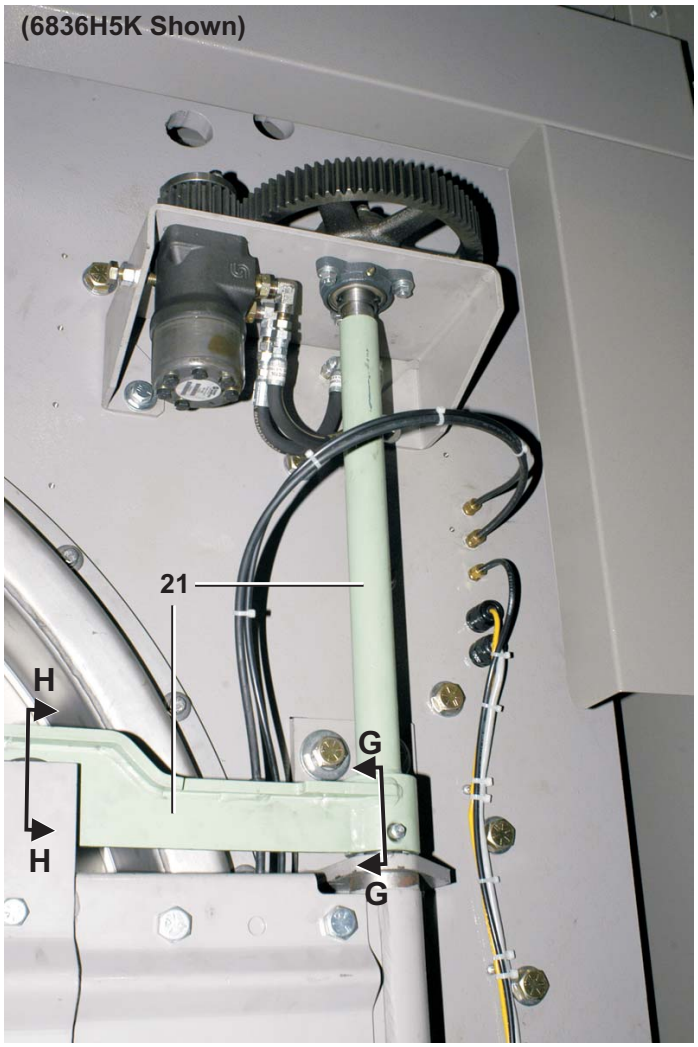
Parts List—Hydraulic Tilt Components

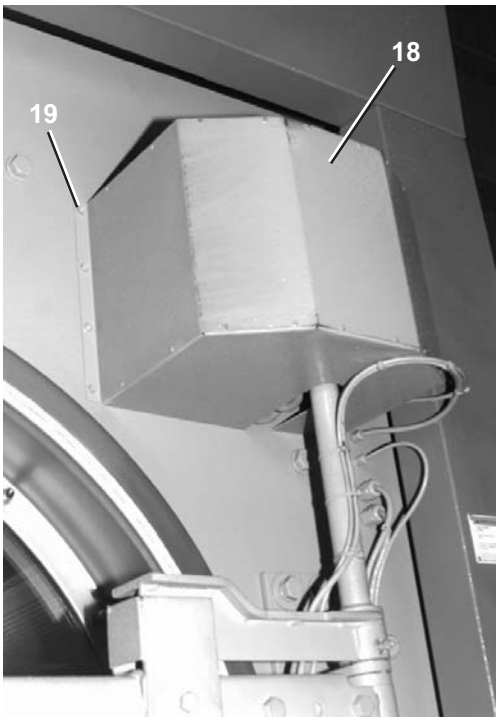
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

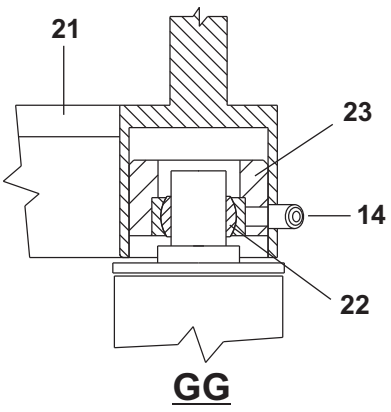
Used In	Item	Part Number	Description	Comments
all	31	27E797A	JUNCTION BLOCK DAMAN #AJ2700208S	
all	32	60EH40C77K	HYD HOSE 1/2" + 90FSW+FORSW=77.5"	
all	33	60EH40C77L	HYD HOSE 1/2 + STR.FEM0R=77.5"	
all	34	60EH40C42K	HYD.HOSE 1/2"+ 90FSW + FORSW=42.5"	
all	35	96DH471	COUNTERBALANCE VALVE-SUN BODY	
all	36	96DH471A	CARTRIDGE-COUNTERBAL.SUN	
all	37	60EH40C71L	HYD HOSE 1/2 + STR.FEM0R=71.5"	
all	38	60EH40C71K	HYD.HOSE 1/2"+ 90FSW + FORSW=71.5"	
all	39	60EH40C234	HYD HOSE 1/2 + STR.FEMOR=234"	
all	40	60EH40C231	HYD HOSE 1/2 + STR.FEMOR=231"	
all	41	60EH21C248	HYD HOSE 1/4" +2 X FORSW=248	
all	42	60EH40C23A	HYD HOSE 1/2" + 90FSW + M. STEM=23"	
all	43	60EH40C24A	HYD HOSE 1/2" + 90FSW + FORSW=24"	
all	44	52XY0KP00X	1/2"QUICK DISCONN.FEM#H4-62	
all	45	52XY0KP00Y	1/2"QUICK DISCONN.MALE #H4-63	
all	46	52LY0KR001	HEXPIPNIP 1/2XCLOSE #5404-8-8	
all	47	52AY0PR004	HEXPIPEBUSH 3/4X1/2 STEEL BAR/	
all	50	96DH455C	MANIFOLD, DAMAN AD03P022S/S	
all	51	96DH455D	CART, RELIEF SUN# RDDA-LAN	
all	52	96RH714E71	CONTROL VALVE HYTOS RPE3-063Y11-23050E5	
all	53	52JY0GR004	ELB90 3/80RXMJIC#6801LL-6-6NWO	
all	54	52AY0ER005	STR.1/4"FPX3/8"FJIC#6506-4-6	
all	55	27E731500	LIQFILL GAGE 0-1500PSI/BAR LF25 1-1500-4L	
all	56	52PY0GR003	HEXPLUG 5/8" OR-SEAL #10-P50N-S	
all	57	52ZC00S011	TUBESTRCON 1/2 X 5/8 #8-10 F5OLO-S	
all	58	52Z0PS007	1/2" TUBE-O RING CONNECT-FLO-8-8	
all	60	12M3240V3F	SOLE.CONN.100-240VAC 3FT	
all	61	27E5521	HOSECLAMP HALVES 1/2 PARK#H3205PP	
all	62	27E5522	CLAMP COVER PL 1/2 PARKER#CP-3	
all	63	27A0625NUT	CLAMPNUT 1/4-20 W/SHORT SPRING	

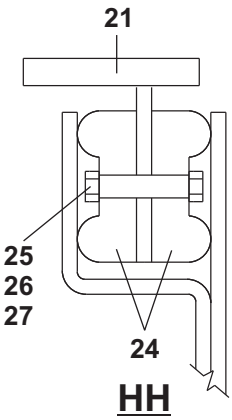
48” Door Hydraulic Components

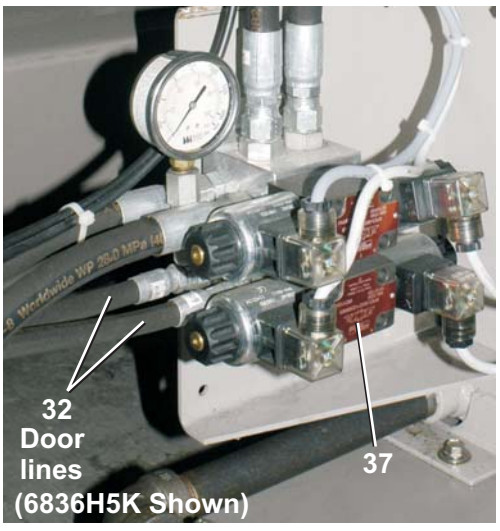
68036H5N, 68036H5K, 68036M5K, 72046M5K





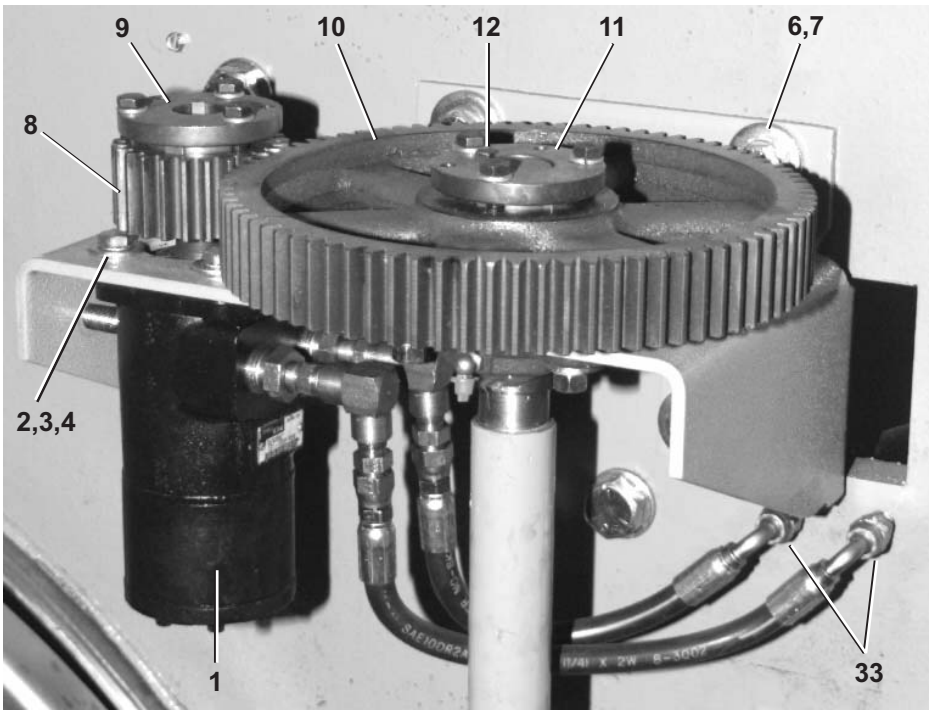


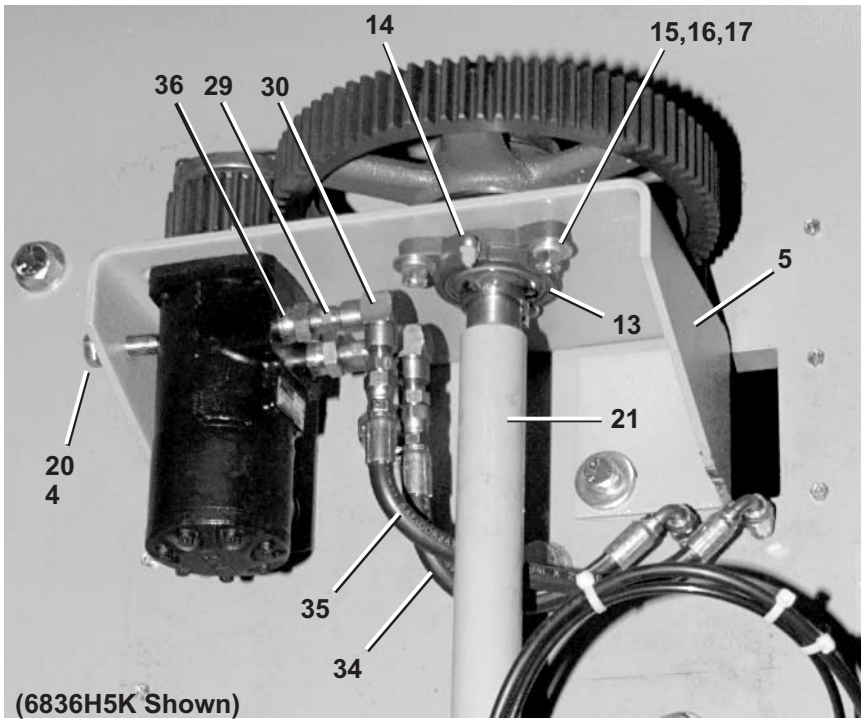




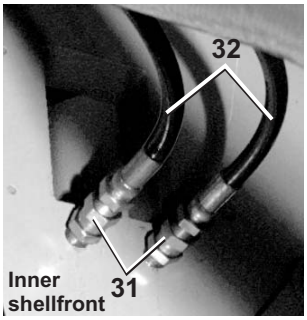
48” Door Hydraulic Components

68036H5N, 68036H5K, 68036M5K, 72046M5K





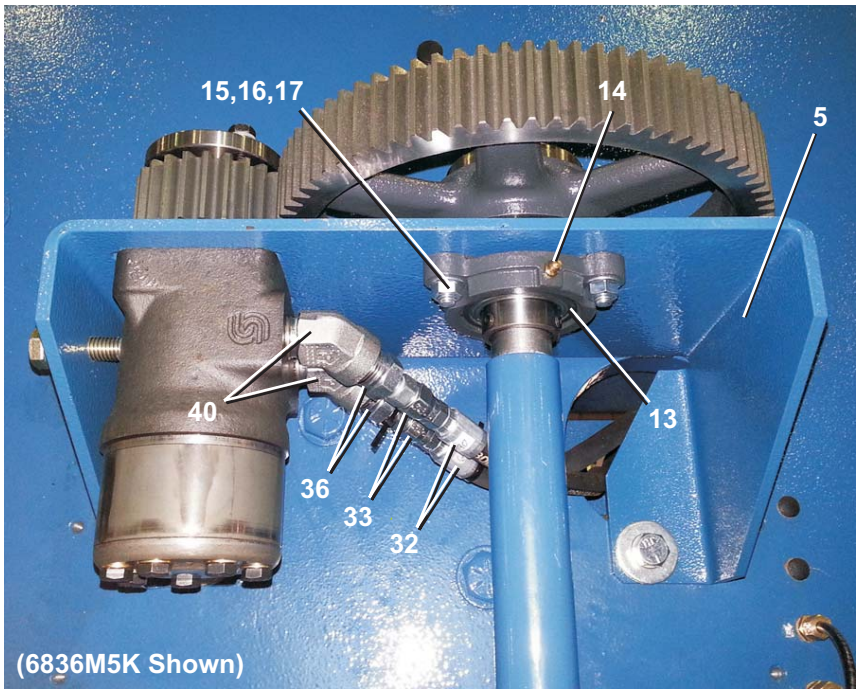
(6836H5K Shown)

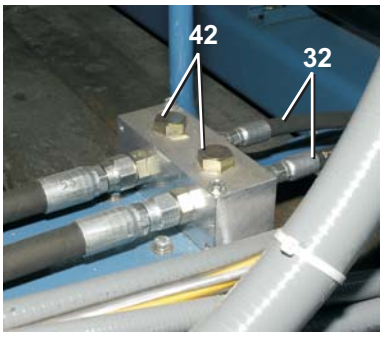


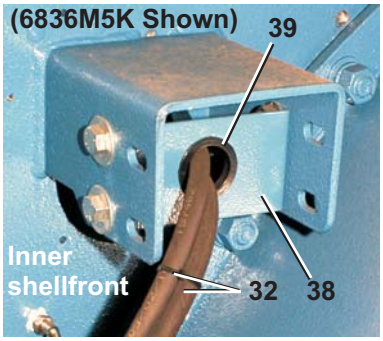
(6836H5K Shown)

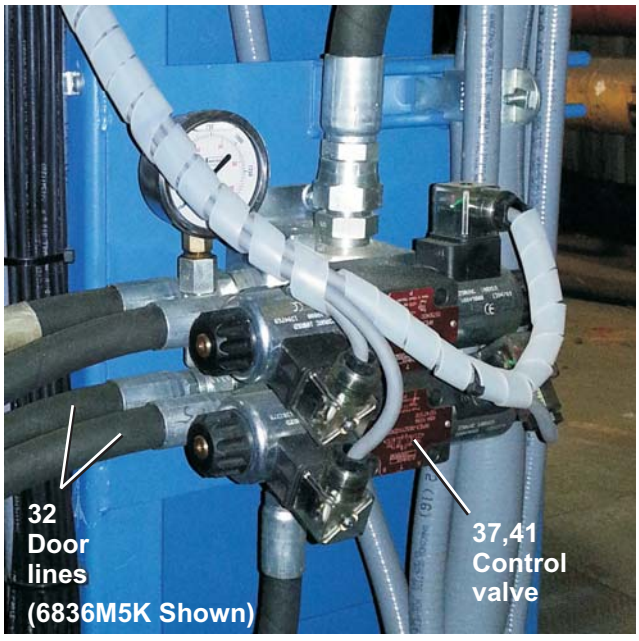
48” Door Hydraulic Components

68036H5N, 68036H5K, 68036M5K, 72046M5K









48” Door Hydraulic Components

68036H5N, 68036H5K, 68036M5K, 72046M5K

Parts List—48” Hydraulic Door Components

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	GHT68001	INST=HYD MTR/TORQARM RH-6836	68036H5N, 68036H5K
	B	GHT68005	6836M5K HYD MTR/TORQARM	68036M5K, 72046M5K
			----------COMPONENTS----------	
all	1	27E320025	TDRQMOTOR- HYDRAULIC	
all	2	15K151	HXCAPSCR 1/2-13UNC24X1.25 GR5	
all	3	15U280	FL+WASHER(USS STD)1/2 ZNC PL+D	
all	4	15U300	LOKWASHER REGULAR 1/2 ZINC PLT	
A	5	03 60789	AUTODOOR HYD MNT BRKT RH-6836	
B	5	02 22716	6836M5K AUTODOOR HYD MNT BRKT	
all	6	15K173A	HXCAPSCR 1/2-13UNC2AX1.75 GR5	
all	7	15U490	FLTWASH 1+1/2X17/32X1/4 ZINC	
all	8	54N090	SPURGEAR B#YSS8-24 P1 PE-5064	
all	9	56Q1AP1	1.0" BUSH VPUL BROWNING P1	
all	10	54N095	SPURGR 8P80T20PA 1.5F YCS8P80	
all	11	56Q1EP1	1+1/4" BUSH VPUL BROWNING P1	
all	12	15E210	SQMACHKEY 1/4X2 NOTAPER-NOHEAD	
all	13	54A718	FLGBRG 1+1/4" HC#FB150X1+1/4S	
all	14	54M021	GRSFIT 1/8PIPE X 1/4STR 1607-B	
all	15	15K088	HEXCAPSCR 3/8-16NCX7/8 GR 5 ZI	
all	16	15U255	LOCKWASHER MEDIUM 3/8 ZINCPL	
all	17	15G205	HXNUT 3/8-16UNC2B ZINC GR2	
all	18	AGS75001L	COVER=GEARTRAIN LH	
all	19	15P185	TRDCUT-F HXHD 1/4-20UNC2AX3/4	
all	20	15K162	HXCAPSCR 1/2-13UNC2AX1.5 GR5 P	
all	21	W3 25328	WELD=TORQARM RH DOOR-6836	
all	22	54AA00PBB	BUSH BALL 3/4 RBC-B12L	
all	23	03 25604	ADAPTER FOR B12-L BUSHING	
all	24	60C075	TRUCK BUMPER 2+1/2ODW3/8HO.613	
all	25	15K120	HXCAPSCR 3/8-16UNC2AX2 GR5 ZIN	
all	26	15U240	FLATWASHER(USS STD) 3/8" ZNC P	
all	27	15G218	HXLOKNUT NYL 3/8-16 STL/ZNC	
A	29	52LY0ER001	HEXPIPNIP 1/4X1/4 #5404-4-4	
A	30	52JY0ER003	ELB90 1/4"FEM.#5504-4-4	
A	31	52XY0ER008	STRADAPT 1/4" #1404-4-4	
A	32	60EH21C248	HYD HOSE 1/4" +2 X FORSW=248	
B	32	60EH21C190	HYD HOSE=1/4" X 190”	

48” Door Hydraulic Components

68036H5N, 68036H5K, 68036M5K, 72046M5K

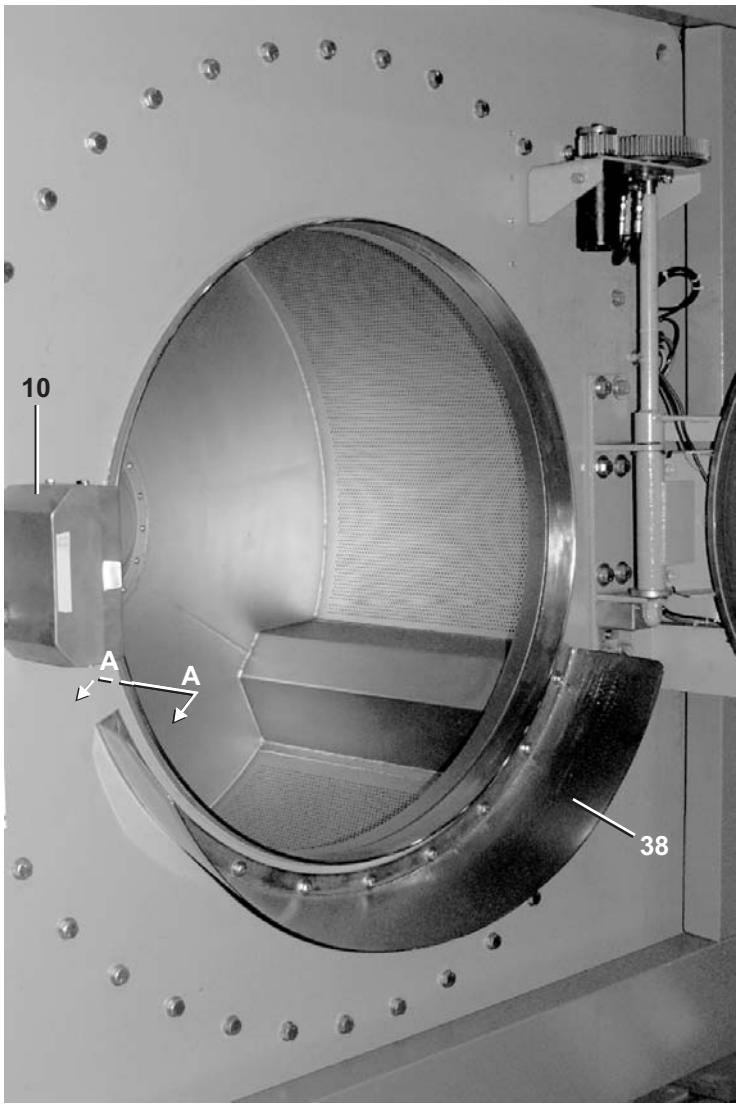
Parts List—48” Hydraulic Door Components

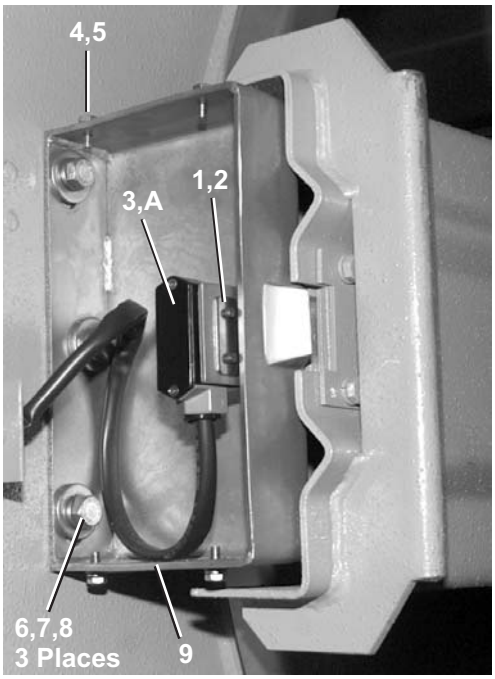
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

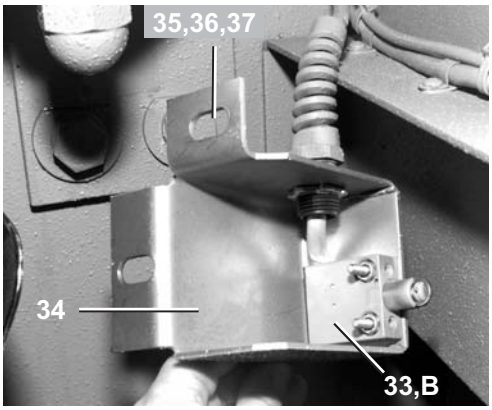
Used In	Item	Part Number	Description	Comments
all	33	52ZC0ES001	TUBEFIT 1/4"STR.#4-4-FLO-S	
A	34	60EH21C08S	ASSY=HYD HOSE 1/4"X8" SHORT	
A	35	60EH21C10L	ASSY=HYD HOSE 1/4"X10" LONG	
All	36	52AY0KR004	HEXPTPEBUSH 1/2MX1/4F#0102-8-4	
A	37	96RH714E71	CONTROL VALVE HYTOS RPE3-063Y11-23050E5	
B	37	96RH706E71	VLVPARKER 220V50/240V60 7GPM	
B	38	02 22805	6836M5K DOOR HYD HOSE HOLDER	
B	39	12P11PSB	SNAPBUSH 1-3/4X1.375HEYCO#2300	
B	40	52ZJ00S017	ELBOW 45 1/2" STREET #1/2 CD45-S	
B	41	96RH712A04	ORIFICE D1 1.0MM(.039) #15845600	
B	42	52PY0KR001	HEXPLUG 1/2"OR #6408-08-0	

48” Door Installation Components

68036H5N, 68036H5K



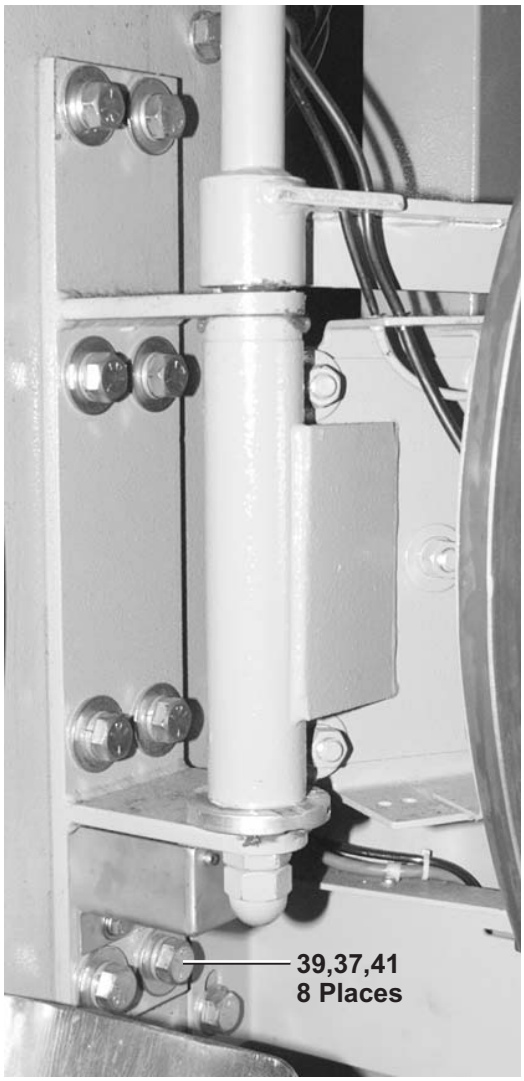


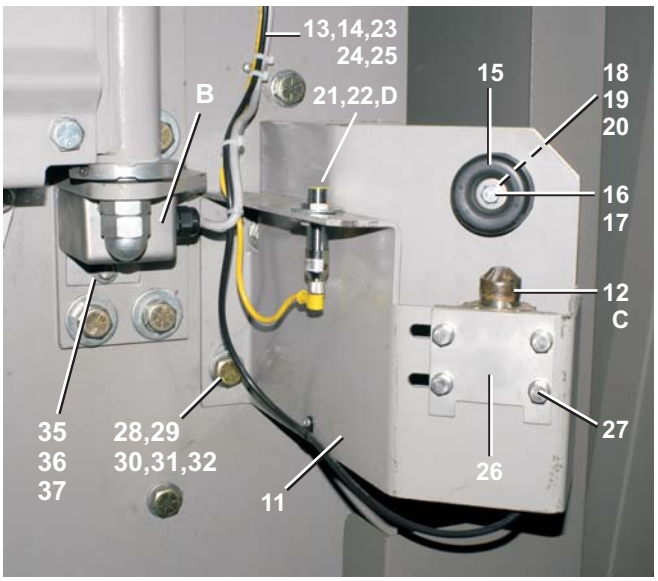


A. Door locked switch (Interlock switch)
B. Second door switch

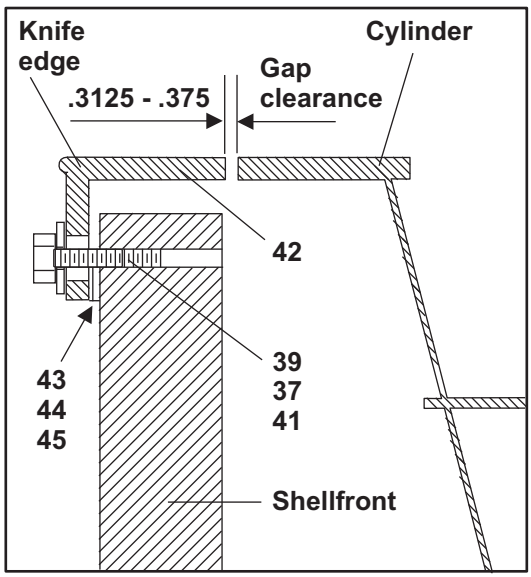
48” Door Installation Components

68036H5N, 68036H5K





B. Second door switch
C. Door open latch, See BIIFGM19.
D. Door full open switch



Section A-A

48” Door Installation Components

68036H5N, 68036H5K

Parts List—Door Installation Components

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	ADL68001	ASSY=40DRLG CLOSED STRKR 6836	
	B	ADL68010	ASSY=FULOPEN RH LATCH/SW-6836	
	C	ADS60001	PRTS=40DRLG SECONDARY DR SW-RH	
	D	GSD68002	INST=48" AUTO DOOR RH-6836	
	E	GKE60002A	INST=48"DOOR KNIFE 6836F	
			----------COMPONENTS----------	
all	1	02 10391	COVER STRIP=MICRO SW #6-8	
all	2	20A015GA	SHIM=FRICTION=CWU DOORSWITCH	
all	3	09R012STDG	* 09R012 +MOUNTING HDWRE+INST	
all	4	15K031	BUTSOKCAPSCR 1/4-20X1/2 SS18-8	
all	5	15U181	LOCKWASHER MEDIUM 1/4 SS18-8	
all	6	15K173A	HXCAPSCR 1/2-13UNC2AX1.75 GR5	
all	7	15U300	LOKWASHER REGULAR 1/2 ZINC PLT	
all	8	15U490	FLTWASH 1+1/2X17/32X1/4 ZINC	
all	9	W3 60775	WLMT=LATCH STRIK 40"DR LG	
all	10	W3 60778	WLMT=STRIKER COVER 40" DOOR	
all	11	W3 60776	FULL OPEN LATCH WLMT RH-6836	
all	12	SA 15 028	* DOOR LATCH ASSY-DIVCYLS	
all	13	60E004TE	1/4"OD X.170"ID NYL(BLK)TUBING	
all	14	53A031B	BODY-EL90MALE.25X1/8 #269C-42B	
all	15	60C075	TRUCK BUMPER 2+1/2ODW3/8HO.613	
all	16	15K110	HEXCAPSCR 3/8-16UNC2AX1.5 GR5-	
all	17	15U240	FLATWASHER(USS STD) 3/8" ZNC P	
all	18	15U245A	FLTWASH 25/64IDX1.25ODX3/32 S/	
all	19	15U255	LOCKWASHER MEDIUM 3/8 ZINCPL	
all	20	15G205	HXNUT 3/8-16UNC2B ZINC GR2	
all	21	09RPS18CAS	PRXSW QKCO 18M NO-AC SHLD	
all	22	09RPTAC095	CONN. 90 FEM 3-PIN AC 3A 5M	
all	23	53A059A	NUT 1/4"BR.HOLYOKE AND #61A-4	
all	24	53A500	SLEEVE DELRIN 1/4"OD#60PT-4	
all	25	53A501	TUBE INSERT .163"OD #63PT-4-40	

48” Door Installation Components

68036H5N, 68036H5K

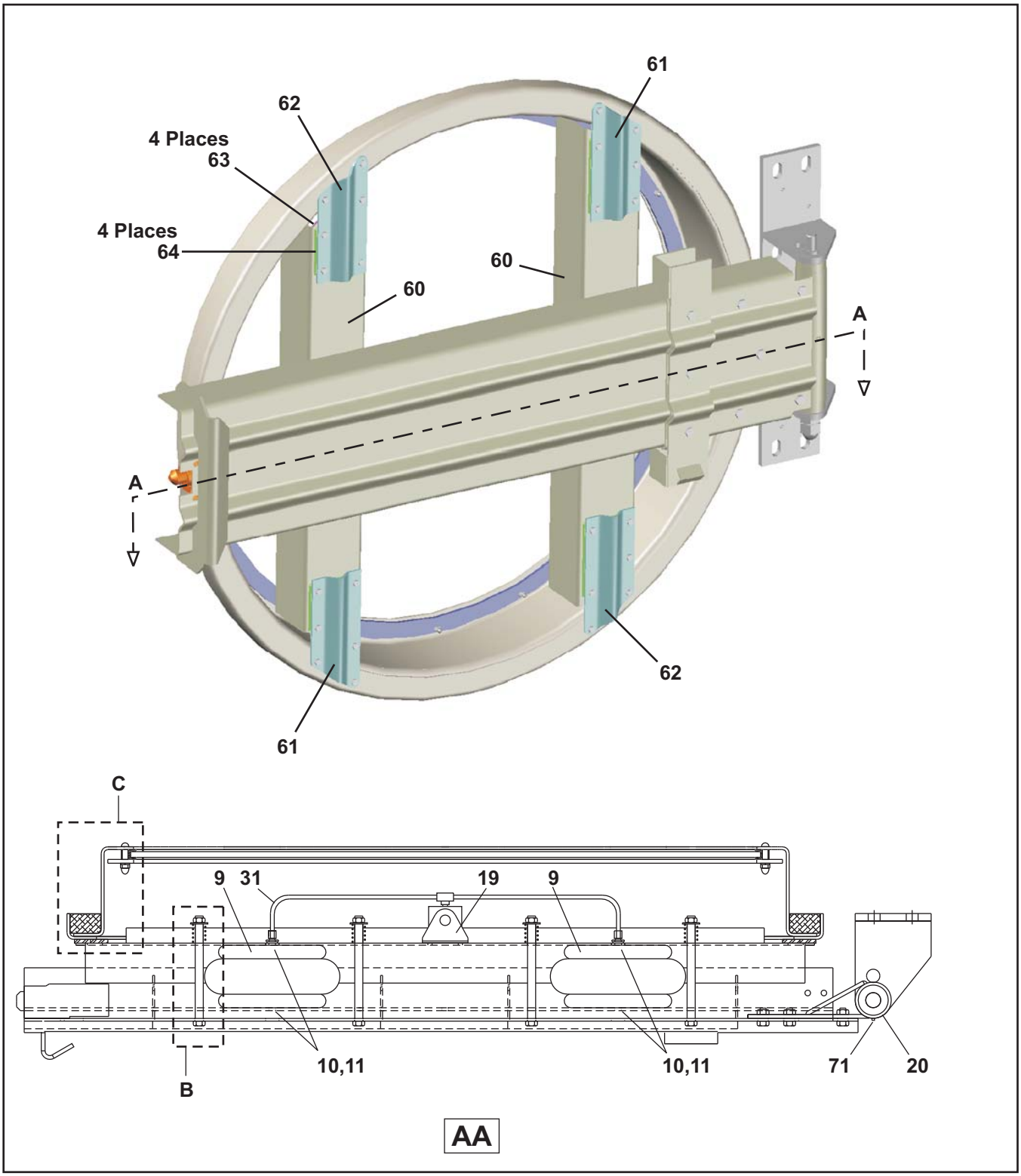
Parts List—Door Installation Components

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	25	53A501	TUBE INSERT .163"OD #63PT-4-40	
all	26	02 15633S	ADJPLATE=DOORLATCH SS	
all	27	15K105	HXCAPSCR 3/8-16UNC2A1.25 GR5 P	
all	28	15K235G	HEXCAPSCR 3/4-10UNC2AX5" GR8	
all	29	15U492	FLTWSH1+15/32ODX13/16IDX.125ZC	
all	30	15U494	3/4SAE CLPFW.812IDX1.5ODX.135T	
all	31	15U340	LOCKWASH MEDIUM 3/4 ZINCPL	
all	32	15G240	HXNUT 3/4-10UNC2B SAE ZINC GR2	
all	33	09RM02212S	CAPSW 12' 180DEG ROLLER SILVER	
all	34	03 60782A	SECOND DR SWTCH BKT-HVY HNGE	
all	35	15K084S	HXCAPSCR 3/8-16NCX5/8 SS18-8	
all	36	15U245	FLTWASH 3/8 STD COMM 18-8 SS	
all	37	15U260	LOCKWASHER MEDIUM 3/8 SS18-8	
all	38	W3 65338C	WLMT=UNLOAD TRAY 48" DR-EXTD	
all	39	15K112	HXCAPSCR 3/8-16X1+1/2 SS18-8	
all	41	15U491	FLTWASH 1.439OD.394ID.120TH188	
all	42	Y5 75860	MACH=KNIFE EDGE 48" DOOR, 6836	
all	43	03 60864	1/8"GASKET=KNIFE RING 48"DR	
all	44	03 60864A	1/16"GASKET=KNIFE RING 48"DR	
all	45	20C040B	SUPERFLEX CLR RTV SIL 10.2OZ	

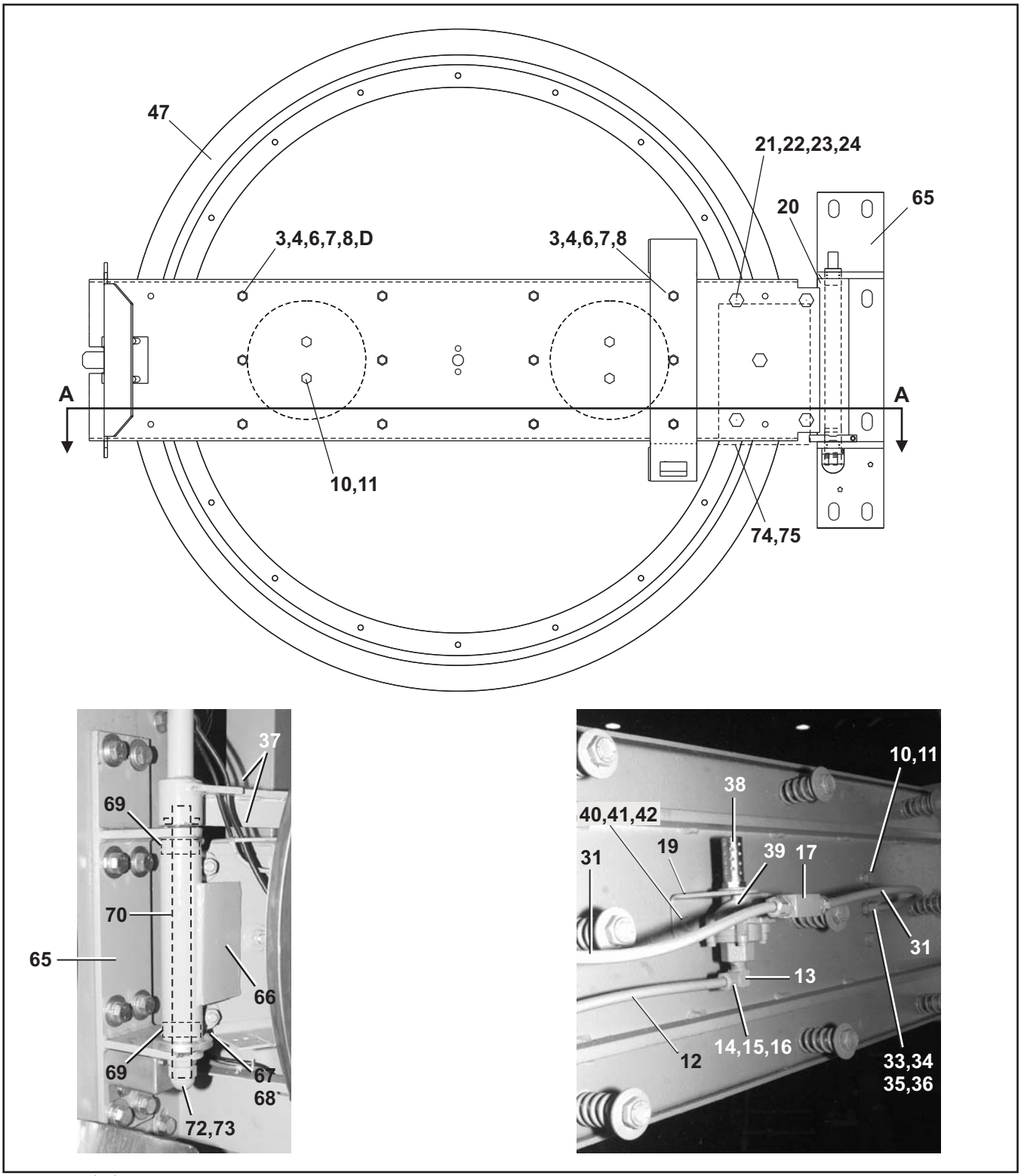
48” Door

68036H5N, 68036H5K, 68036M5K, 72046M5K



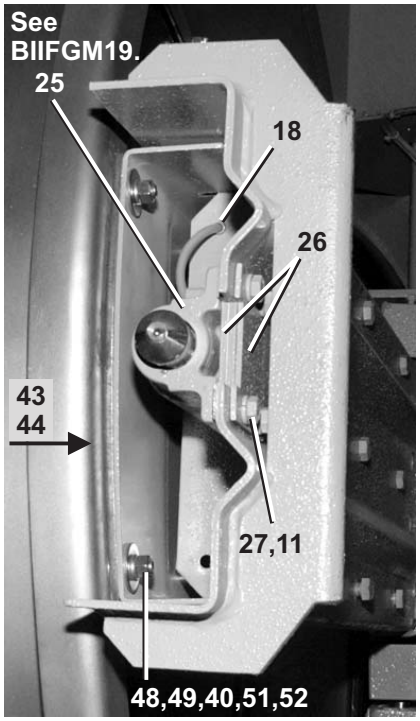
48” Door

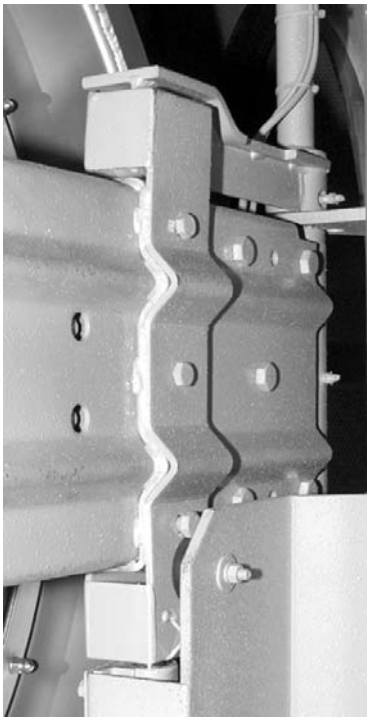
68036H5N, 68036H5K, 68036M5K, 72046M5K

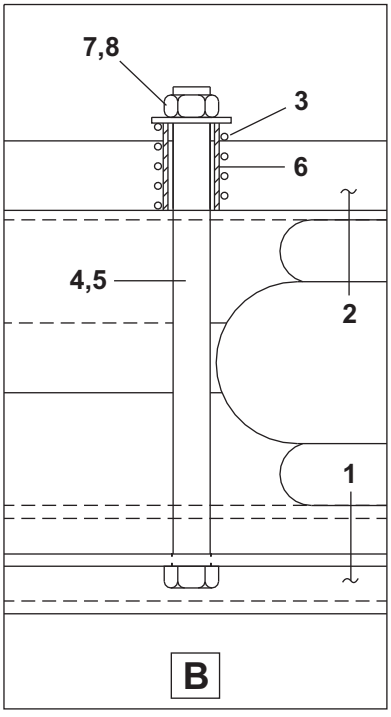


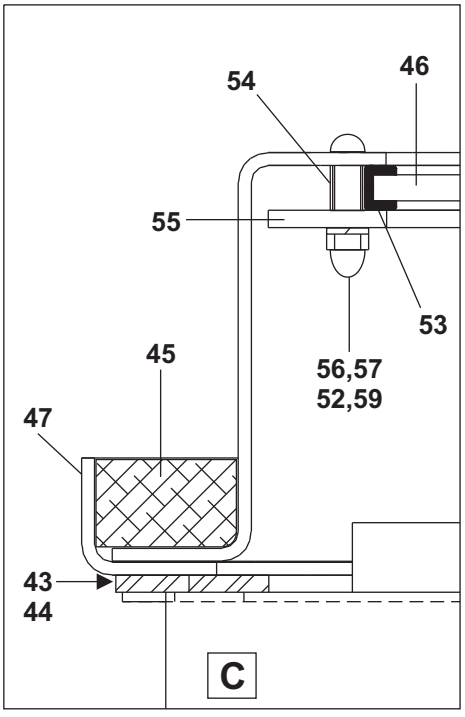
48” Door

68036H5N, 68036H5K, 68036M5K, 72046M5K









48” Door

68036H5N, 68036H5K, 68036M5K, 72046M5K

Parts List—48” Door

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	ADC60002	ASSY=48"DOOR CHN W/2AIR BSK	
	B	ASD60002	ASSY=48"DOOR 304 W/GLASS	
	C	ADG60002	PRTS=48"DR LG GLASS MNT 304	
			----------COMPONENTS----------	
all	1	W3 60865	WLMT=OUTER CHANNEL 48"DR LG	
all	2	W3 60866	WLMT=INNER CHNL 48" DR MD1	
all	3	02 18187S	SPRING=DOOR STAINLESS STEEL	
all	4	15K203T	HEXCAPSCR 1/2-13X6 GR5 ZINC	
all	5	15K203TA	HEXCAPSCR 1/2-13X6.5 GR8 ZINC	
all	6	27B2750L0T	SPC RROLL.562ID.937L.048T ZNK	
all	7	15U280	FL+WASHER(USS STD)1/2 ZNC PL+D	
all	8	15G234	LOKNUT 1/2-13NC CAD FLXLOC#21F	
all	9	60B100	AIRMT S116B 1CONV F3582017564	
all	10	15K095	HXCPSCR 3/8-16UNC2AX1 GR5 ZINC	
all	11	15U255	LOCKWASHER MEDIUM 3/8 ZINCPL	
all	12	60E004TE	1/4"OD X.170"ID NYL(BLK)TUBING	
all	13	53A031B	BODY-EL90MALE.25X1/8 #269C-42B	
all	14	53A059A	NUT 1/4"BR.HOLYOKE AND #61A-4	
all	15	53A500	SLEEVE DELRIN 1/4"OD#60PT-4	
all	16	53A501	TUBE INSERT .163"OD #63PT-4-40	
all	17	51V015	TEE 1/4 FGDBRASS 101T7-444	
all	18	12P1AGSB	SNAPBUSH 3/8"MH X 1/4" T=1/8	
all	19	03 60886	BRKT=EXAUST VALVE/48"DOOR	
all	20	ADH60001	PRTS=40"DR LG HINGE CRB	
all	21	15K214E	HXCAPSCR 5/8-11UNC2AX1.5 GR5 Z	
all	22	15U314	FLATWASHER(USS STD) 5/8" ZNC P	
all	23	15U315	LOKWASHER MEDIUM 5/8 ZINCPL	
all	24	15G238	HXNUT 5/8-11UNC2B SAE ZINC GR2	
all	25	SA 15 028	* DOOR LATCH ASSY-DIVCYLS	
all	26	02 15633S	ADJPLATE=DOORLATCH SS	
all	27	15K110	HEXCAPSCR 3/8-16UNC2AX1.5 GR5-	
all	31	60E005	TUBING BLK.POLY.5/160DX3/16ID	
all	32	53A040B	BODY=EL90MALE5/16X.25#B69A-5B	
all	33	53A020B	BODYMALECON5/16X.25COM#B68A-5B	
all	34	53A060A	NUT BRASS 5/16 COMP#61A-5	
all	35	53A508	SLEEVE DELRIN 5/16"OD#60PT-5	
All	36	53A509	TUBE INSERT 5/16"OD X .53"LG.	

48” Door

68036H5N, 68036H5K, 68036M5K, 72046M5K

Parts List—48” Door

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	37	12P1AHSB	SNAPBUSH .437"MH X .312" T=1/8	
all	38	27A005	MUFFLER 3/8" BANTAM B38	
all	39	96M055	DELTROL QUICK EXHAUST VLV.1/4"	
all	40	15K041	HXCAPSCR 1/4-2OUNC2AX1 GR 5 ZI	
all	41	15U180	LOCKWASHER MEDIUM 1/4 ZINCPL	
all	42	15G165	HXNUT 1/4-20UNC2BSAE ZC GR2	
all	43	03 60869	48"DOOR-SHIM=1/8"	
all	44	03 60869A	48" DOOR SHIM=1/4"	
all	45	03 60851	GASKET=48"DOOR EPDM	
all	46	03 60855	GLASS=48"DR 3/8T X 41.75 OD	
all	47	X3 60850	MACH=48" DOOR	
all	48	15G206	HEXNUT 3/8-16 UNC2 SS 18-8	
all	49	15N223A	FLATMACHSCR 3/8-16X1+1/2 SS SL	
all	50	15U245	FLTWASH 3/8 STD COMM 18-8 SS	
all	51	15U245B	FLATWASH SPECIAL DOOR 52+72	
all	52	15U260	LOCKWASHER MEDIUM 3/8 SS18-8	
all	53	03 60856	GASKET=GLASS 48"DOOR 42.06DIA	
all	54	27B2400K0L	SPACER ROLL.43ID.562L.03T SS	
all	55	X3 60857	MACH=48"DR GLSS MNT RING LG	
all	56	15G200	HXCPNUT 3/8-16 UNC2A 5/8X1/2	
all	57	15K106B	BUTSOKCAPSCR 3/8-16NCX1+3/8 SS	
all	59	24G030N	ROLLED WASH.379ID NYLTITE 37W	
all	60	03 60867	VERT CHANNEL 48" DOOR	
all	61	03 60868	LFT MNT PLATE=VERT CHN/48"DR	
all	62	03 60868A	RT MNT PLATE=VERT CHN/48"DR	
all	63	03 60868B	NUT PLATE=VERT CHN/48"DOOR	
all	64	03 60868C	SPACER=VERT CHNL/48"DOOR	
all	65	W3 60780A	WLMT=48" DOOR HINGE BRKT	
all	66	W5 20017	* WELDMENT=40" DOOR HINGE	
all	67	54JH13562B	HINGE COL SPLIT 3.56 FL TOP	
all	68	15K041E	SKCPSCR 1/4-20X1+1/4"BLK	
all	69	54A976977	TIMKN #L44610/L44643=1.00"BORE	
all	70	05 20140A	PIN-DOOR HINGE 15.625LG 72T	
all	71	54M015	GREASEFIT 60X36/60X44 1610BL	
all	72	15G248	HXJAMNUT 1-14UNF2B ZINC GR2	
all	73	15G249	HXCAPNUT L-CROWN 1-14UNF2B ZIN	
all	74	05 20017E	SHIM=DOOR HINGE 11 GA 64D	
All	75	05 20017F	SHIM=DOOR HINGE 16 GA 64D	

BIIFGM19 (Published) Book specs- Dates: 20100708 / 20100708 / 20120629 Lang: ENG01 Applic: EUU

Door Latch

Figure 1: Door Latch

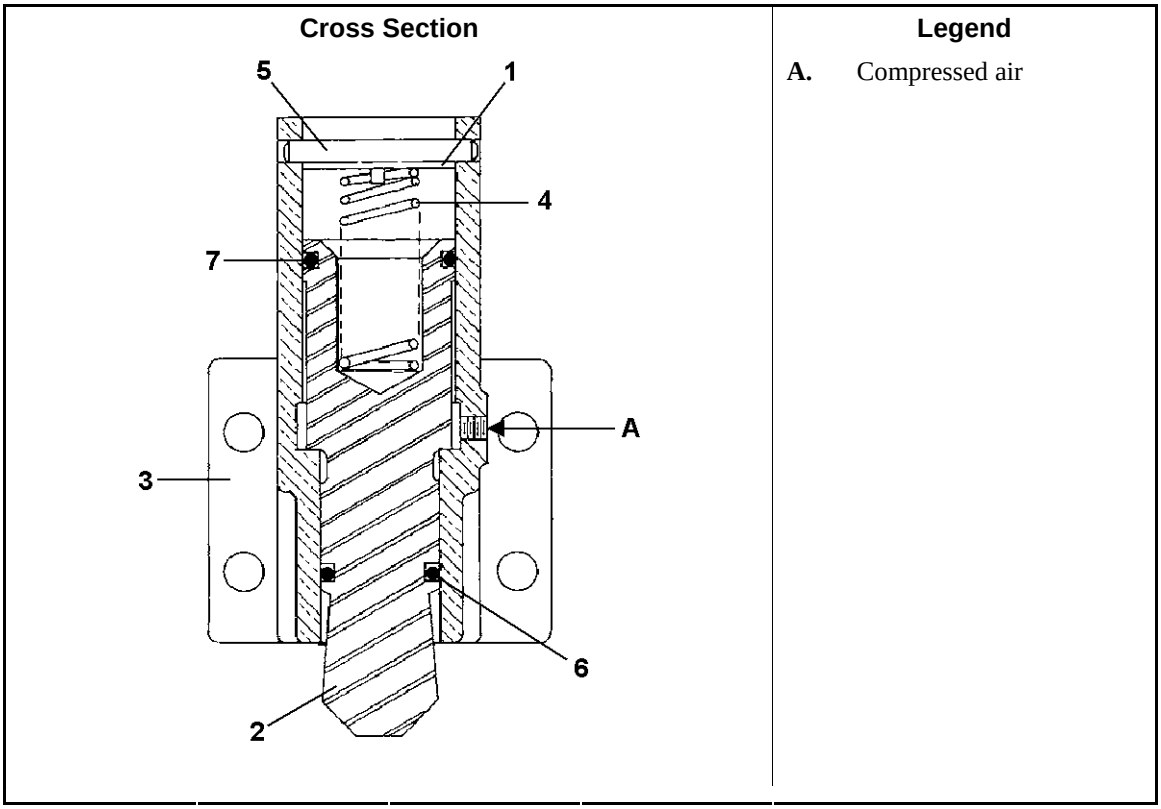


Table 1: Parts List—Door Latch

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.

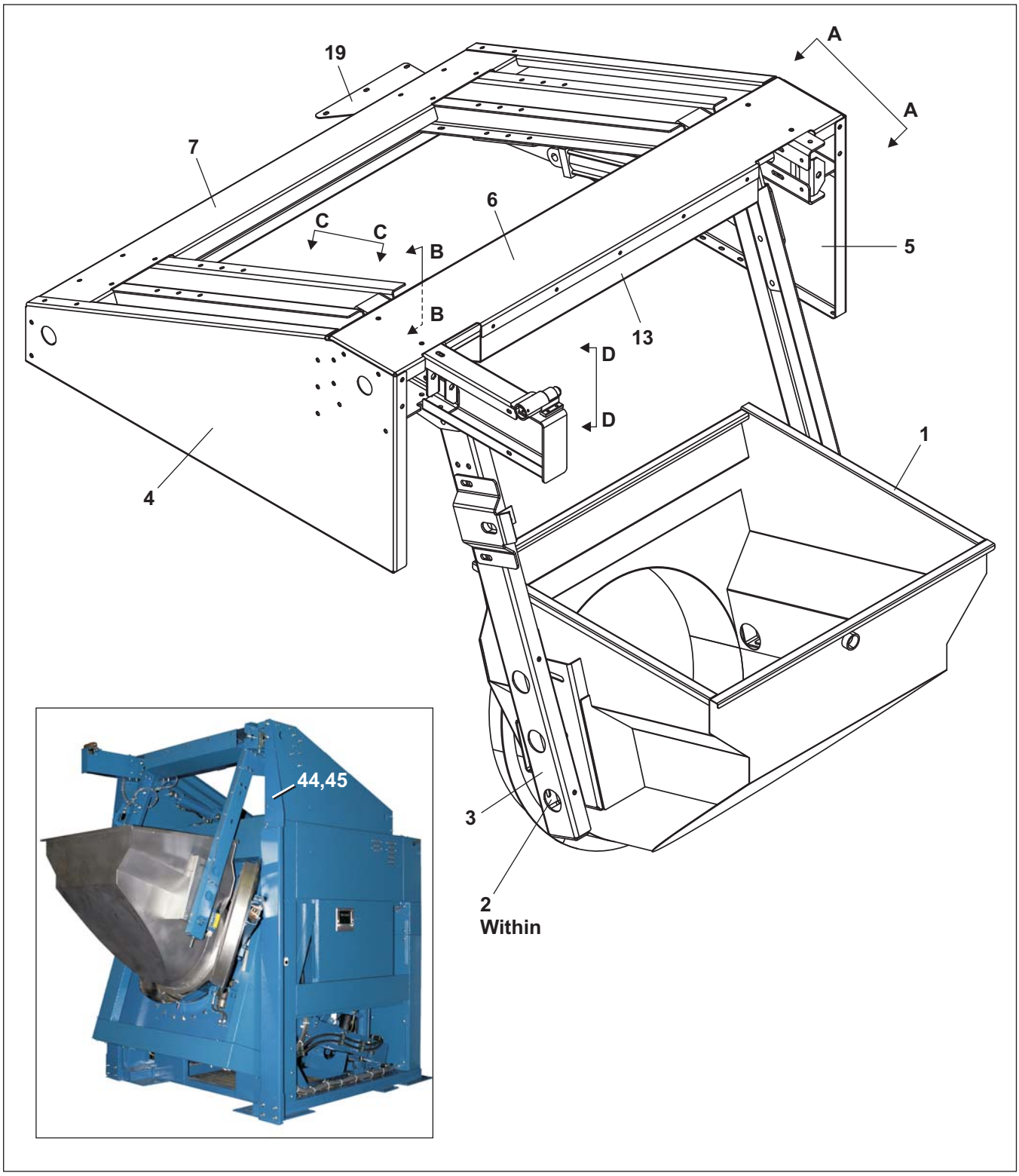
Used In	Item	Part Number	Description/Nomenclature	Comments
Assemblies				
	A	SA 15 028	Assembly, Door latch	
Components				
all	1	02 15105	Retainer ring	
all	2	02 15297	Striker	
all	3	02 15298	Cylinder	
all	4	02 15836	Spring	
all	5	15H090	Pin	
all	6	60C122	O-ring, 1"X1/8	
all	7	60C128	O-ring, 1+3/8X1/8	

— End of BIIFGM19 —

DRYEL Loading 5

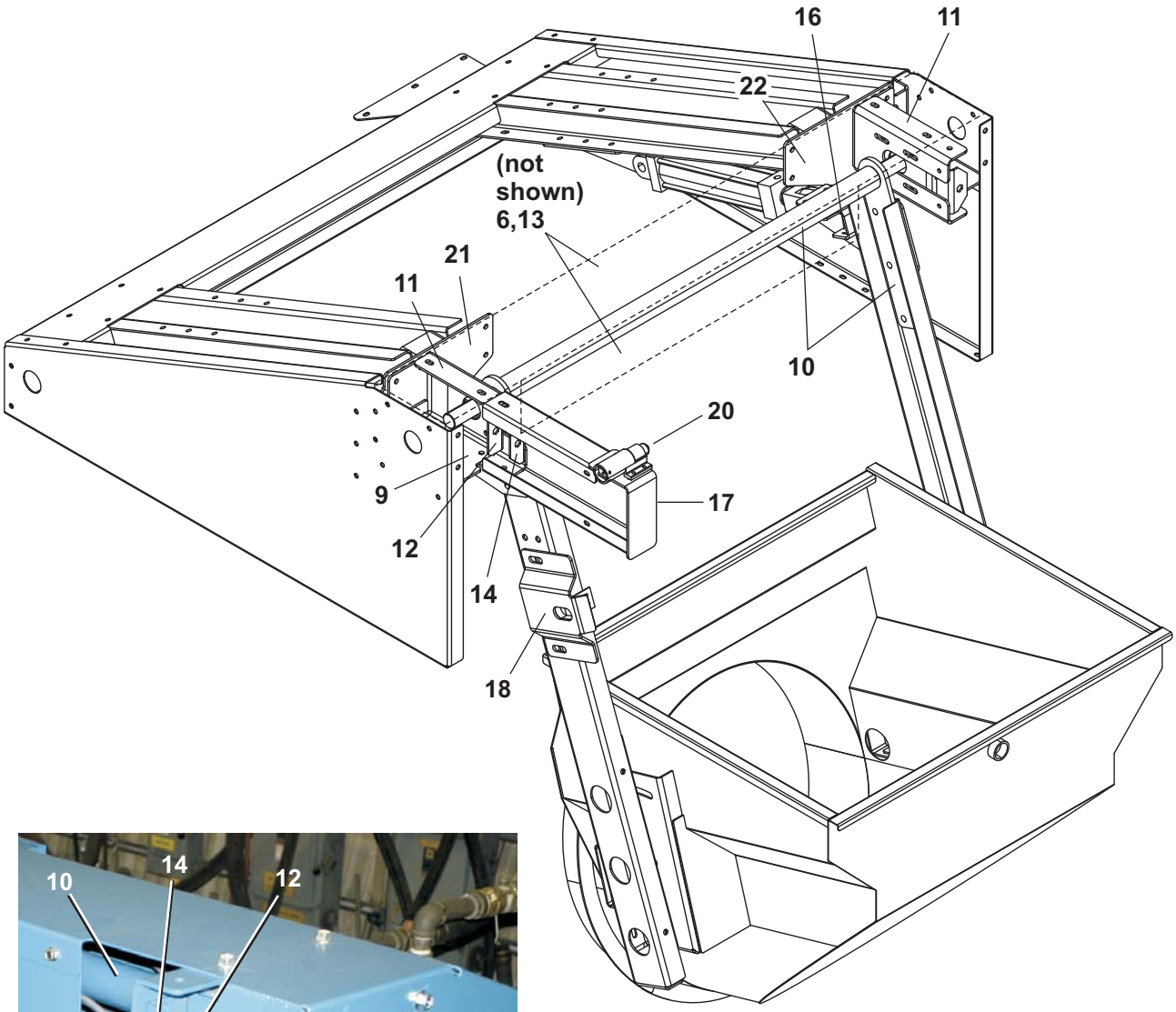
DRYELL Loading

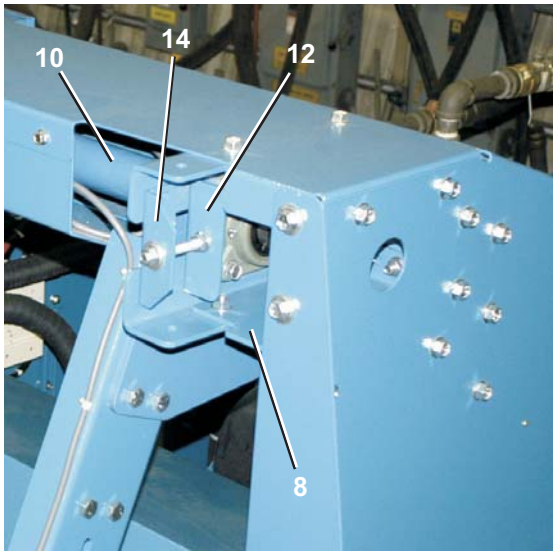
48040H7N, 48040H7K, 68036H5N, 68036H5K



DRYELL Loading

48040H7N, 48040H7K, 68036H5N, 68036H5K

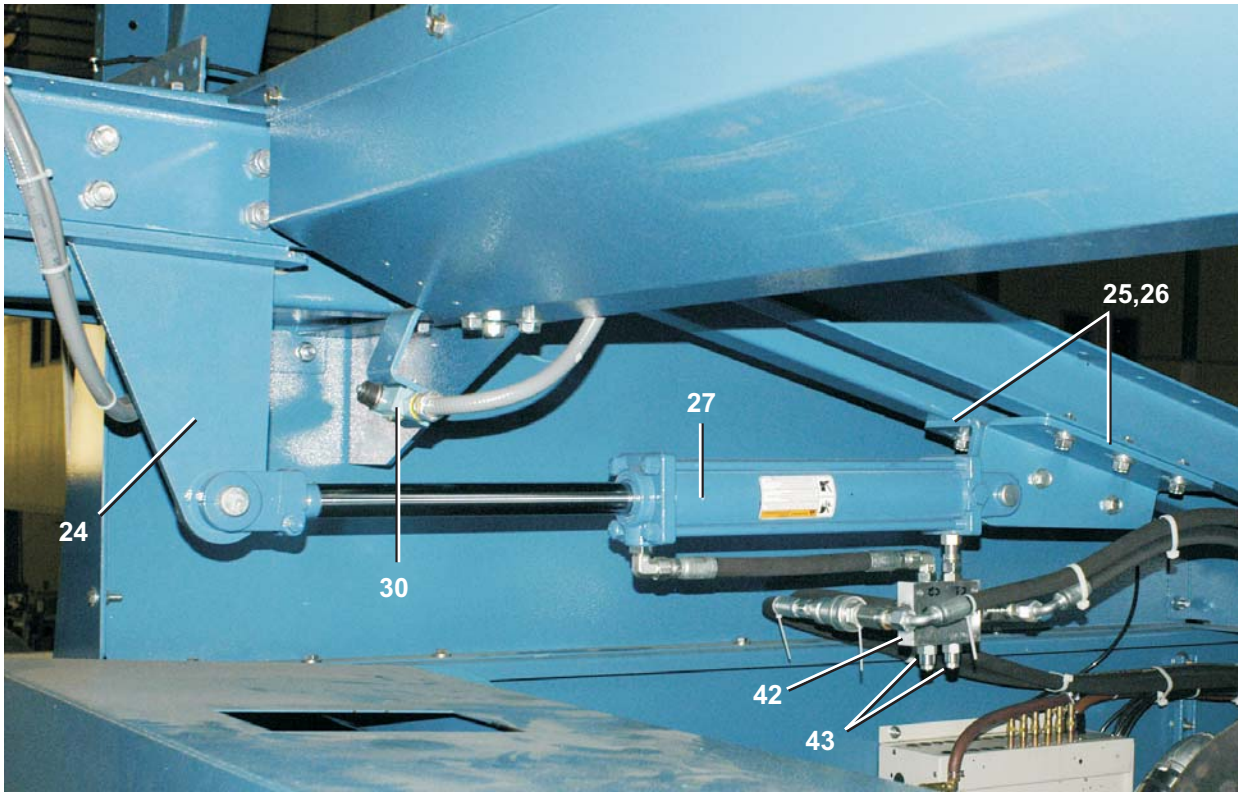




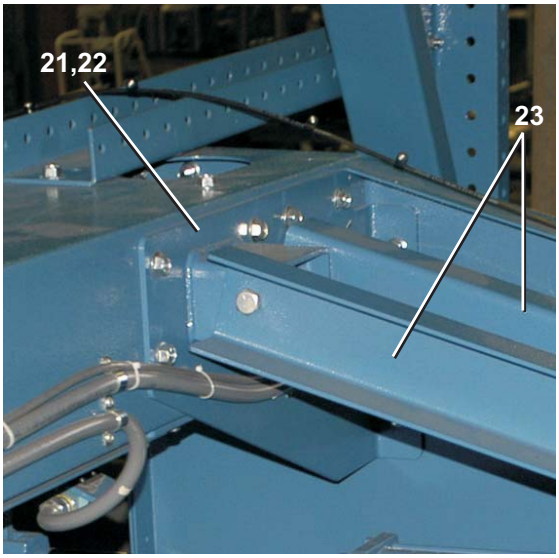
View A-A

DRYELL Loading

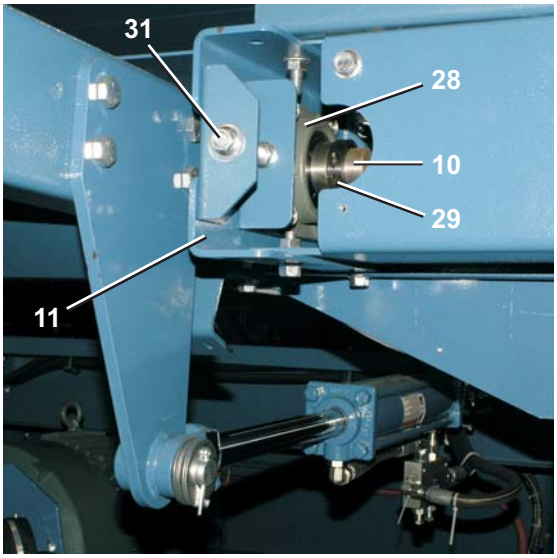
48040H7N, 48040H7K, 68036H5N, 68036H5K



View B-B: Cylinder Mounting



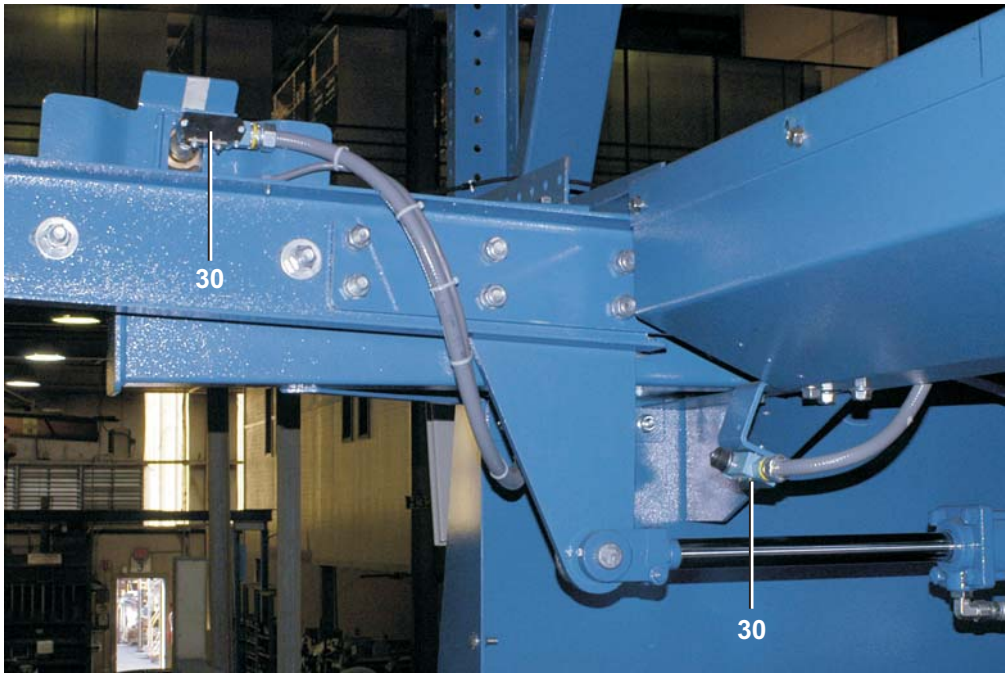
View C-C: Cylinder Support Channels



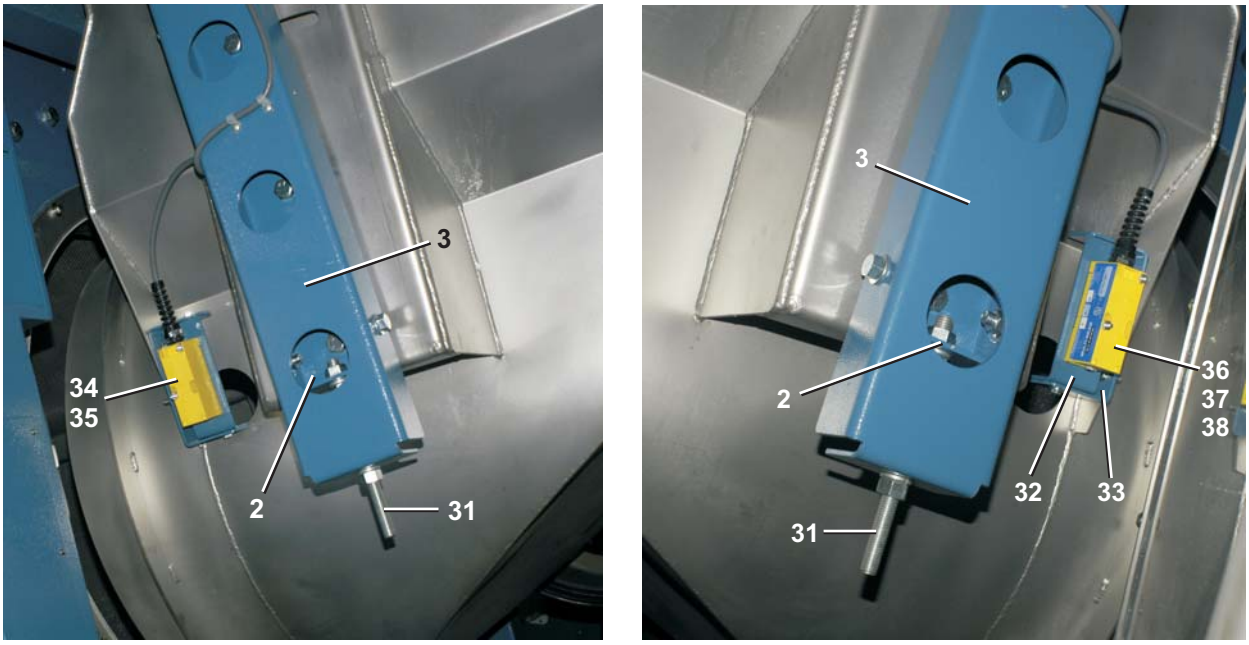
View D-D(1): Pivot Shaft and Bearings

DRYELL Loading

48040H7N, 48040H7K, 68036H5N, 68036H5K



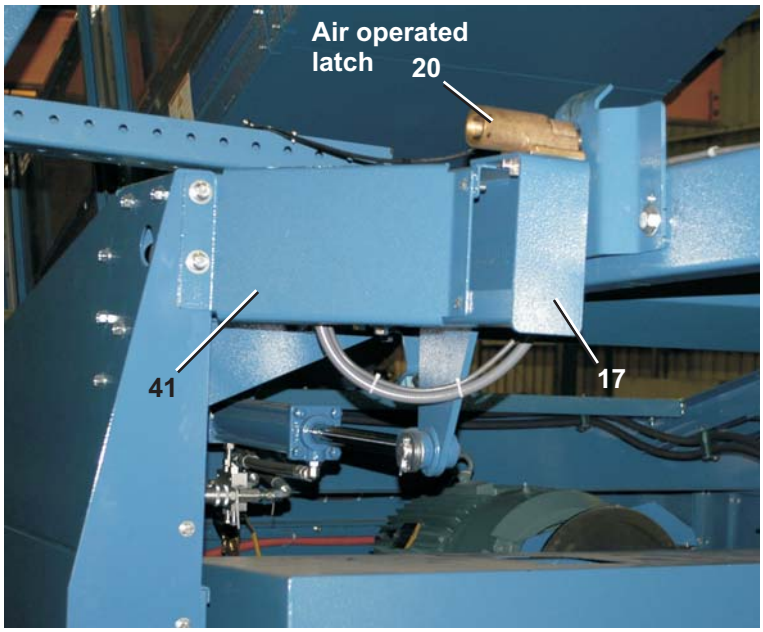
View D-D(2): Tilt Switches



Load Chute Photo Eyes

DRYELL Loading

48040H7N, 48040H7K 68036H5N, 68036H5K



DRYELL Loading

48040H7N, 48040H7K, 68036H5N, 68036H5K

Parts List— Dryell Loading

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	GHT48003	INST=HYDRAULIC DRYEL-4840H7N	4840H7N, 4840H7K
	B	GHT68003	INST=HYDRAULIC DRYEL-6836F5A	6836H5N, 6836H5K
			----------COMPONENTS----------	
A	1	W2 22582	LOAD CHUTE WLMT 4840F DRYEL	
B	1	W2 22173A	LOAD CHUTE WLMT-6836F DRYEL	
all	2	02 22330	CHUTE LIFTARM ADAPTER-DRYEL	
A	3	02 22583	CHUTE LIFTING ARM 4840F DRYEL	
B	3	02 22333	CHUTE LIFTING ARM-6836F DRYEL	
A	4	02 22584	SIDE FRAME LF-4840F DRYEL	
B	4	02 22334	SIDE FRAME LF-6836F DRYEL	
A	5	02 22584A	SIDE FRAME RT-4840F DRYEL	
B	5	02 22334A	SIDE FRAME RT-6836F DRYEL	
A	6	02 22585	TOP FRAME-4840F DRYEL	
B	6	02 22335	TOP FRAME-6836F DRYEL	
A	7	02 22586	REAR FRAME-4840F DRYEL	
B	7	02 22336	REAR FRAME-6836F DRYEL	
A	8	02 22587	TOP FRAME BRACKET RT-4840F DRYEL	
B	8	02 22548	TOP FRAME BRKT RT-6836F DRYEL	
A	9	02 22587A	TOP FRAME BRACKET LF-4840F DRYEL	
B	9	02 22548A	TOP FRAME BRKT LF-6836F DRYEL	
A	10	W2 22513	DRYELL DRIVE SHAFT-4840F	
B	10	W2 22512	WLMT=LOADCHUTE PIVOT SHAFT	
all	11	02 22510	CHUTE BEARING MTG BRKT-DRYEL	
all	12	02 22549	BRNG CARRIER ADJ BRKT-DRYEL	
A	13	02 22588	SHAFT COVER 4840F DRYEL	
B	13	02 22570	SHAFT COVER-6836F DRYEL	
all	14	04 22714A	BRG CARRIER ADJUSTING BKT	
A	15	02 22593	CHUTE DOWN STOP BRKT-LF	
B	15	02 22571	CHUTE DOWN STOP BRKT-LF	
A	16	02 22593A	CHUTE DOWN STOP BRKT-RT	
B	16	02 22571A	CHUTE DOWN STOP BRKT-RT	
all	17	W2 22511	CHUTE UP STOP CHAN WLMT-DRYEL	
all	18	W2 22573	PLUNGER RECEIVER WLMT-DRYEL	
all	19	02 22594	RT CRNR STIFF,4840F DRYEL	
all	20	SA 15 028	* DOOR LATCH ASSY-DIVCYLS	
A	21	W2 22589	HYDCYL CHAN SUPP WLMT LF-4840F DRYEL	
B	21	W2 22337	HYDCYL CHAN SUPPORT WLMT-LF	
A	22	W2 22589A	HYDCYL CHAN SUPP WLMT RT-4840F DRYEL	
B	22	W2 22337A	HYDCYL CHAN SUPPORT WLMT RT-6836F	

DRYELL Loading

48040H7N, 48040H7K, 68036H5N, 68036H5K

Parts List—Dryell Loading

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.

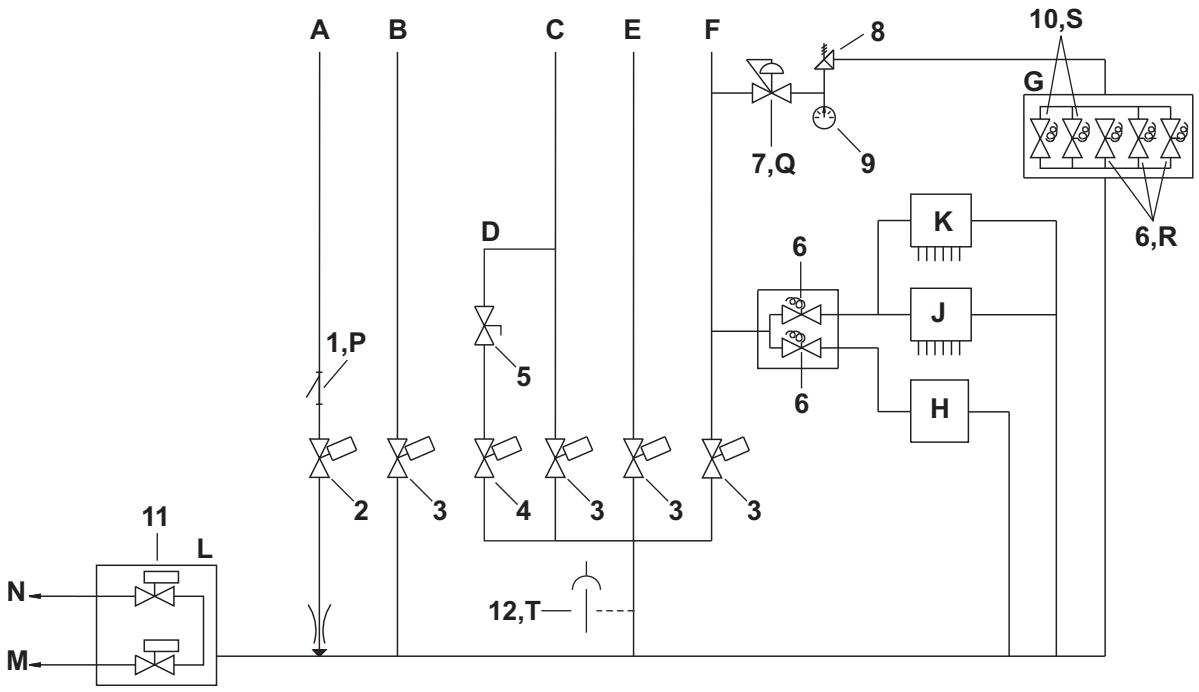
Used In	Item	Part Number	Description	Comments
A	23	02 22590	HYDCYL SUPPORT CHAN-4840F DRYEL	
B	23	02 22590	HYDCYL SUPPORT CHAN-4840F DRYEL	
all	23	02 22541	HYDCYL SUPPORT CHANNEL-DRYEL	
all	24	W2 22339	DRYEL LIFT PLATE WLMT	
all	25	02 22547	HYDCYL REAR MTG-RT	
all	26	02 22547A	HYDCYL REAR MTG-LF	
A	27	AHT48003A	LOADCHUTE HYD CYL ASSY-4840F DRYELL	
B	27	AHT68003	LOADCHUTE HYD CYL ASSY-6836F DRYELL	
all	28	54AF1687	FLBRG 1.6875 NTN#UCF209-111T	
all	29	54JH11690C	1 PC SPLIT SHAFTCOLLAR-SPECIAL	
all	30	09R012	MICSW SPDT PAINTED BZE6-RN 01	
all	31	17R024A08A	THREADED ROD 5/8-11X8" ZNCPL G	
all	32	02 22596	PHOTO EYE MOUNTING BASE	
all	33	02 22597	PHOTO EYE MOUNTING BRKT	
all	34	09RPE006A	PHOTOEYE EMITTER 24/120V AC	
all	35	09RPE007A	P.E. PWR.BLK. NO-OUT 120V-IN	
all	36	09RPE006B	PHOTOEYE RECEIVER 24/120V AC	
all	37	09RPE007C1	P.E. PWR.BLK. 240V-OUT 240V-IN	
all	38	09RPE006B2	PHOTOEYE ON/OFF LOGICMOD #LM3	
all	39	06 20739	EXTRUSION GLASS PROXSW	
all	40	06 20739A	GLASS=3.06 DIA PROXSW	
all	41	02 22550	CHUTE UP STOP BRACE-DRYEL	
all	42	60EH40C206	HYD HOSE 1/2" + 2 X FORSW=206"	
all	43	96DH471	COUNTERBALANCE VALVE-SUN BODY	
all	44	96DH471A	CARTRIDGE-COUNTERBAL.SUN	
all	45	02 22612	TOP FRAME RT GUSSET-4840H DRYEL	
all	46	02 22612A	TOP FRAME LF GUSSET-4840H DRYEL	

Water and Steam 6

Water and Steam Schematic

68036H5N,68036H5K

Figure 1: Water and Steam Schematic



Legend

A. Steam inlet
B. Reuse water inlet (optional)
C. Cold water inlet
D. Cooldown water line (optional)
E. Third water inlet
F. Hot water inlet
G. Five compartments to flush in chemical supplies (optional)
H. Soap chute
J. 10 inlets for peristaltic liquid chemical systems
K. Six inlets for peristaltic liquid chemical systems
L. Drain valve body with one valve (standard). Drain valve body with two valves (optional).
M. Dirty water outlet to the sewer
N. Reuse water outlet
P. Keep this component clean. Refer to "Preventive Maintenance" , BIIFUM01.
Q. Keep this component set to the correct pressure. Refer to "Preventive Maintenance" , BIIFUM01.
R. instances, 3
S. instances, 2
T. Vacuum breaker (optional)

Water and Steam Schematic

68036H5N,68036H5K

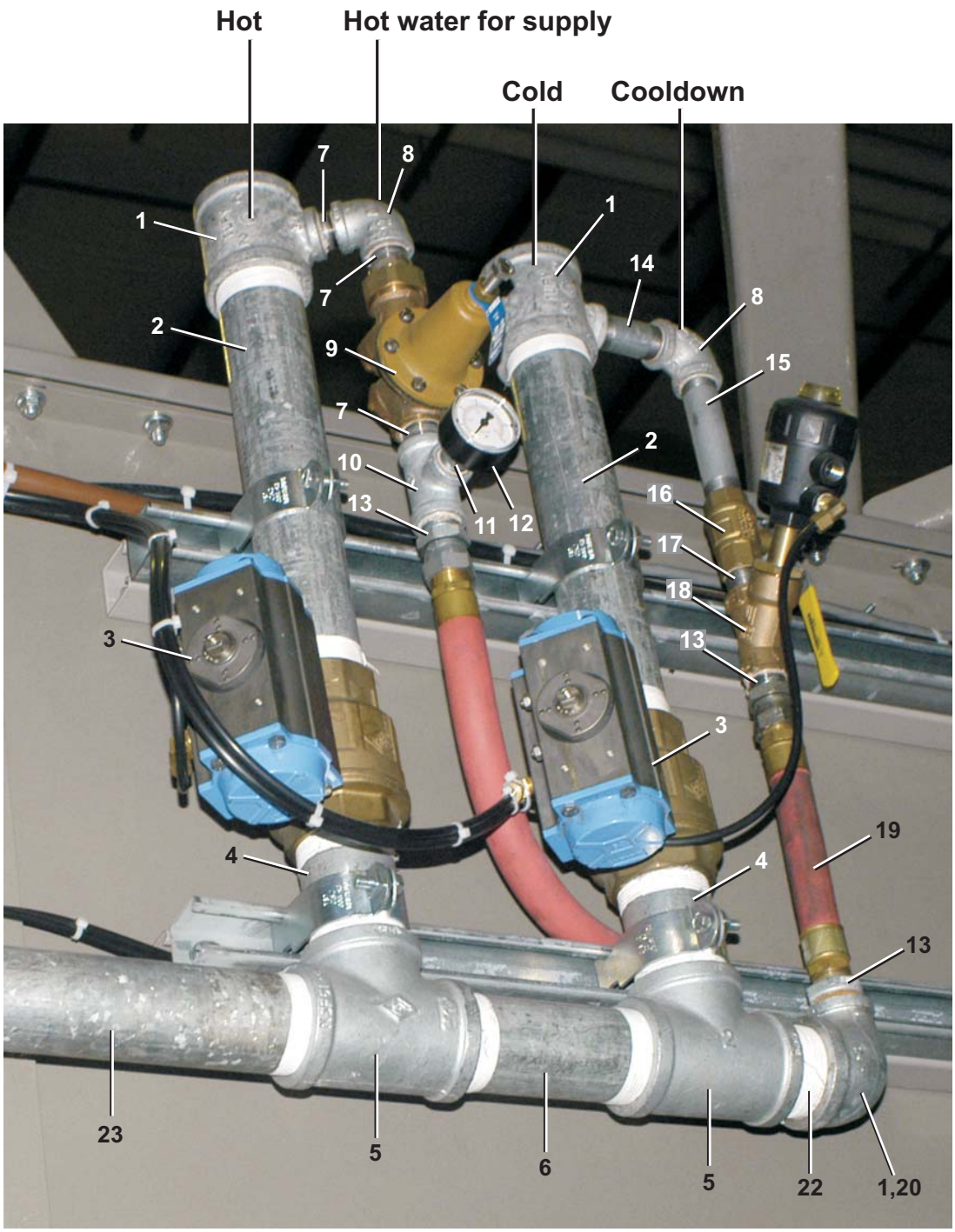
Parts List—Water and Steam Schematic

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----------	
			----------COMPONENTS----------	
all	1	51T060	Y-STRAINER 1+1/4" CAST IRON	
all	2	96D0011E	1.25"NPTBRZ N/C STEAMVALANGBD	
all	3	96D088BCSL	2.00WAT BVAL+ACT/BR/NC/ST/LH	
all	4	96D0009E	3/4"NPTBRZ N/C STEAMVAL ANGBOD	
all	5	96D050A	3/4"BALLVALVE BRZ BONOMI 171N	
all	6	96TDC2AA71	1/2"N/C2WY240V50/60C VLV(DRYVC) ASCO X8210G002 15461	
all	7	96J031D	3/4"PRESSREG SET 28# FEMXUN=WATTS#LF25AUB-ZB	
all	8	96M001	1/2X3/8" RELIEF VALVE SET31#	
all	9	30N100	PRESSGAUGE 1/8"BACKCN.0-30PSI	
all	10	96TCC2AA71	3/8" N/C 2WAY 240V50/60C VALVE	
A	11	AVD68001	ASSY= 8" DUMPVAL 6836E	
B	11	AVD65003	ASSY=DUAL-DUMPVALVE 6440/50	
all	12	SA 03 007	3” SIPHONBREAKER+SCUPPER ASSY	

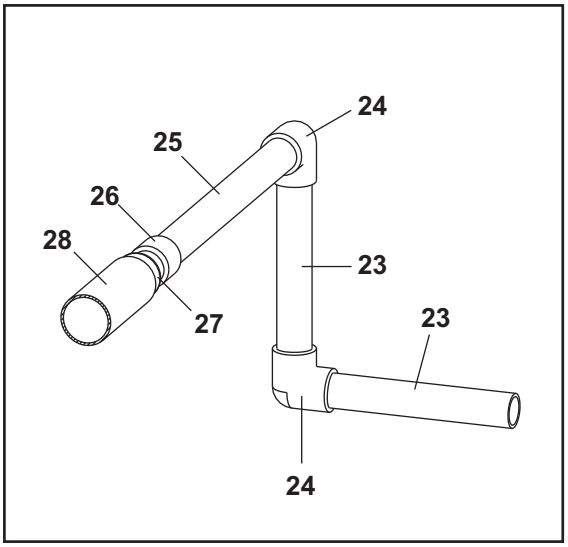
Water Inlets

68036H5N,68036H5K

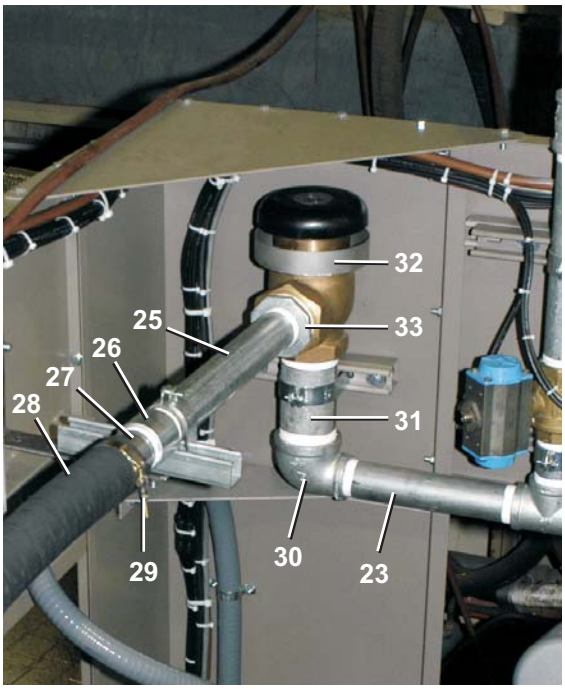


Water Inlets

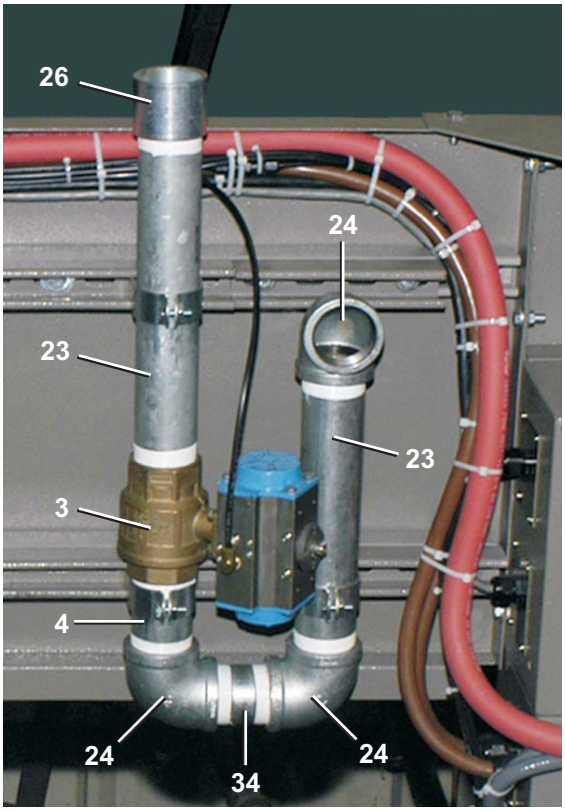
68036H5N,68036H5K



Water inlet to the shell



Water inlet to the shell with vacuum breaker



Reuse water inlet

Water Inlets

68036H5N,68036H5K

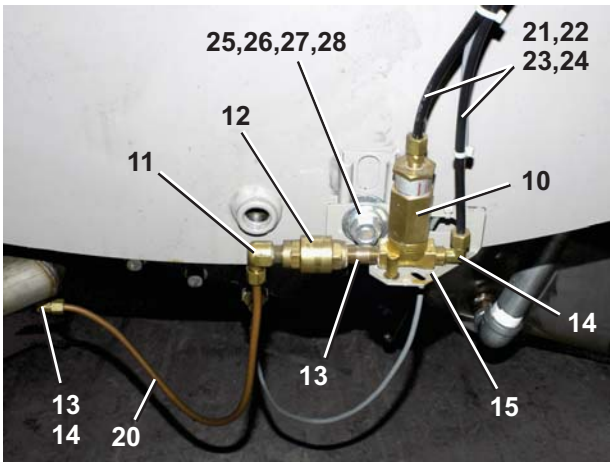
Parts List—Water Inlets

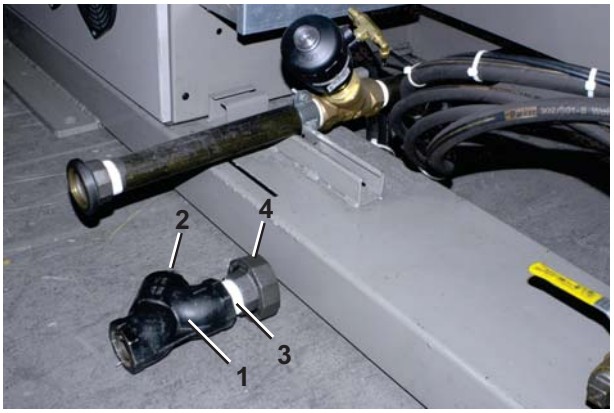
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

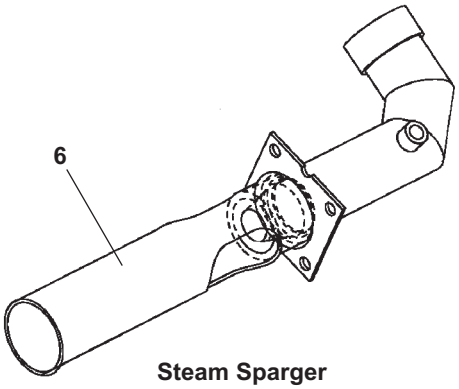
Used In	Item	Part Number	Description	Comments
			----------COMPONENTS----------	
all	1	5S2ANFA0P1	NPT TEE 2X2X3/4" GALMAL 150#	
all	2	5N2A13PG42	NPT NIP 2X13.75 TBE GALSTL SK4	
all	3	96D088FBA	2" BALVAL+ACT BRS N/C BONOMI	
all	4	5N2A04AG42	NPT NIP 2X4 TBE GALSTL SK40	
all	5	5S2ANFA	NPT TEE 2" GALMAL 150#	
all	6	5N2A06AG42	NPT NIP 2X6 TBE GALSTL SK40	
all	7	5N0PCLSG42	NPT NIP 3/4XCLS TBE GALSTL S40	
all	8	5SL0PNFA	NPTELB 90DEG 3/4 GALMAL 150#	
all	9	96J031D	3/4"PRESSREG SET 28# FEM	
all	10	5S0PNFA0K	NPT TEE 3/4X3/4X1/2 GALMAL150#	
all	11	5SB0K0CDEO	NPTHEXBUSH 1/2X1/8 GALCI 125#	
all	12	30N100	PRESSGAUGE 1/8"BACKCN.0-30PSI	
all	13	51X019	UNIONSTRADT 3/4"#0107-12-12	
all	14	5N0P02KG42	NPT NIP 3/4X2.5 TBE GALSTL S40	
all	15	5N0P05AG42	NPT NIP 3/4X5 TBE GALSTL SK40	
all	16	96D050A	3/4"BALLVALVE BRZ BONOMI 171N	
all	17	5N0P03AB42	NPT NIPPLE 3/4X3 TBE BRASS STD	
all	18	96D0009E	3/4"NPTBRZ N/C STEAMVAL ANGBOD	
all	19	60E086C08A	*WATERHOSE 3/4X8"LG+ENDS	
all	20	51P060	PLUG PIPE SQ 2"GALCORED CI 125	
all	22	5N2ACLSG42	NPT NIP 2XCLS TBE GALSTL SK40	
all	23	5N2A12AG42	NPT NIP 2X12 TBE GALSTL SK40	
all	24	5SL2ANFA	NPT ELBOW 90DEG 2" GALMAL 150#	
all	25	5N2A21AG42	NPT NIP 2X21 TBE GALSTL SK40	
all	26	5SCC2ANF	NPT COUP 2" GALMAL 150#	
all	27	51E098A	KINGCOMBNIP 2"IDXNPT #RST25S	
all	28	60E255	HOSE 2" WATER CORRUGATED(V50)50' LENGTHS	
all	29	27A075	T-BOLT HOSECLAMP 2.78-3.09"	
all	30	5SL3ANFA2A	NPTELB 90DEG 3X2 GALMAL 150#	
all	31	5N3A06AG42	NPT NIPPLE 3X6 TBE GALSTL SK	
all	32	SA 03 007	3"SIPHONBREAKER+SCUPPER ASSY	
all	33	5SB3A2ADEO	NPTHEXBUSH 3X2 GALCI 125#	
all	34	5N2A03AG42	NPT NIPPLE 2X3 TBE GALSTL SK40	

Steam

68036H5N,68036H5K







Steam Sparger

Steam

68036H5N,68036H5K

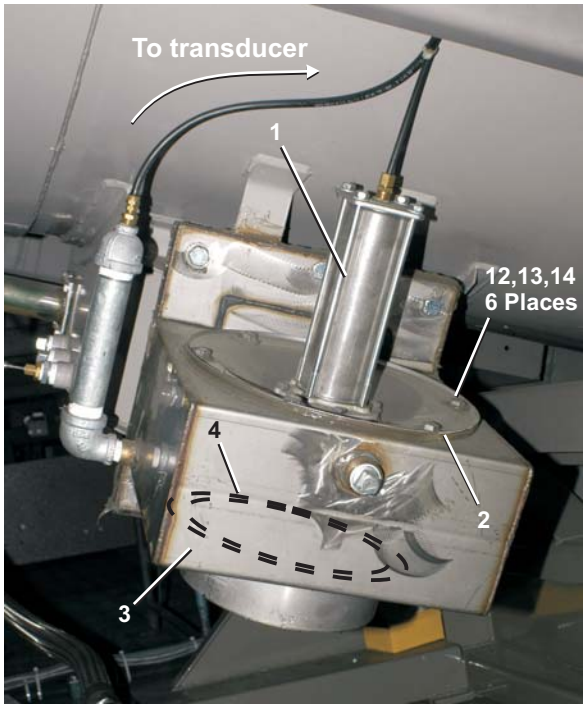
Parts List—Steam

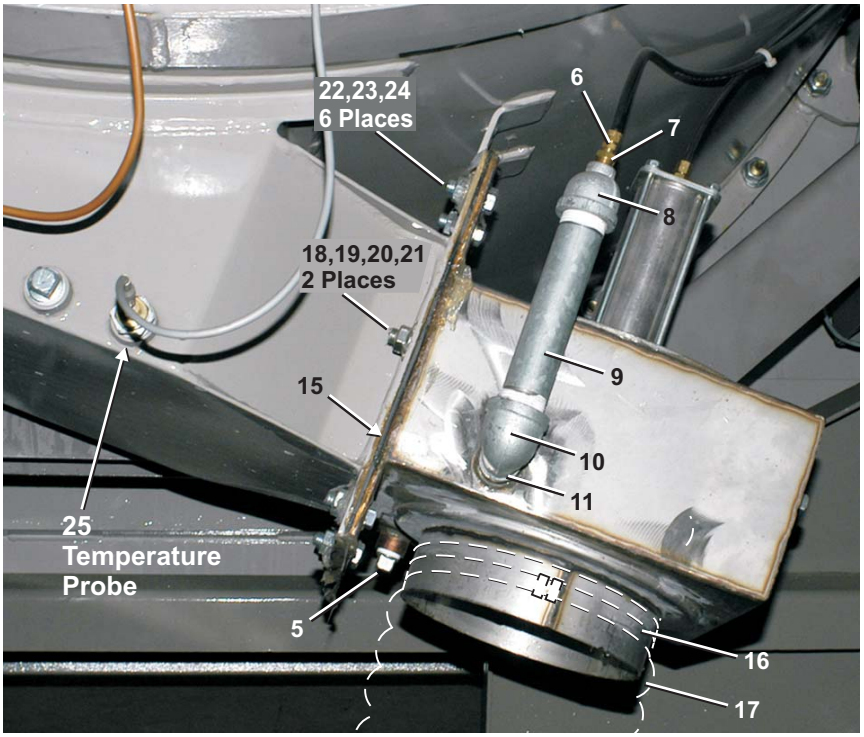
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	GVS68001A	INST=STEAM,BRASS VALVE 6836F5A	
	B	A64SV006	ASSY=STM AIR INJECT 64'S&72'S	
			----------COMPONENTS----------	
all	1	51T060	Y-STRAINER 1+1/4" CAST IRON	
all	2	5SP0PHFSS	NPT PLUG 3/4 SQ SOLID STL/ZINC	
all	3	5N1ECLSF42	NPT NIP 1.25XCLS TBE BLKSTLS40	
all	4	5SU1EMH	NPT UNION 1.25" BLKMAL 150#	
all	5	96D0011E	1.25"NPTBRZ N/C STEAMVALANGBD	
All	6	W3 60132	WLMT=STM/SPGR/EL .75 ORF	
all	10	96TBC2AA01	1/4" N/C 1WAY AIR-OP VALVE POLYPRO (NO COIL)	
all	11	53A016A	AIR RESTRICTER=STEAM CBW	
all	12	96DG030	CHECKVLV, 1/4"WATTS-SERIES 600	
all	13	5N0ECLSBE2	NPT NIP 1/4XCLS TBE BRASS 125#	
all	14	53A031XB	BODY-EL90MALE.25X25 #269C-4-4B	
all	15	06 40438	BRK=STEAM AIRVAL=ASPIRATOR	
all	16	15N162A	TRUSMACSCR 1/4-20UNC2AX1/2 ZIN	
all	17	15G165	HXNUT 1/4-20UNC2BSAE ZC GR2	
all	18	15U180	LOCKWASHER MEDIUM 1/4 ZINCPL	
all	19	53A059A	NUT 1/4"BR.HOLYOKE AND #61A-4	
all	20	90A015	COPPERTUBE 1/4"O.D.X.030 X50'E	
all	21	60E004TE	1/4"OD X.170"ID NYL(BLK)TUBING	
all	22	53A059	SLEEVE 1/4"BRASS PH#60C-4	
all	23	53A500	SLEEVE DELRIN 1/4"OD#60PT-4	
all	24	53A501	TUBE INSERT .163"OD #63PT-4-40	
all	25	15K151	HXCAPSCR 1/2-13UNC24X1.25 GR5	
all	26	15U280	FL+WASHER(USS STD)1/2 ZNC PL+D	
all	27	15U300	LOKWASHER REGULAR 1/2 ZINC PLT	
all	28	15G230	HXNUT 1/2-13UNC2B SAE ZINC GR2	

Single Drain Valve

68036H5N, 68036H5K, 68036M5K, 72046M5K





Single Drain Valve

68036H5N, 68036H5K, 68036M5K, 72046M5K

Parts List—Single Drain Valve

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

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	GVD68001	INSTALL= 8"DUMPVAL 6836E	
	B	AVD68001	ASSY= 8" DUMPVAL 6836E	
	C	AD 15 090K	INSTALL=AIR CHAMBER PRESS/SW	
			----------COMPONENTS----------	
all	1	SA 28 158	* BONNET+AIRCYL=8"SS DUMPVALV	
all	2	02 18104	GASKET=8"DUMP VALVE BONNET	
all	3	W2 18931	* BODY=8"DUMPVALV=4244,60,52	
all	4	02 18068	9 SEAT-RESILIENT=8"DUMPVALVE	
all	5	5SP0KGFSS	NPT PLUG 1/2 SOSOLID GALSTL	
all	6	53A047H	MALCON 5/16X1/8POLY PH#68P-5-2	
all	7	5SB0E0CBEO	NPTHEXBUSH 1/4X1/8 BRASS 125#	
all	8	5SR1A0ENF	NPT RED 1X1/4 GALMAL 150#	
all	9	5N1A05AG42	NPT NIPPLE 1X5 TBE GALSTL SK40	
all	10	5SL1KNFACK	NPTELB 90DEG 1X1/2 GALMAL 150#	
all	11	5N0KCLSG42	NPT NIP 1/2XCLS TBE GALSTLSK40	
all	12	24G030N	ROLLED WASH.379ID NYLTITE 37W	
all	13	15K086	HXCAPSCR 3/8-16NCX3/4 SS18-8	
all	14	15U200	FLATWASHER(USS STD) 5/16"ZNC P	
all	15	02 18107	GASKET=8"FLANGED DUMP VALVE	
all	16	60E328A18A	HOSE-8"1DX18"LONG TITAN ES115EX8000-18	
all	17	27A092	HOSECLAMP S.S.SCR 7+1/8-10"	
all	18	15K153	HXCAPSCR 1/2 -13 X 1 +1/4 SS	
all	19	24G032N	ROLLED WASH.500ID NYLTITE 50W	
all	20	15U310	LOKWASHER REGULAR 1/2 SS18-8	
all	21	15G225	HEXNUT 1/2-13UNC2 SS18-8	
all	22	15K151	HXCAPSCR 1/2-13UNC24X1.25 GR5	
all	23	15U300	LOKWASHER REGULAR 1/2 ZINC PLT	
all	24	15G230	HXNUT 1/2-13UNC2B SAE ZINC Gr2	
All	25	30R0043PB	TEMPERATURE PROBE ASSY=BRASS	

BIIFGM27 (Published) Book specs- Dates: 20100721 / 20100721 / 20100806 Lang: ENG01 Applic: IFG

Drain Valve Body with Two Valves

Figure 1: Installed views

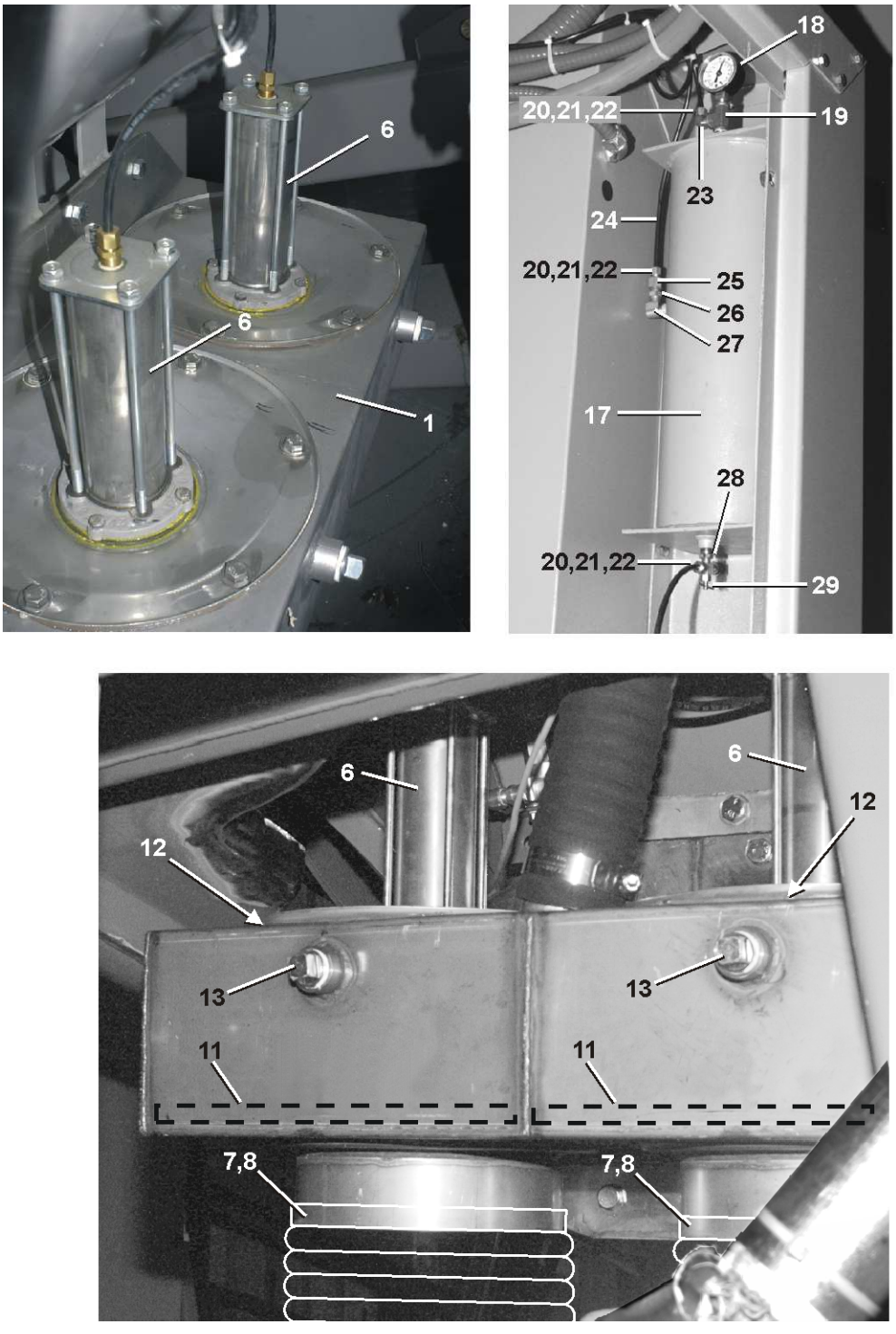
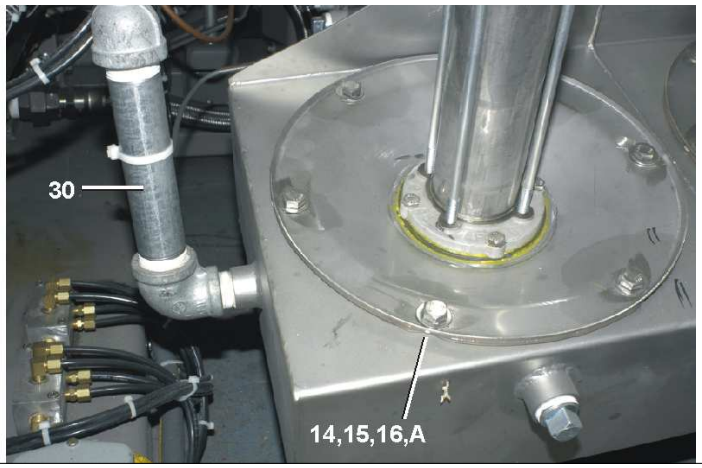


Figure 2: Drain valve body with two valves

Additional Views



Legend

Table 1: Parts List—Dual drain valves

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.

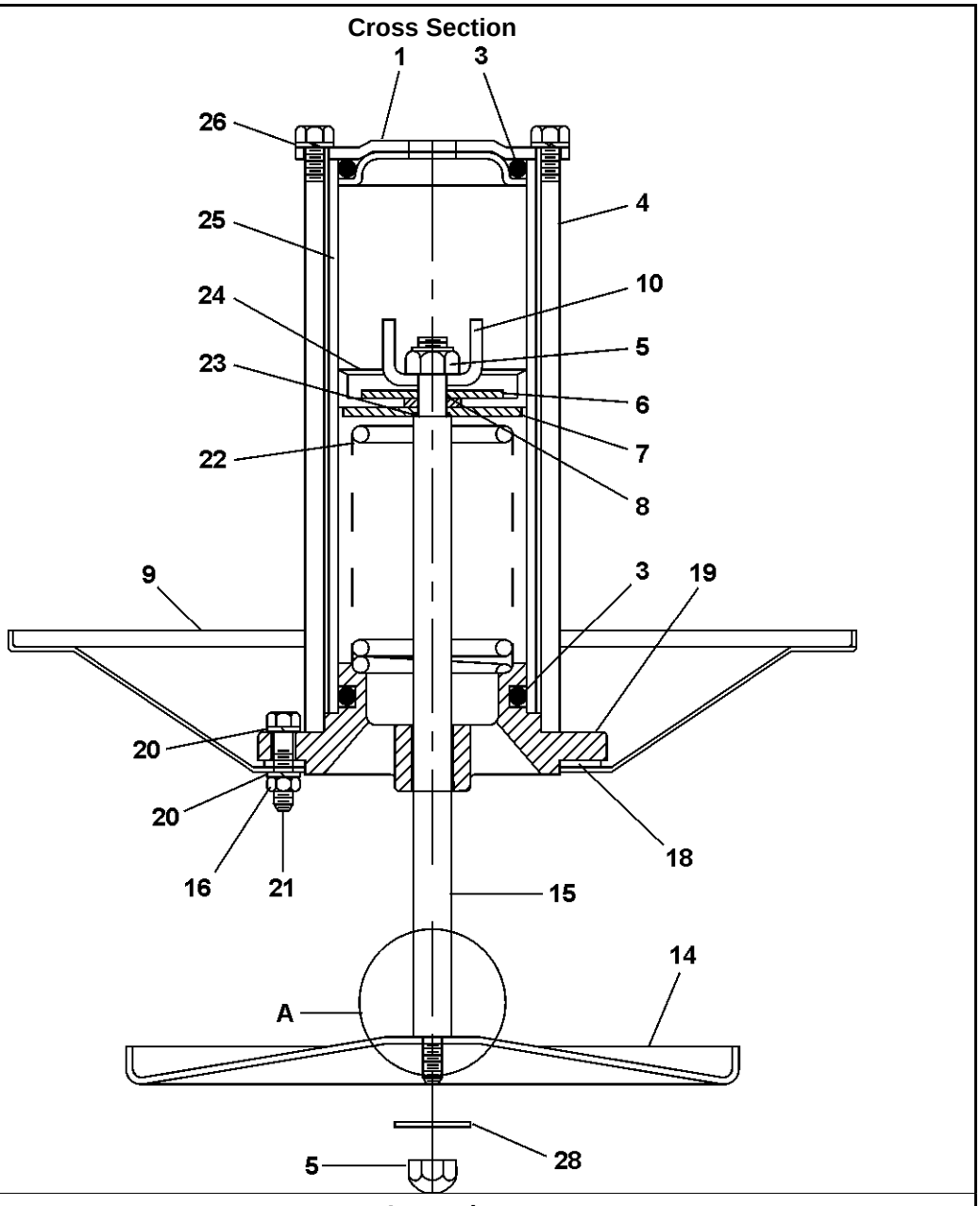
Used In	Item	Part Number	Description/Nomenclature	Comments
			Assemblies	
	A	GVD68002	Installation Group, Drain valve body with two valves	
	B	AVD65003	Assembly, Drain valve body with two valves	
			Components	
all	1	W2 18932E	Weldment	
all	2	02 18107	Gasket	
all	3	15K151	Bolt, 1/2-13X1.25	
all	4	15U300	Washer, Lock, 1/2	
all	5	15G230	Nut, 1/2-13	
all	6	SA 28 158	Bonnet	
all	7	27A092	Hoseclamp, 7+1/8-10"	
all	8	60E328A18A	Hose, 8"X18"	
all	11	02 18068	Seal	
all	12	02 18104	Gasket, 8"	
all	13	5SP0PBESC	Plug, 3/4"	
all	14	15K086	Bolt, 3/8-16X3/4	
all	15	24G030N	Washer, Nylon, .379	
all	16	15U200	Washer, Flat, 5/16"	
all	17	W3 25307D	Tank	
all	18	30N102	Pressure gage, 1/4", .0-150PSI	
all	19	51V015	Tee, 1/4"	
all	20	53A501	Flexible tubing, Adapter, 1/4"	
all	21	53A500	Flexible tubing, Adapter, 1/4"	
all	22	53A059A	Flexible tubing, Adapter, 1/4"	
all	23	53A007B	Flexible tubing, Adapter, Female thread.25X.25	
all	24	60E004TE	Flexible tubing, 1/4"	
all	25	53A008B	Flexible tubing, Adapter, Male thread, .25X.25	
all	26	96D047AAK	Check valve, 1/4"	
all	27	5SL0EBEC	Elbow, 1/4	
all	28	5SB0E0CBEO	Hexbush, 1/4X1/8	
all	29	96H018	Needle valve, 1/4" X 1/8	
all	30	AD 15 090A	Pressure switch	
all	31	15K153	Bolt, Stainless Steel, 1/2-13X1+1/4	
all	32	24G032N	Washer, Nylon, .5	
all	33	15U310	Washer, Lock, Stainless Steel, 1/2"	
all	34	15G225	Nut, Stainless Steel, 1/2-13	

— End of BIIFGM27 —

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

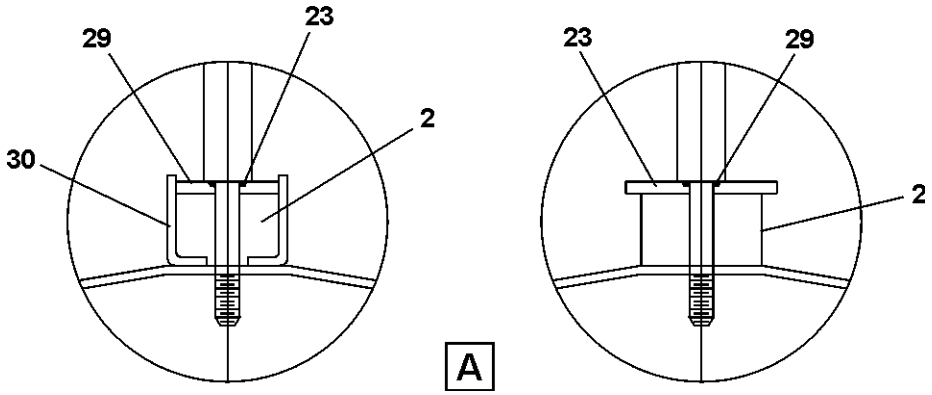


Table 1: Parts List—Bonnet Assembly

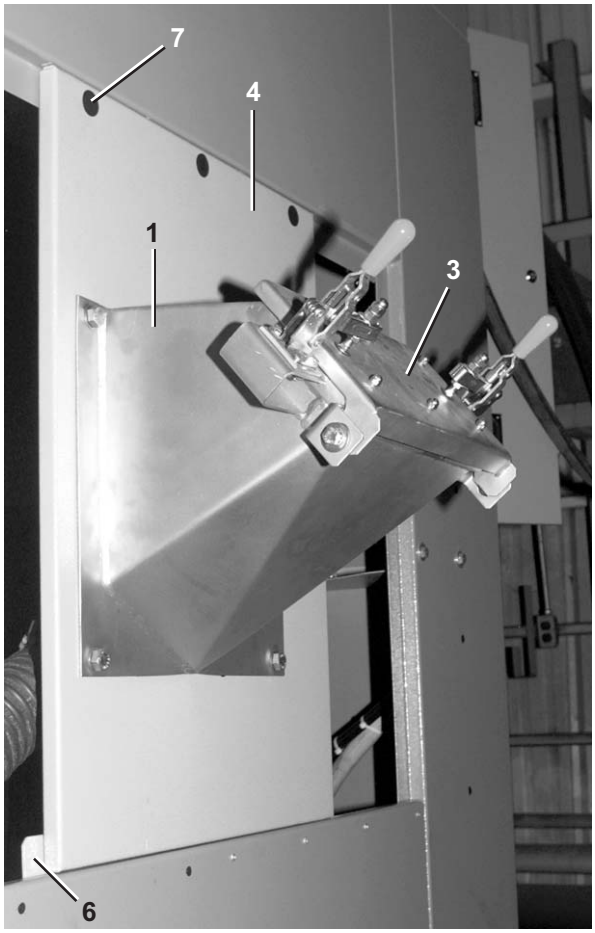
Find the assembly for your machine and the letter shown in the "Item" column. The components for your machine will show this letter or the word "all" in the "Used In" column. The numbers shown in the "Item" column are those shown in the illustrations.				
Used In	**Item**	**Part Number**	**Description/Nomenclature**	**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	

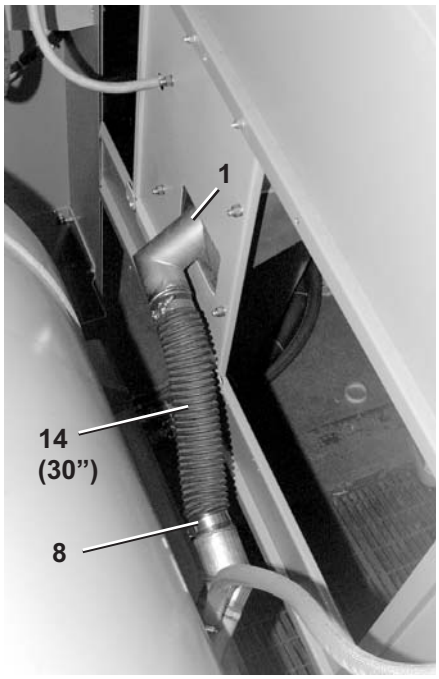
— End of BIIFGM28 —

Chemical 7

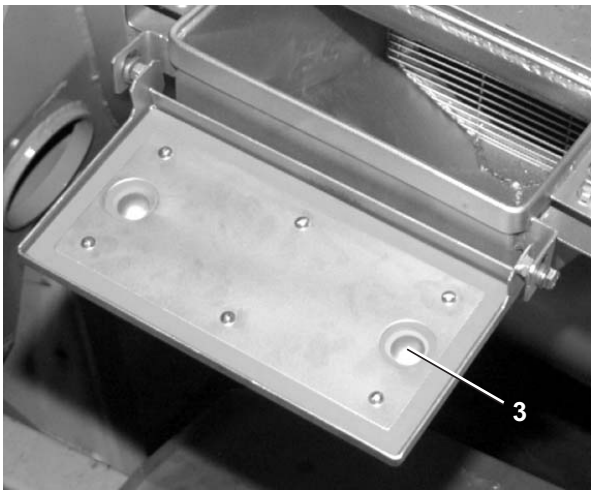
Soap Chute

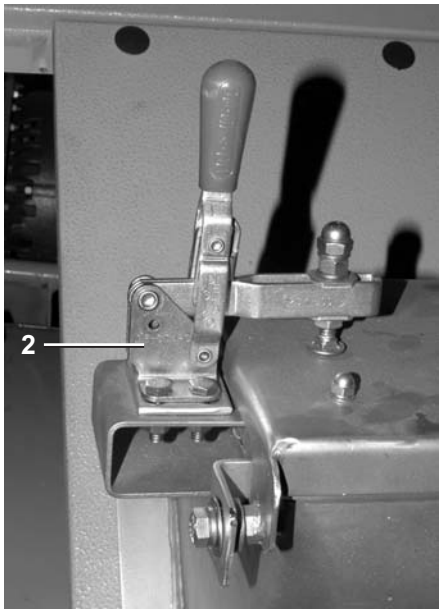
68036H5N, 68036H5K





(6836F5N shown)

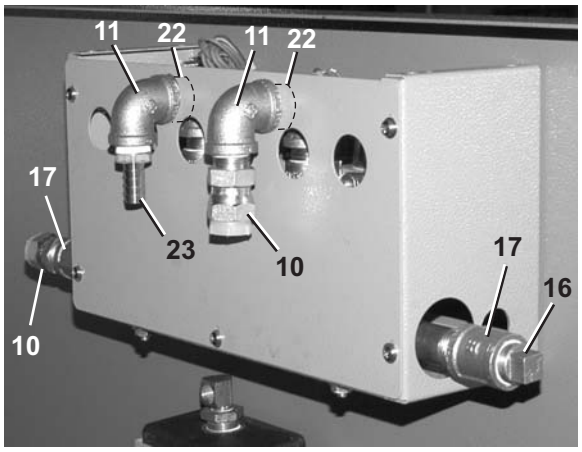


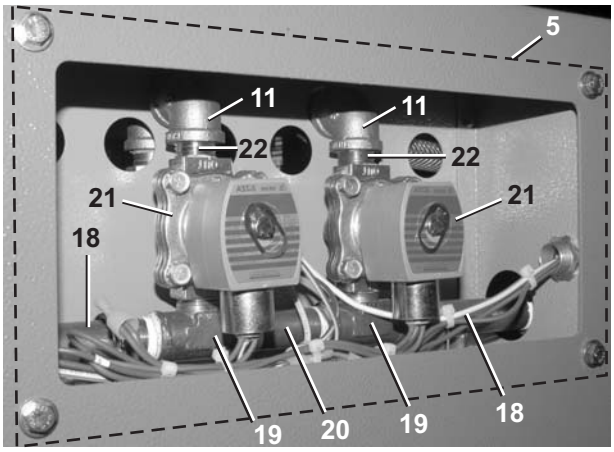


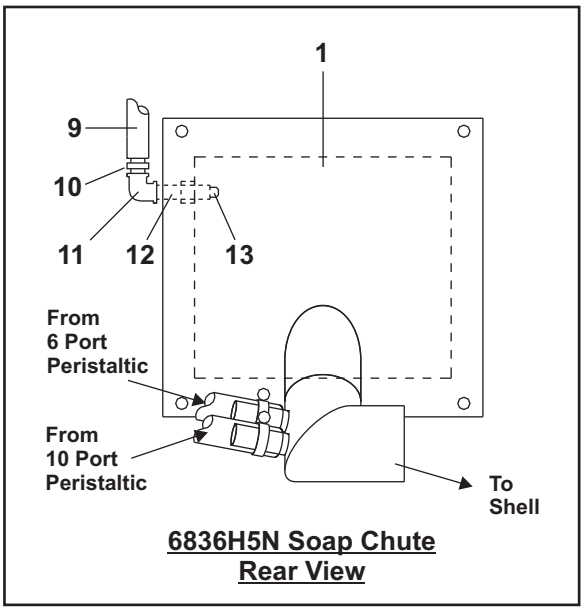
Soap Chute

68036H5N, 68036H5K

Valve Manifold







6836H5N Soap Chute
Rear View

Soap Chute

68036H5N, 68036H5K

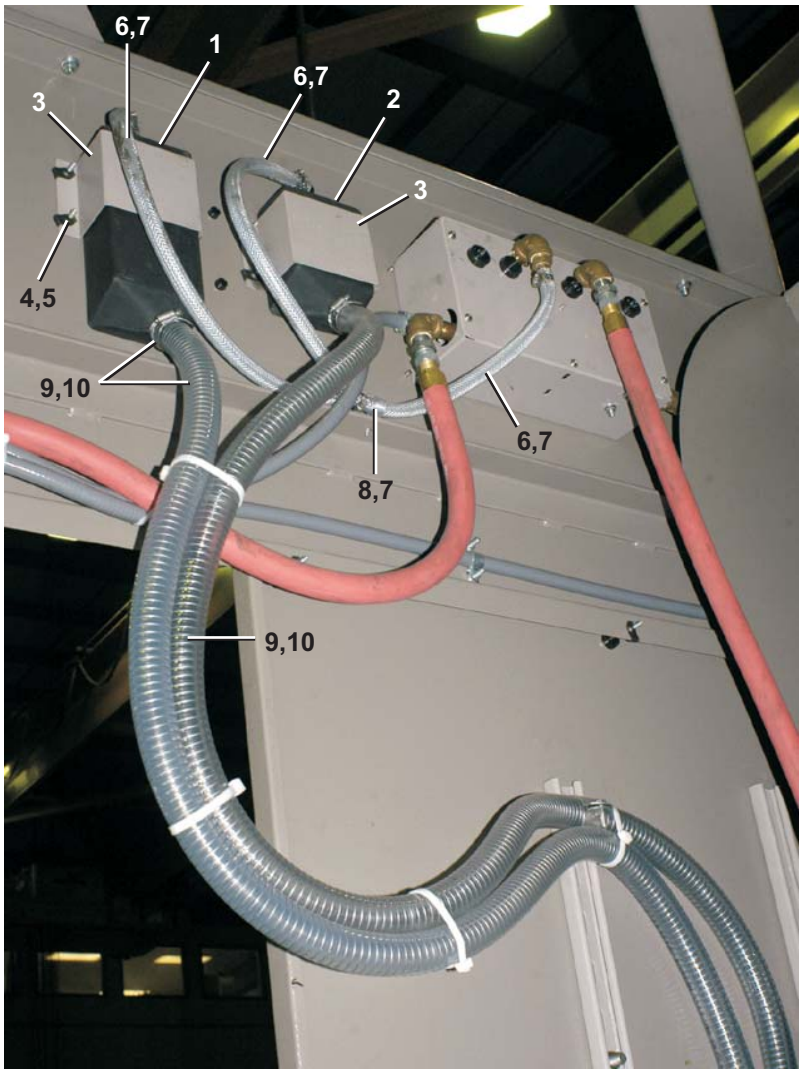
Parts List—Soap Chute

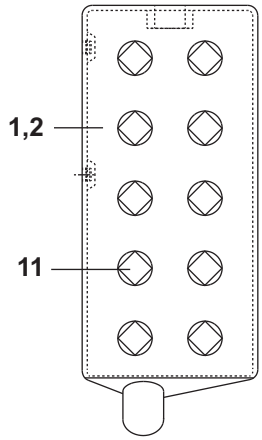
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	GWS68001A	INSTL=DRY SOAP CHUTE, 6836F5A	
	B	AWS68001	ASSY=STD SOAP MANIFOLD 6836E	
			----------COMPONENTS----------	
all	1	W3 65400B	*WLMT=MANAL SOAPCHUTE 6836QHP	
all	2	AWS65012	PRTS=SOAP CHT LID LATCH	
all	3	AWS65011	INST=SOAP CHUTE LID 6446	
all	4	02 22462	COSM=SOAP CHUTE PANEL 6836F5A	
all	5	02 03993	MANIFOLD COVER RT UPPER PLT	
all	6	02 22116	SIDE PANEL STOP, 4840F	
all	7	12P1ARHP1	PLUG PRY-OUT .875 HEYCO#3083	
all	8	27A084TSS	T-BOLT HOSECLAMP 3.66-3.97"SS	
all	9	60E086K51A	3/4X51 WATER HOSE + 1/2 ENDS	
all	10	51X017	UNIONSTRADT 1/2"#1404-8-8	
all	11	5SL0KBEA	NPTELB 90DEG 1/2 BRASS 125#	
all	12	5N0K02ABE4	NIP .5X2.0 TBE 3/8 NPT ID	
all	13	27A002	NOZZLE BRASS 3/8" SPRAYSYSTEMS	
all	14	02 03846N	FLEX TUBE=SPRG MNT DRN 3.50X30.00	
all	15	60E086C114A	HOSE ASSY=3/4"X114"LG+ 3/4 & 1/2 ENDS	
all	16	5SP0KBESS	NPT PLUG 1/2 SQSOLID BRASS	
all	17	5SCC0KBE	NPT COUP 1/2 BRASS 125#	
all	18	5N0K05ABE2	NPT NIP 1/2X5 TBE BRASS STD	
all	19	51V027	TEE 1/2FX1/2FX1/2M FORG T9-888	
all	20	5N0K03ABE2	NPT NIP 1/2X3 TBE BRASS STD	
all	21	96TDC2AA71	1/2"N/C2WY240V50/60C VLV	
all	22	5N0KCLSBE2	NPT NIP 1/2XCLS TBE BRASS STD	
all	23	51E509	HOSESTEM BRASS 1/2MPX1/2HOSEID	

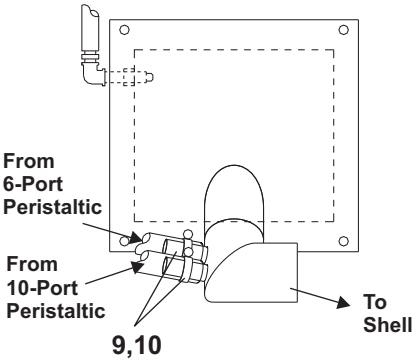
Peristaltic Chemical Supply Inlets

68036H5N, 68036H5K





10-Port and 6-Port Inlet manifolds



6836H5N Soap Chute Rear View

Peristaltic Chemical Supply Inlets

68036H5N, 68036H5K

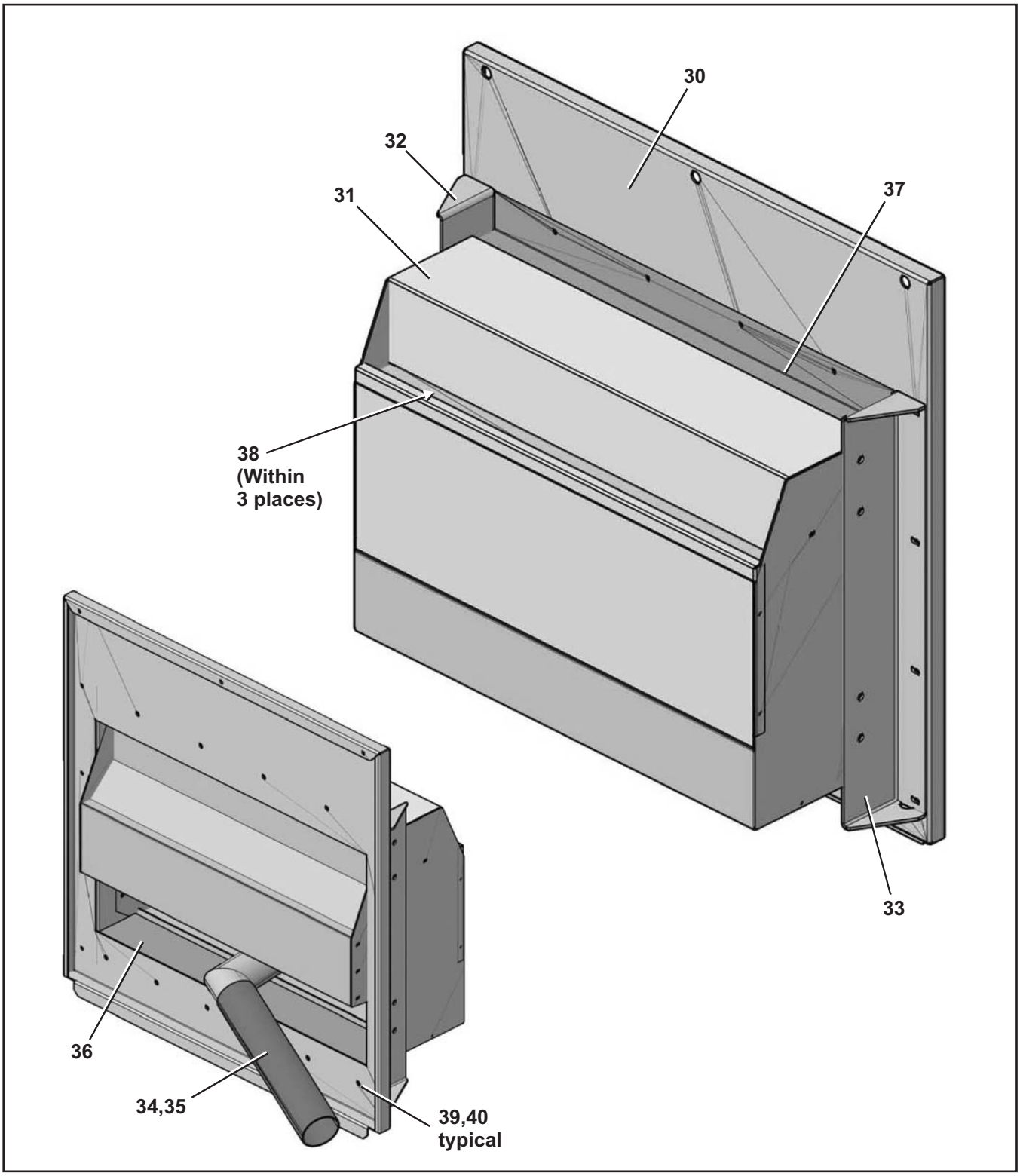
Parts List—Peristaltic Chemical Supply inlets

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

Used In	Item	Part Number	Description	Comments
			----------ASSEMBLIES----------	
	A	GWL4840F	INSTL=PERISTAL 10 PORT,4840F	STANDARD
	B	GWL4840W	INSTL=PERISTAL 6 PORT, 4840F	OPTIONAL
			----------COMPONENTS----------	
A	1	02 03589O	MOLDED LIQ SUPPLY MANFOLD=10	
B	2	02 03589L	MOLDED PERISTALTIC SOAPCHUTE	
all	3	02 03276	CHEM INJECT BRKT, 3022H8	
all	4	15G004HB	EXTRUNUT M6-1 GRIP 0.8-4MM	
all	5	15N110H	RDWASHHD TORXBOLT M6-1X25MM ZN	
all	6	60E006C	PVC TUBING NYL.REINF.5IDX.75OD	
all	7	27A040	HOSECLAMP 7/16-25/32SS W/SCREW	
all	8	51E509Y	Y-CONN1/2"HBARB PLAS.IND#64017	
all	9	60E010B	TUBING,POLYWIRECLR 1"IDX1.375"	
all	10	27A090S	HOSECLAMP 13/16-1.5"SS#64016B	
all	11	5SP0KXFHS	HEXHD PIPE PLUG 1/2"POLYPRO	

Five Compartment Supply

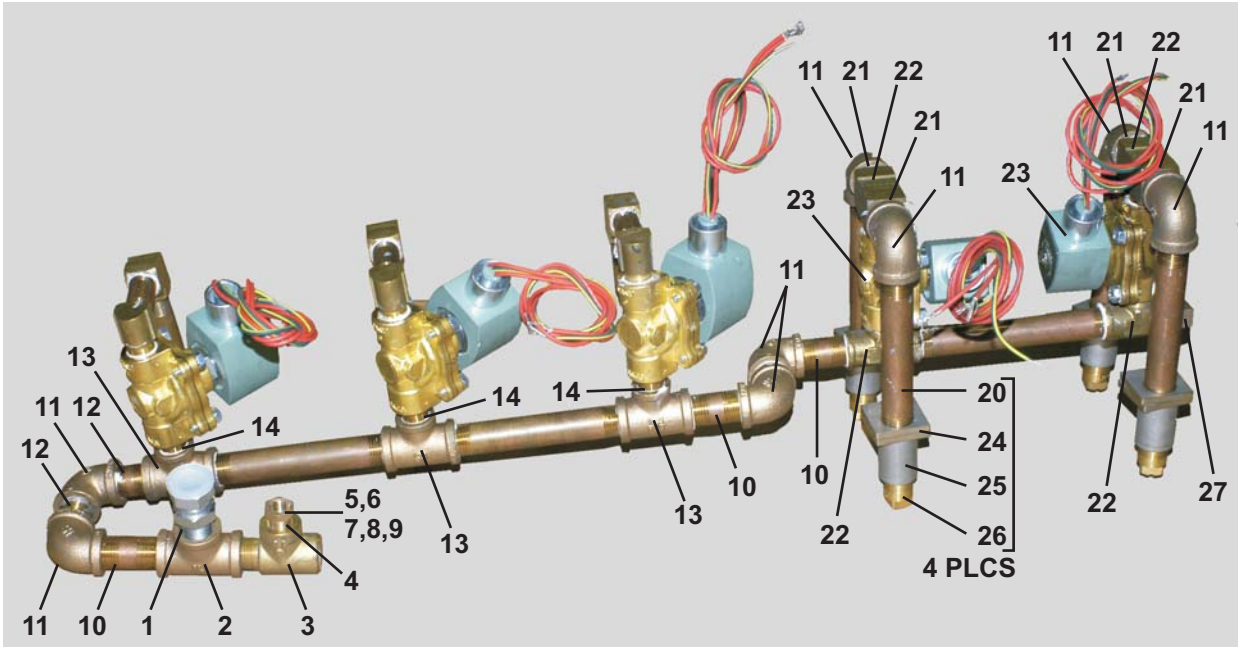
68036F5N, 68036H5N, 68036H5K

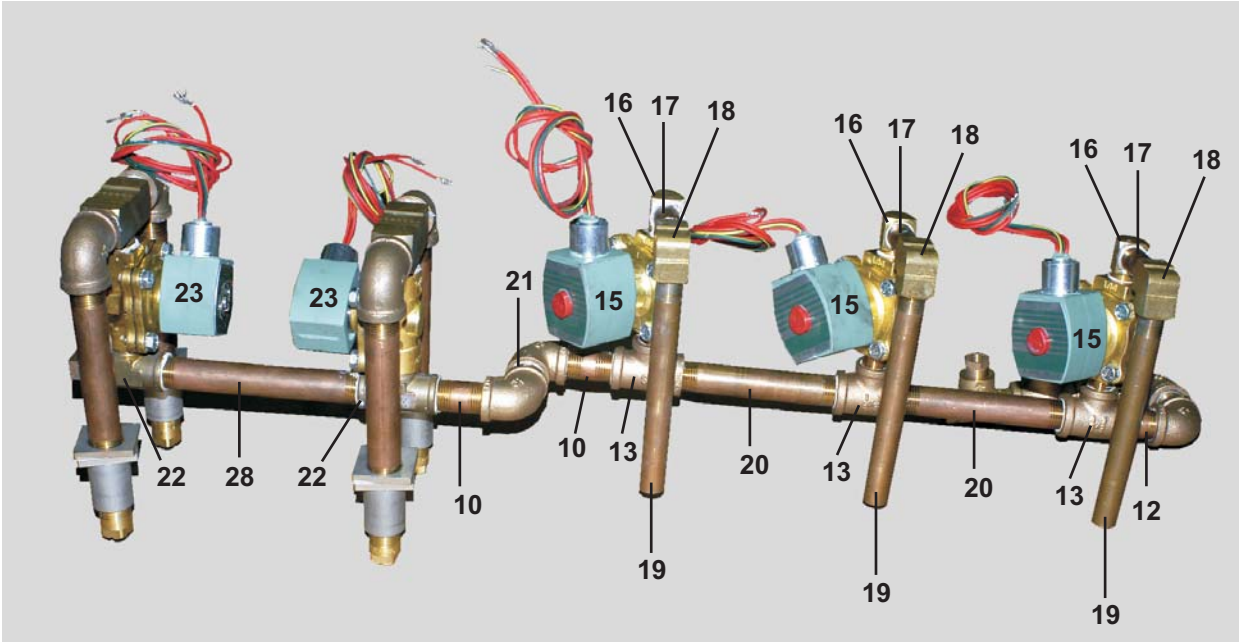


Five Compartment Supply

68036F5N, 68036H5N, 68036H5K

Supply Manifold:





Five Compartment Supply

68036F5N, 68036H5N, 68036H5K

Parts List—Five Compartment Supply

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	GWS68004	INST=5COMP DRY SUPPLY 6836HYD	
	B	AWP68005	ELEV SUPPLY IN MANIFOLD 6836	
			----------COMPONENTS----------	
all	1	51X017	UNIONSTRADT 1/2"#1404-8-8	
all	2	5S0KBEA	NPT TEE 1/2" BRASS 125#	
all	3	96M001	1/2X3/8" RELIEF VALVE SET31#	
all	4	5SB0G0CHEO	NPTHEXBUSH 3/8X1/8 STLZC 150#	
all	5	53A005B	BODYMALCON1/4X1/8COMP #B68A-4A	
all	6	53A500	SLEEVE DELRIN 1/4"OD#60PT-4	
all	7	53A501	TUBE INSERT .163"OD #63PT-4-40	
all	8	53A059A	NUT 1/4"BR.HOLYOKE AND #61A-4	
all	9	60E004TE	1/4"OD X.170"ID NYL(BLK)TUBING	
all	10	5N0K02ABE2	NPT NIP 1/2X2 TBE BRASS STD	
all	11	5SL0KBEA	NPTELB 90DEG 1/2 BRASS 125#	
all	12	5N0K01KBE2	NPT NIP 1/2X1.5TBE BRASS STD	
all	13	5S0KBEA0G	NPT TEE 1/2X1/2X3/8 BRASS 125#	
all	14	5N0GCLSBE2	NPT NIP 3/8XCLS TBE BRASS STD	
all	15	96TCC2AA71	3/8" N/C 2WAY 240V50/60C VALVE	
all	16	5SL0GBEC	NPTELB 90DEG STRT 3/8 BRASS125	
all	17	5N0G03KBE2	NPT NIP 3/8X3.5 TOE BRASS 125#	
all	18	5SL0GBEA	NPTELB 90DEG 3/8 BRASS 125#	
all	19	5N0G06ABE2	NPT NIP 3/8X6 TOE BRASS 125#	
all	20	5N0K05ABE2	NPT NIP 1/2X5 TBE BRASS STD	
all	21	5N0KCLSBE2	NPT NIP 1/2XCLS TBE BRASS STD	
all	22	51V027	TEE 1/2FX1/2FX1/2M FORG T9-888	
all	23	96TDC2AA71	1/2"N/C2WY240V50/60C VLV(DRYVC) ASCO	
all	24	03 64300B	SPACER=SUPINJ 6442 1/2"VALVE	
all	25	5SCC0KSF1	NPTCOUP 1/2"SS304 150#BARSTOCK	
all	26	27A001	NOZZLE BRASS 1/2" SPRAYSYSTEMS	
all	27	5SP0GBEHK	NPT PLUG 3/8 HXCTRSNKBRASS	

Five Compartment Supply

68036F5N, 68036H5N, 68036H5K

Parts List—Five Compartment Supply

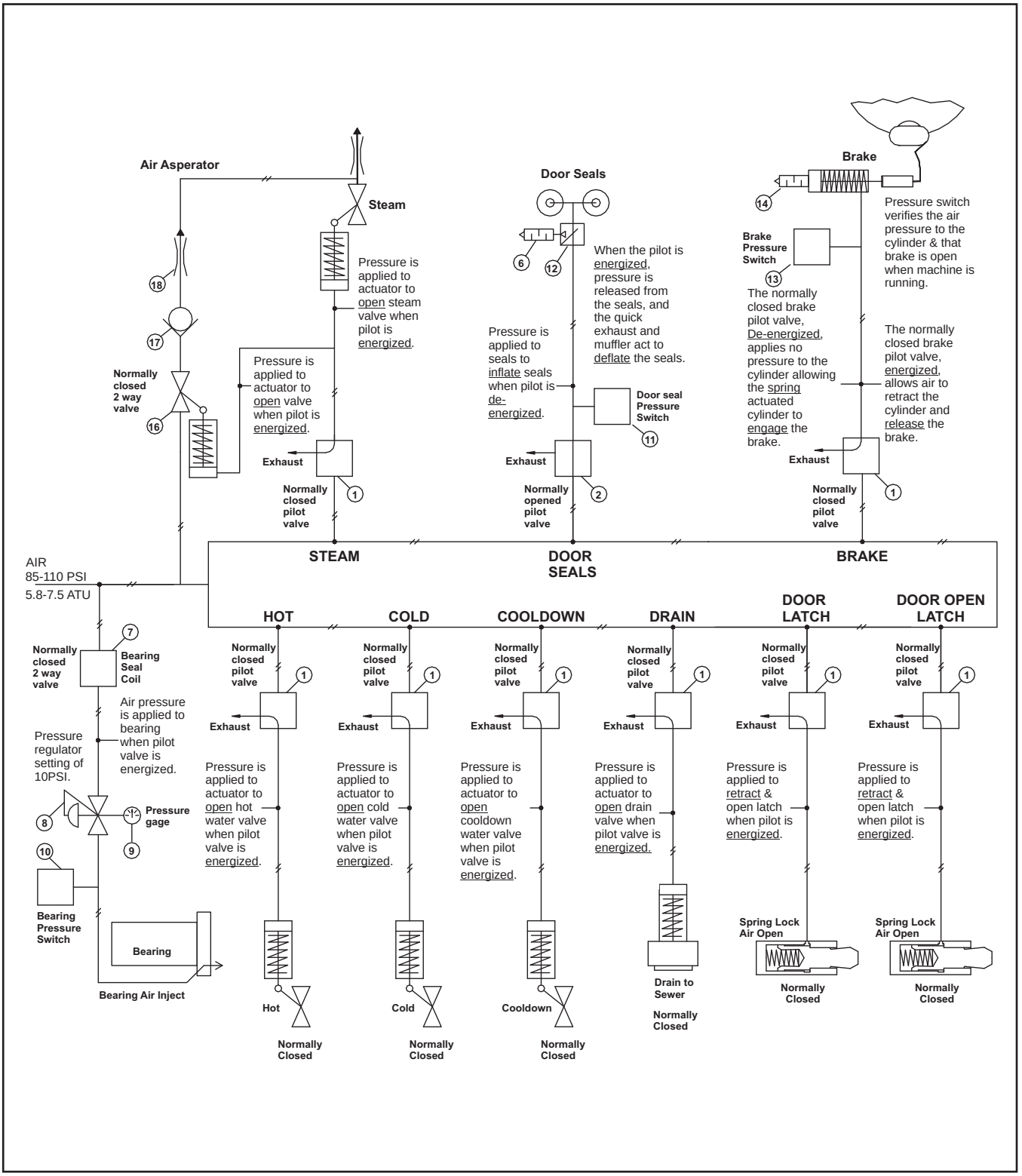
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

Used In	Item	Part Number	Description	Comments
all	28	5N0K06ABE2	NPT NIP 1/2X6 TBE BRASS STD	
all	30	02 22462S	COSM=SUPPLY CHUTE PNL 6836 HYD	
all	31	03 65391E	TOP COVER 5COMP SUPPLY MD2	
all	32	02 22150S	BRKT=FRONT 5 SUPPLY 6836HYD	
all	33	02 22151S	BRKT=REAR 5 SUPPLY 6836HYD	
all	34	02 03846N	FLEX TUBE=SPRG MNT DRN 3.50X30.00	
all	35	27A084TSS	T-BOLT HOSECLAMP 3.66-3.97"SS	
all	36	02 22153	COVER=5 SUPPLY BTM, 6836F	
all	37	02 22154	COVER=5 SUPPLY TOP, 6836F	
all	38	02 11352	SUPPLY CUP HOLDER LARGE	
all	39	15N110H	RDWASHHD TORXBOLT M6-1X25MM ZN	
all	40	15G004HB	EXTRUNUT M6-1 GRIP 0.8-4MM	

Pneumatics 8

Pneumatic Schematic

68036H5N, 68036H5K



PELLERIN MILNOR CORPORATION

Pneumatic Schematic

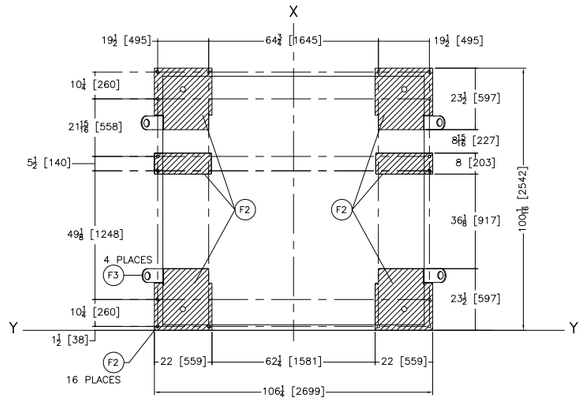
68036H5N, 68036H5K

Parts List—Pneumatic Schematic

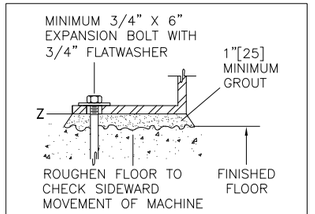
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

Used In	Item	Part Number	Description	Comments
----------	----------	----------	----------COMPONENTS----------	----------
all	1	96R301B71	1/8" AIRPILOT 3W NC 240V50/60	
all	2	96R302B71	1/8" AIRPILOT 3W NO 240V50/60	
all	3	96J019E	1/4"PRESSREG3-60#AR20N02HZX406	
all	4	30N101	PRESSGAUGE 1/8"BACKCN.0-60PSI	
all	5	96N0012P	DBL.REM.VLV.3/8"4-WAY=CTR.OFF	
all	6	27A005	MUFFLER 3/8" BANTAM B38	
all	7	96TBC2BA37	1/4" N/C 2WAY 120V50/60C VALVE-ASCO#8262H022	
all	8	96J019G	1/4"FILTERREG 0-60PSI	
all	9	30N095	PRESSGAUGE 1/8"BACKCN.0-15PSI	
all	10	09N082B05	PRESSW NASON CLOSE @ 5 LB	
all	11	09N082B10	PRESSW NASON CLOSE FALLING AT 9PSI	
all	12	96M055	DELTROL QUICK EXHAUST VLV.1/4"	
all	13	09N082A	PRESSW NASON CLOSE @ 62 LB.	
all	14	27A005A	MUFFLER 1/4"ALLIED B-28 BANTAM	
all	15	96JH100	NEEDLE VLV.ELB.1/8"#NAS2200N01	
all	16	96TBC2AA01	1/4" N/C 1WAY AIR-OP VALVE POLYPRO (NO COIL)	
all	17	96DG030	CHECKVLV, 1/4"WATTS-SERIES 600	
all	18	53A016A	AIR RESTRICTER=STEAM CBW	

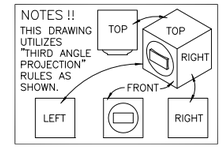
9 Dimensional

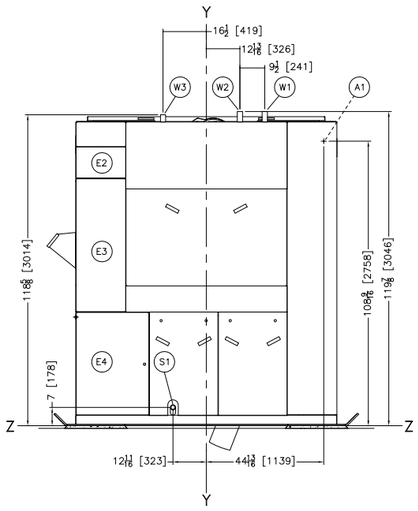


FOUNDATION VIEW

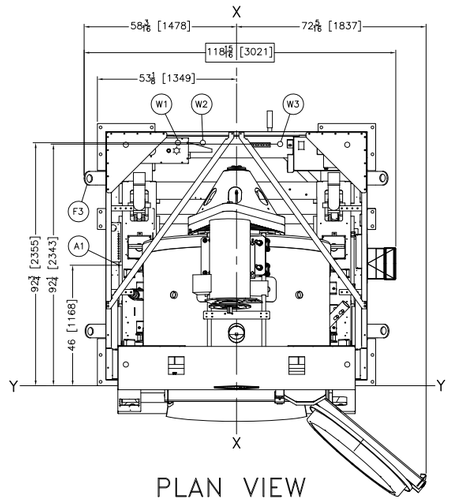


INSTALLATION DETAIL

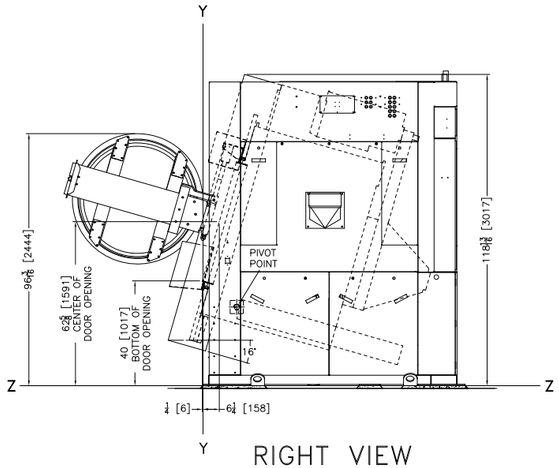




REAR VIEW

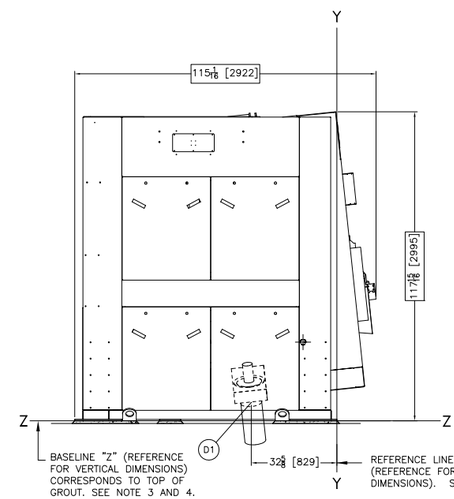


PLAN VIEW

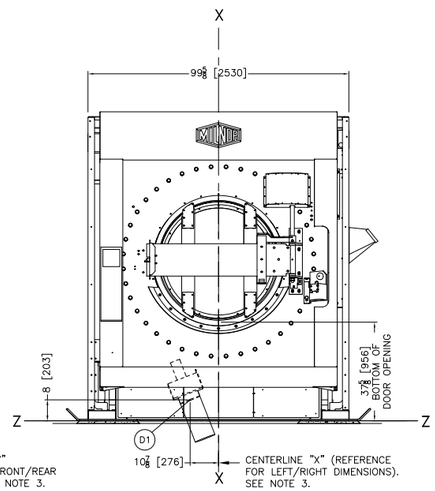


RIGHT VIEW
LOAD

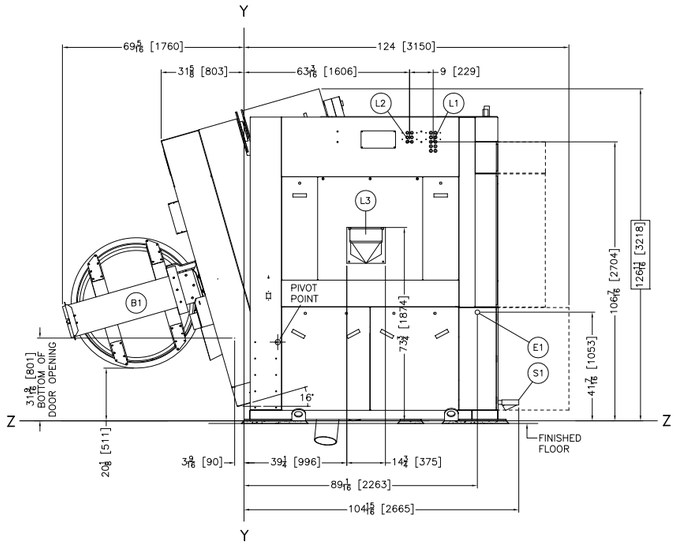
W3	REUSE WATER INLET, 2" NPT, OPTIONAL
W2	COLD WATER INLET, 2" NPT
W1	HOT WATER INLET, 2" NPT
S1	STEAM INLET 1–1/4" NPT
L3	DRY SUPPLY
L2	PERISTALTIC INLETS, ADDITIONAL 6 PORTS, OPTIONAL
L1	PERISTALTIC INLETS, 10 PORTS, STANDARD
F3	LIFTING EYES, MAY BE CUT OFF AFTER SHIPMENT (4 PLACES)
F2	(8) 1–1/16" DIAMETER ANCHOR BOLT HOLES, USE 3/4" X 6" BOLTS MINIMUM. (1) BOLT PER PAD MINIMUM.
F1	BASEPADS, SEE NOTE 7.
E4	HIGH VOLTAGE & INVERTER BOX
E3	LOW VOLTAGE BOX
E2	MICROPROCESSOR BOX
E1	MAIN ELECTRICAL CONNECTION
D1	DRAIN VALVE, 8" DIAMETER
B1	48" DOOR, STANDARD
A1	MAIN AIR INLET, 1/4" NPT
ITEM	LEGEND



LEFT VIEW



FRONT VIEW



RIGHT VIEW
UNLOAD

NOTES

8 SHIM TO LEVEL THE MACHINE AND ALLOW FOR 1" [25] MINIMUM GROUT. ANCHOR WITH ONE ANCHOR BOLT PER BASEPAD (F1), MINIMUM. USE 3/4" X 6" BOLTS, MINIMUM. SEE INSTALLATION MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS.

7 SHADED AREAS ARE BASE PLATES WHICH MUST BE CONTINUOUSLY SUPPORTED ON 1"[25] THICK GROUT.

6 AS OF THIS WRITING, THE MINIMUM CLEARANCE REQUIRED BY U.S. NATIONAL ELECTRIC CODES, FROM ELECTRIC BOX TO ANY OBJECT IS:
36 [914] IF OBJECT IS AN UNGROUNDED (INSULATED) WALL.
42 [1067] IF OBJECT IS A GROUNDED WALL (ie. BARE CONCRETE, BRICK, ETC.)
48 [1219] IF OBJECT IS ANY LIVE PART.
CHECK LOCAL ELECTRIC CODES FOR FURTHER RESTRICTIONS.

5 CUSTOMER TO SUPPLY CIRCUIT BREAKER OR FUSED BRANCH CIRCUIT DISCONNECT (SAFETY) SWITCHES WITH LAG TYPE FUSES FROM POWER SOURCE TO MACHINE. A SEPARATE GROUND WIRE MUST BE CONNECTED FROM DISCONNECT TO EQUIPMENT.

4 BASELINE "Z" IS THE SAME FOR ALL MILNOR MACHINES AND IS SHOWN ON ALL DIMENSIONAL DRAWINGS. THE DISTANCE BETWEEN BASELINE "Z" AND THE FINISHED FLOOR MAY VARY (WITH CHANGES IN FLOOR HEIGHT) AS REQUIRED TO INSURE THAT BASELINE "Z" IS HORIZONTAL AND ALL COMPONENTS REQUIRING GROUT ARE SET ON A MINIMUM 1" [25] THICK GROUT BED.

3 USE REFERENCE LINES "X", "Y", AND "Z" TO LOCATE ALL SERVICE CONNECTIONS.

2 NUMBERS IN BRACKETS [] DENOTE DIMENSIONS IN MILLIMETERS.

1 ALL DIMENSIONS SHOWN ARE APPROXIMATE, SUBJECT TO NORMAL MANUFACTURING TOLERANCES, AND TO OCCASIONAL CHANGES WITHOUT NOTICE THROUGH REDESIGN AND/OR RELOCATION OF COMPONENTS, ETC. DO NOT USE FOR CONSTRUCTION UNLESS CERTIFIED, AND IN NO EVENT PRE-PIPE CLOSER THAN FIVE FEET FROM MACHINE. FACTORY MUST BE CONSULTED FOR DIMENSIONS IF MACHINE IS TO BE MOVED THROUGH NARROW OR LOW CORRIDORS OR OPENINGS.

ATTENTION

MOST REGULATORY AUTHORITIES (INCLUDING OSHA IN THE USA) HOLD THE OWNER/USER ULTIMATELY RESPONSIBLE TO MAINTAIN A SAFE WORKING ENVIRONMENT. ACCORDINGLY, THE OWNER/USER MUST RECOGNIZE ALL FORESEEABLE SAFETY HAZARDS, FURNISH SAFETY INSTRUCTIONS AND GUIDANCE TO ALL PERSONNEL WHO MAY COME IN CONTACT WITH THE INSTALLATION, AND PROVIDE ALL NECESSARY ADDITIONAL SAFETY GUARDS, FENCES, RESTRAINTS, DEVICES, ETC., NOT FURNISHED BY THE EQUIPMENT MANUFACTURER OR VENDOR.

ATTENTION

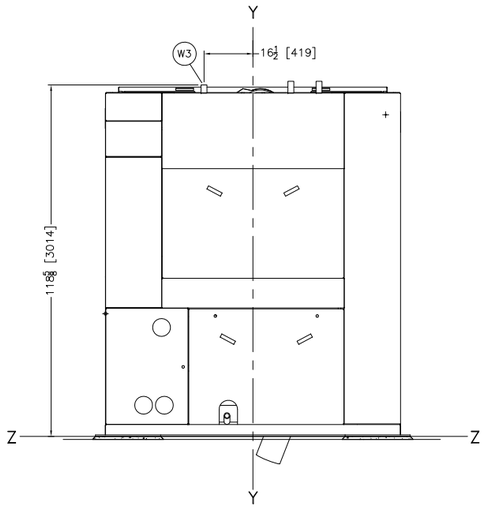
THE FLOOR AND/OR OTHER SUPPORT COMPONENTS MUST HAVE SUFFICIENT STRENGTH (AND RIGIDITY WITH DUE CONSIDERATION FOR NATURAL OR RESONANT FREQUENCY THEREOF) TO WITHSTAND THE FULLY LOADED WEIGHT OF THE MACHINE INCLUDING THE GOODS, THE WATER, AND ANY REPEATED SINUSOIDAL (ROTATING) FORCES GENERATED DURING ITS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

6836H5N HYDRAULIC TILT

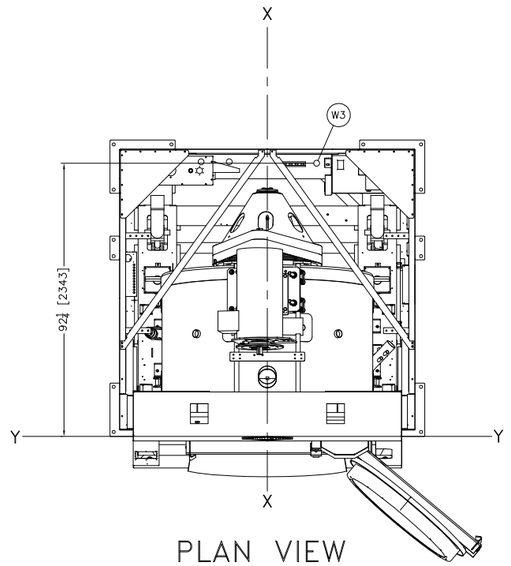
DM 0 0.5M 1M
INCHES 0 12 24 36

DWG# BD6836H5NAE
2013255D

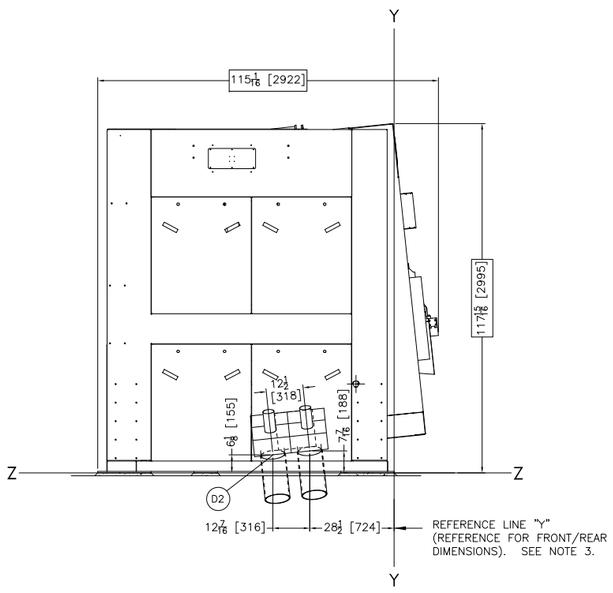
PELLERIN MILNOR CORPORATION
P.O. Box 400 Kenner, LA 70063, USA, Phone 504/467-9591,
FAX 504/469-1849, Email: mktg@milnor.com



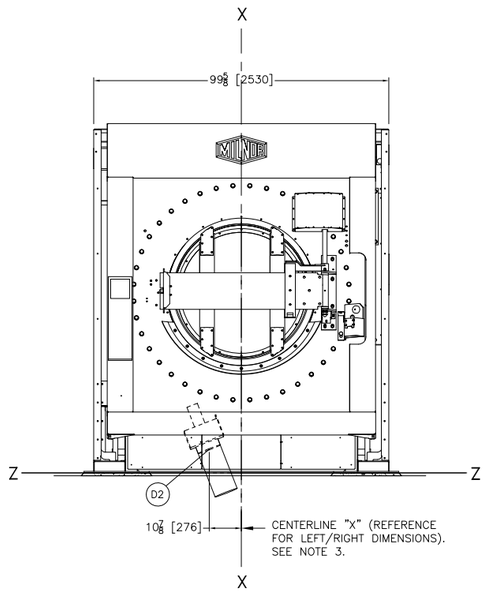
REAR VIEW



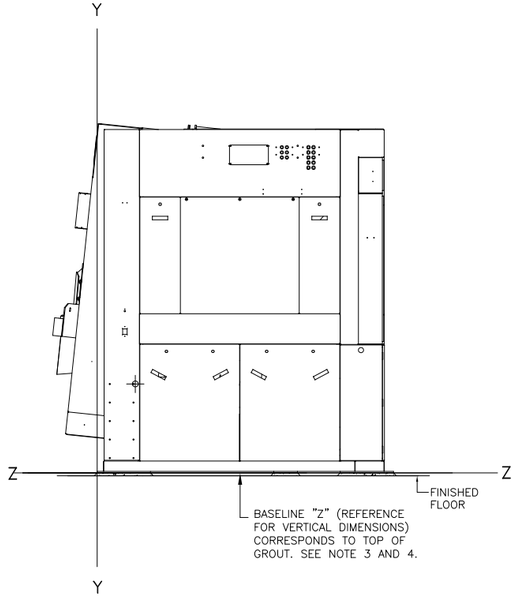
PLAN VIEW



LEFT VIEW



FRONT VIEW
NOT TILTED



RIGHT VIEW

ITEM	LEGEND
W3	REUSE WATER INLET, 2" NPT, OPTIONAL
D2	DUAL DRAINS, (2) 8" DIAMETER

NOTES

8. SHIM TO LEVEL THE MACHINE AND ALLOW FOR 1" [25] MINIMUM GROUT. ANCHOR WITH ONE ANCHOR BOLT PER BASEPAD (F1), MINIMUM. USE 3/4" X 6" BOLTS, MINIMUM. SEE INSTALLATION MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS.
7. SHADED AREAS ARE BASE PLATES WHICH MUST BE CONTINUOUSLY SUPPORTED ON 1"[25] THICK GROUT.
6. AS OF THIS WRITING, THE MINIMUM CLEARANCE REQUIRED BY U.S. NATIONAL ELECTRIC CODES, FROM ELECTRIC BOX TO ANY OBJECT IS:
   36 [914] IF OBJECT IS AN UNGROUNDED (INSULATED) WALL.
   42 [1067] IF OBJECT IS A GROUNDED WALL (ie. BARE CONCRETE, BRICK, ETC.)
   48 [1219] IF OBJECT IS ANY LIVE PART.
   CHECK LOCAL ELECTRIC CODES FOR FURTHER RESTRICTIONS.
5. CUSTOMER TO SUPPLY CIRCUIT BREAKER OR FUSED BRANCH CIRCUIT DISCONNECT (SAFETY) SWITCHES WITH LAG TYPE FUSES FROM POWER SOURCE TO MACHINE. A SEPARATE GROUND WIRE MUST BE CONNECTED FROM DISCONNECT TO EQUIPMENT.
4. BASELINE "Z" IS THE SAME FOR ALL MILNOR MACHINES AND IS SHOWN ON ALL DIMENSIONAL DRAWINGS. THE DISTANCE BETWEEN BASELINE "Z" AND THE FINISHED FLOOR MAY VARY (WITH CHANGES IN FLOOR HEIGHT) AS REQUIRED TO INSURE THAT BASELINE "Z" IS HORIZONTAL AND ALL COMPONENTS REQUIRING GROUT ARE SET ON A MINIMUM 1" [25] THICK GROUT BED.
3. USE REFERENCE LINES "X", "Y", AND "Z" TO LOCATE ALL SERVICE CONNECTIONS.
2. NUMBERS IN BRACKETS [] DENOTE DIMENSIONS IN MILLIMETERS.
1. ALL DIMENSIONS SHOWN ARE APPROXIMATE, SUBJECT TO NORMAL MANUFACTURING TOLERANCES, AND TO OCCASIONAL CHANGES WITHOUT NOTICE THROUGH REDESIGN AND/OR RELOCATION OF COMPONENTS, ETC. DO NOT USE FOR CONSTRUCTION UNLESS CERTIFIED, AND IN NO EVENT PRE-PIPE CLOSER THAN FIVE FEET FROM MACHINE. FACTORY MUST BE CONSULTED FOR DIMENSIONS IF MACHINE IS TO BE MOVED THROUGH NARROW OR LOW CORRIDORS OR OPENINGS.

ATTENTION

MOST REGULATORY AUTHORITIES (INCLUDING OSHA IN THE USA) HOLD THE OWNER/USER ULTIMATELY RESPONSIBLE TO MAINTAIN A SAFE WORKING ENVIRONMENT. ACCORDINGLY, THE OWNER/USER MUST RECOGNIZE ALL FORESEEABLE SAFETY HAZARDS, FURNISH SAFETY INSTRUCTIONS AND GUIDANCE TO ALL PERSONNEL WHO MAY COME IN CONTACT WITH THE INSTALLATION, AND PROVIDE ALL NECESSARY ADDITIONAL SAFETY GUARDS, FENCES, RESTRAINTS, DEVICES, ETC., NOT FURNISHED BY THE EQUIPMENT MANUFACTURER OR VENDOR.

ATTENTION

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

6836H5N OPTIONS

DM 0 0.5M 1M
INCHES 0 12 24 36

DWG# BD6836H5NAB
2012076D

PELLERIN MILNOR CORPORATION
P.O. Box 400 Kenner, LA 70063, USA, Phone 504/467-9591,
FAX 504/469-1849, Email: mktg@milnor.com