



Installation Instructions & Owner's Manual

ClearHome™ Whole-House Cartridge Filter Housing



Model AOS-CH-1000

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PRODUCT INFORMATION

MODEL NUMBER:

SERIAL NUMBER:

WATER TREATMENT PROFESSIONAL:

Your A. O. Smith water filter is a precision built, high-quality product. This unit will deliver filtered water for many years to come when installed and operated properly. Please study this manual carefully and understand the cautions and notes before installing. This manual should be kept for future reference. If you have any questions regarding your water filter, contact your water treatment professional.

Pre-Installation

The manufacturer has pre-assembled the cartridge filter tank. The actual cartridge filter is shipped separately and will need to be installed into the tank to complete assembly.

The installer should read this complete guide to familiarize themselves with assembly, installation, and operation of the cartridge filter.

The owner should read and become familiar with the cartridge replacement change out instructions.

NOTE: Water treatment professionals and customers in the state of Iowa must complete the form below prior to sale.

The site selection for the ClearHome™ Whole-House Cartridge Filter may vary depending on the purpose it will serve. This versatile filter may be used as pre- or post-filtration in a water treatment system. Depending on the application, this filter may also be utilized as a single tank system.

Regardless of application, provisions should be made so that the filter is located close to a drain. A bottom drain is included for this cartridge filter to allow rinsing of the cartridge. When replacing the cartridge, water may spill from the housing. Therefore, precautions should be taken to prevent any damage due to water while rinsing or replacing the cartridge.

NOTE: Do not use with water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the filter. Units certified for cyst reduction may be used on disinfected waters that may contain filterable cysts.

FOR PURCHASES MADE IN IOWA

This form must be signed and dated by the buyer and seller prior to the consummation of this sale. This form should be retained on file by the seller for a minimum of two years.

Buyer's Name (printed)

Buyer's Signature

Date

Seller's Name (printed)

Seller's Signature

Date

Bypass Valve

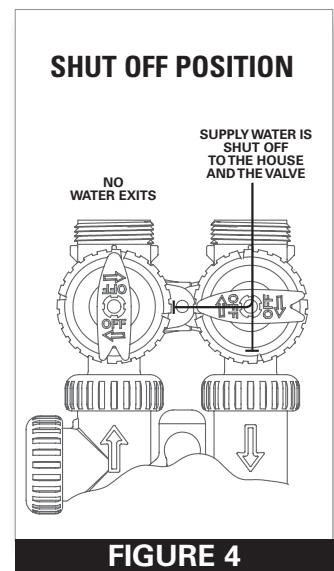
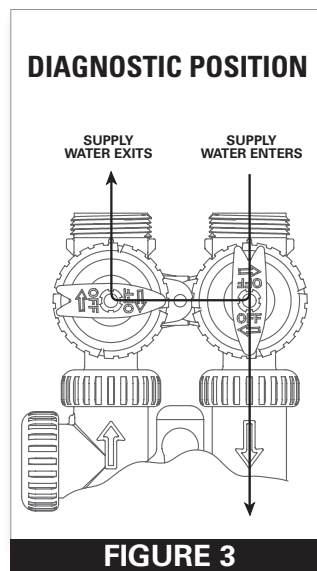
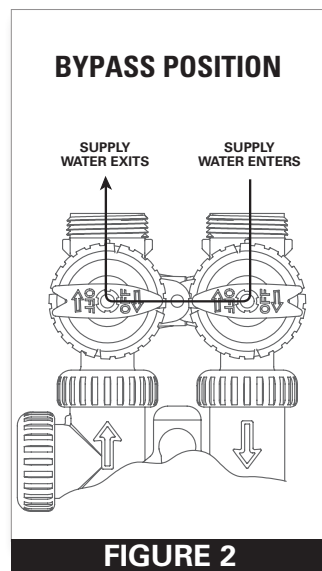
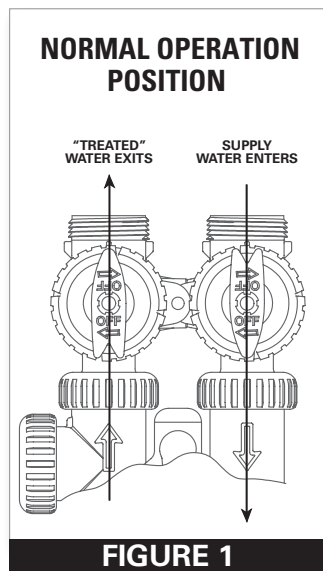
The bypass valve is typically used to isolate the control valve from the plumbing system's water pressure in order to perform control valve repairs or maintenance. The 1" full flow bypass valve incorporates four positions, including a diagnostic position that allows a service technician to have pressure to test a system while providing untreated bypass water to the building. Be sure to install bypass valve onto main control valve before beginning plumbing or make provisions in the plumbing system for a bypass. The bypass body and rotors are glass-filled resin and the nuts and caps are glass-filled polypropylene. All seals are self-lubricating EPDM to help prevent valve seizing after long periods of non-use. Internal "O" Rings can easily be replaced if service is required.

The bypass consists of two interchangeable plug valves that are operated independently by red arrow shaped handles. The handles identify the direction of flow. The plug valves enable the bypass valve to operate in four positions.

- 1. NORMAL OPERATION POSITION:** The inlet and outlet handles point in the direction of flow indicated by the engraved arrows on the control valve. Water flows through the control valve for normal operation of a water softener or filter. During the regeneration cycle this position provides regeneration water to the unit, while also providing untreated water to the distribution system (**Fig. 1**).
- 2. BYPASS POSITION:** The inlet and outlet handles point to the center of the bypass. The system is isolated from the water pressure in the plumbing system. Untreated water is supplied to the building (**Fig. 2**).
- 3. DIAGNOSTIC POSITION:** The inlet handle points toward the control valve and the outlet handle points to the center of bypass valve. Untreated supply water is allowed to flow to the system and to the building, while not allowing water to exit from the system to the building (**Fig. 3**). This allows the service technician to test the unit and perform other functions without disrupting the water going to the building.

NOTE: The system must be rinsed before returning the bypass valve to the normal position.

- 4. SHUT OFF POSITION:** The inlet handle points to the center of the bypass valve and the outlet handle points away from the control valve. The water is shut off to the building. The water treatment system will depressurize upon opening a tap in the building. A negative pressure in the building combined with the unit being in regeneration could cause a siphoning to the building. If water is available on the outlet side of the unit, it is an indication of water bypassing the system (**Fig. 4**) (i.e. a plumbing cross-connection somewhere in the building).



Installation

GENERAL INSTALLATION & SERVICE WARNINGS

The control valve, fittings and/or bypass are designed to accommodate minor plumbing misalignments. There is a small amount of “give” to properly connect the piping, but the filter is not designed to support the weight of the plumbing.

Do not use petroleum jelly, oils, other hydrocarbon lubricants or spray silicone anywhere. A silicone lubricant may be used on black O-rings, but is not necessary. Avoid any type of lubricants, including silicone, on red or clear lip seals.

Do not use pipe dope or other sealants on threads. Plumber's tape must be used on the threads of the 1" NPT inlet and outlet, the brine line connection at the control valve, and on the threads for the drain line connection. Plumber's tape is not used on the nut connections or caps because O-ring seals are used. The nuts and caps are designed to be unscrewed or tightened by hand or with the special plastic Service Wrench (100396829). If necessary, pliers can be used to unscrew the nut or cap. **Do not use a pipe wrench to tighten nuts or caps. Do not place screwdriver in slots on caps and/or tap with a hammer.**

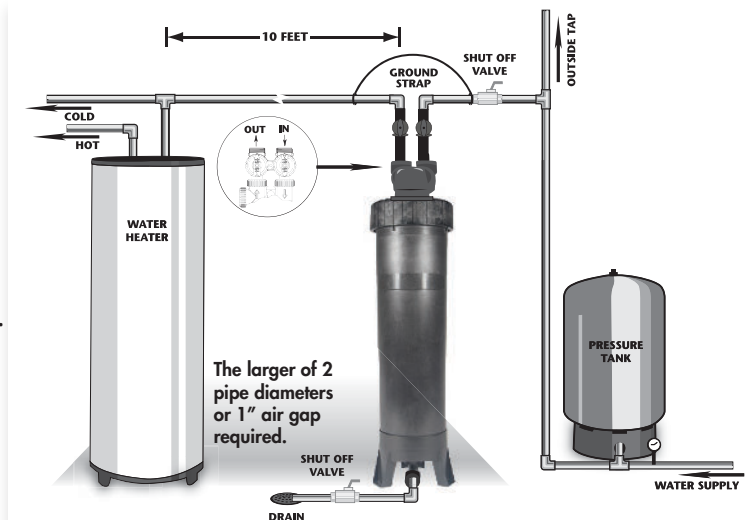
SITE REQUIREMENTS

- Water Pressure: 20-125 psi
- Water Temperature: 40-110°F (4.4-43.3°C)

1. This unit is equipped with a 3/4" CTS push connection (7/8" OD) at the bottom of the tank. This connection is for a drain that may be used to rinse the cartridge filter periodically. If this is installed, location of the tank to the actual drain should be as close as possible. It is highly recommended to install the optional drain for servicing the unit.



CAUTION: If a drain is not used or the installation makes this unavailable, the drain hole must be plugged or water will flow from this outlet.



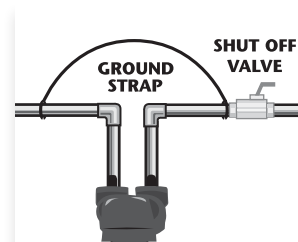
TYPICAL INSTALLATION

2. The housing should be installed on a firm, flat surface (above or below grade).
3. Do not install any water filter with less than 10 feet of piping between its outlet and the inlet of a water heater.
4. Do not locate unit where it or its connections (including the drain) will ever be subjected to room temperatures under 33°F.
5. Do not subject the housing to any vacuum as this may cause an “implosion” and could result in leaking. If there is a possibility a vacuum could occur, please make provisions for a vacuum breaker in the installation.
6. **INLET/OUTLET PLUMBING:** Be sure to install Bypass Valve onto main control valve before beginning plumbing. If it is desired to bypass outside hydrants, a cold water kitchen sink, or other locations, provisions should be made at this time. Install an inlet shutoff valve and plumb to the unit's bypass valve inlet located at the right rear as you face the unit. There are a variety of installation fittings available. They are listed under the Installation Fitting Assemblies section of the manual.

When assembling the installation fitting package (inlet and outlet), connect the fitting to the plumbing system first and then attach the nut, split ring and “O” Ring. Heat from soldering or solvent cements may damage the nut, split ring or “O” Ring. Solder joints should be cool and solvent cements should be set before installing the nut, split ring and “O” Ring. Avoid getting solder flux, primer, and solvent cement on any part of the “O” Rings, split rings, bypass valve or control valve. If the building's electrical system is grounded to the plumbing, install a copper grounding strap from the inlet to the outlet pipe. Plumbing must be done in accordance with all applicable local codes.

7. **INSTALLING GROUND:** To maintain an electrical ground in metal plumbing of a home's cold water piping (such as a copper plumbing system), install a ground clamp or jumper wiring.

NOTE: If replacing an existing filter, also replace the ground clamps/wire.

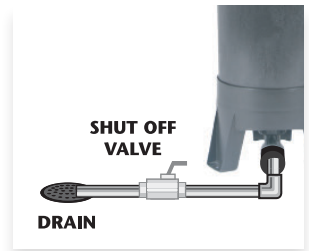


Installation

8. **DRAIN LINE:** First, be sure that the drain can handle the rinse rate of the system. At the bottom of the tank is a 3/4" CTS push connection (7/8" OD) to accommodate a drain. The purpose of the drain is to manually (or automatically, if desired) rinse the filter tank and cartridge of any debris. This can prolong the life of the cartridge. It is highly recommended to provide a means to drain the tank and to relieve pressure for cartridge replacement.



CAUTION: If a drain is not used or the installation makes this unavailable, the drain hole must be plugged or water will flow from this outlet.



9. **DRAIN FITTING ASSEMBLY:** Before inserting the pipe into the drain fitting assembly, there is a "locking cap" that needs to be loosened. The locking cap takes the place of a traditional clip used to lock in the fitting. Follow the steps below for proper installation:

Step 1: Ensure locking cap is turned counterclockwise, no more than a half rotation, until a gap of about 1/16" can be seen as shown (**Fig. 1**).

Step 2: Insert pipe, free of burrs and sharp edges, fully into fitting (**Fig. 2**).

Step 3: Turn locking cap about half a rotation clockwise until it stops and there is no gap remaining. Turn by hand only – **DO NOT** use tools and do not overtighten (**Fig. 3**).

Fig. 1



Fig. 2

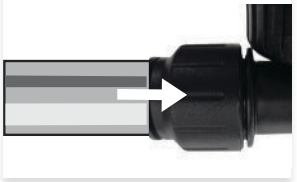
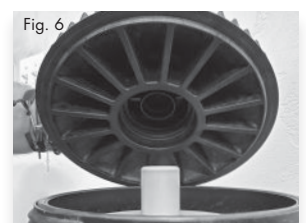
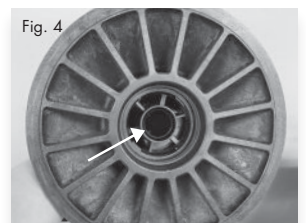
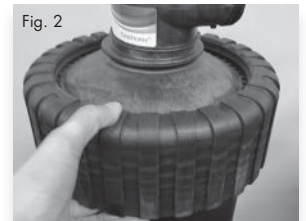
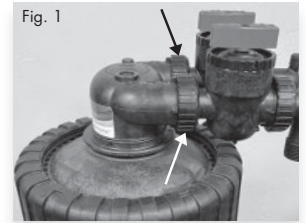


Fig. 3



Cartridge Replacement

1. Turn off water supply to vessel using bypass inlet and outlet lines.
See page 4 for bypass diagrams.
 2. Release pressure on system by opening bottom drain for a moment, then close. If bottom drain is not installed, turn off water to inlet side of filter and open an outlet line to the filter.
 3. Disconnect bypass from valve assembly using the nuts at the inlet and outlet head assembly (**see Fig. 1**). Be careful not to disconnect the nuts at the plumbing lines as these are under pressure.
 4. Remove CT nut by rotating it counterclockwise (**see Fig. 2**).
-  **CAUTION: Do not remove CT nut without relieving pressure from system.**
5. Remove CT cap by pulling upward on head assembly. Cartridge will be visible.
 6. Carefully remove old cartridge from system (**see Fig. 3**). The cartridge will contain water and will splash or drip. Place used cartridge into 5-gallon bucket to protect area from water damage.
 7. Remove new cartridge filter from box and remove plastic covering. Locate data plate label and keep for future use.
 8. Lubricate O-ring in valve assembly to ensure proper sealing (**see Fig. 4**).
Do not use pipe dope, petroleum jelly, oils or other unacceptable lubricants on O-rings. Food grade silicone lubricant is recommended.
 9. Place cartridge into filter housing with “distributor riser” at top of tank (**see Fig. 5**).
 10. Carefully replace CT cap assembly making sure that the adaptor slips into the top cap assembly. Push down on head assembly firmly (**see Fig. 6**).
 11. Re-attach and tighten CT nut by turning it clockwise.
 12. Adhere data plate label to tank under CT nut for future reference, but only when supplied with certified filter cartridges (**see Fig. 7**).
 13. Reconnect cartridge tank to bypass valve by securing nuts.
 14. Open treated water line and turn bypass valve to service position (**Fig. 1 on page 4**) and allow water to fill tank slowly. Once water is flowing to treated water faucet, observe tank for any leaks.
 15. Shut treated water line off to check for leaks and ensure system integrity.

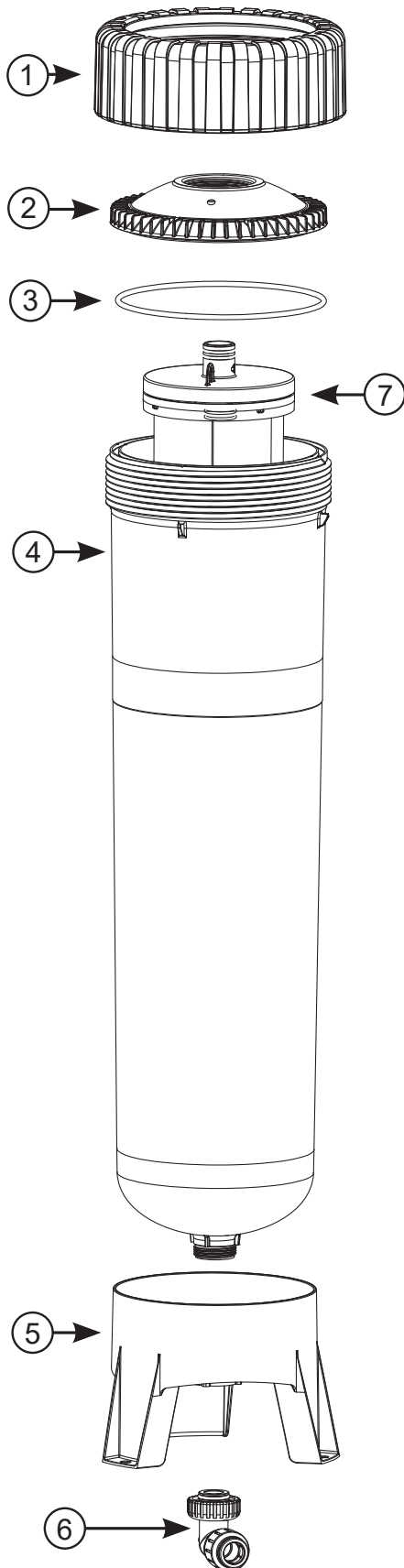


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Troubleshooting Guide

PROBLEM	CAUSE	CORRECTION
<i>Lack of pressure from system</i>	A. Cartridge fouled out	A. Replace cartridge
	B. Exceeded flow rate of cartridge	B. Substitute cartridge for higher flowing unit
	C. Inlet to tank is plugged	C. Clean inlet of debris
<i>Cartridge life too short</i>	A. Too small micron rating	A. Choose different size or use multiple tanks
	B. Very heavy loading	B. Check raw water for particles
	C. Excessive water flow through cartridge	C. Check gallons consumed
<i>Plugged drain</i>	A. Not flushed often enough	A. Flush more frequently

Replacement Parts

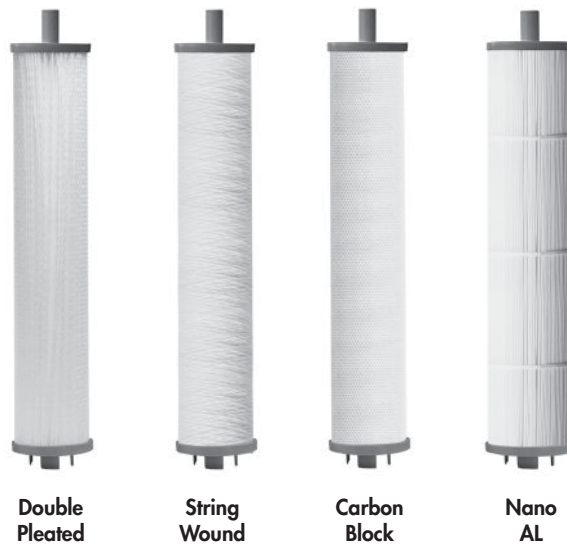


AOS-CH-1000 REPLACEMENT PARTS			
Item No.	Current Part #	Description	Qty.
1	100396231	CT Nut	1
2	100396232	CT Cap 2.5 NPSM	1
3	100396233	O-ring 370	1
4	100396235	CT Housing Body	1
5	100396236	CT Housing Base	1
6	100246200	WS1 Fitting JG QC 90 Assembly	1
7	Cartridge Filters Sold Separately.		1
Not shown	100396829	CT Service Wrench	1

Replacement Parts

AOS-CH-1000 REPLACEMENT CARTRIDGES			
Legacy Part #	Current Part #	Description	Qty.
Double Pleated Depth Filters			
CT-1005-IO	100243292	10 x 5 Micron Double Pleated	1
CT-2010-IO	100243400	20 x 10 Micron Double Pleated	1
CT-5020-IO	100243207	50 x 20 Micron Double Pleated	1
String Wound/Meltblown Depth Filters			
CT-2005-SWMB-IO	100243305	20 x 5 Micron String Wound/Meltblown	1
CT-5020-SWMB-IO	100243218	50 x 20 Micron String Wound/Meltblown	1
Carbon Block Filters			
CT-03-CB-IO	100246028	3 Micron Carbon Block	1
CT-20-CB-IO	100246032	20 Micron Carbon Block	1
CT-03-CB-AMINE-IO	100243484	3 Micron Carbon Block Chloramine Reduction	1
CT-05-CB-AMCYL-IO	100242500	0.5 Micron Carbon Block Contaminant Reduction	1
Nano AL Filters			
CT-20NANO-AG-IO	100242993	20 x Nano AL w/ AG Double Pleated Cartridge	1

Replacement components available through your water treatment professional.

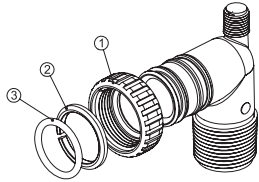


Installation Fitting Assemblies

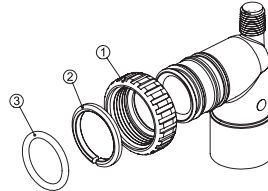
NOTE: Not all available fittings are displayed below. Contact manufacturer for optional fittings.

For All Assemblies

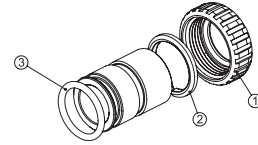
Item #	Legacy Part #	Current Part #	Description	Qty.
1	CV3151	100246287	Nut, 1" quick connect	2
2	CV3150	100246286	Split ring	2
3	CV3105	100246272	O-ring 215	2



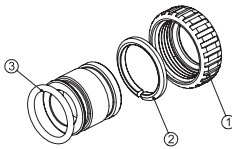
Legacy Part #	Current Part #	Description	Qty.
CV3007	100246197	1" PVC male NPT elbow assembly	2



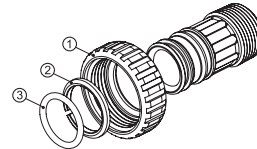
Legacy Part #	Current Part #	Description	Qty.
CV3007-01	100246198	3/4" & 1" PVC solvent elbow assembly	2



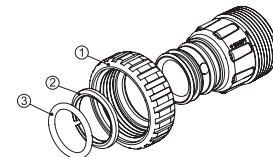
Legacy Part #	Current Part #	Description	Qty.
CV3007-02	100246199	1" brass sweat assembly	2



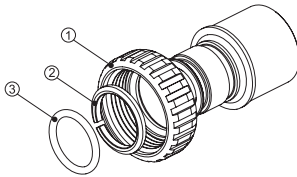
Legacy Part #	Current Part #	Description	Qty.
CV3007-03	100249846	3/4" brass sweat assembly	2



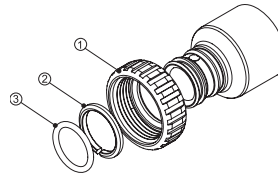
Legacy Part #	Current Part #	Description	Qty.
CV3007-04	100244506	1" plastic male NPT assembly	2



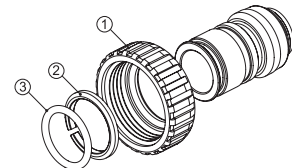
Legacy Part #	Current Part #	Description	Qty.
CV3007-05	100243921	1-1/4" plastic male assembly	2



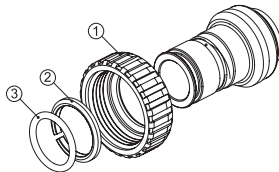
Legacy Part #	Current Part #	Description	Qty.
CV3007-09	100243922	1-1/4" & 1-1/2" brass sweat assembly	2



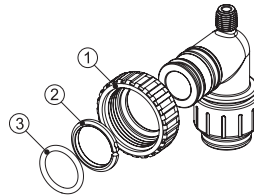
Legacy Part #	Current Part #	Description	Qty.
CV3007-07	100243375	1-1/4" & 1-1/2" PVC solvent assembly	2



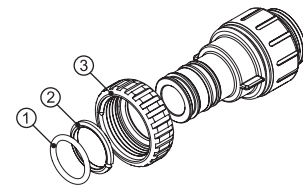
Legacy Part #	Current Part #	Description	Qty.
CV3007-12	100249847	3/4" brass shark bite assembly	2



Legacy Part #	Current Part #	Description	Qty.
CV3007-13	100249848	1" brass shark bite assembly	2



Legacy Part #	Current Part #	Description	Qty.
CV3007-15	100246200	3/4" john guest elbow assembly	2



Legacy Part #	Current Part #	Description	Qty.
CV3007-17	100245045	1" john guest assembly	2



ClearHome Filtration Limited Warranty

Congratulations. You have purchased one of the finest water treatment systems available. In the unlikely event of a problem due to defects in material and workmanship, we proudly warrant our water filters to the original owner, when installed in accordance with A. O. Smith specifications. This warranty is effective from the date of original installation for:

A period of ONE YEAR:

A. O. Smith Water Treatment warrants its tank and filter solutions to be free of defects in material and workmanship.

A period of FIVE YEARS:

A. O. Smith Water Treatment warrants its IN/OUT head assemblies to be free of defects in material and workmanship.

This warranty does not cover any equipment purchased for use in applications in which the product is not suited. It is the responsibility of the buyer to determine if a product is suitable for a particular application.

Our obligations under this warranty are limited to the repair or replacement (at A. O. Smith's sole discretion) of the failed parts of the water treatment unit manufactured by A. O. Smith, and we assume no liability whatsoever for direct, indirect, incidental, consequential, special, general or other damages.

We assume no liability for the determination of the proper equipment necessary to meet your requirements, and we do not authorize others to assume such obligations for us.

We assume no liability and extend no warranties, expressed or implied, for the use of this product with a non-potable water source or a water source which does not meet the conditions for use described in the owner's guide or performance data sheet for the product.

The warranty provided herein applies, only when used within the product specifications and service life, from the date of installation, beyond which A. O. Smith is absolved of any and all liability for any use of the product. There are no other warranties, either of merchantability or fitness, either expressed or implied.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state

THIS WARRANTY EXCLUDES THE FOLLOWING:

- Damage caused by improper installation, operation or care.
- Damage caused by chemical attack, environment, accident, fire, flood, freezing, Act of God, misuse, misapplication, neglect, oxidizing agents (such as chlorine, ozone, chloramines and other related components), alteration, installation or operation contrary to the printed instructions, or by the use of accessories or components which do not meet A. O. Smith's specifications, including the use of a replacement element not manufactured or supplied by A. O. Smith. Refer to the specifications section in the Installation and Operating manual for approved application parameters.
- Modification or alteration by other than A. O. Smith employees.
- Rubber type parts and normal wear items i.e. "O" rings, etc.
- Any costs of labor or expenses expended in the removal and/or installation of unit, or any surrounding device.
- Altering or removing the A. O. Smith information label.
- Use of non A. O. Smith approved cartridges, filters, or replacement parts with the appropriate systems or vessels.
- Non-use of supported piping for plumbing connections to In/Out connections.

Service under this warranty is to be provided by the distributor/installer who sold the unit to the user. If the distributor is unable to provide warranty service, contact:

A.O. Smith Water Treatment (North America), Inc.
1900 Prospect Court • Appleton, WI 54914
Phone: 920-739-9401 • Fax: 920-739-9406

A Returned Goods Authorization (RGA) number must be received from the above office and placed on all shipments to and correspondence with A. O. Smith Water Treatment.

Please be prepared with the following information:

1. Model number and serial number.
2. Date of installation.
3. Name of installer
4. Nature of problem.
5. Your address and contact information.

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