



# Commercial Filter Instructions

Please fill in this data for future reference :

Model No. \_\_\_\_\_ Serial No. \_\_\_\_\_

Date Installed \_\_\_\_\_

Installed By \_\_\_\_\_

- *Please refer to specifications drawings for maximum temperature & pressure. Do not exceed these limits!*
- *Please comply with all applicable plumbing codes.*
- *Confirm that water with sufficient volume and pressure is available to backwash this system.*
- *Read instructions completely before installing.*

## Installation Procedure

1. **Unpacking & Inspection** - Inspect for any visible damage; if found, contact transportation company for damages. Please refer to enclosed spec drawing for a listing of all included items. Piping and standard plumbing items are not included.  
**NOTE :** It is recommended to install unions at all connections to this equipment.
2. **Location** - Select a location near the water service inlet that is near a floor drain, kept from freezing, and reasonably dry. The floor should be level, and capable of bearing a heavy load. Keep in mind any future media replacement and allow adequate access. This unit must be installed so that pressurized water is available **at all times**, for backwash. On private well jobs, they are normally installed **downstream** from a pressure tank. Units installed prior to atmospheric tanks, must have optional "Clean Water Backwash".
3. **Check Distributor & Bottom Closure** - Confirm that the tank bottom closure (if used) is tight. Look down into the media tank(s) with a flashlight to confirm that distributor has not been damaged during shipment.

- A. **Hub & Lateral with Threaded Laterals** (used on 36" diameter tanks and smaller with 2750, 2850 and 3150 control valves) consists of eight (8) lateral sections connected to a hub attached to the bottom of the distributor tube. These lateral sections are threaded into the hub (one at a time) by lifting up on the distributor tube and reaching hand (holding one section) down into the top opening of the tank. They are screwed into the hub until snug only.
- B. **Hub & Lateral with Stacked Distributors** (used on 42" diameter tanks and larger) consists of six (6) lateral arms (each with multiple stack distributors), that are glued into the hub at the bottom of the distributor tube.

On tanks 30" diameter or larger, the distributor sits on top of a small pad at the tank bottom. Your distributor may have shifted during shipment. Be sure to check before filling.

- 4. **Filling Media Tanks** - Plug the top opening of the distributor tube(s) with a piece of cloth, cork, etc. **Fill the tank(s) about 1/3 with water**, then pour in gravel **slowly**. For units with multiple gravel sizes, put the largest ("A") in first, followed by medium ("B"), and finally the smallest ("D"). Pour in the media, which should result in the tank(s) being approximately 1/2 to 2/3 full. **For Multi-Layered Depth Filters**; separate the different medias and refer to system drawing for proper order of loading. If this is a multiple tank system, be sure to divide the gravel and media evenly. Fill tank(s) **completely** with water, and remove plug(s) that you put into distributor tube(s). **For Manganese Greensand or MTM™ Systems** : The media will need to be initially charged with potassium permanganate (KMNO<sub>4</sub>). Mix 4 ounces of KMNO<sub>4</sub> per cubic foot of media and pour directly into top of mineral tank after loading. Refer to section 12 for start-up instructions.

**CAUTION - If you dump in the gravel without first filling tank(s) 1/3 with water, then the distributor may crack. Media and gravel will pass onto service, and the tank may eventually leak from internal "sandblasting". To replace the distributor, you'll have to empty the tank completely!!**

- 5. **Control Valve** - Lubricate the O-rings for the distributor and tank top with silicone lube. For 2750 valves, lubricate O-rings and securely thread tank top adapter into media tank. For 30" diameter tanks and larger, secure the flange tank top adapter to the media tank using the hardware provided. Securely thread the control valve (valve body adapter for 2750 units) into the media tank, being careful to center the distributor tube. On 2750 units, mount the control valve onto the valve body adapter, using the supplied cap screws.
- 6. **Water Supply Connections** - Inlets and outlets are indicated on the control valve with raised arrows. Install pressure gauges on the inlet and outlet piping, and pipe in a bypass. If your system has any type of water heating device, then a check valve **must** be installed in the outlet line from the control valve. The tanks can "grow" up to 1/8" in height due to water pressure. If the piping can not bend adequately to compensate for this deviation, install flexible connections. Install a vacuum breaker if a siphon condition could occur (from a break at lower elevation, etc.).

**NOTE** : If diaphragm valves are to be installed for clean water backwash systems (parallel unit installations only), refer to system specifications drawing included for location and tubing connections. Diaphragm valves for 1" and 1 1/2" units are supplied with grooved male adapter nipples and 2" valves have female weld connections.

- 7. **Drain Line Connections** - Each control valve is supplied with a fixed flow control, in the drain line. For multiple parallel installations, the drain line from each control valve may be manifolded into one common line. If this is done, a check valve **must** be installed on each control valve drain line. **Do not** connect drain line directly to a sewer line, but position the end of the drain line securely above a floor drain, maintaining at least a 4" air gap to prevent siphoning. This line may be elevated up to 10 feet above the floor level, but the discharge end must be less than 4 feet above the floor. The drain piping must be the same pipe size as the flow control, unless it exceeds 20 feet in length. In that case, increase

the drain line pipe size.

8. **Electrical Connection** - Plug the power cord attached to the control valve into a standard 115 VAC 3-prong grounded receptacle. Do not use an outlet that is controlled by a wall switch or pull chain switch that could be inadvertently turned off.
9. **Setting The Time of Day** - Depress the red button and then rotate the large gear until the actual time of day is next to the "time of day" pointer, then release the red button. (Refer to Figure 1.) The units are factory preset to begin backwash at approximately 1:00 a.m.  
**NOTE :** If a different backwash time is desired, adjust time plate on 24 hour gear following the instructions in the control valve service manual.
10. **Setting Backwash Frequency** - Rotate the "skipper wheel" (Refer to Figure 1.) until "1" is at the red pointer. Each number on the skipper wheel represents one day. Set the day that you want backwash to occur on by simply sliding out its tab on the skipper wheel. It is recommended to backwash filters every six (6) days. Slide out TAB number 6 and 12 for this setting.

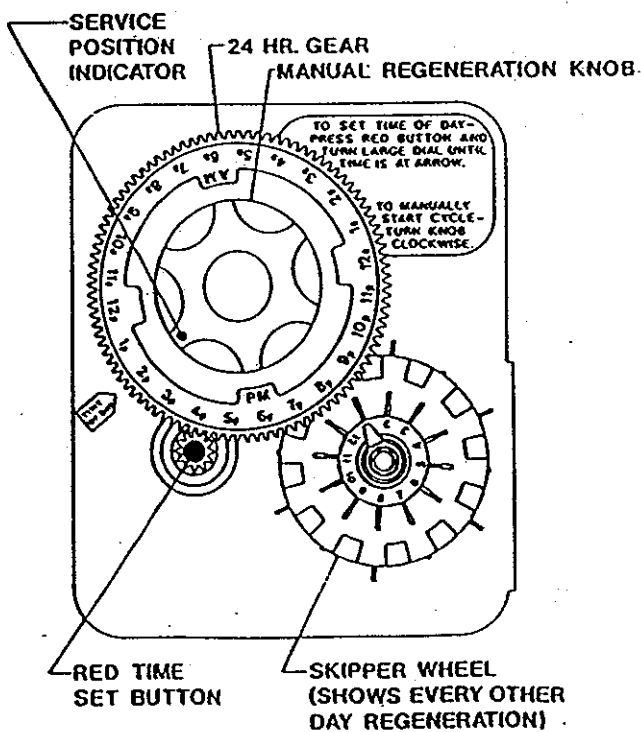


Figure 1

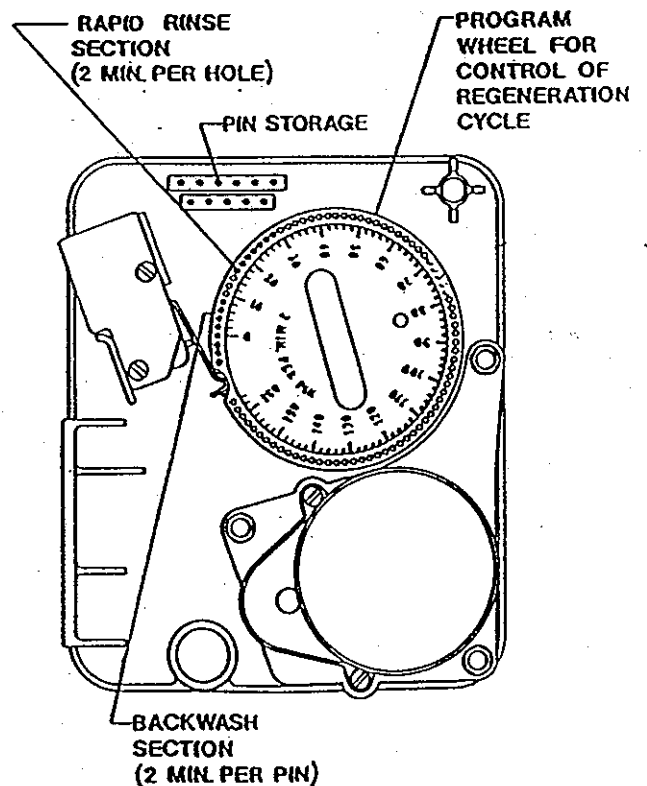


Figure 2

11. **Control Valve Position** - To set the control valve to the various positions noted in the next step, the "manual regeneration knob" is *slowly* turned in a clockwise direction until the drive motor(s) run and move the piston(s), as shown in the control valve service manual.

**CAUTION :** When you're manually advancing the regeneration knob, you **MUST** wait until all drives have fully stopped before advancing knob to next position. (This can take up to one minute.)

12. **Starting Pressurized Systems** - After all plumbing connections have been made and the control valve is plugged in and set, the unit can be placed in service as follows :

- A. With timer and valve in "Service" position, slowly rotate the regeneration knob clockwise until the motor runs and drive shaft goes into **backwash** position. You may wish to swing open the timer so that you can see which pin or hole section is engaging the outer microswitch. (Refer to Figure 2.) This determines which "mode" the control valve is in.
- B. Partially open the inlet valve *very slowly* to allow water to enter the unit. Water will enter in an upflow direction, and permit any trapped air to escape to drain. When all of the air has disappeared and a steady stream of water is observed in the drain, the inlet valve may be fully opened.
- C. Advance the regeneration knob to put the control valve into "Rapid Rinse" position. Confirm that water is flowing to drain and allow to run for 3 - 4 minutes.
- C1. **For Manganese Greensand or MTM™ Filters :** Once a dark pink color is observed in the drain line water, position valve to "Service" position and allow to set for one (1) hour.
- D. Position valve to "Backwash" mode, and allow to remain there for amount of factory preset, or until water becomes clear at drain. During these initial backwash periods, some media fines may be lost. This is normal, and extra media was provided to allow for this loss.
- D1. **For Manganese Greensand or MTM™ Filters :** Allow the control valve to finish both backwash and rapid rinse cycle for amount of factory preset. Repeat this step until drain line water is clear (no pink color observed).
- E. Position control valve to the start of "Service" position.
- F. For multiple unit installations, repeat steps A - F for remaining filters.
- G. Open outlet valve, and close the bypass valve. The unit is now in service!

- 12B. **Starting Clean Water Backwash Systems** - (Parallel unit installations only) - After all plumbing connections have been made and the control valves are plugged in and set, the units can be placed in service as follows :

- A. With timers and valves in "Service" position, open the inlet / outlet valve(s) *very slowly* to allow water to enter the units. Close the bypass valves, if installed.
- A1. **For Manganese Greensand or MTM™ Filters :** Partially open the inlet valve, but leave the outlet valve closed.
- B. Allow storage tank(s) to fill until there is enough water to check cycles on all units.
- B1. **For Manganese Greensand or MTM™ Filters :** Initial backwash and rinse will need to be accomplished using raw water. Disable diaphragm valves at this time.
- C. Slowly rotate the regeneration knob clockwise on the first unit until the motor runs and drive shaft goes into **backwash** position. You may wish to swing open the timer so that you can see which pin or

hole section is engaging the outer microswitch. (Refer to Figure 2.) This determines which *mode* the control valve is in.

- D. Partially open the inlet valve for the backwash line *very slowly* to allow water to enter the unit. Water will enter in an upflow direction and permit any trapped air to escape to drain. When all air has disappeared and a steady stream of water is observed in the drain, the inlet valve may be fully opened.
- D1. **For Manganese Greensand or MTM™ Filters** : Partially open inlet valve for the raw water line *very slowly* to allow water to enter the unit. Water will enter in an upflow direction and permit any trapped air to escape to drain. When all air has disappeared and a steady stream of water is observed in the drain, the inlet valve may be fully opened.
- E. Advance the regeneration knob to put the control valve into *Rapid Rinse* position. Confirm that water is flowing to drain and allow to run for 3 - 4 minutes.
- E1. **For Manganese Greensand or MTM™ Filters** : Once a dark pink color is observed in the drain line water, position control valve to service position and allow to set for one (1) hour.
- F. Position valve to *Backwash* mode and allow to remain there for amount of factory preset or until water becomes clear at drain. During these initial backwash periods, some media fines may be lost. This is normal and extra media was provided to allow for this loss.
- F1. **For Manganese Greensand or MTM™ Filters** : Allow control valve to finish both backwash and rapid rinse cycles for amount of factory preset. Repeat this step until drain line water is clear (no pink color observed).
- G. Position control valve to the start of *Service* position.
- H. Repeat steps C - G for remaining filters.
- H1. **For Manganese Greensand or MTM™ Filters** : Repeat steps A1, B1, D1, E1 and F1 for remaining filters
- I. **For Manganese Greensand or MTM™ Filters** : Reenable diaphragm valves and follow steps C - G to check clean water backwash functions.
- J. The system is now in service!

13. **Multiple Parallel Unit Installations** - For installation with multiple units that are all in service together, we recommend setting them to backwash one at a time. This is accomplished by simply setting the timer to regenerate on different days, or setting the time clocks at least one hour apart.