



# PRETREATMENT EQUIPMENT MANUAL

## (SMALL) PORTABLE EXCHANGE CARBON TANK

## **INSTALLATION, RINSE, TESTING AND REBEDDING PROCEDURE FOR PORTABLE EXCHANGE CARBON TANKS**

Catalog Numbers:   AC0256X18           (0.25 cu.ft.) GAC Tank  
                          AC0669X18           (0.66 cu.ft) GAC Tank

This procedure is intended to prepare a new or "newly re-bedded" activated carbon tank for use as RO pre-treatment (for de-chlorination of RO supply water). Carbon tanks must be carefully rinsed to remove microscopic carbon "fine" particles, ash residues from the activating process, and residual acid left from the acid washing process. If not removed, the carbon fine particles can cause fouling of the RO **membranes and damage** to the RO system **pump**.

### **INSTALLATION AND RINSE**

1.       Install hoses and mating quick disconnects as indicated below.
2.       Install the sample valve in the outlet port after rinsing is complete.

**NOTE.** The initial flushing of the carbon tank must consist of passing water backwards through the carbon tank to drain. This reverse flush lifts the carbon bed to facilitate removal of fines and ash.

3.       Install the supply water hose on the OUTLET fitting (for initial filling and purging of air). Install a drain hose on the INLET fitting and route this hose to a drain.

**NOTE:** **After all of the air is purged and the tank has been backwashed, the hoses MUST be reinstalled in the normal service position.**

4.       Attach the feed water hose to your water source. Partially and slowly open the supply water valve. The water should begin filling the tank, with air being expelled through the drain hose to the drain.
5.       When all the air is expelled from the tank (no more air passing out of the drain hose), continue to rinse for 20 minutes and then close the feed water valve.

6. **Disconnect the outlet (drain) hose from the tank INLET fitting at this time. Disconnect the feed water hose from the tank OUTLET fitting and re-install on the INLET. Install the drain hose on the outlet fitting.**
7. Open the **supply water valve** slowly (ensure that the drain hose is properly attached to the drain so that spillage does not occur). The valve may be fully opened at this time. Rinse the tank in this manner for 20 minutes.
8. While the tank is rinsing, open the sample valve briefly to allow any fine carbon particles and air to escape, then close the sample valve.
9. Check the supply and outlet water conductivity with a hand held meter. The water quality should be the same. If the outlet water conductivity is higher than the supply continue to rinse until they are equal.
10. After the outlet quality has stabilized at the same value as the inlet, close the supply water valve. Allow the carbon tank to soak for at least two hours before continuing the rinse procedure. If possible, allow the carbon tank to soak 12 - 24 hours.
11. When the soak time is complete, open the supply water valve fully and rinse the carbon tank for one hour (outlet hose should still be connected to the drain).
12. Check the conductivity of the supply and output water with a hand held meter. When the conductivity of both the supply water and the output water are equal, the tank is ready for testing.
13. Secure the tank in its carrier and connect the hoses for normal operation.
14. Test the carbon tank output water to verify absence of total chlorine. Follow instructions in the test kit. Always confirm the absence of total chlorine in the carbon tank output water before operating the RO unit. If total chlorine test is negative, tank is ready to be placed in service.
15. Operate and observe the RO system for 15-20 minutes to verify normal function.

NOTE. Do not rinse carbon tanks until they are ready to be used in service. Carbon tanks that have been wetted and allowed to sit unused will grow bacteria.

**Note: Always confirm the absence of total chlorine in the carbon tank output water before operating the RO unit (use RPC K100-0106).**

## **TESTING**

### Testing for total **chlorine**:

1. Operate the RO unit with the carbon tank for 3 to 5 minutes to flush the system.
2. Test the carbon tank output water to **verify absence of total chlorine**. Follow instructions in the test kit. Always confirm the absence of chlorine in the carbon tank output water before operating the RO unit. If chlorine test is negative, tank is ready to be placed in service.
3. Refer to test kit for water testing procedure (use RPC K100-0106 Test Strips).

**Note: Always confirm the absence of total chlorine in the carbon tank output water before operating the RO unit.**

**WARNING:** Backwashing of a carbon tank DOES NOT “REGENERATE” THE CARBON. If testing indicates a breakthrough of total chlorine, the carbon must be replaced. Backwashing the carbon tank removes dirt, re-luffs the carbon bed, dislodges bacteria colonies, and exposes new exchange sites but DOES NOT “REGENERATE” THE CARBON MEDIA.

WARNING. Severe clinical problems can be expected if the purified water contains more than 0.5 mg/L of free chlorine or more than 0.1 mg/L of chloramine.

NOTE: To compute chloramine, subtract the value of a free chlorine test from the value of a total chlorine test. Assume any difference is chloramine.

NOTE: **RPC** recommends that carbon tanks be re-bedded at least every six (6) months. (or more often if chlorine breakthrough occurs) to help prevent bacterial “overgrowth” and subsequent bacterial “seeding” of downstream equipment.

## **REBEDDING A CARBON EXCHANGE TANK:**

1. Turn off supply water and remove supply and output hose connections.
2. Grasp tank and turn exchange head counter clockwise (CCW) to remove.
3. If the riser tube does not come out with the exchange head, remove it at this time.
4. Invert tank to dump carbon and water.
5. Rinse out tank to remove remaining carbon.
6. Place riser tube in tank and fill with a shock level of chlorine solution. Prepare a shock solution by adding 1.5 oz (65 ml) of household strength (5.25%) bleach to the tank and fill to top with water. Place the tank head in a small container and cover it with bleach solution also (2.5 ml bleach per pint of water).
7. Leave solution in contact with tank 30 minutes to one hour.
- 8.. Remove disinfectant solution and rinse tank and riser thoroughly.
9. Cover top end of riser to prevent carbon from entering when filling tank.
10. Open carbon container and fill tank
11. Remove cover from the riser tube. Remove any carbon or dust from the threads of the tank and from the exchange head seal area.
12. Align the riser tube in the exchange head. With the riser tube in place, push the exchange head down until the exchange head butts against the tank threads. Turn the exchange head clockwise (CW) until tight and gasket seats.
13. Rinse the carbon tank per the installation and rinse procedure, check for leaks.