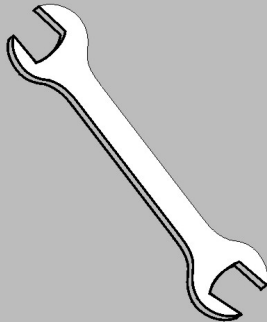


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# Kit Instruction— HDFM005501



# Please Read

## About the Manual Identifying Information on the Cover

The front cover displays pertinent identifying information for this manual. Most important, are the published manual number (part number) /ECN (date code). Generally, when a replacement manual is furnished, it will have the same published manual number, but the latest available ECN. This provides the user with the latest information applicable to his machine. Similarly all documents comprising the manual will be the latest available as of the date the manual was printed, **even though older ECN dates for those documents may be listed in the table of contents.**

When communicating with the Milnor factory regarding this manual, please also provide the other identifying information shown on the cover, including the publishing system, access date, and whether the document ECN's are the latest available or exact.

## References to Yellow Troubleshooting Pages

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

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## Comments and Suggestions

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

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

Fax: (504) 469-1849

## E & J Style Machine Tilt Stop Gap

This document covers the procedure for setting tilt stop gaps on the following machines:

64046E6N/J6N/D6N,  
72046E5N/J5N, and 72058J5N. The approximate time to complete this process is one man hour.

The process requires one person. Prior to beginning the process, it is necessary to familiarize yourself with all safety precautions in the Washer Extractor's manuals; please observe all safety precautions. It is also imperative that these instructions are read prior to beginning the procedure. Also, inventory the parts received with the kit. While working on the Washer Extractor, tag and lockout the power.

Tools required for this retrofit are: standard hand tools.

First, make sure that the Washer Extractor is empty and in the wash position (3 degrees tilted to the rear). Measure and record the gaps between all four shell stops and the tilt frame. Refer to MSSMA423AE/9512AV(2 of 6) FIGURE 3.

Second, if the gaps between the tilt stops and the tilt frame are not 1"(minimum) to 1 1/4" (maximum) refer to BMP930021/95457V view B-B and view C-C. Remove the tilt stop brackets that need adjustment, TS01, TS02 and TS03. Remove or add shims TS05,A,B,C,D, to achieve a 1" to 1 1/4" gap. Use replacement brackets TS02 and TS03 supplied in the kit if necessary to achieve 1" to 1 1/4" gap. Reinstall removed brackets. If the left hand side tilt to rear stop bracket was removed, upon reinstallation, check the location of the spring on the excursion switch in the excursion window. Adjust if necessary.

Third, after reinstalling all of the tilt stops repeat the first step and adjust the tilt stops as necessary. Run the Washer Extractor with a full load and check the tilt to rear stop gaps. **The tilt to rear stops should never come in contact with the tilt frame while the machine is in extract.**

If you should have any questions, please call Milnor Technical Support at (504) 467-9591 extension 276.

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MAINTENANCE BULLETIN B22MB95007  
November 27, 1995

SUBJECT: 64046E6N/J6N/D6N, 72046E5N/J5N, 72058J5N TILT STOP GAP

Dear MILNOR Customer:

In the recent past, we have learned that the gap between the tilt stops and the tilt frame may not be adequate for the machine to operate properly.

Enclosed is a set of instructions on how to adjust this gap, HDFM005501/95457N. If this gap is not maintained, the machine's balancing system could receive a false indication that the machine is balanced. If the machine is run in this "false" balanced condition, the basket can come in contact with the door and/or the door ring causing damage to the basket.

If the proper gap cannot be achieved with the hardware that is currently installed on the machine, there are kits available to help achieve this gap. The kits will be sent at no charge. Order kit no. KDFM005501 for 64046E6N/J6N/D6N machines or kit no. KDFM005502 for 72046E5N/J5N, 72058J5N machines. Model, serial number and date code of the machine must accompany requests for kits.

Since the total labor involved is about one man hour, we ask that the customer's maintenance staff perform the retrofit, if needed.

Please read the attached instructions and confirm the stop gap dimension. The instructions offer guidance on the action necessary, depending on the dimension found.

If any questions arise, please call MILNOR Technical Support at 504-464-0163.

Sincerely,

PELLERIN MILNOR CORPORATION

Daniel H. Albers  
Service Engineer

DHA/das  
Attachment: HDFM005501/95457N

# LUBRICATION AND PREVENTIVE MAINTENANCE FOR 64046, 72046, 72058ExN AND JxN MODELS

## Required Kits

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

## Lubrication Requirements

To achieve the optimum performance and service life from the Milnor<sup>®</sup> machine, and as a warranty requirement, **the machine must be lubricated in strict accordance with the instructions in this section.**

### ▲ DANGER ▲



**ENTANGLE AND CRUSH HAZARD**—Belts and pulleys can entangle and crush body parts.

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

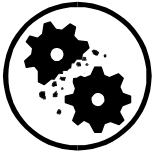
## Correct Grease Gun Procedures

1. **Do not use a pneumatic grease gun.** Pump grease **slowly**, taking 10-12 seconds to complete each stroke. A grease gun can build up extremely high pressure which will force seals out of position and cause them to leak, even though both the seal and bearing housing are equipped with spring loaded relief plugs.
2. **Apply quantity of grease called for in the checklist.** Over-lubrication can be as damaging as under-lubrication. Where quantities are stated in strokes, one stroke of the grease gun is assumed to provide .0624 fluid oz. (1.77 grams) (by volume) of grease. Therefore, one fluid ounce (28.3 grams) of grease would be provided by 16 strokes of the grease gun. Determine the flow rate of your grease gun by pumping one ounce into a calibrated container. If fewer than 16 strokes are required, all quantities in strokes in the chart should be reduced accordingly, and if more than 16 strokes are required, the number of strokes should be increased. Before starting lubrication, **make sure your grease gun is working and that you get a full charge of grease with every stroke.**
3. **Do not pump grease in until it oozes out of the spring loaded relief plugs.** Plugs bleed out excess grease and help prevent abnormal pressures from building up in the housing during operation (especially when the machine is first commissioned and after each lubrication). **Plugs will not protect against over-lubrication.**

4. **Do not over-lubricate motors.** Over-lubrication of a motor can seriously damage it by forcing grease into motor windings. Over-lubrication of the extract motor can force grease into the centrifugal switch causing it to malfunction.
5. **Do not allow grease to drip on the brake disk or clutch tire/drum during lubrication.** This will reduce the braking action considerably, and may permit the cylinder to creep while loading and unloading.

## Lubricant Specifications

### ▲ CAUTION ▲



**BEARING AND SEAL DAMAGE HAZARD—Mixing different base greases can cause bearing and seal damage. Consult lubricant manufacturer before using a non-specified lubricant.**

Lubricants used on the machines covered by this section must adhere to the following specifications:

| Assembly (location)                      | Components  | Specifications  |
|--|---|---|
| <b>Motors</b> (FIGURE 2)                 | Motor bearings  | See motor nameplate. If not specified, use Shell Alvania EP LF or equivalent. |
| <b>Gear reducer</b> (FIGURE 2)           | Gear reducer  | Shell Morlina 220   |
| <b>Bearing housing</b> (FIGURES 3 and 4) | Seals and bearings  | Shell Alvania EP LF or equivalent   |
| <b>Braking</b> (FIGURE 5)                | Brake reservoir   | DOT 3 brake fluid or equivalent   |
| <b>Hydraulics</b> (FIGURES 4, 6, and 17) | Shell pivot grease fittings<br>Hydraulic cylinder grease fittings<br>Pump | Shell Alvania EP LF or equivalent   |
|  | Hydraulic fluid reservoir   | Shell Tellus 68 or equivalent   |
| <b>Isolators</b> (FIGURES 7 and 8)       | Cylinders   | 10W30 (ISO 30-100) motor oil or equivalent                                    |
| <b>Load door</b> (FIGURE 9)              | Locking latches   | Door-ease stick lubricant or equivalent                                       |
|  | Gears and hinges  | Shell Alvania EP LF or equivalent   |

# Main Bearing Maintenance

## Greasing Seals and Bearings

### ⚠ DANGER ⚠



**ENTANGLE AND CRUSH HAZARD**—Belts and pulleys can entangle and crush body parts. Power is ON and cylinder is turning during the following procedure.

- ☞ Insure belt and pulley guards are in place during service procedures.
- ☞ Use extreme care when working near moving components.

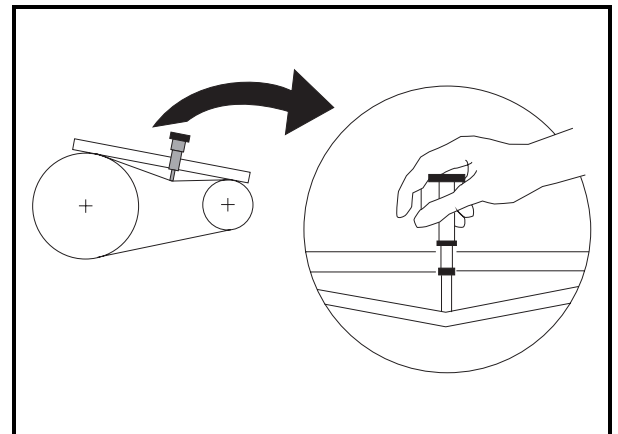
Grease seals and main bearing as follows:

1. Locate the seal and bearing grease fittings (FIGURE 4, Item 2).
2. Place the machine in a wash step.
3. With the cylinder turning, grease the seals and bearings as called for on the “Preventive Maintenance Checklist.”

## Testing Belt Tension

**NOTE 1: Do not refer to instruction sheet provided with tension testing tool when adjusting or replacing belts on ExN and JxN machines with individual final drive belts.** Use the “Individual belt initial tension” column (See “Table A — ExN and JxN Final Drive Belt Tension (Individual Belts)” when adjusting belts that have never been used. Use the “Individual belt final tension” column when adjusting belts that have been used.

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



**FIGURE 1** (MSSMA423AE)  
**Testing Belt Tension**

Check belt tension when replacing and adjusting drive train components:

- **Set belt tension on machines equipped with individual final drive belts using the “belt tension gauge method”.** This method requires a belt tension testing tool, straight edge, and “Table A - ExN and JxN Final Drive Belt Tension (Individual Belts)”.
- **Use the “elongation method” to set belt tension on machines equipped with banded final drive belts.** The “elongation method” requires a string and either “Table B — 64” ExN and JxN Final Drive Belt Tension (Banded Belts)”, or “Table C — 72” ExN and JxN Final Drive Belt Tension (Banded Belts),” depending on the machine type.



Check tension for new belts according to the following schedule:

- **After 24 hrs operation (three eight-hour shifts)**
- **After 80 hrs operation (ten eight-hour shifts)**
- **After 160 hrs operation (twenty eight-hour shifts)**

**The Belt Tension Gauge Method**—Use the tension gauge (FIGURE 1) to set belt tension as follows:

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

**Table A — ExN and JxN Final Drive Belt Tension (Individual Belts)**

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

### **The Elongation Method**

1. Accurately measure the outer diameter of the new belt. Call this measurement L1. Look up L1 in Table B for 64" machines, or Table C for 72" machines. Find the corresponding “Banded Belt Initial Tension Length”. Tie a string to this length.
2. Install belt.
3. Fit string to the outer diameter of both pulleys.
4. Slowly raise motor platform until string is tight.
5. After 24 hours of operation, remove tension from the belt and measure outer diameter again. Call this measurement L2. Look up L2 in Table B for 64" machines, or Table C for 72" machines, and find the corresponding “Banded Belt Final Tension Length”. Tie a string to this length. Once again, fit string to the outer diameter of both pulleys then slowly raise motor platform until string is tight.

**Table B — 64" ExN and JxN Final Drive Belt Tension (Banded Belts)**

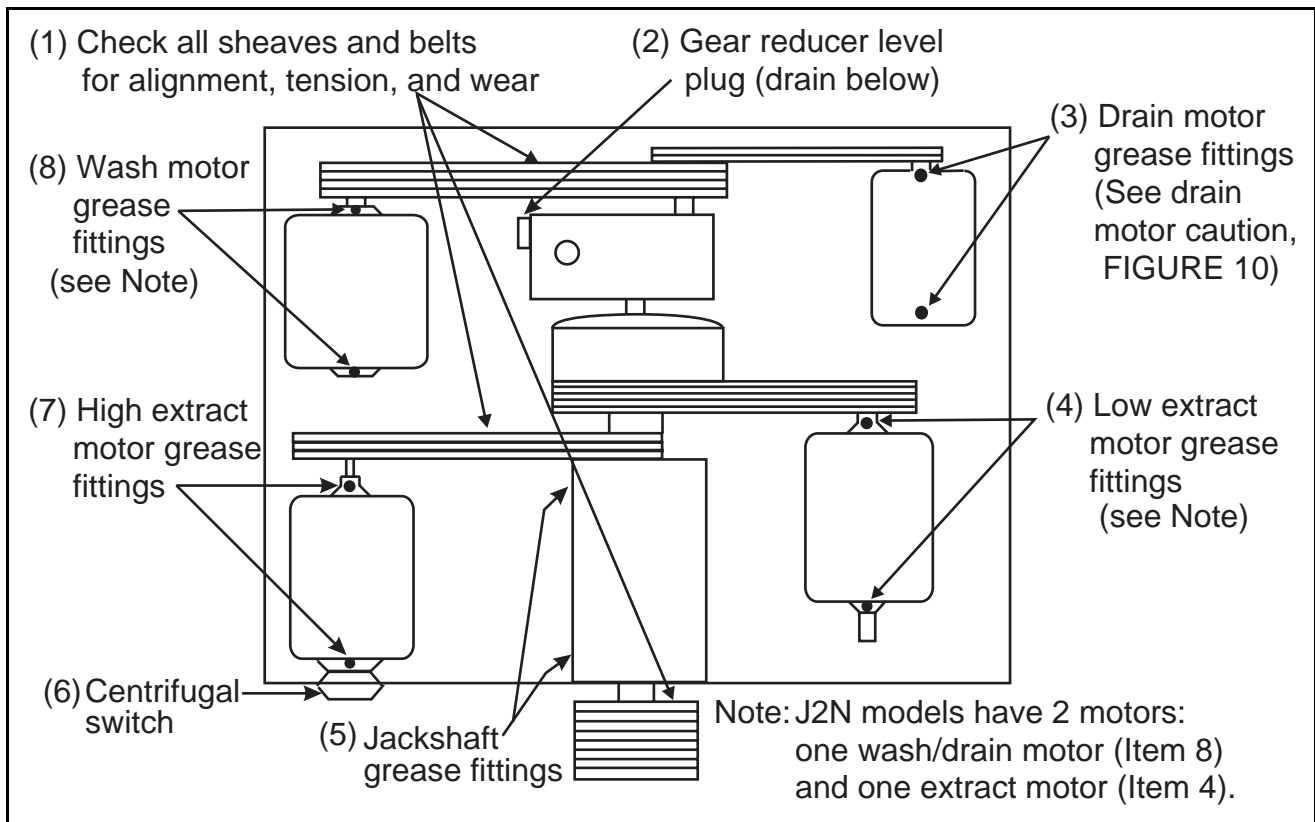
| Banded Belt Initial Tension |                  |                                    |                  | Banded Belt Final Tension |                  |                                    |
|-----------------------------|------------------|------------------------------------|------------------|---------------------------|------------------|------------------------------------|
| L1<br>inches (mm)           | Multiplier       | Tensioned<br>Length<br>inches (mm) |                  | L2<br>inches (mm)         | Multiplier       | Tensioned<br>Length<br>inches (mm) |
| 149.0 (3,784.6)             | 1.007            | 150.04 (3,811.0)                   |                  | 149.0 (3,784.6)           | 1.01             | 150.49 (3,822.4)                   |
| 149.3 (3,792.2)             |                  | 150.29 (3,817.4)                   |                  | 149.3 (3,792.2)           |                  | 150.74 (3,828.8)                   |
| 149.5 (3,797.3)             |                  | 150.55 (3,824.0)                   |                  | 149.5 (3,797.3)           |                  | 151.00 (3,835.4)                   |
| 149.8 (3,804.9)             |                  | 150.80 (3,830.3)                   |                  | 149.8 (3,804.9)           |                  | 151.25 (3,841.7)                   |
| 150.0 (3,810.0)             |                  | 151.05 (3,836.7)                   |                  | 150.0 (3,810.0)           |                  | 151.50 (3,848.1)                   |
| 150.3 (3,817.6)             |                  | 151.30 (3,843.0)                   |                  | 150.3 (3,817.6)           |                  | 151.75 (3,854.4)                   |
| 150.5 (3,822.7)             |                  | 151.55 (3,849.4)                   |                  | 150.5 (3,822.7)           |                  | 152.01 (3,861.0)                   |
| 150.8 (3,830.3)             |                  | 151.81 (3,856.0)                   |                  | 150.8 (3,830.3)           |                  | 152.26 (3,867.4)                   |
| 151.0 (3,835.4)             |                  | 152.06 (3,862.3)                   |                  | 151.0 (3,835.4)           |                  | 152.51 (3,873.7)                   |
| 151.3 (3,843.0)             |                  | 152.31 (3,868.7)                   |                  | 151.3 (3,843.0)           |                  | 152.76 (3,880.1)                   |
| 151.5 (3,848.1)             |                  | 152.56 (3,875.0)                   |                  | 151.5 (3,848.1)           |                  | 153.02 (3,886.7)                   |
| 151.8 (3,855.7)             |                  | 152.81 (3,881.4)                   |                  | 151.8 (3,855.7)           |                  | 153.27 (3,893.1)                   |
| 152.0 (3,860.8)             |                  | 153.06 (3,887.7)                   |                  | 152.0 (3,860.8)           |                  | 153.52 (3,899.4)                   |
| 152.3 (3,868.4)             |                  | 153.32 (3,894.3)                   |                  | 152.3 (3,864.4)           |                  | 153.77 (3,905.7)                   |
| 152.5 (3,873.5)             |                  | 153.57 (3,900.7)                   |                  | 152.5 (3,873.5)           |                  | 154.03 (3,912.4)                   |
| 152.8 (3,881.1)             |                  | 153.82 (3,907.0)                   |                  | 152.8 (3,881.1)           |                  | 154.28 (3,918.7)                   |
| 153.0 (3,886.2)             |                  | 154.07 (3,913.4)                   |                  | 153.0 (3,886.2)           |                  | 154.53 (3,925.1)                   |
| 153.3 (3,893.8)             |                  | 154.32 (3,919.7)                   |                  | 153.3 (3,893.8)           |                  | 154.78 (3,931.4)                   |
| 153.5 (3,898.9)             |                  | 154.57 (3,926.1)                   |                  | 153.5 (3,898.9)           |                  | 155.04 (3,938.0)                   |
| 153.8 (3,906.5)             |                  | 154.83 (3,932.7)                   |                  | 153.8 (3,906.5)           |                  | 155.29 (3,944.4)                   |
| 154.0 (3,911.6)             | 155.08 (3,939.0) | 154.0 (3,911.6)                    | 155.54 (3,950.7) |                           |                  |                                    |
| 154.3 (3,919.2)             | 155.33 (3,945.4) | 154.3 (3,919.2)                    | 155.79 (3,957.1) |                           |                  |                                    |
| 154.5 (3,924.3)             | 155.58 (3,951.7) | 154.5 (3,924.3)                    | 156.05 (3,963.7) |                           |                  |                                    |
| —                           |                  | —                                  | 154.8 (3,931.9)  |                           | 156.30 (3,970.0) |                                    |
| —                           |                  | —                                  | 155.0 (3,937.0)  |                           | 156.55 (3,976.4) |                                    |

**Table C — 72" ExN and JxN Final Drive Belt Tension (Banded Belts)**

| Banded Belt Initial Tension |                  |                     |                  | Banded Belt Final Tension |            |                     |
|-----------------------------|------------------|---------------------|------------------|---------------------------|------------|---------------------|
| L1<br>inches (mm)           | Multiplier       | Tensioned<br>Length |                  | L2<br>inches (mm)         | Multiplier | Tensioned<br>Length |
| 163.50 (4,152.9)            | 1.007            | 164.64 (4,181.9)    |                  | 163.50 (4,152.9)          | 1.01       | 165.14 (4,194.6)    |
| 163.75 (4,159.2)            |                  | 164.90 (4,188.5)    |                  | 163.75 (4,159.2)          |            | 165.39 (4,200.9)    |
| 164.00 (4,165.6)            |                  | 165.15 (4,194.81)   |                  | 164.00 (4,165.6)          |            | 165.64 (4,207.3)    |
| 164.25 (4,172.0)            |                  | 165.40 (4,201.2)    |                  | 164.25 (4,172.0)          |            | 165.89 (4,213.6)    |
| 164.50 (4,184.6)            |                  | 165.65 (4,207.5)    |                  | 164.50 (4,178.3)          |            | 166.15 (4,220.2)    |
| 164.75 (4,184.7)            |                  | 165.90 (4,213.9)    |                  | 164.75 (4,184.7)          |            | 166.40 (4,226.6)    |
| 165.00 (4,191.0)            |                  | 166.16 (4,220.5)    |                  | 165.00 (4,191.0)          |            | 166.65 (4,232.9)    |
| 165.25 (4,197.4)            |                  | 166.41 (4,228.8)    |                  | 165.25 (4,197.4)          |            | 166.90 (4,239.3)    |
| 165.50 (4,203.7)            |                  | 166.66 (4,233.2)    |                  | 165.50 (4,203.7)          |            | 167.16 (4,245.9)    |
| 165.75 (4,210.1)            |                  | 166.91 (4,239.5)    |                  | 165.75 (4,210.0)          |            | 167.41 (4,252.2)    |
| 166.00 (4,216.4)            |                  | 167.16 (4,245.9)    |                  | 166.00 (4,216.4)          |            | 167.66 (4,258.6)    |
| 166.25 (4,222.8)            |                  | 167.41 (4,252.5)    |                  | 166.25 (4,222.8)          |            | 167.91 (4,264.9)    |
| 166.50 (4,229.1)            |                  | 167.67 (4,258.8)    |                  | 166.50 (4,229.1)          |            | 168.17 (4,271.5)    |
| 166.75 (4,235.4)            |                  | 167.92 (4,265.2)    |                  | 166.75 (4,235.4)          |            | 168.42 (4,277.9)    |
| 167.00 (4,241.8)            |                  | 168.17 (4,271.5)    |                  | 167.00 (4,241.8)          |            | 168.67 (4,284.2)    |
| 167.25 (4,284.2)            |                  | 168.42 (4,277.9)    |                  | 167.25 (4,248.2)          |            | 168.92 (4,290.6)    |
| 167.50 (4,254.5)            |                  | 168.67 (4,284.2)    |                  | 167.50 (4,254.5)          |            | 169.18 (4,297.2)    |
| 167.75 (4,260.9)            |                  | 168.92 (4,290.6)    |                  | 167.75 (4,260.9)          |            | 169.43 (4,303.5)    |
| 168.00 (4,267.2)            |                  | 169.18 (4,297.2)    |                  | 168.00 (4,267.2)          |            | 169.68 (4,309.9)    |
| 168.25 (4,273.6)            |                  | 169.43 (4,303.5)    |                  | 168.25 (4,273.6)          |            | 169.93 (4,316.2)    |
| 168.50 (4,279.9)            | 169.68 (4,309.9) |                     | 168.50 (4,279.9) | 170.19 (4,322.9)          |            |                     |
| 168.75 (4,286.3)            | 169.93 (4,316.2) |                     | 168.75 (4,286.3) | 170.44 (4,329.2)          |            |                     |
| 169.00 (4,292.6)            | 170.18 (4,322.6) |                     | 169.00 (4,292.6) | 170.69 (4,335.5)          |            |                     |
| 169.25 (4,298.9)            | 170.43 (4,328.9) |                     | 169.25 (4,299.0) | 170.94 (4,341.9)          |            |                     |
| 169.50 (4,305.3)            | 170.69 (4,335.5) |                     | 169.50 (4,305.3) | 171.20 (4,348.5)          |            |                     |
| 169.75 (4,311.6)            | 170.94 (4,341.9) |                     | 169.75 (4,311.7) | 171.45 (4,354.8)          |            |                     |
| 170.00 (4,318.0)            | 171.19 (4,348.2) |                     | 170.00 (4,318.0) | 171.70 (4,361.2)          |            |                     |
| 170.25 (4,325.4)            | 171.44 (4,354.6) |                     | 170.25 (4,324.4) | 171.95 (4,367.5)          |            |                     |
| 170.50 (4,330.7)            | 171.69 (4,361.0) |                     | 170.50 (4,330.7) | 172.21 (4,374.1)          |            |                     |

**Table C — 72" ExN and JxN Final Drive Belt Tension (Banded Belts)**

| Banded Belt Initial Tension |            |                                    |  | Banded Belt Final Tension |            |                                    |
|-----------------------------|------------|------------------------------------|--|---------------------------|------------|------------------------------------|
| L1<br>inches (mm)           | Multiplier | Tensioned<br>Length<br>inches (mm) |  | L2<br>inches (mm)         | Multiplier | Tensioned<br>Length<br>inches (mm) |
| 170.75 (4,337.0)            | 1.007      | 171.95 (4,367.5)                   |  | 170.75 (4,337.0)          | 1.01       | 172.46 (4,380.5)                   |
| 171.00 (4,343.4)            |            | 172.20 (4,373.9)                   |  | 171.00 (4,343.4)          |            | 172.71 (4,386.8)                   |
| 171.25 (4,349.8)            |            | 172.45 (4,380.2)                   |  | 171.25 (4,349.8)          |            | 172.96 (4,393.8)                   |
| 171.50 (4,356.1)            |            | 172.70 (4,386.6)                   |  | 171.50 (4,356.1)          |            | 173.22 (4,399.8)                   |
|                             |            |                                    |  | 171.75 (4,362.5)          |            | 173.47 (4,406.7)                   |
|                             |            |                                    |  | 172.00 (4,368.8)          |            | 173.72 (4,412.9)                   |
|                             |            |                                    |  | 172.25 (4,375.1)          |            | 173.97 (4,418.9)                   |
|                             |            |                                    |  | 172.50 (4,381.5)          |            | 174.23 (4,425.4)                   |



**FIGURE 2** (MSSMA423AE)  
**Motors—Top View**

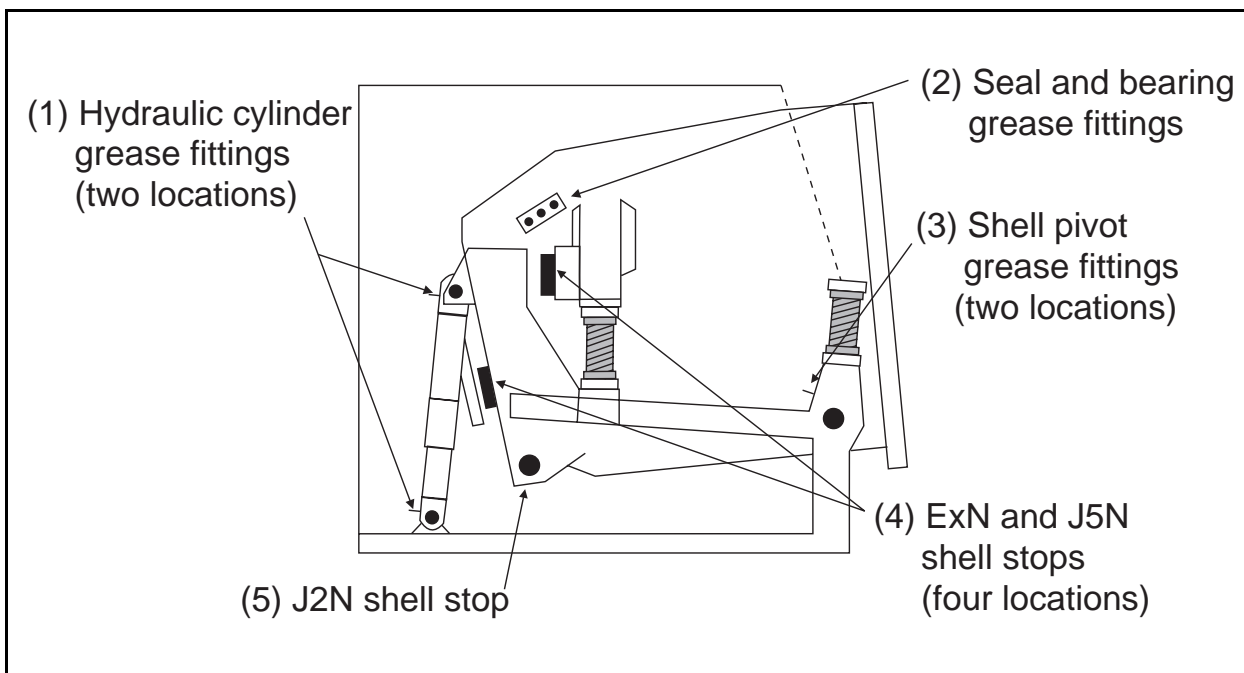
The main bearings and the jackshaft bearings (if equipped) have been prepacked with lubricant at the factory. Do not add grease for 30 days.

During the first month's operation, some grease will ooze out of the automatic grease relief fittings at the bottom of the housing(s). This is a perfectly normal condition. These relief fittings permit excess grease to escape, thus avoiding over-heating. This escaping lubricant need not be replaced. See lubrication instructions in your instruction manual for frequency of lubrication and type of lubricant.

Every time these bearings are re-lubricated, the surplus grease will come out of the spring loaded relief fittings after a few hours running time. This is a perfectly normal condition!

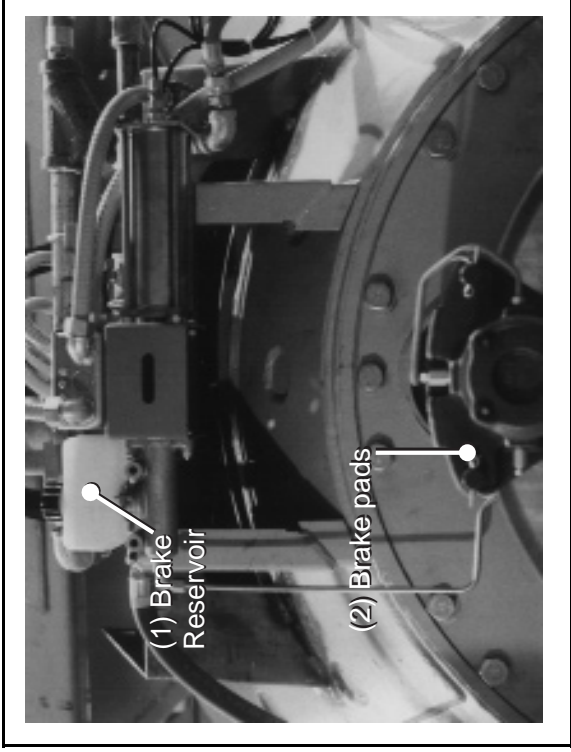
NOTE: Normal bearings can run hot enough to make it extremely uncomfortable for a person to hold his hand on the bearing housing for more than a few seconds. This is a perfectly normal condition.

**FIGURE 3** (MSSMA423AE)  
**Lubrication Notice**

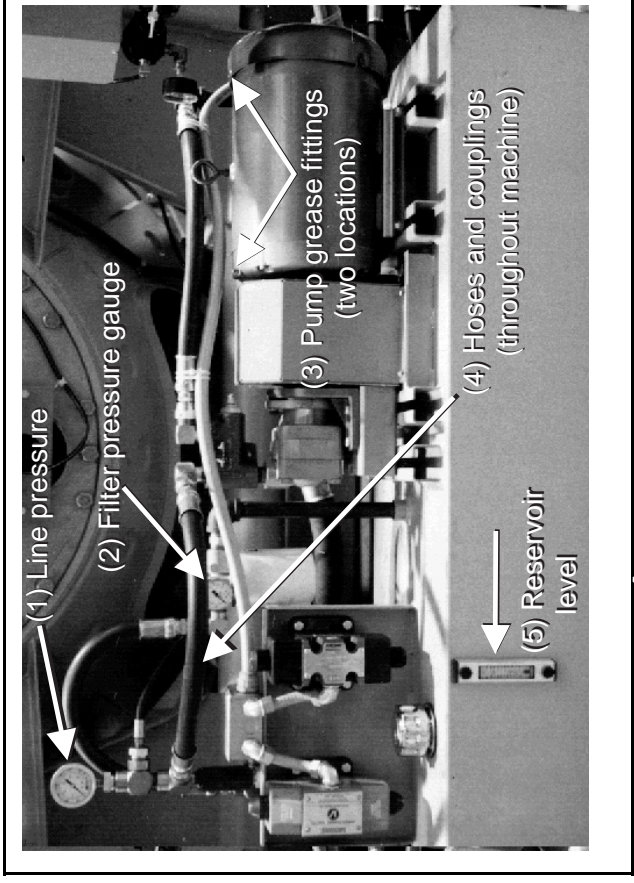


**FIGURE 4** (MSSMA423AE)  
**Hydraulic Cylinder and Shell Maintenance Points**

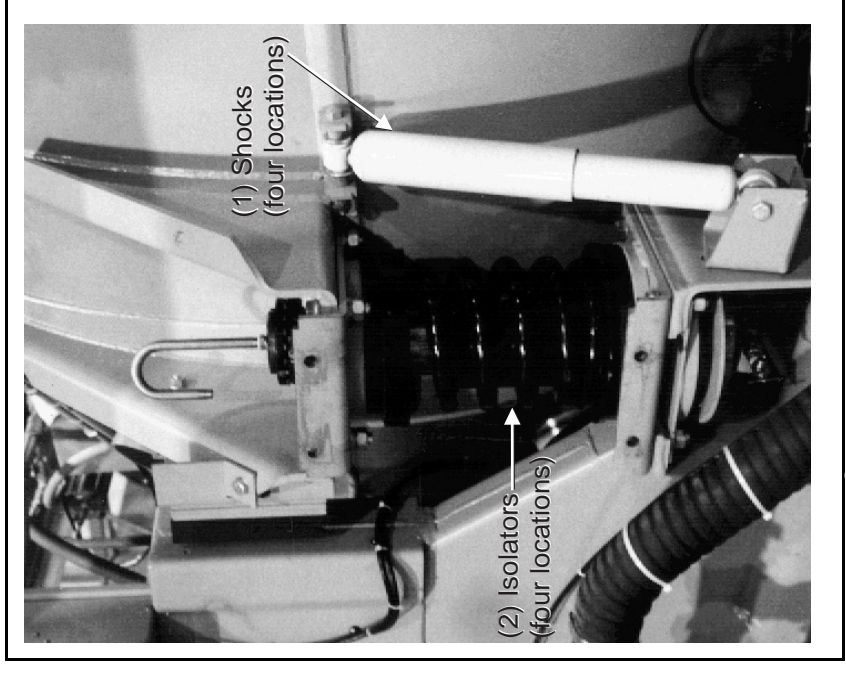




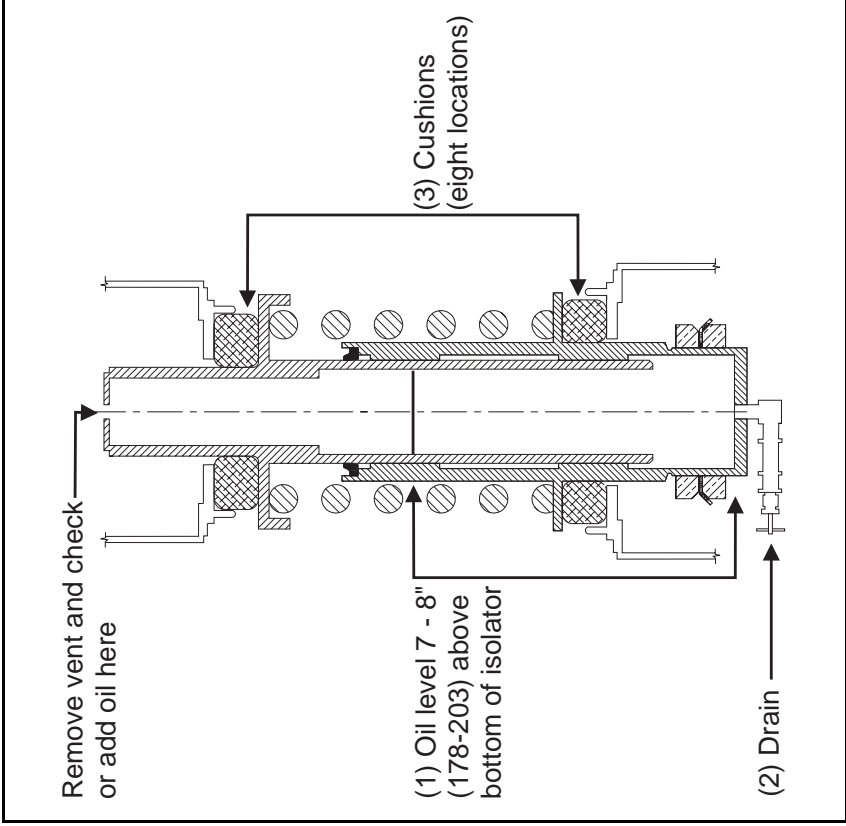
**FIGURE 5** (MSSMA423AE)  
**Brake Reservoir and Pads**  
**(E6N and J5N only)**



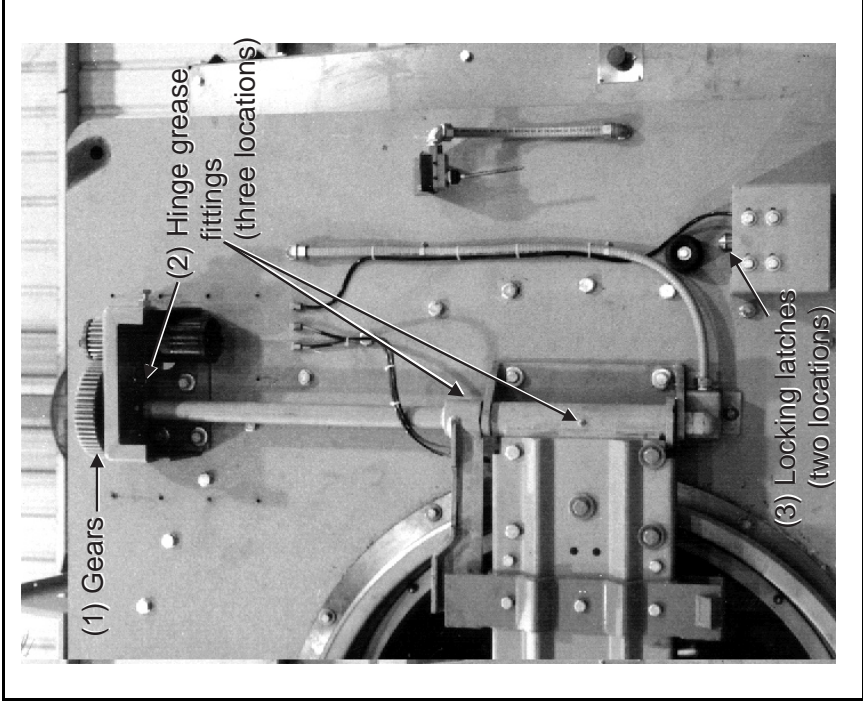
**FIGURE 6** (MSSMA423AE)  
**E6N and J5N Hydraulic System Maintenance Points**



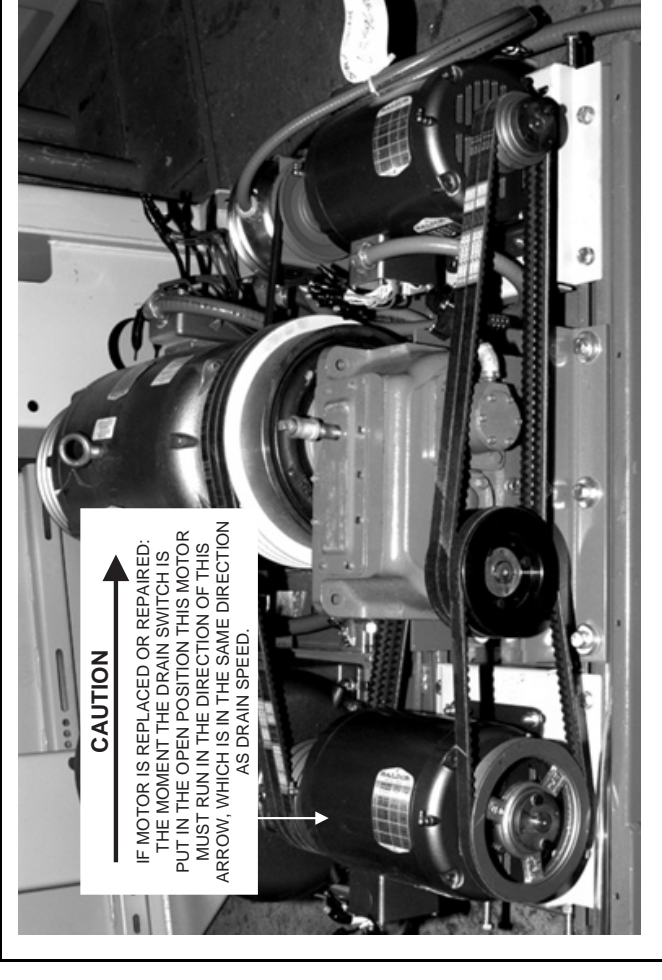
**FIGURE 7** (MSSMA423AE)  
**E6N and J5N Shocks and Isolators**



**FIGURE 8** (MSSMA423AE)  
**Isolator Details**



**FIGURE 9** (MSSMA423AE)  
**Door Maintenance Points**



**FIGURE 10** (MSSMA423AE)  
**Drain Motor Caution**



**▲ WARNING▲**

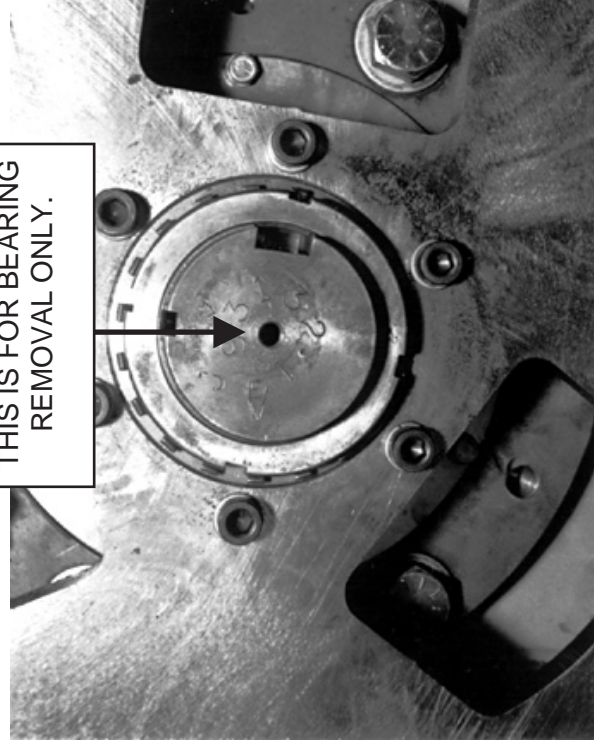
TURN OFF POWER BEFORE SERVICING PUMP OR MOTOR.

← MOTOR ROTATION



**FIGURE 11** (MSSMA423AE)  
**Hydraulic Pump Rotation**

**WARNING**  
DO NOT GREASE,  
THIS IS FOR BEARING  
REMOVAL ONLY.



**FIGURE 12** (MSSMA423AE)  
**Rear Bearing Shaft**

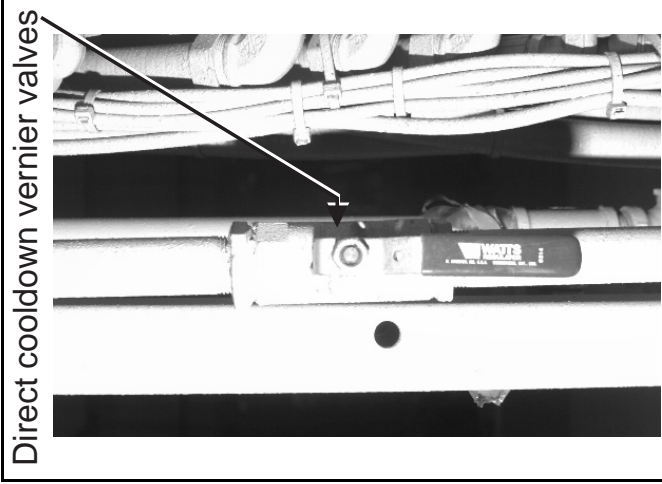
**A WHINING SOUND IS CHARACTERISTIC OF AC VARIABLE SPEED DRIVES.**

THE WHINING SOUND IS NOT INJURIOUS TO EITHER THE DRIVE OR THE MOTOR AND CANNOT BE TOTALLY ELIMINATED.

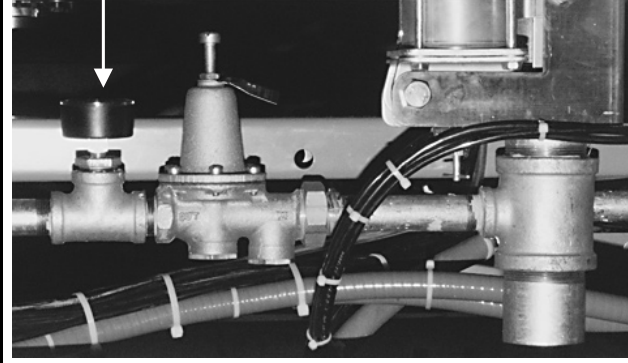
HOWEVER, IT MAY SOMETIMES BE POSSIBLE TO REDUCE THE WHINING NOISE SOMEWHAT BY ADJUSTING THE "CARRIER FREQUENCY" IN THE VARIABLE SPEED DRIVE.

REFER TO FACTORY FOR FURTHER DETAILS IF NECESSARY.

**FIGURE 13** (MSSMA423AE)  
**Variable Speed Machine**

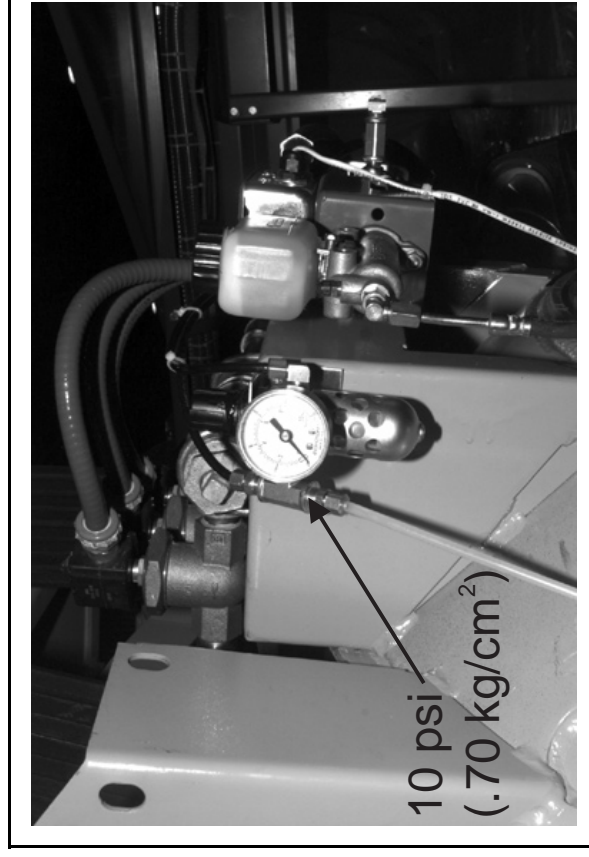


**FIGURE 14** (MSSMA423AE)  
**Cooldown Water Adjustment**

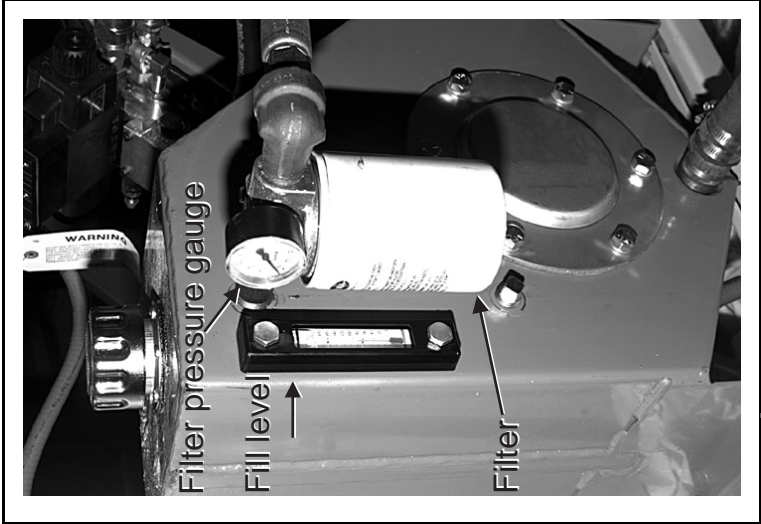


**USE HOT WATER IF IT IS AVAILABLE.**  
Set pressure regulator for 28 PSI when there is no flow of flushing or balancing water.

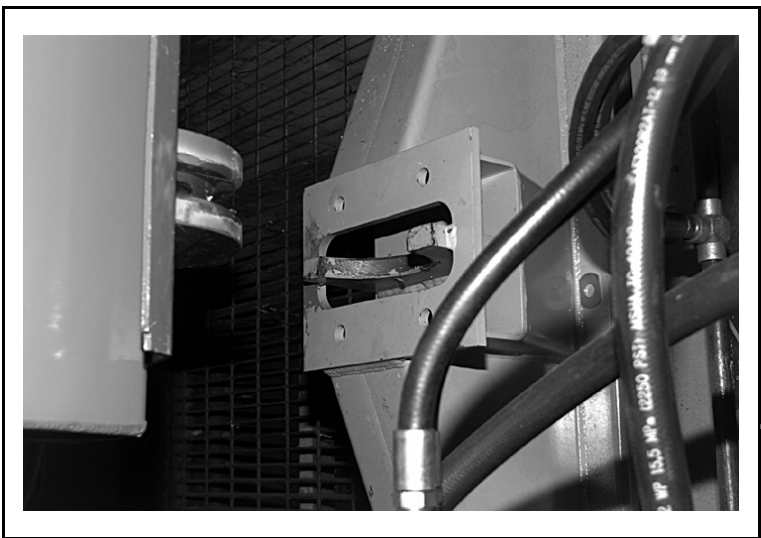
**FIGURE 15** (MSSMA423AE)  
**Water Pressure Adjustment**



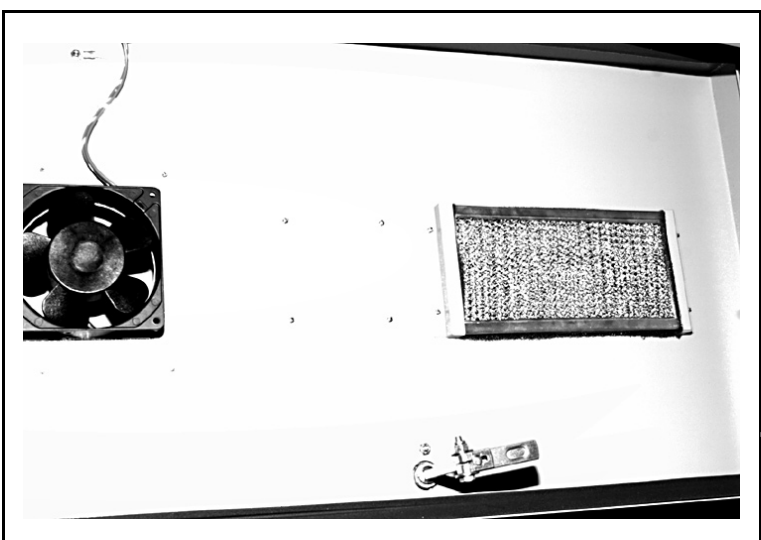
**FIGURE 16** (MSSMA423AE)  
**Main Bearing Air Pad Gauge**



**FIGURE 17** (MSSMA423E)  
**J2N Hydraulic System  
Maintenance Points**



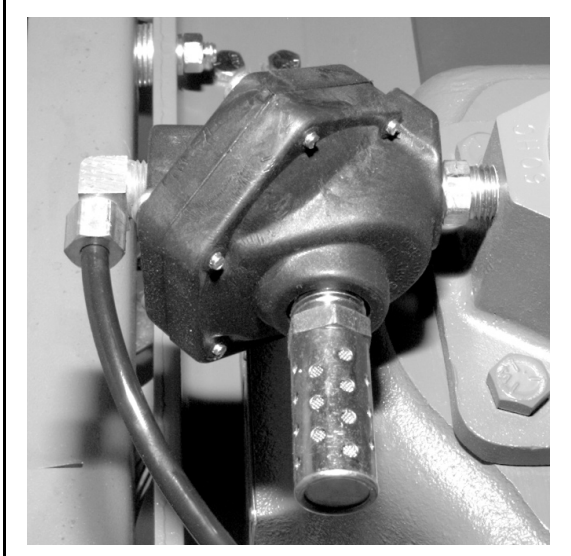
**FIGURE 18** (MSSMA423E)  
**J2N Shell Stop**



**FIGURE 19** (MSSMA423E)  
**Inverter Electrical Box  
Fan and Screen**



**FIGURE 20** (MSSMA423E)  
**Inverter Vents**



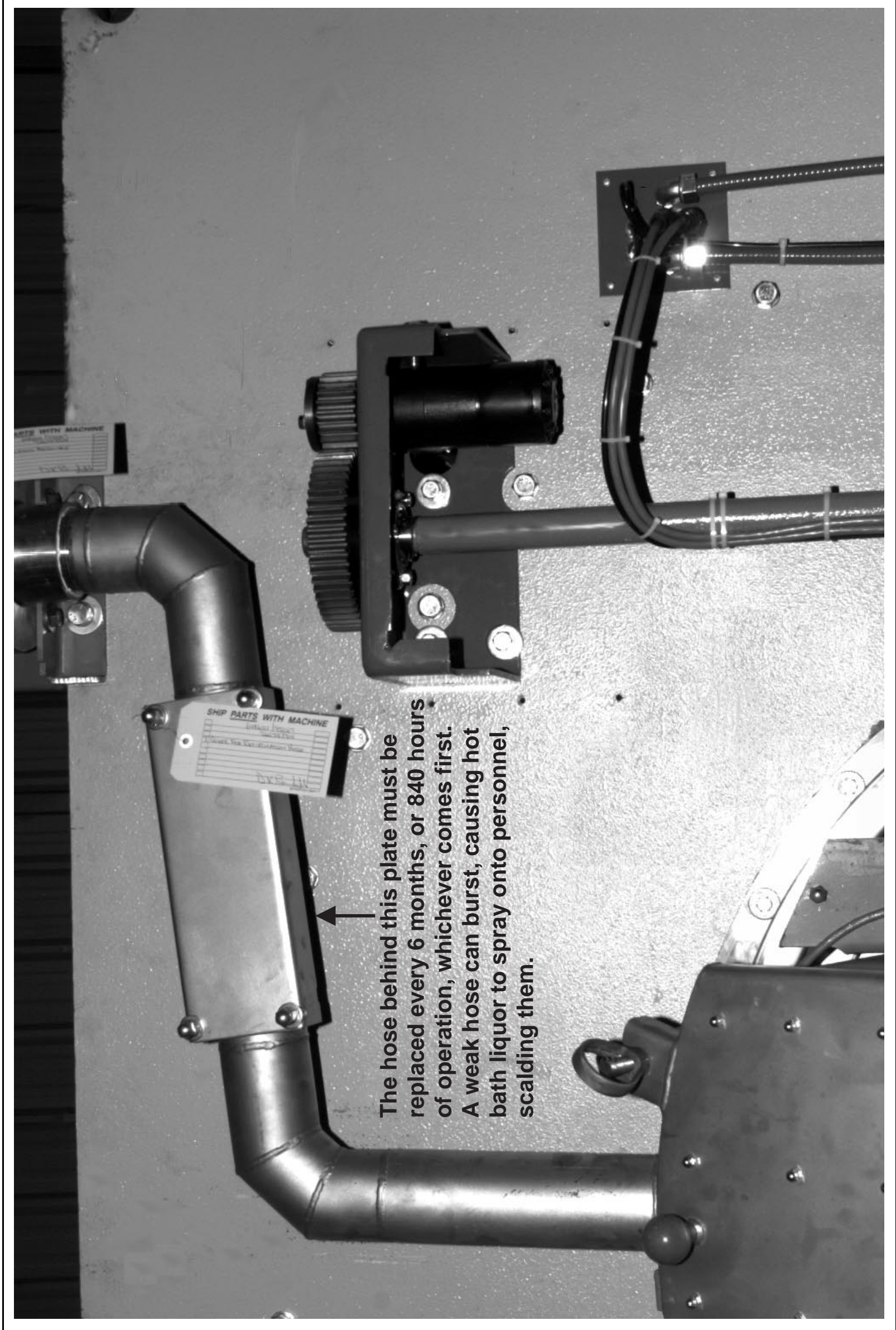
**FIGURE 21** (MSSMA423E)  
**Air Clutch Quick Release Air Valve**



**Preventive Maintenance Checklist**

| COMPONENTS   | ACTION   | FIGURE NUMBER (ITEM)                  | DAILY/8 HOURS | WEEKLY/40 HOURS | MONTHLY/200 HOURS | QUARTERLY | SEMI-ANNUALLY | ANNUALLY |
|--|--|---------------------------------------|---------------|-----------------|-------------------|-----------|---------------|----------|
|  |  |                                       |               |                 |                   |           |               |          |
| <b>PULLEYS AND BELTS</b>                                 |  |                                       |               |                 |                   |           |               |          |
| • Pulley sheaves and belts                               | Check for wear, replace if required  | FIGURE 2, (1)                         |               |                 | X                 |           |               |          |
| <b>MOTOR BEARINGS AND GEAR REDUCER</b>                   |  |                                       |               |                 |                   |           |               |          |
| • Drive gear reducer                                     | Check level at plug, add oil as required   | FIGURE 2, (2)                         |               |                 |                   |           | X             |          |
|  | Change oil (drain valve below)   |                                       |               |                 |                   |           |               | X        |
| • Centrifugal switch                                     | Check brushes for wear, replace if required  | FIGURE 2, (6)                         |               |                 | X                 |           |               |          |
| • Jackshaft  | 0.18 ounces (5.31 grams) (three strokes) at two locations  | FIGURE 2, (5)                         |               |                 | X                 |           |               |          |
| • Low extract motor                                      | See "BALDOR MOTOR MAINTENANCE..." MSSM0274AE in this manual.   | FIGURE 2, (4)                         |               |                 |                   |           |               |          |
| • Drain motor (NOTE)                                     |  | FIGURE 2, (3)                         |               |                 |                   |           |               |          |
| • High extract motor (NOTE)                              |  | FIGURE 2, (7)                         |               |                 |                   |           |               |          |
| • Wash motor   |  | FIGURE 2, (8)                         |               |                 |                   |           |               |          |
| • Air clutch quick release valve                         |  | Change internal diaphragm             | FIGURE 21     |                 |                   |           |               |          |
| <b>BEARING HOUSING</b>                                   |  |                                       |               |                 |                   |           |               |          |
| • Front bearing grease fitting                           | Slowly grease: 1.87 ounces (53.1 grams), thirty strokes at one location  | FIGURE 4, (2)                         |               |                 | X                 |           |               |          |
| • Rear bearing grease fitting                            | Slowly grease: 0.62 ounces (17.7 grams), ten strokes at one location   |                                       |               |                 | X                 |           |               |          |
| • Seal grease fitting (except J2N)                       | Slowly grease: 0.19 ounces (5.31 grams), three strokes at one location   |                                       |               |                 | X                 |           |               |          |
| • J2N Seal grease fitting                                |  |                                       |               | X               |                   |           |               |          |
| • Main bearing air pad gauge                             | Verify pressure: 10 psi (.70 kg/cm <sup>2</sup> )  | FIGURE 16                             |               |                 | X                 |           |               |          |
| <b>BRAKING</b>   |  |                                       |               |                 |                   |           |               |          |
| • Reservoir (NOTE)                                       | Check levels, add fluid if required  | FIGURE 5, (1)                         |               |                 | X                 |           |               |          |
| • Pads/Shoes   | Check for wear, replace if required  | FIGURE 5, (2)                         |               |                 | X                 |           |               |          |
| <b>HYDRAULIC</b>   |  |                                       |               |                 |                   |           |               |          |
| • Hydraulic cylinders                                    | 0.12 ounces (3.54 grams) (two strokes) at two locations  | FIGURE 4, (1)                         |               |                 | X                 |           |               |          |
| • Shell pivot  | 0.12 ounces (3.54 grams) (two strokes) at two locations  | FIGURE 4, (3)                         |               |                 | X                 |           |               |          |
| • Shell stop(s)  | Check for wear, replace if required  | FIGURES 4, (4, 5) and 18              |               |                 |                   |           | X             |          |
| • Line pressure  | Check pressure while tilting to the load position 900-1000 PSI (66.6 Bar)                                      | FIGURE 6, (1)                         | X             |                 |                   |           |               |          |
| • Filter   | Replace  | FIGURE 6, (2) FIGURE 17               |               |                 |                   |           | X             |          |
| • Filter pressure  | Check pressure while machine is tilting to the load position 30-60 PSI (2-4 Bar)                               |                                       |               | X               |                   |           |               |          |
| • Pump motor   | 0.12 ounces (3.54 grams) (two strokes) at two locations  | FIGURE 6, (3) FIGURE 11               |               |                 |                   |           | X             |          |
| • All hoses/couplings                                    | Check for leaks, cracks, and bulges  | FIGURE 6, (4), and throughout machine |               |                 | X                 |           |               |          |
| • Reservoir level  | Check level, add if below black mark on gauge (machine tilted to load position)                                | FIGURES 6, (5) and 17                 | X             |                 |                   |           |               |          |
|  | Replace fluid, ExN and J5N models - 47.5 U.S. Gallons (179.9 Liters)<br>J2N - 11.5 U.S. Gallons ( 43.4 Liters) |                                       |               |                 |                   |           |               | X        |
| <b>SHOCKS AND ISOLATORS</b>                              |  |                                       |               |                 |                   |           |               |          |
| • Shocks   | Check for leaks, replace as required (four locations)  | FIGURE 7, (1)                         |               |                 |                   |           | X             |          |
| • Isolators  | Check oil  | FIGURE 7 (2), and 8 (1)               |               |                 |                   | X         |               |          |
|  | Replace oil  | FIGURE 8, (2)                         |               |                 |                   |           |               | X        |
| • Isolator cushions                                      | Check cushions for cracks, deterioration at eight locations  | FIGURE 8, (3)                         |               |                 | X                 |           |               |          |
| <b>DOORS</b>   |  |                                       |               |                 |                   |           |               |          |
| • Gears  | Lubricate  | FIGURE 9, (1)                         |               |                 | X                 |           |               |          |
| • Hinges   | 0.12 ounces (3.54 grams) (two strokes) at three locations  | FIGURE 9, (2)                         |               |                 | X                 |           |               |          |
| • Locking latches  | Lubricate (two locations)  | FIGURE 9, (3)                         |               |                 | X                 |           |               |          |
| <b>RECIRCULATION</b>                                     |  |                                       |               |                 |                   |           |               |          |
| • All recirculation hoses and couplings (if so equipped) | Check for leaks, cracks, and bulges. Replace door hose every 6 months, or 840 hours, whichever occurs first.   | FIGURE 22                             |               |                 | X                 |           |               |          |
| <b>INVERTER</b>  |  |                                       |               |                 |                   |           |               |          |
| • Inverter, fan, and screen                              | Vacuum out electrical box and inverter vents. Clean screen, verify fan operation.                              | FIGURES 19 and 20                     |               | X               |                   |           |               |          |

NOTE: ExN and J5N models only



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

**FIGURE 22 (MSSMA423AE)**  
**Recirculation Equipped Machines**



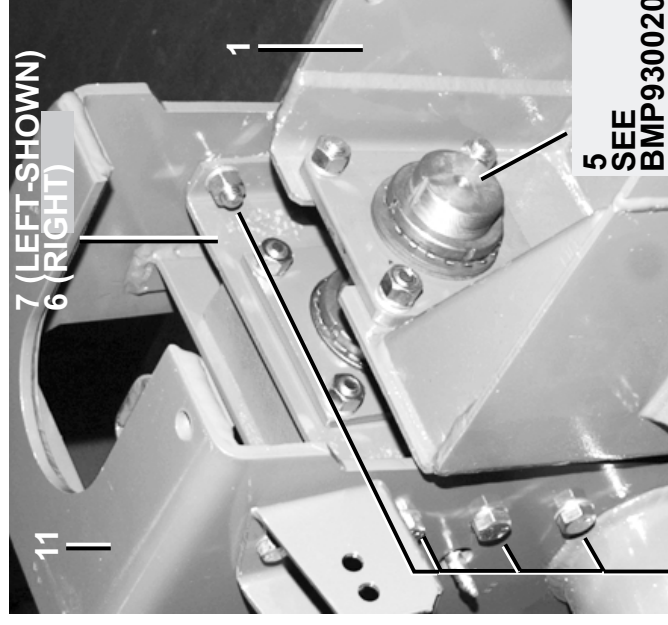
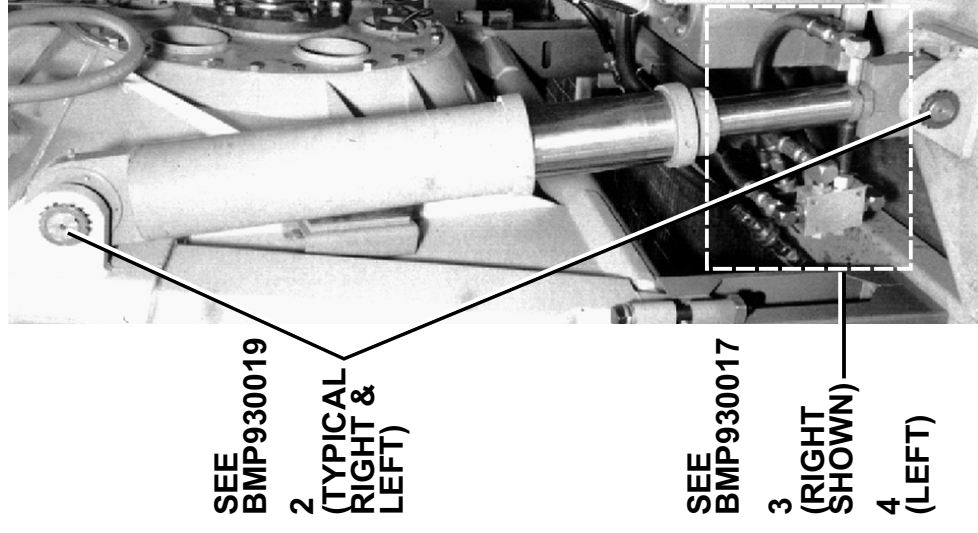
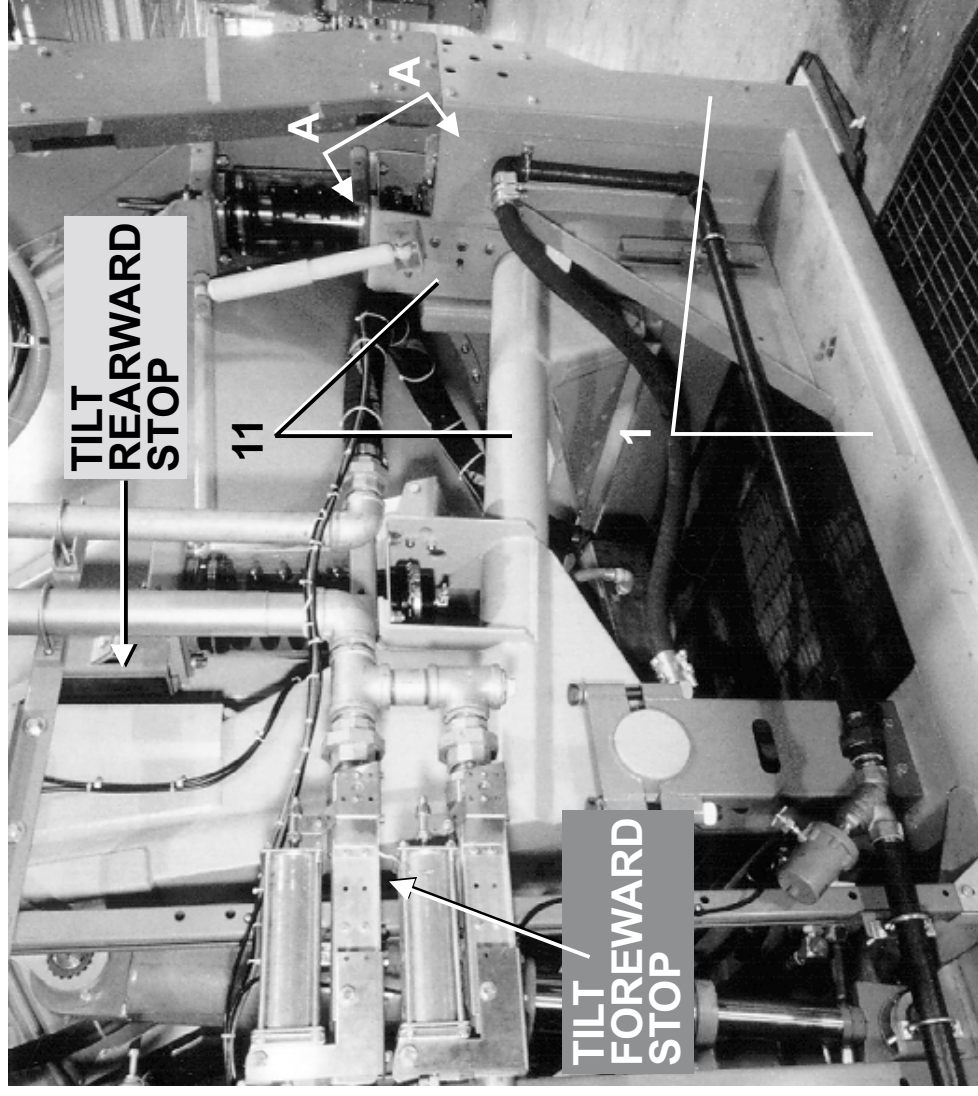
# Installation Frame, Pivots & Hydraulics

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

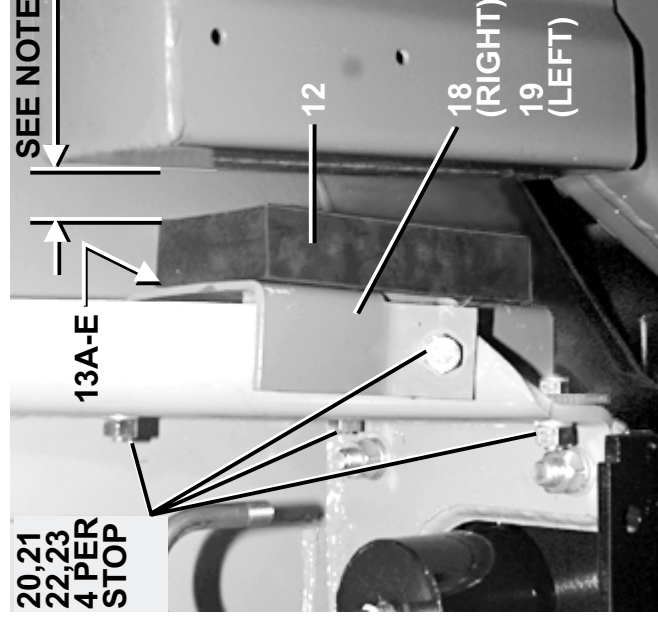
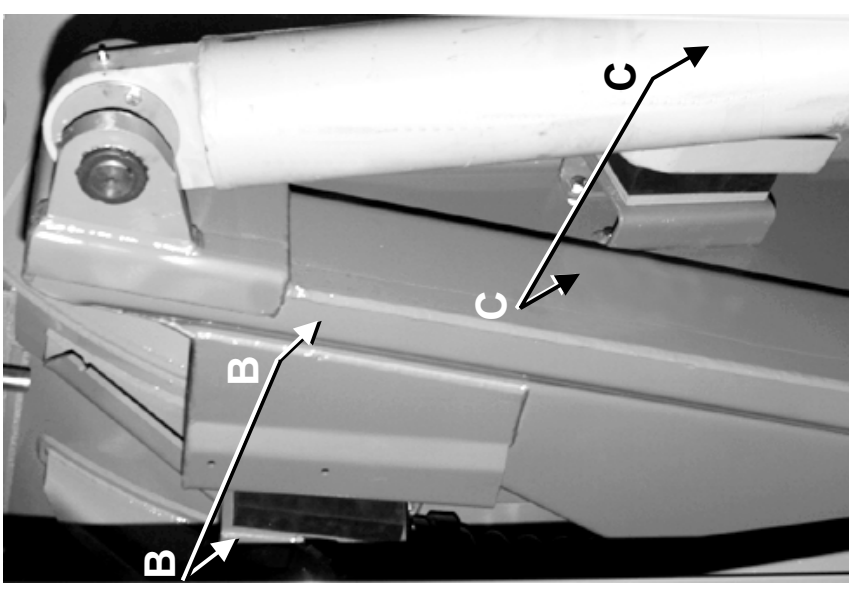
BMP930021/2000077V  
(Sheet 1 of 2)

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

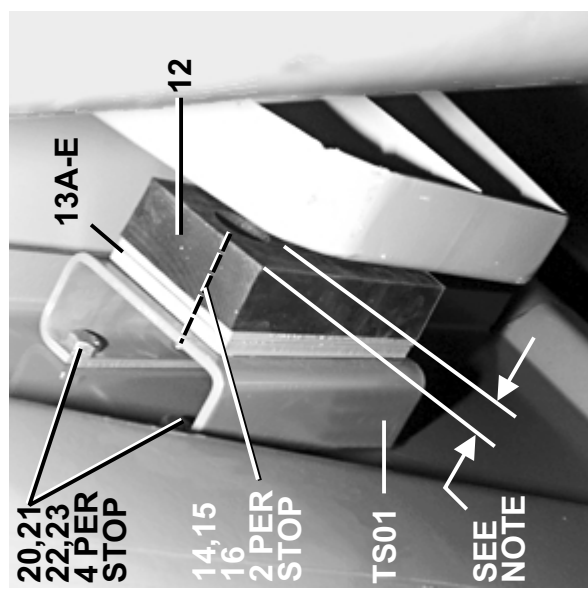
Litho in U.S.A.



VIEW A-A



VIEW B-B



VIEW C-C

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



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

Litho in U.S.A.

**Parts List—Installation Frame, Pivots & Hydraulics**

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

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