MAXIEM®, EnduroMAX® and Legacy OMAX® Pumps
Water-Filter Change
Maintenance Guide

Introduction

EnduroMAX (30-100 hp), MAXIEM (20-40 hp) and legacy OMAX pumps require preventative maintenance to provide optimum performance. OMAX recommends changing the water filters as soon as the filter gauges indicate a 20+ psi difference in pressures.

Dirty filters diminish pump performance over time, which affects waterjet cutting power and precision. The following maintenance guide provides manufacturer recommended instructions on when to change water filters and how to perform this maintenance.

Figure 1

① MAXIEM 20-30 hp plastic water filter  ② MAXIEM 40 hp metal water filter  ③ EnduroMAX 100 hp metal water filter  ④ EnduroMAX 30-50 hp metal water filter
Safety

The following safety instructions must be followed when installing, operating or servicing OMAX equipment. If ignored, physical injury or death may follow, or damage may occur to the equipment. Always observe applicable safety precautions when working with this equipment.

**WARNING!**
Indicates the presence of life-threatening voltages. Never access areas labeled as such without first taking appropriate safety precautions: locking out power, verifying no voltage present on circuits prior to maintenance activities, etc.

**WARNING!**
Indicates potential health, physical and environmental hazards which, if not avoided, can result in serious damage to the product or injury or death. Always proceed using extreme caution.

**MANDATORY ACTION!**
**Lock out power**
Never do maintenance on your OMAX equipment with the main AC disconnect ON, unlocked, or with the pump in operation. Always follow standard lockout/tagout procedures.

**MANDATORY ACTION!**
**Read the user’s guide**
Read your equipment’s user’s guide for specific operator instructions and additional safety requirements.

**Wear Gloves**
Bacteria in the tank water can build up. A minor break in the skin can introduce harmful bacteria into a wound. Always wear protective gloves if you have cuts or open wounds on your hands. When setting up material for cutting, wear gloves that provide protection against sharp metal edges.

**Eye Protection**
Always wear approved safety goggles whenever cutting. Regular glasses do not provide sufficient eye protection! Have an eyewash station located near the work area in the event abrasive spray splashes into your eyes. The garnet abrasive is not a chemical irritant, but if not quickly washed out, it can injure an eye just as any sand would. In addition, tank water could contain particles from the material or chemicals irritants.
## Required Tools

<table>
<thead>
<tr>
<th>Icon</th>
<th>Tool</th>
<th>Size(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>Open-end wrench</td>
<td>1 in., 11/16 in. (17mm)</td>
</tr>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>Metal water-filter wrench (Based on pump model)</td>
<td></td>
</tr>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>Plastic water-filter wrench (Based on pump model)</td>
<td></td>
</tr>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>Lubriplate DS-ES lubricant</td>
<td></td>
</tr>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>Blue Goop®</td>
<td></td>
</tr>
</tbody>
</table>

4 401074A-EN
Maintenance Schedule

To avoid excessive wear and damage to high-pressure pump and machine parts, change the pump water filters according to the intervals specified in the following table:

<table>
<thead>
<tr>
<th>Operating Conditions/Pump Usage</th>
<th>Filter-Change Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal operation</td>
<td>Whenever a 20 psi or greater difference is observed between pump water-filter inlet and outlet pressures.*</td>
</tr>
</tbody>
</table>

*See the following section for instructions on how to perform a filter check.
Filter Check

There are **two gauges** mounted to the sides of the **water filter heads**. Use these gauges to check for dirty filters.

- The input gauge measures pressure before the prefilter.
- The output gauge measures pressure after the final filter.

**NOTE:**
Gauge orientations and locations may differ by pump model. Use the labels on top of the water filter heads to accurately identify the prefilter, final filter and related gauges.

![Figure 2](image)

1. Perform a pump start-up, as described in the user guide.
1. Perform a **Water Only, High Pump Pressure** nozzle test, as described in the machine users guide.

2. During the test, read the **prefilter gauge pressure** and the **final filter gauge pressure**. If the pressure difference is 20 psi or greater, the filters should be changed.

**NOTE:**
The following figure is for reference only. Normal operating prefilter pressures vary by pump model. See the pump user's guide for correct prefilter pressures.

![Figure 3](image)
Preparation

1. Ensure the work area is free of garnet and other debris by thoroughly wiping the pump clean prior to starting work.

2. Perform a complete machine shutdown.

3. Turn the water and air supply OFF.

4. Bleed-off any residual air pressure from the system by removing the airline from the main air source and ensure there is no pressurized water in the high-pressure lines.

5. Place a sheet of cardboard or similar protection under the nozzle assembly on the machine to prevent components from falling into the tank.

**NOTE:**
See 400715 MAXJET® 5i Nozzle Installation and Maintenance for complete 5i nozzle removal instructions.

6. Remove the nozzle, mixing tube components and final filter from the machine as described in the manual (A-Jet® nozzles use a final filter screen).

7. Clear the slats of cardboard or other materials.

8. Remove or open the covers on the machine. Depending on machine, top and side covers may require removal to access water filters.
CAUTION!
MAXIEM pumps require an additional preparation step prior to beginning work. This procedure is explained in the next section on depressurizing and draining.
Depressurizing and Draining (MAXIEM Pumps)

**CAUTION!**
Never service filters on MAXIEM pumps without depressurizing the water filter system. Opening pressurized water filters may cause injuries.

A **ball valve** ① at the side of the filters opens the drain and releases water pressure from the system.

![Figure 6](image)

1. Push the **ball valve** down to open the drain.
2. Water will drain into the **catcher tank** from one of the two **large hoses** ② routed through the **drain bracket** ①.
3. Once all water is drained, pull the **ball valve** closed.

![Figure 7](image)
Water Filter Removal and Replacement

NOTE: Use the filter housing removal tool supplied with your pump.

1. Insert the appropriate tool for your filter type.

Figure 8

2. Loosen the **filter housing** on the plastic housings or the metal **filter nut** on the metal housings.

Figure 9
3. Unscrew the plastic filter housings or the metal filter nut by hand. Once unscrewed, gently pull the housings and then the filters down by hand to unseat from them from the filter heads.

4. Remove and properly dispose of the two filters from the housings.

5. Wash and rinse the inside of the filter housings to remove all sediment and coatings. Ensure the threads are clean and free from debris.

6. Remove the O-rings from the brass filter heads and clean and inspect for damage. Replace the O-ring if it has been pinched or damaged. The O-ring inside the plastic filter housing does not require removal unless it has been pinched or damaged.

7. Clean the filter heads on the water filter assembly with a wet rag. Ensure the threads are clean and free from debris.

8. Apply a light coat of Lubriplate grease to each O-ring. Use a finger to coat the exposed edge of the O-ring inside the plastic filter housing.

9. Apply a light coat of Lubriplate grease to the O-ring on the new, replacement 1 micron prefilter and insert the prefilter onto the sleeve inside filter head.

10. Apply a light coat of Lubriplate grease to the new, replacement 0.5 micron final filter and insert the filter onto the sleeve inside the filter head.

**NOTE:**
Avoid pinching the O-ring by properly aligning the housing with the head when re-installing. Do not over-tighten!

11. After replacing the two filters, reinstall the water filter housings by hand. Use the appropriate water filter housing tool to tighten the housing and ensure the O-rings properly seal.
Flushing and Purging

Once maintenance is complete, the waterjet machine and pump water filter system must be flushed of debris.

NOTE:
See 401082A-EN, Post-Maintenance Machine Flush for the waterjet machine flushing procedure.

1. Turn **ON** the **main water supply**.

2. Turn the charge pump **ON**.

3. Allow the water to run for several minutes so all debris is flushed from the system.

NOTE:
Plastic water filters must be manually purged of air. The charge pump cannot develop sufficient pressure and the main pump will shut down if not all air is purged.

1. Place a clean rag over the top of the canister to prevent water from spraying out of the canister. Hold down the red **air bleed buttons** to purge the air.

2. When fully purged, both pressure gauges should read 0 psi.
Ready for Service

1. Ensure the work area is free of garnet and other debris by thoroughly wiping the machine and pump clean.

2. Perform a post-maintenance flush to clear the high-pressure system of debris. See 401082 Maintenance, Perform Post-Maintenance Flush for complete instructions.

3. Place a piece of cardboard or other material over the slats of the working area so that tools or hardware do not fall in the tank.

   **NOTE:**
   
   See 400715 MAXJET 5i Nozzle Installation and Maintenance Manual for complete 5i nozzle installation instructions.

4. Reinstate the nozzle, mixing tube components and final filter onto the machine as described in the manual (A-Jet nozzles use a final filter screen).

5. Inspect the system for leaks and repair as necessary.

6. Return all side panels and covers to their original pump locations.
Customer Support

Refer to the omax.com web site for technical support contact information.

Original Instructions in English
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