

# RainSoft®

*Environmental Products for the Home ...since 1953*

## UF SERIES REVERSE OSMOSIS DRINKING WATER SYSTEM

# Owner's Manual



This product is manufactured in an ISO 9001:2000 certified facility.



The UF series is tested and certified by NSF International against NSF/ANSI standard 58 for the reduction of claims specified on the performance data sheet. Refer to the manufacturer's Performance Data Sheet for the specific reduction claims.



The UF series is tested and certified by WQA to NSF/ANSI standard 58 for the specific performance claims as verified and substantiated by test data. See the Performance Data Sheet for specific reduction claims.

**Not approved for use in California. Please request California-specific product literature from your local Rainsoft Dealer.**

# Table of Contents

|   |    |
|---|----|
| Information on Reverse Osmosis .....      | 3  |
| Product Certification Information .....   | 3  |
| Operational Specifications.....           | 4  |
| Items Required for Installation.....      | 4  |
| Installation Instructions.....            | 5  |
| System Start Up.....                      | 6  |
| Routine System Maintenance .....          | 6  |
| Periodic System Maintenance .....         | 7  |
| RainSoft Replacement Part Numbers .....   | 7  |
| How to Change the System Components ..... | 8  |
| Troubleshooting Guide .....               | 9  |
| Exploded View and Parts List.....         | 10 |
| Warranty Information .....                | 11 |
| Installer Specification Sheet .....       | 12 |

**Congratulations** on your purchase of one of the finest Reverse Osmosis Systems available to homeowners.

This Owner's Manual is designed to assist with the operation, maintenance, and installation of the Reverse Osmosis System. It is our sincere hope that this manual is clear, concise, and helpful to you as a new owner.

**Questions?** If you have any questions regarding the installation, operation or servicing of this system, please contact your local RainSoft Dealer. Your RainSoft Dealer will be familiar with your particular situation, your water conditions, etc. and should be able to address your concerns promptly and efficiently.

## Information on Reverse Osmosis

Osmosis is a natural process that occurs in most living things. In plants, osmosis permits the absorption of water and nutrients through the root system and in people, osmosis permits the absorption of nutrients through the blood stream. To achieve Reverse Osmosis, your RainSoft system will utilize pressure to reverse the normal osmosis process.

In the Reverse Osmosis process, your water supply will flow over the surface of a semi-permeable membrane to a less concentrated solution. The treated water is then stored in the storage tank. The tank is pressurized with air (5 psi), which forces the treated water through an activated carbon post-filter and up to the new Reverse Osmosis faucets located throughout your home (see figure 1).

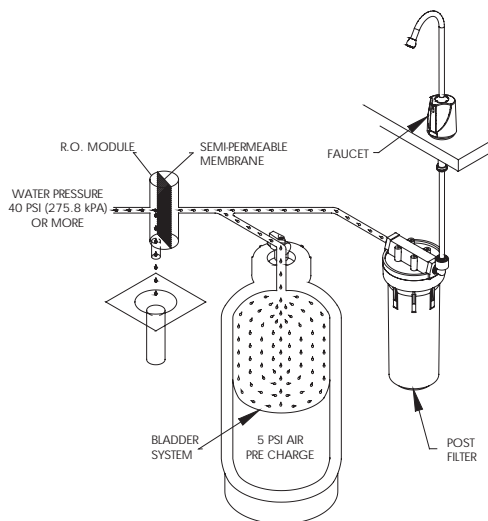


Figure 1

## Product Certification Information

Models UF22T-CB, UF22N-CB, UF50T-CBVOC, and UF50N-CBVOC conform to NSF/ANSI 58 for the specific performance claims as verified and substantiated by test data. See performance data sheets for specific reduction claims.

Models UF50T-CBVOC and UF50N-CBVOC conform to NSF/ANSI 58 for VOC reduction. See performance data sheets for individual contaminants and reduction performance.

Water treatment devices sold to retail consumers in California, accompanied by certain health claims, must be certified by the State of California Department of Public Health. This product is not certified in the State of California for the purpose of making health claims.

# Operational Specifications

## Working Pressure

40 psi – 100 psi (275 kPa – 689 kPa)

## Operating Temperatures

50°F – 100°F (10°C – 38°C)

## pH Range

2 – 11

## Maximum TDS Level

1400 parts per million

## Maximum Turbidity Influent Level

11 NTU (nephelometric turbidity units)

## Maximum Hardness Level

5 grains

## Capacity for VOC Reduction

Models UF50T-CBVOC and UF50N-CBVOC: 100 gallons (378 liters)

## Additional Specifications

- The inlet water should be free from iron, manganese, and sulfur.
- This system has been tested for the treatment of water containing pentavalent arsenic (also known as AS (V), As (+5), or arsenate) at concentrations of 0.30 mg/L or less. This system reduces pentavalent arsenic, but may not remove other forms of arsenic. This system is to be used on water containing a detectable free chlorine residual or on water supplies that have been demonstrated to contain only pentavalent arsenic. Treatment with chloramine (combined chlorine) is not sufficient to ensure complete conversion of trivalent arsenic to pentavalent arsenic. Please see the Arsenic Facts section of the performance data sheets for further information.
- Do not use this product with water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system. Systems certified for cyst reduction may be used on disinfected waters that may contain filterable cysts.
- This system must be installed in accordance with all applicable state and local laws and regulations.
- This system must be installed in an area not affected by extreme heat, cold or the elements. The selected installation area must be adequate for easy service of all parts.
- This system is designed to treat cold water only. The installation must be on a cold water supply.

## Data Chart

| Model                    | Daily Production Rates | Efficiency Rating* | Recovery Rating* |
|--------------------------|------------------------|--------------------|------------------|
| UF22T-CB, UF 22N-CB      | 8.45 gpd/31.98 L/day   | 10.58%             | 24.54%           |
| UF50T-CBVOC, UF50N-CBVOC | 15.35 gpd/58.10 L/day  | 7.79%              | 15.13%           |

## Items Required for Installation

**Tools:** Drill, drill bits, tube cutter, screwdrivers, adjustable wrench, and vinyl gloves.

**Parts:** RainSoft faucet, inlet shut off valve, 1/4 inch O.D. tubing, 3/8 inch O.D. tubing, and screws.

! **Important Note:** This Reverse Osmosis System contains replaceable treatment components, critical for the effective reduction of total dissolved solids (TDS). The product water should be tested periodically to verify that the system is performing properly. See your local RainSoft Dealer for details.

! **Important Note:** If the hardness is greater than 5 grains, the system will still perform properly, but the longevity of the membrane may be affected.

\* The efficiency and recovery ratings are verified by testing in accordance with NSF/ANSI Standard 58.

Efficiency rating means the percentage of the influent water to the system that is available to the user as reverse osmosis treated water under operating conditions that approximate typical daily usage.

Recovery rating means the percentage of the influent water to the membrane portion of the system that is available to the user as reverse osmosis treated water when the system is operated without a storage tank or when the storage tank is bypassed.

! **Important Notes:** The installation location of the system must be determined before purchasing a faucet. If you are mounting the system under a kitchen sink, an air gap faucet will be required. If you are mounting the system in a different location, a non-air gap faucet will be required, along with a separate air gap device.

The tubing used for installation must be of food grade type. John Guest or Parker brand tubing is recommended for their compatibility with the fittings on your system.

# Installation Instructions

## 1. Install the Filters and Membrane Cartridge

- Wearing sterile gloves, remove the two filters and membrane cartridge from the sterile packaging and place them in the appropriate housings (see figure 2).

**Helpful Tip:** Be careful not to contaminate the filters and membrane cartridge by touching non-sterile objects.

## 2. Mount the System

- Use screws (not supplied) to secure the mounting bracket (supplied) to the desired location.

## 3. Install the Faucet (Not Supplied)

- Select a location for the faucet (not supplied) to be mounted.
- Drill a hole according to the manufacturer's recommendations. Once the hole has been drilled, mount the faucet.
- Use 3/8 inch tubing (not supplied) to connect the faucet to the system outlet (see figure 2).

**Helpful Tip:** The proper drill bit should be selected according to the type of material at the desired installation location.

## 4. Install the Inlet Shut Off Valve (Not Supplied)

- Turn off the cold water supply and open the cold water faucet to relieve any line pressure.
- Install an inlet shut off valve (not supplied) between the existing shut off valve and the kitchen faucet, in a way that conforms to state and local plumbing codes.
- Use 3/8 inch tubing (not supplied) to connect the inlet shut off valve to the system inlet (see figure 2).

**Important Note:** The inlet shut off valve must have a 3/8 inch connection.

**Helpful Tip:** To secure the connection, press the tubing in firmly.

## 5. Install the Storage Tank

- Select a location for the storage tank. The storage tank can be installed vertically or horizontally.
- Verify that the o-ring on the storage tank is in place.
- Install the shut off valve (supplied) onto the storage tank (see figure 2). The shut off valve must be in the open position.
- Use the 3/8 inch x 4 foot tubing (supplied) to connect the storage tank shut off valve to the tank port on the control head (see figure 2). Additional tubing may be required

**Helpful Tip:** If the desired installation location is in the basement, the storage tank can be mounted in between the floor joists. The closer the storage tank is to the faucet, the greater the flow of water.

The storage tank can be installed vertically or horizontally.

**Helpful Tip:** Additional tubing may be required.

## 6. Connect the Drain Outlet

- Use 1/4 inch tubing (not supplied) to connect the drain outlet to the appropriate drain connection (see figure 2).

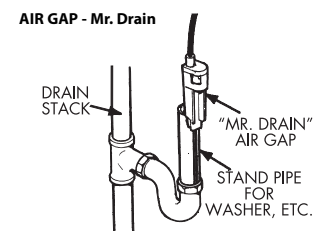
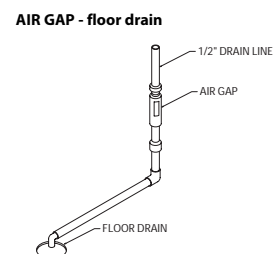
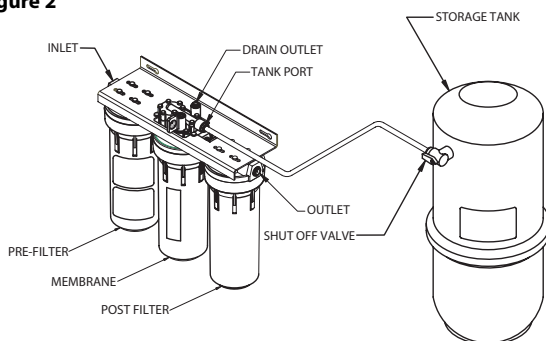
**Important Note:** The drain connection must conform to state and local plumbing codes.

If the system is mounted under a kitchen sink, an air gap faucet will be required. If the system is mounted in a different location, a non-air gap faucet will be required, along with a separate air gap device on the drain line (see figures below-- Air Gap-floor drain, Air Gap-Mr.Drain).

## 7. Secure the Connections

- Attach the red locking clips (supplied) to the connection fittings.

Figure 2



# System Start Up

## 1. Turn on the Water Supply

- Allow the system to start filling with water.

## 2. Fast Flush the System

- Open the R.O. faucet and position the drain barrel in the fast flush position (see figure 3).

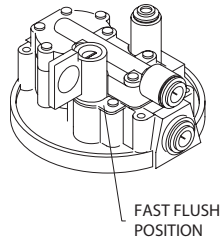


Figure 3

## 3. Reposition the Drain Barrel

- Once the air has been purged from the system, position the drain barrel in 1 of the 2 service positions (see figure 4). The storage tank will continue to fill with water.

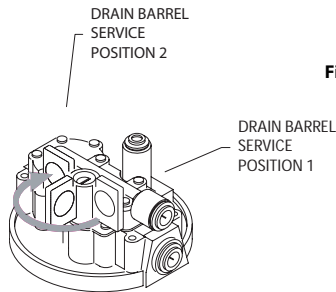


Figure 4

## 4. Check for Leaks

- If a leak is present, make the necessary repairs.

## 5. Fill the System

- When the water stops flowing to the drain, the system should be fully pressurized and the storage tank should be filled with water.

## 6. Drain the Storage Tank

- Open the R.O. faucet and drain all the water from the storage tank.

## 7. Complete the Installation

- If a 24 hour-flush pre-installation is not performed by your local dealer, it is important to open the faucet, let the system drip for 24 hours first.
- After the 24 hour water flush, close the R.O. faucet and allow the storage tank to fill with water. When the storage tank is full, the system will be ready for operation.

**! Important Note:** Air trapped in the system will purge during this procedure.

**! Important Note:** Do not attempt to reset or remove the drain barrel screw. The drain barrel screw is preset by your RainSoft Dealer and should only be adjusted by a qualified RainSoft Technician. Tampering with this part may result in poor system performance, leaks in the equipment and/or personal injury.

# Routine System Maintenance

The storage tank should be drained and the system should be fast flushed 1 to 2 times per week.

To drain the storage tank, open the R.O. faucet and let the water run until the flow turns into small drips. Close the R.O. faucet and rotate the drain barrel 90° to the fast flush position (see figure 3). The sound of rushing water should now be heard. Allow the system to fast flush for 5 to 7 minutes and then rotate the drain barrel to position #2 (see figure 4).

**! Important Note:** This procedure will flush any remaining residue from the storage tank.

**! Important Note:** The 24 hour flush will ensure the proper rinsing of the R.O. Membrane.

**! Important Note:** It is common to experience cloudy water, cloudy or hazy ice cubes and/or air bubbles when the system is new or after the filters/ cartridges have been changed.

**Helpful Tips:** Maintaining a fresh water supply in the storage tank will promote better operation of the membrane cartridge.

The next time you drain the storage tank, reverse the rotation of the drain barrel.

When you go on vacation, close the cold water inlet valve. When you return from vacation, open the cold water inlet valve, drain the storage tank and fast flush the system.

# Periodic System Maintenance

## Testing Your Water

- If you are relying on this system for nitrate reduction, we recommend testing your water periodically (2 times a year minimum) with a nitrate test kit (supplied) to ensure that the system is performing properly. Additional nitrate test kits (part number 12061) can be purchased from your local RainSoft Dealer.
- If you are relying on this system for VOC reduction, we recommend testing your water periodically (2 times a year minimum) to ensure that the system is performing properly. Your local RainSoft Dealer can arrange this testing for a nominal fee.
- If you are relying on this system for cyst reduction, we recommend testing your water periodically (2 times a year minimum) to ensure that the system is performing properly. Your local RainSoft Dealer can arrange this testing for a nominal fee.
- If you are relying on this system for any other health claims, please refer to the performance data sheets on pages 12–15. See your local RainSoft Dealer for additional information.

**Important Notes:** Nitrate reduction units are acceptable for treatment of influent concentrations of no more than 27 ppm nitrate and 3 ppm nitrite in combination (measures as "N") and are certified for nitrate/nitrite reduction only for water supplies with a pressure of 40 psi or greater.

**For Wisconsin Residents Only:** The State of Wisconsin requires that your water be tested 2 times a year minimum for total dissolved solids (to ensure that the system is performing properly). Your local RainSoft Dealer can arrange this testing for a nominal fee.

## System Components

### Pre-filter

The pre-filter (see figure 5) removes particles and sediment as small as 5 microns in size from the water supply. The pre-filter requires periodic replacement every 6 to 12 months after installation. Your water quality and water usage may affect this replacement schedule. Please refer to the chart on page 8 for replacement part numbers.

### Membrane Cartridge

The membrane cartridge (see figure 5) is a spiral wound, semi-permeable cartridge that requires periodic replacement approximately every 18 months after installation. Your water quality and water usage may affect this replacement schedule. Please refer to the chart on page 8 for replacement part numbers.

### Post-filter

The post-filter (see figure 5) will remove unwanted tastes and odors from the water. The post-filter requires periodic replacement every 6 to 12 months after installation. Your water quality and water usage may affect this replacement schedule. Please refer to the chart on page 8 for replacement part numbers.

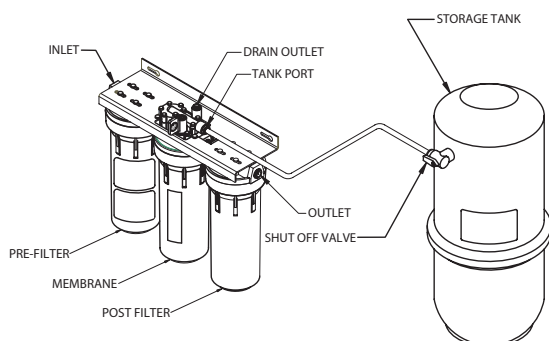


Figure 5

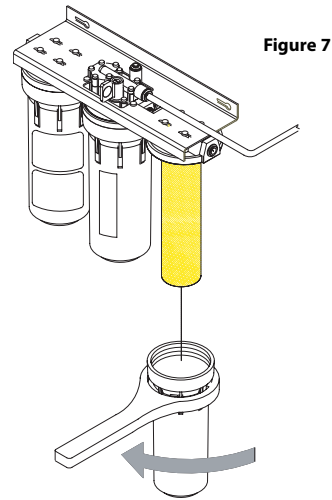
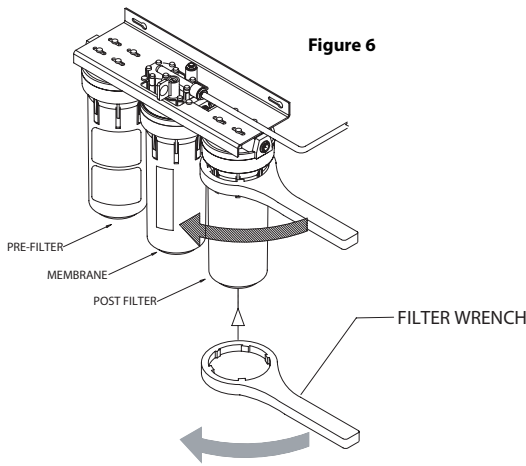
# How to Change the System Components

1. Turn off the cold water supply.
2. Open the R.O. faucet and close the storage tank valve.
3. Remove the R.O. unit from the hanger and place it over a drip pan (to prevent water spillage).
4. To replace the pre-filter, use the filter wrench (not supplied) to unscrew the pre-filter housing from the cap (see figures 6 and 7). Replace the pre-filter and reassemble.

To change the membrane cartridge, use the filter wrench (not supplied) to unscrew the membrane housing from the control head (see figures 6 and 7). Replace the membrane cartridge and reassemble.

To replace the post-filter, use the filter wrench (not supplied) to unscrew the post-filter housing from the cap (see figures 6 and 7). Replace the post-filter and reassemble.

To replace both filters and the membrane cartridge, use the filter wrench (not supplied) to unscrew all the housings from the caps. Follow the above steps in consecutive order.



**! Important Note:** This Reverse Osmosis System contains replaceable components critical to the efficiency of the system. Replacement of the Reverse Osmosis components should be one of identical specifications, as defined by the manufacturer, to assure the same efficiency and contaminant reduction performance.

**Helpful Tips:** To avoid contamination, we recommend the use of sterile gloves while changing the system components.

When changing the membrane cartridge, verify that the rubber brine seal and O-rings are secure and in place. Always lubricate the o-rings with a non-petroleum based lubricant to ensure the longevity of the o-rings. Never over-tighten the housing to the cap – **HAND TIGHT ONLY!**

## RainSoft Replacement Parts

The following RainSoft replacement parts are available through your local RainSoft Dealer:

| Model       | Pre-filter | Membrane Cartridge | Post-filter |
|-------------|------------|--------------------|-------------|
| UF22T-CB    | 18557      | 12448              | 18557       |
| UF50N-CBVOC | 18557      | 18644              | 18773       |

| Description              | Part Number |
|--------------------------|-------------|
| Slim Line Spanner Wrench | 13203       |

If you are unable to order replacement parts from your local RainSoft Dealer, please contact RainSoft at 1-800-860-7638 for assistance.

**! Important Note:** It is important to maintain the quality of your system by using only genuine RainSoft replacement filters and cartridges. Other "made-to-fit" alternative filters and cartridges claim to perform the same duties as the original RainSoft parts, but these items are not approved for use in your system! "Made-to-fit" alternative filters and cartridges will increase the probability of leaks, putting your entire system at risk!

When "made-to-fit" alternative filters and cartridges are placed into your RainSoft Reverse Osmosis System, the product warranty will become null and void and the system will lose the WQA certification. To guarantee proper operation and certification of your RainSoft Reverse Osmosis System, please use genuine RainSoft parts.

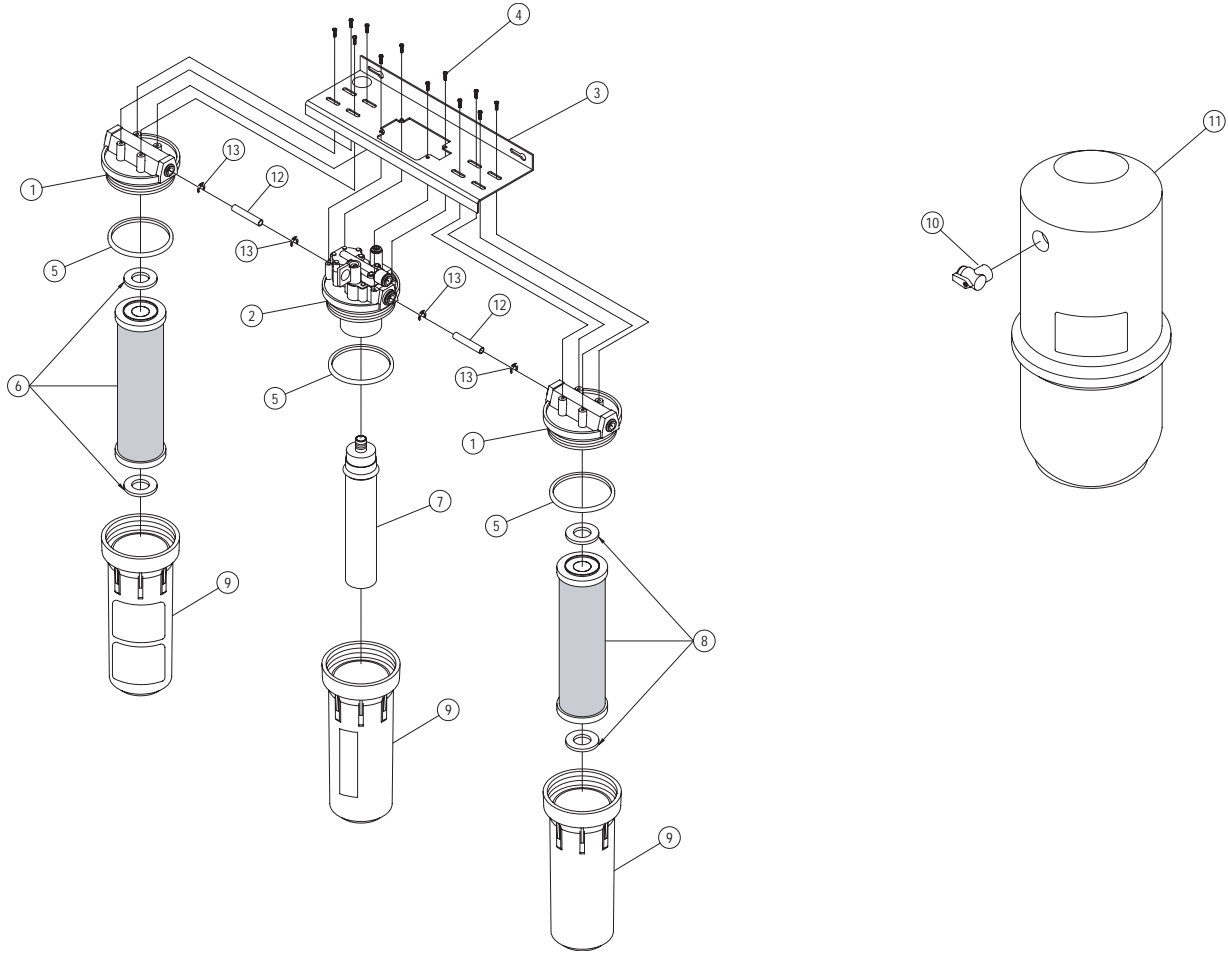


# Troubleshooting Guide

| Symptom                                 | Cause  | Solution   |
|---|--|--|
| <b>1. No Water</b>                      | <ol style="list-style-type: none"><li>1. The water supply is turned off.</li><li>2. Faulty valve.</li><li>3. The water supply is blocked.</li><li>4. The membrane cartridge is fouled.</li><li>5. The product line is crimped.</li><li>6. Defective storage tank.</li><li>7. The air valve is leaking.</li></ol> | <ol style="list-style-type: none"><li>1. Turn on the water.</li><li>2. Replace or repair the valve.</li><li>3. Clear the blockage.</li><li>4. Replace the membrane cartridge.</li><li>5. Remove the crimp.</li><li>6. Replace the storage tank.</li><li>7. Replace the air valve and recharge the storage tank to 5 psi.</li></ol> |
| <b>2. Film on Water or Cloudy Water</b> | <ol style="list-style-type: none"><li>1. Air is trapped in the water.</li></ol>  | <ol style="list-style-type: none"><li>1. Common at the time of installation or after a filter change. The air will dissipate as the filter becomes saturated. Several tanks of water may be used before this process is complete.</li></ol>  |

If the troubleshooting guide did not resolve the symptom, please contact your local RainSoft Dealer for service. If you cannot locate your local RainSoft Dealer, please contact RainSoft Customer Service at 1-800-860-7638 or log onto [www.rainsoft.com](http://www.rainsoft.com) for the name and location of your nearest Dealer.

# Exploded View and Parts List



| Item | Quantity | Part Number    | Part Description   |
|------|----------|----------------|--|
| 1    | 2        | 18665          | .375 Slimline Cap  |
| 2    | 1        | 18669          | RO Unibody Assy  |
| 3    | 1        | 18328          | Triple Housing Bracket   |
| 4    | 12       | 13691          | 10-3/4 Phillips Pan Head Screw   |
| 5    | 3        | 12994          | O-Ring - 237   |
| 6    | 1        | 18557          | Carbon Block Filter with Sediment Sleeve   |
| 7    | 1        | 12448<br>18644 | High Flow Unibody Element TFC (UF22T-CB, UF22N-CB)<br>Element Membrane TFC 50 GPD (UF50T-CBVOC, UF50N-CBVOC)                             |
| 8    | 1        | 18557<br>18773 | Carbon Block Filter with Sediment Sleeve (UF22T-CB, UF22N-CB)<br>VOC Carbon Block Filter with Sediment Sleeve (UF50T-CBVOC, UF50N-CBVOC) |
| 9    | 3        | 12993          | Slim Line Sump, White  |
| 10   | 1        | 17034          | Ball Valve   |
| 11   | 1        | 17541          | RO Storage Tank Assembly   |
| 12   | 2        | 18772          | 3/8 Hard PVC Tubing  |
| 13   | 4        | 19005          | Locking Clip, 3/8in John Guest   |

# *Limited Lifetime Warranty*

*For as long as you own the equipment*

RainSoft Division of Aquion Water Treatment Products, believing its

## **REVERSE OSMOSIS SYSTEM**

to be of exceptional quality, hereby warrants said equipment to its first purchaser at retail as follows:

**THE STORAGE TANK HOUSING, FILTER HOUSING, MEMBRANE HOUSING AND UNIBODY CONTROL ARE WARRANTED AGAINST DEFECTS IN MANUFACTURE FOR THE LIFETIME OF THE FIRST PURCHASER AT RETAIL.**

**THE MEMBRANE IS PRO-RATA WARRANTED AGAINST DEFECTS IN MANUFACTURE FOR 18 MONTHS (CREDIT 1/18 TH OF REPLACEMENT COST FOR EACH UNUSED MONTH).**

**THE ELECTRICAL COMPONENTS (IF APPLICABLE) ARE WARRANTED AGAINST DEFECTS IN MANUFACTURE FOR 12 MONTHS.**

**THE PRE- AND POST-FILTER SERVICE LIFE IS DEPENDENT ON SPECIFIC WATER CONDITIONS AND USAGE. REFER TO THE OWNER'S MANUAL FOR RECOMMENDED REPLACEMENT FREQUENCY.**

This warranty begins at the time the equipment is first connected for use, and is contingent upon the return of a signed owner's registration card.

This warranty does not require replacement of the entire unit. If the equipment does not perform properly, you should request service from the dealer that sold you the equipment. If you are not satisfied, you should notify our Customer Service Manager. If we are not able to arrange local servicing, you should send the defective part(s) (or, if you prefer, send the entire unit,) directly to the manufacturer, freight prepaid, with proof of purchase and a copy of this warranty. The defective part(s) (or entire unit) will either be repaired or new RainSoft part(s) furnished, for a nominal charge to cover labor, handling, packing and the increase, if any, in the retail price of the part(s) since the date of purchase. Genuine RainSoft parts must be used. Failure to use genuine RainSoft parts will void the warranty and certifications.

This warranty does not include labor charges, and does not cover installation, transportation, or any other claims or torts. Some states do not allow the exclusion or limitation of incidental or consequential damages, so parts of the above limitation or exclusion may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. You also have implied warranty rights. In the event of a problem with warranty service or performance, you may be able to go to a small claims court, a State court, or a Federal District Court.

This warranty is void if equipment is not installed and operated according to instructions. It does not apply to damage caused by abuse, accident, neglect, freezing, fire, or other abnormal conditions beyond the company's control. This warranty is void on any part from which the manufacturing date has been removed or made illegible.

Benefits will be provided by various types of RainSoft equipment when installed and operated according to the manufacturer's recommendations. Operational, maintenance and replacement requirements are essential for the product to perform as advertised. All claims are based on the best available information at the time of printing. Manufacturer makes no representations as to the suitability of this equipment for a particular application. Buyer relies entirely on the dealer's recommendations in the purchase of this equipment.

Independent RainSoft dealers may include, together with your RainSoft product, a product or component that is not manufactured by RainSoft or their parent company, AWTP, LLC. Any non-RainSoft product may be covered by the manufacturer of that product, and is not covered by the RainSoft warranty. AWTP, LLC does not warrant that your RainSoft product and the non-RainSoft product will perform properly when used together, and assume no liability therefore.

RainSoft Division of Aquion Water Treatment Products  
2080 East Lunt Avenue  
Elk Grove Village, Illinois 60007 USA

# Installer Specification Sheet

Dealer Name: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Installation Number: \_\_\_\_\_

Installation Date: \_\_\_\_\_

Model Number: \_\_\_\_\_

Serial Number: (See Label) \_\_\_\_\_

Hardness: \_\_\_\_\_

Line Pressure: \_\_\_\_\_ (psi)

Hardness: \_\_\_\_\_

Chlorine: \_\_\_\_\_

pH: \_\_\_\_\_

Inlet TDS: \_\_\_\_\_

NOTES

NOTES





RainSoft Division of Aquion Water Treatment Products  
2080 East Lunt Avenue  
Elk Grove Village, Illinois 60007  
Main Switchboard: 1.847.437.9400  
Customer Service: 1.800.860.7638  
[www.rainsoft.com](http://www.rainsoft.com)