

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.

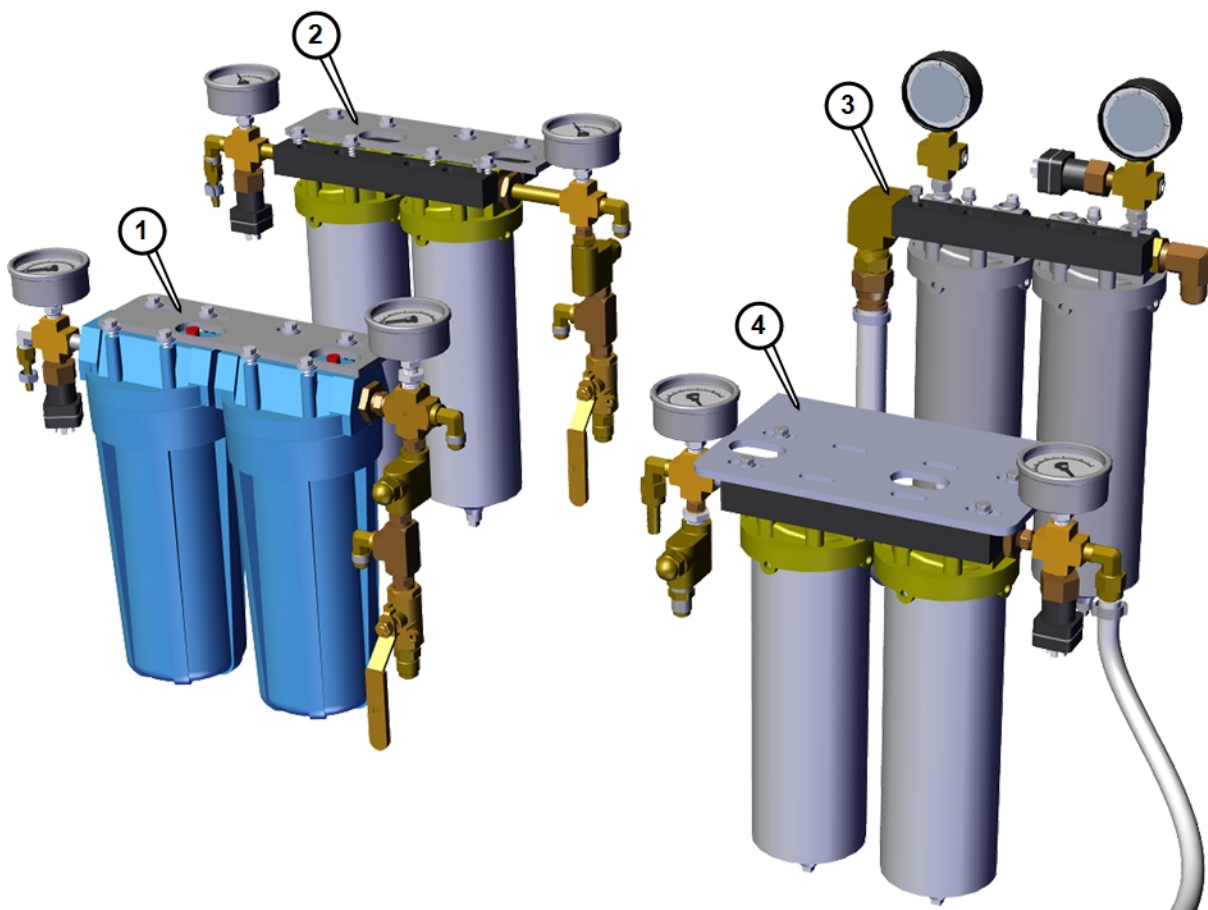


Figure 1

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

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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

Icon	Tool	Size(s)
	Open-end wrench	1 in., 11/16 in. (17mm)
	Metal water-filter wrench (Based on pump model)	
	Plastic water-filter wrench (Based on pump model)	
	Lubriplate DS-ES lubricant	
	Blue Goop®	

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:

Operating Conditions/Pump Usage	Filter-Change Frequency
Normal operation	Whenever a 20 psi or greater difference is observed between pump water-filter inlet and outlet pressures.*

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

Filter Check

There are **two gauges** ① 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.

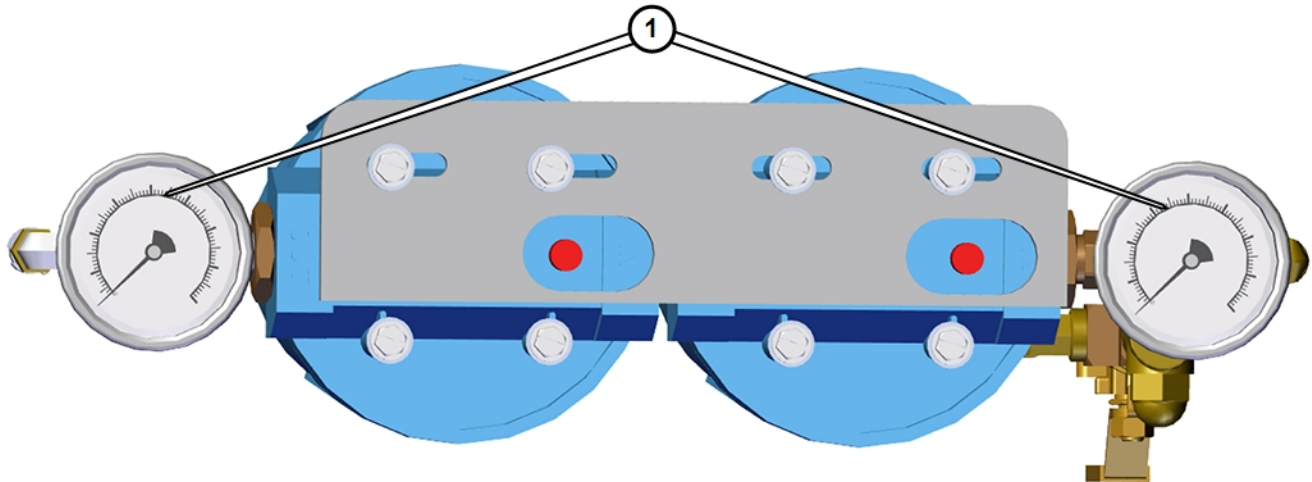


Figure 2

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** ① and the **final filter gauge pressure** ②. 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.

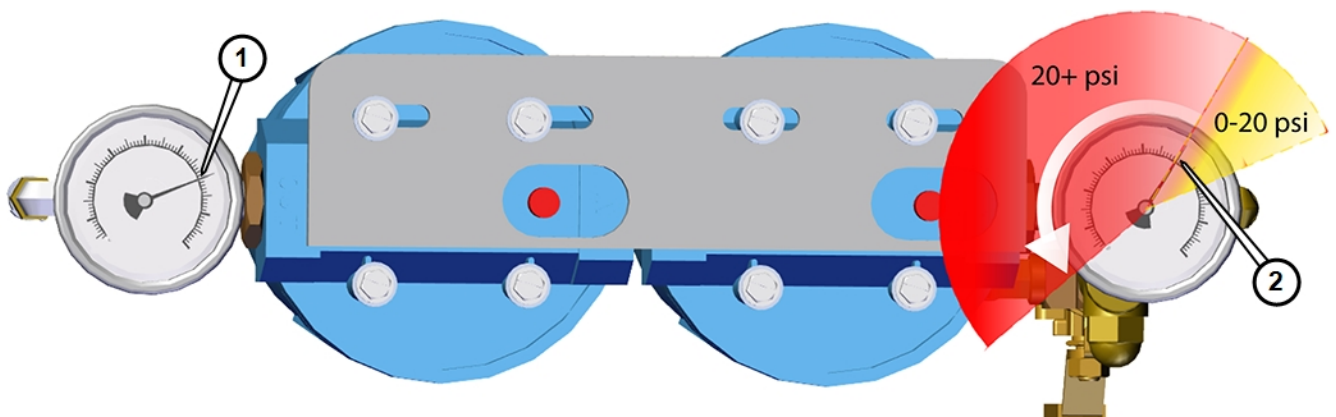


Figure 3

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** ① from the **machine** as described in the manual (A-Jet® nozzles use a **final filter screen**).

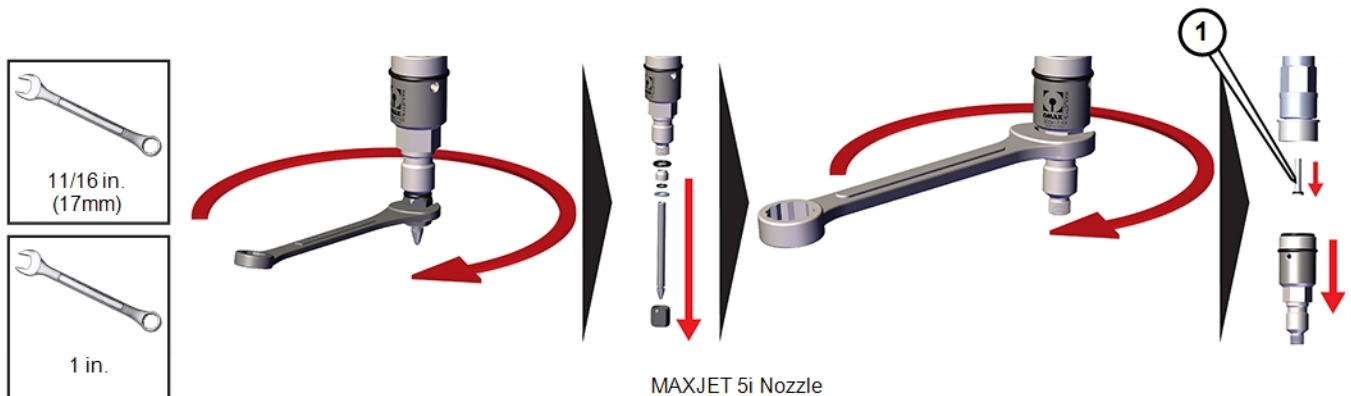


Figure 4

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.

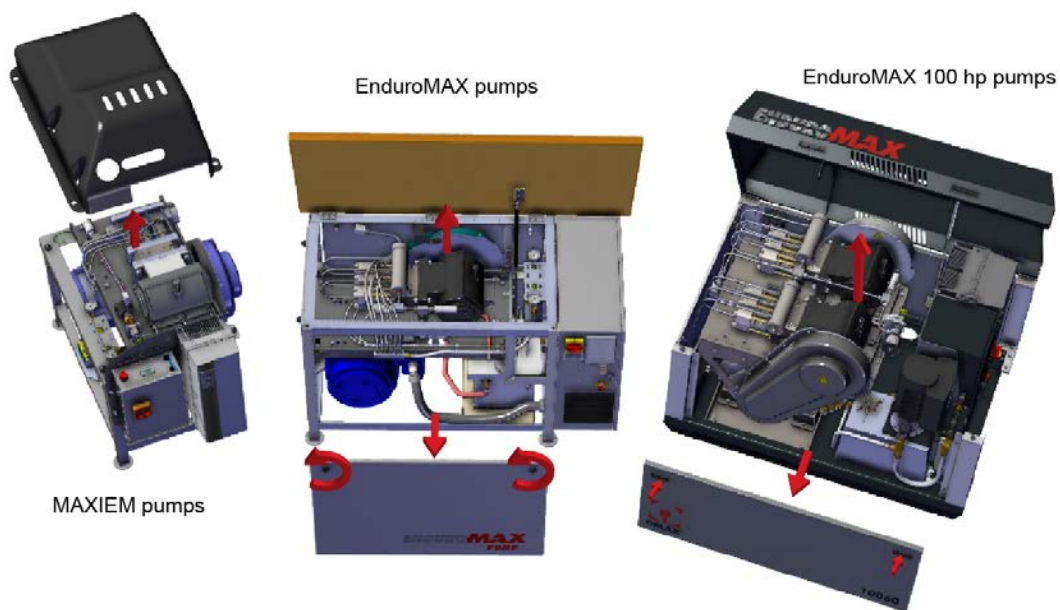


Figure 5



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.

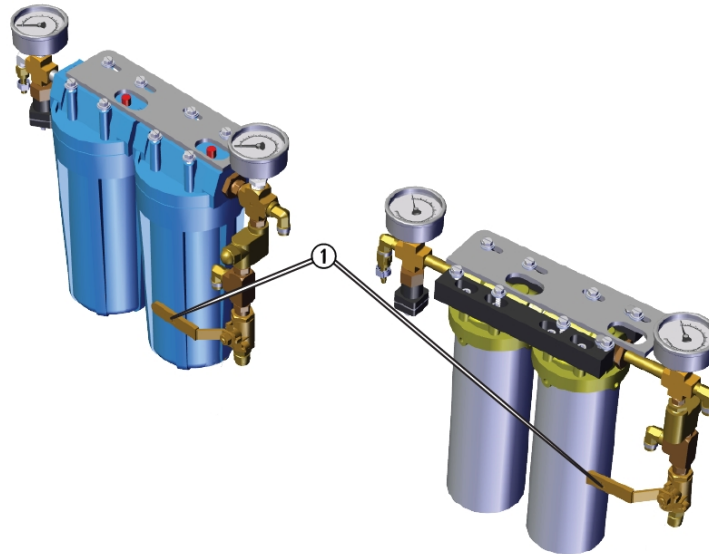


Figure 6

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

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.

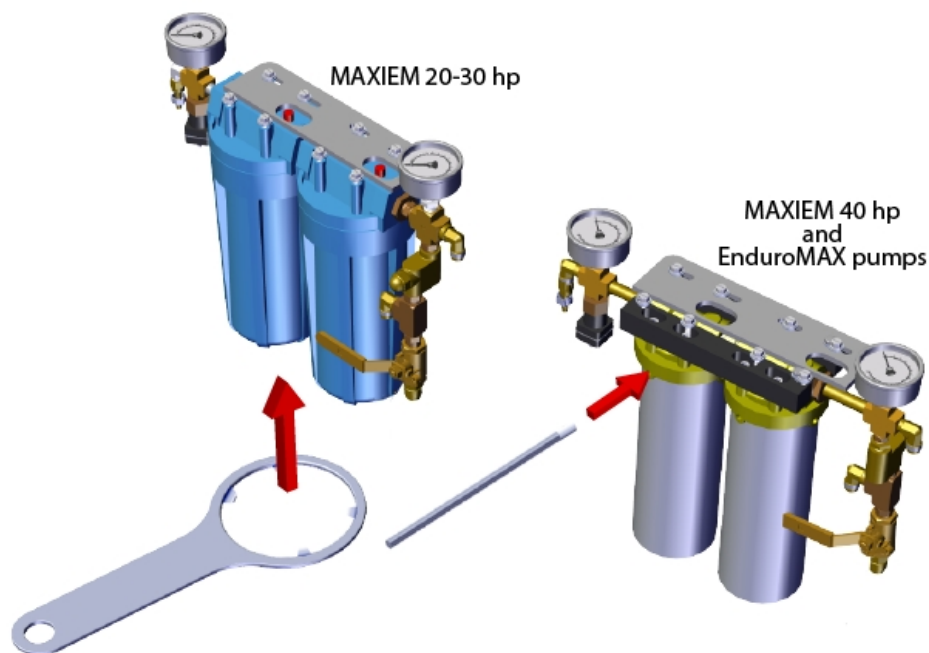
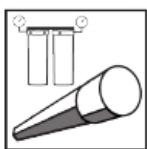


Figure 8

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

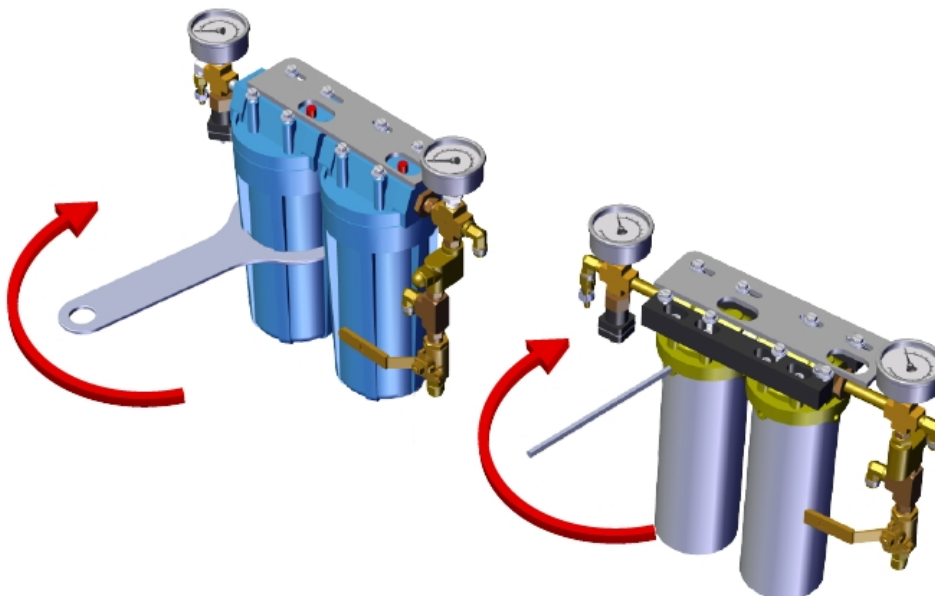
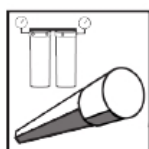


Figure 9

**NOTE:**

Avoid spilling the contents of the water filter housing on pump components during removal. Keep each housing upright until safely away from the pump.

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.



Figure 10

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** ①.

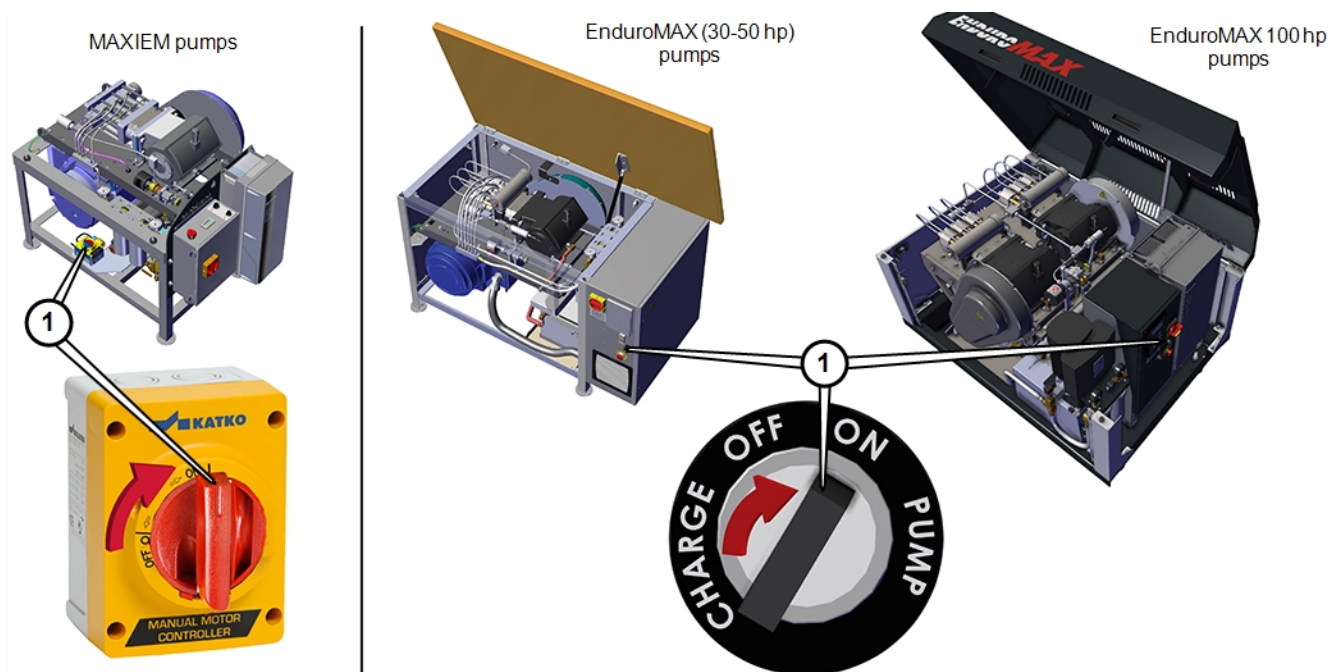


Figure 11

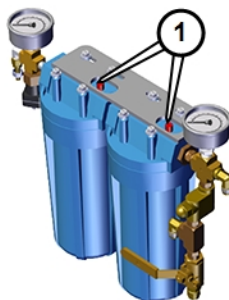
3. Allow the water to run for several minutes so all debris is flushed from the system.



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** ① 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. Reinstall 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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