

GENERAL MAINTENANCE

General maintenance depends upon the feed water quality and use of the machine. To build a proper maintenance schedule, a log sheet, as shown in the rear of this manual, should be prepared for each machine. The log sheet will contain information about feedwater and product (permeate) water quality. Periodic analysis of water quality and system parameters; flow rate and pressure readings, will help track the performance of the machine and indicate if any replacement parts are needed. Additionally, the log sheet will track replacement dates of any components, system repairs, or comments concerning operation.

The following schedule is a “Rule-of-Thumb” guide to performing general maintenance and service on the unit. For additional maintenance information addressed in the schedule below, please refer to the appropriate sections in the manual.

MAINTENANCE SCHEDULE

Daily

- Check the machine for proper working order. Fix any leaks immediately.
- Maintain unit cleanliness.

IMPORTANT: To reduce rust, **Do Not use Carbon Steel Wire Brushes** or devices to clean stainless frame or vessels. Clean with soap and water and plastic (non-metallic) abrasives and brushes. Lightly coat stainless with WD-40 or equivalent spray lubricant suitable for location.

Weekly

- Test and record the chlorine level after the precarbon filter. Use the test cock on pump inlet to collect the sample. The carbon filter must be replaced when the residual free chlorine approaches 0.1 ppm maximum. Free chlorine will destroy the membrane (See Filter Maintenance and Measuring Chlorine Section).

- Log sheet readings on a weekly basis are completed for more critical operations. Frequency to be determined by customer/owner.

Weekly Or Bimonthly

- Check the 20” sediment filter, replace if dirty. Replace the filter when pressure drop approaches 15-20 psi maximum.
- Check machine for leaks or damage.
- Check salt tank level (where applicable).

6 Months

- Coliform test.

NOTE: Must conform to all state and local regulations regarding frequency.

- Test UV light (If equipped).

Periodic (As Required)

- Sterilization as required.

NOTE: Must conform to all state and local regulations.

- Clean exterior of unit.

IMPORTANT: Your actual maintenance schedule may vary according to water quality, machine usage, and **must conform to all federal, state and local requirements**. Please adjust the maintenance schedule as required. However, for any filter replacement please do not exceed the maximum period of time or volume of water recommended for their respective replacement.

FILTER MAINTENANCE

NOTE: Coster Engineering recommends frequent replacement of the prefilters in order to minimize any possible fouling of the reverse osmosis element. It is Coster Engineering's belief that such replacements will save you money in membrane replacement in the long run.

General

The following points should be observed when changing filters.

1. Filter housings are to be screwed on only hand tight.
2. Relieve line pressure before attempting to unscrew filter housing. Close inlet valve. Relieve line pressure by opening sample port.
3. Unscrew filter cartridge housing (counter clockwise) by hand.
4. Discard old filter.
5. Clean filter housing and rinse with clean water.

NOTE: If the interior of the filter housing gets slimy, a cleaning and disinfection will be required. (See Sterilization Section).

6. Insert new cartridge.

Make sure cartridge filter is lined up on top and bottom posts before screwing cartridge housing tight.

7. Replace cartridge housing.

Check to make sure o-ring is clean, properly seated and lubricated before assembling filter housing.

IMPORTANT: Always flush carbon fines from a new filter using sample port until water runs clear. Carbon fines can damage the RO membrane.

NOTE: Use only food grade grease for lubrication.

Sediment Filter

This filter catches any of the sediment in the feed water. It also prevents any carbon fines from getting through to the membrane. It should be inspected and changed according to the maintenance schedule. The frequency of changes can be adjusted according to the appearance of the interior of the sediment filter.

Pre-Carbon Filter (Optional)

This filter removes chlorine and other volatile organics before the feed water is fed to the membrane. With sediment filter installed, always flush a new filter using sample port until water runs clear with no visible trace of carbon fines.

NOTE: Chlorine will attack the membrane, destroying the membrane and its ability to reject contaminants. Filters must be replaced when the residual free chlorine approaches 0.1 ppm maximum. Test for free chlorine using "low range" 0-.7 mg/1 test kit instructions.

Change Schedule

Pre Carbon

- Checked or Replaced: Daily/Weekly
- Replacement: As required/0 to .1 ppm max free chlorine
- Max: As required

Sediment

- Checked or Replaced: 1-2 weeks
- Replacement: As required
- Max: 90 days

NOTE: Filter replacement listed is maximum amount of time period and volume. Actual replacement must be tailored to specific feed water quality.

R.O. MAINTENANCE

Reverse Osmosis Membrane Performance

1. Collect a sample of product water.
2. Take a TDS (product water) reading with your TDS meter.
3. Collect a sample of the feed water through the sample port located on prefilter.
4. Take a TDS (feed water) reading.



IMPORTANT: If feedwater quality changes, check pretreatment devices for proper function.

5. Calculate rejection of the minerals with the following formula:

$\text{Rejection \%} = \frac{\text{TDS (Feed Water)} - \text{TDS (Product Water)}}{\text{TDS (Feed Water)}} \times 100$

6. Compare current rejection reading with the first entry on the log sheet.



IMPORTANT: If product flows and/or system rejection decreases, reduce recovery of system by increasing concentrate flow to drain.

Short Term Shut Down

Run the unit for 10-15 minutes daily to flush water through the system. Variables which may affect this schedule are ambient temperature and feedwater quality.

Long Term Storage

Remove membrane and immerse in a storage solution of 1.0% by weight sodium bisulfite. For freeze protection add 20% by weight propylene glycol to the storage solution.

Mixing ratio for storage/shipping solution:

- 1 U.S. gallon (3.79 liters) potable water
(plus)
- 1.3 oz (38 grams) sodium bisulfite (food grade)
(biological growth reduction)
(plus)
- 27 fluid oz. (760 grams) Propylene Glycol (freeze protection)

UV LIGHT MAINTENANCE



WARNING: Ultraviolet light given off by the UV lamp can cause serious burns to unprotected eyes. Do not operate the UV Lamp when it is removed from the UV chamber. Unintended use or damage of the system may result in the exposure of dangerous UV radiation. UV radiation may, even in little doses, cause harm to the eyes and skin.



WARNING: When testing UV intensity, always wear UV safety goggles (available from Coster Engineering). Exposure may result in irreversible eye damage.



WARNING: Cover all exposed skin surfaces or skin damage may result. Perform test during closed or quiet times. Keep all unprotected persons away from direct view of the UV lamp.



IMPORTANT: A dirty quartz sleeve will reduce UV light transmission to the water and reduce disinfection performance of the UV light. When feeding a UV light with water containing higher mineral content than RO water, such as alkaline water, the Quartz Sleeve coating buildup is accelerated and requires more frequent cleaning. Initially, check sleeve monthly or bimonthly and adjust cleaning procedure to suit the type of water that you are vending. Refer to vending machine operators manual and UV light manufacturer operators manual quartz sleeve cleaning instructions.

TESTING LAMP INTENSITY/REPLACEMENT

Option 1. Replace UV Lamp every 6 months of use.

Option 2. Test at 6 months and replace every 12 months of use. A minimum intensity level of 16,000 UWs/cm² at 254 nm wave length shall be maintained for the life of the lamp.

Readings are obtained with a commercially available portable UV intensity meter. Consult Coster Engineering for recommended meter type. Follow all instructions and safety procedures included with meter.

An LED monitor located on the side of the UV assembly will indicate whether the UV bulb is lit. If this monitor light is not on, it will prevent the machine from dispensing water.

If the LED monitor goes out, shut off water supply to sterilizer immediately and disconnect power supply. Replace UV lamp with a new one by following installation directions. Regularly inspect the unit to ensure that the monitor light is still glowing.

QUARTZ JACKET CLEANING/REPLACEMENT

1. Disconnect power to vending machine.
2. Shut off the water supply.
3. Remove UV chamber from mounting clamps.
4. Disconnect the lamp connector at the end of the UV chamber and remove lamp from chamber.
5. Remove Quartz Sleeve as follows:
 - a. Unscrew retaining nuts, remove floating spring, and carefully slide sleeve out of UV chamber.
 - b. Clean sleeve with vinegar or some other mild acidic solution, then rinse with water.
 - c. Clean and lubricate O-rings with food grade lubricant or replace with new O-rings.

6. Reinstall Quartz Sleeve in UV chamber as follows. **NOTE:** Be sure no marks or fingerprints are on sleeve or lamp.

- a. Position sleeve in chamber allowing sleeve to protrude an equal distance at both ends of chamber.
- b. Slide O-rings onto each end of sleeve.
- c. Reinstall retaining nuts and floating spring.



IMPORTANT: Glass Quartz Sleeve is fragile, hand tighten nuts only.

7. Install UV lamp, lamp connector, and secure UV chamber in mounting clamps.
8. Test the unit by plugging it into the electrical outlet. The indicator light on the side of the housing should glow steadily within a few seconds. If the light does not come on or continue to glow steadily, check lamp electrical connection. Replace lamp if necessary.
9. Turn on water supply and check all connections for leaks. Allow the water to run for a few minutes to clear out any air or dust that may be in the cell.