



# MASTER

*Water Conditioning Corp.*

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## Installation and Operation Manual



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### **MBA-MM-1040/10/13/1665 MULTI MEDIA FILTERS with the 263/742 Logix Control Valve**

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June 2010

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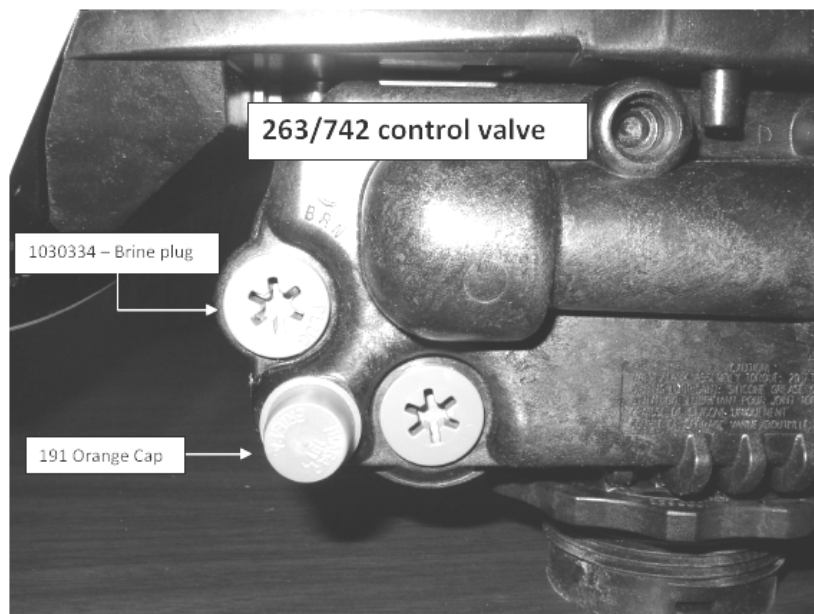
**Installation and Operating Instructions for**  
**263/742 Logix**  
**Top Mount Multi Media Filter**

**Model #:**

_____	MBA-MM-1040	1.0 CF Multi Media Filter
_____	MBA-MM-10-1	1.5 CF Multi Media Filter
_____	MBA-MM-13-1	2.5 CF Multi Media Filter
_____	MBA-MM-1665-1	4.0 CF Multi Media Filter

**NOTE: Product Change**

The brine plug (1030334) was added, and the brine line connection has an orange cap plug (191 Orange Cap). See Figure below. **DO NOT REMOVE CAPS OR PLUGS.**



***Shipping Carton Description / unit:***

# of cartons	Contents	Description
1	Mineral tank	Distributor pipe installed
1	263/742 Logix control valve	263/742 timer and backwash flow control and bypass with 1" copper or pvc connection
	#1 Sand	Box
	#0 Sand	Box
	#45 Sand	Box
	#0 Sand	Box
	Philterkol	Box

**Note: all units have a Vortech distributor and do not require gravel.**

***System Description:***

The multi media filter tank has a Logix top mounted automatic control valve with an electronic time clock to initiate regeneration. The Logix Valve is constructed of non-corrosive Noryl® material and is rated at a maximum working water pressure of 100 psi. It uses a 742 microprocessor based timer to actuate regeneration in the following ways:

- a. Manual regeneration button to start an emergency regeneration
- b. Regeneration day setting

**NOTE: THIS FILTER IS NOT INTENDED TO BE USED FOR TREATING WATER THAT IS MICROBIOLOGICALLY UNSAFE OR OF UNKNOWN QUALITY WITHOUT ADEQUATE DISINFECTION WHETHER BEFORE OR AFTER THE SYSTEM.**

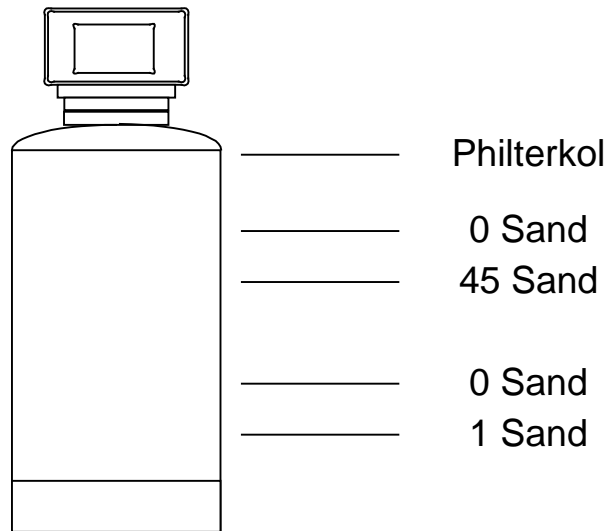
***Multi Media Filter Positioning:***

1. Place Multi Media Filter in desired position, far enough from walls and other obstructions to allow for servicing the unit.
2. Place the Multi Media Filter within reasonable access to a grounded 115V/60 HZ circuit and a legal drain line connection.

### ***Multi Media Filter Tank Loading:***

1. Remove yellow caplug from top of tank. DO NOT CUT white riser tube. Tube was prefitted at the factory.
2. The distributor is permanently attached to the vortech---centering is not necessary.
3. Cover the top opening of the distributor pipe before filling the tank with media.

Model #	Gravel	1 Sand	0 Sand	45 Sand	0 Sand	Philterkol
MBA-MM-1040	n/a	12 lbs.	8 lbs.	25 lbs.	17 lbs.	13 lbs.
MBA-MM-10	n/a	20 lbs.	12 lbs.	37 lbs.	25 lbs.	19 lbs.
MBA-MM-13	n/a	25 lbs.	16 lbs.	50 lbs.	35 lbs.	25 lbs.
MBA-MM-1665	n/a	50 lbs.	50 lbs.	100 lbs.	80 lbs.	50 lbs.



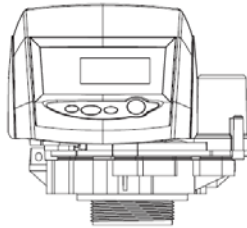
4. Pour all filter media provided with the unit into the top of the tank. See page one for your specific model number of unit to determine the amount of media to load into the mineral tank.
5. Remove the material used to cover the top opening of the distributor pipe.

### ***Logix Control Valve:***

1. When facing the front of the Logix timer, the inlet connection (**Figure 1**) is located on the left and the outlet connection is on the right. The control valve's inlet and outlet connections are either 1" copper or PVC equipped with gasket and nut.

Figure 1

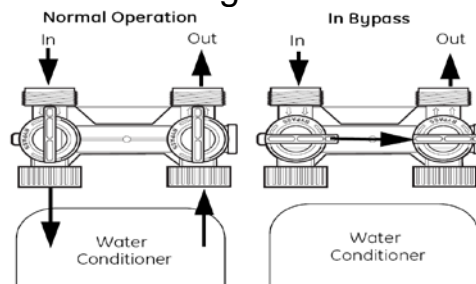
Left Side      Right Side



Install the 263 bypass valve (**See Figure 2**) with inlet and outlet handles facing upward. Place gasket into nut and secure 1" copper or PVC tail piece with a nut. Repeat the procedure for the outlet connection.

**DO NOT OVERTIGHTEN THE NUT.**

Figure 2



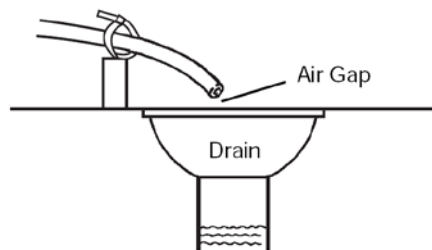
2. The control valve's drain connection is 3/4" npt and is located on the back of the control valve.
3. Turn the control valve upside down and ensure that the control valve distributor o'rings are in place. Use silicone lubricant on the o'rings.
4. Place the control valve onto the distributor pipe.
5. Thread the control valve hand tight to 20 foot pounds!

**DO NOT OVERTIGHTEN!**  
**\*\*DO NOT USE PETROLEUM!\*\***  
**\*\*USE ONLY SILICONE \*\***

***Service and Drain Piping:***

1. Pipe Multi Media Filter into the service lines .The inlet and outlet connections of the control valve are 1" copper or PVC and are located on the back of the valve body. As you face the timer the inlet is on the left and the outlet is on the right. Always follow local plumbing codes when installing our water treatment equipment.
2. If sweat fittings are used, be sure soldering is done in such a manner as not to allow heat to reach the control valve or bypass. (If Schedule 80 PVC is used make sure to follow the proper primer and solvent instructions.)
3. The drain line connection is located on the back of the valve as you face the timer. It is recommended you install a  $\frac{3}{4}$ " union on the drain line for servicing. The drain line must be of adequate size to allow for full regeneration flow.

Figure 3



- The control valve drain connection is  $\frac{3}{4}$ " npt.

- Never decrease the drain piping size to below  $\frac{3}{4}$ "
- Maximum drain line length is 30 feet.
- Maximum drain line height is 6 feet above the control valve.
- The drain line must be piped to an open air gap (See Figure 3)
- Always follow local plumbing codes.

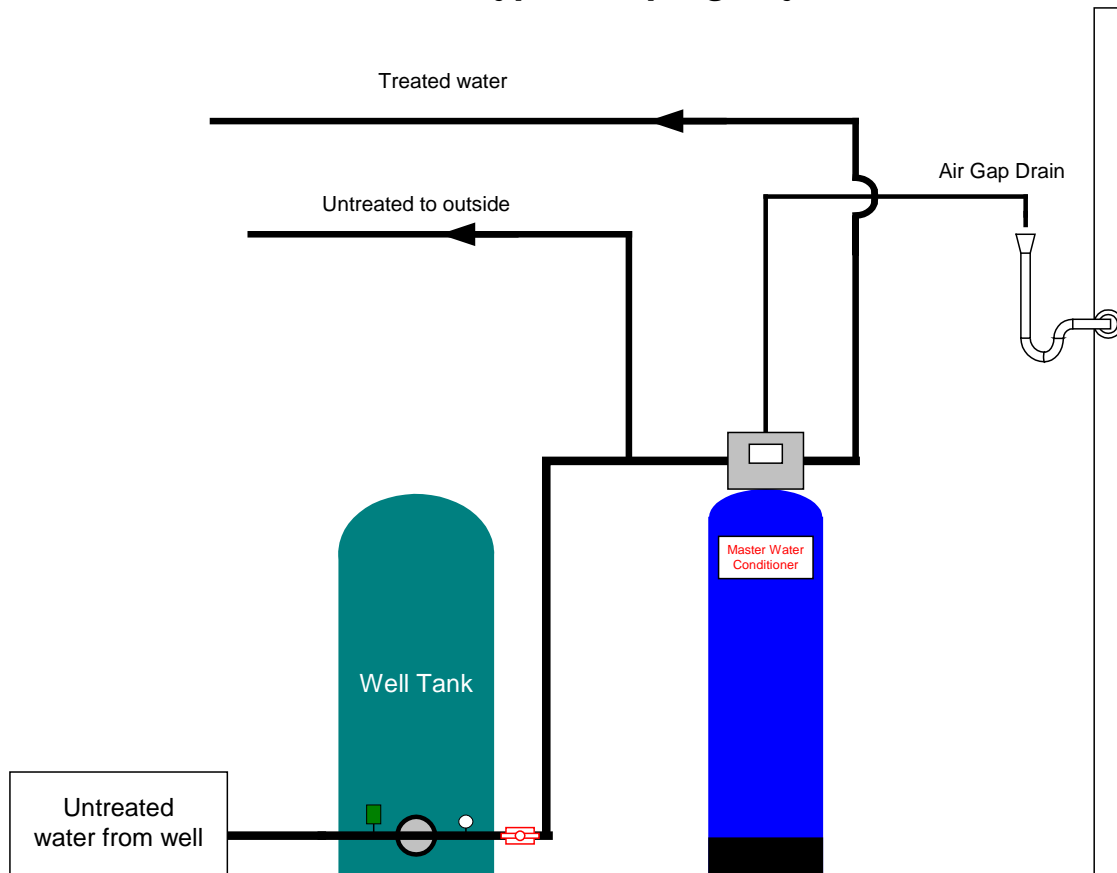


**WARNING:** Never insert drain line directly into a drain, sewer line or trap (Figure 8). Always allow an air gap between the drain line and the wastewater to prevent the possibility of sewage being back-siphoned into the conditioner.



224 Shoemaker Rd.  
Pottstown, PA 19464

### ***Typical Piping Layout***



**NOTE:** All Master Water Conditioners must be installed after the well tank or water meter if its public water supply.

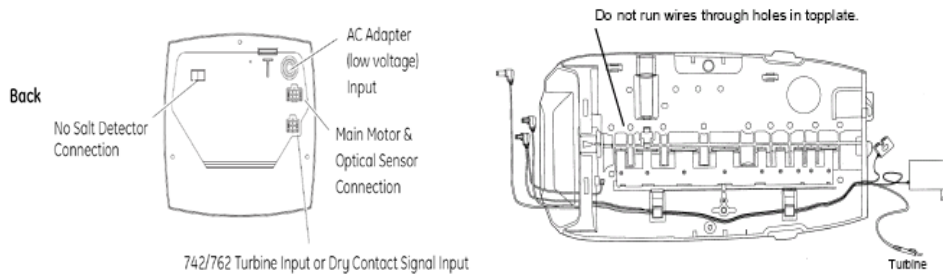
## ***Electrical Requirements:***

Always follow all local electrical codes when installing our water treatment equipment.

1. Provide an 115v/60Hz properly grounded dedicated electrical Outlet. (It's very important that the polarity be correct)  
**Avoid using outlets that are switch controlled.**
2. Maximum amperage required is 5 amps.
3. Make sure the electrical service provides power 24 hours per day.  
We recommend installing a **surge protector** to protect unit from power surges, which are not covered by warranty.

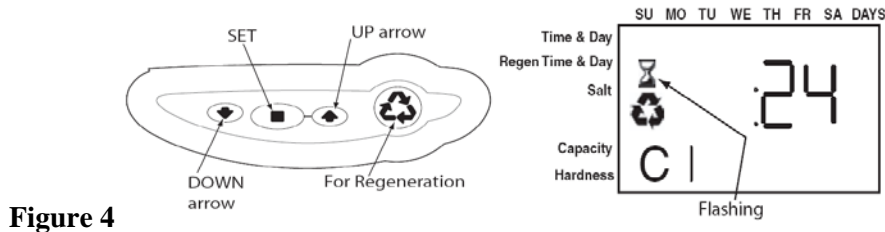
## ***Logix Control Valve Electrical Connection:***

**Note: Do not touch the wiring harness between the Logix timer and the motor, it's positioning is critical and therefore already installed at the factory.**



1. Remove plastic control valve cover by spreading sides while lifting.
2. Plug transformer into back of timer following existing wires.
3. Plug transformer into a properly grounded 120V/60 HZ electrical outlet.
4. The screen will now display "263" then the "Time of Day".

## ***Filling Multi Media Filter with Water:***



**Figure 4**

1. Push the FOR REGENERATION button (**Figure 4**) on the controller down for 5 seconds. This will initiate a manual regeneration. You will notice a flashing hour glass during regeneration.

The controller will indicate that the motor is turning the camshaft to cycle C1 (BACKWASH). The controller will indicate the total regeneration time remaining. Filling tank in this position allows air to escape from drain.

Open the bypass inlet valve  $\frac{1}{4}$  turn and allow water to flow into the mineral tank at a slow rate.

***Warning: IF WATER ENTERS THE TANK TOO FAST, ALL THE MEDIA WILL BE FLUSHED TO DRAIN DURING START UP.***

2. When water is running steadily at the drain, open the bypass valve's inlet and outlet to their maximum position.
3. Simultaneously press the SET and UP buttons on the controller for 1 second then release, the motor will advance the cam to C2.
4. Once C2 is displayed simultaneously press the SET and UP buttons on the controller for 1 second then release, the motor will advance the cam to C3.
5. Repeat this procedure until the timer enters the C7 (FAST RINSE) position. The multi media filter will go through the rinsing cycle and then automatically advance to (REGENERATION COMPLETE) C0 and Time of Day will be displayed. This is treated water.

#### **Regeneration Cycles:**

- C1 – Backwash
- C2 – Regeneration Draw/Slow Rinse (not used in filter mode)
- C3 – Slow Rinse (not used in filter mode)
- C4 – System Pause (to repressurize tank)
- C5 – Fast Rinse cycle 1
- C6 – Backwash cycle 2 (not used in filter mode)
- C7 – Fast Rinse cycle 2 (not used in filter mode)
- C8 – Regenerant Refill (not used in filter mode)

#### **Logix Control Valve Timer Settings:**

**Note:** The control valve is set at the factory. You only need to set the time of day and regeneration time if required, which is preset at 1 am.

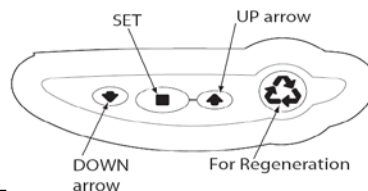


Figure 5

#### **Time of Day Setting**

- 1) Press the SET button. The screen will show the Time of Day in blinking numbers.
- 2) To change the Time of Day, use the UP or DOWN arrows.
- 3) Press the SET button.

#### **Day of Week Setting**

- 1) Press the SET button. The screen will show the Day of Week in blinking triangle.
- 2) To change the Day of Week, use the UP or DOWN arrows.
- 3) Press the SET button.

#### **Time of Regeneration Setting (the factory default is 1 AM)**

- 1) Press the SET button. The screen will show the Time of Regeneration in blinking numbers.
- 2) To change the Time of Regeneration, use the UP or DOWN arrows.
- 3) Press the SET button.

**Regeneration Frequency Setting (the factory default is 7)**

- 1) Press the SET button. The screen will show the Regeneration frequency in blinking numbers.
- 2) To change the number, use the UP or DOWN arrows.
- 3) Press the SET button.

If you wish to regenerate on certain days of the week, do the following:

- a. First, do steps above, but set at zero.
- b. Press SET button until you reach the day you wish to regenerate.
- c. Press the UP or Down arrows to set the day.
- d. Press the SET button to lock the day in.
- e. Repeat process to select the next day of regeneration.

NOTE: The days of Regeneration will be highlighted on the screen.

**Final Check:**

1. Inspect the treated water to assure that the media fines (color) have been flushed from the unit. Make sure the drain line connection meets all plumbing codes and that the drain line size can handle the backwash flow rate of the multi media filter.
2. Make sure the Inlet and Outlet on bypass valve are open.
3. Make sure the control valve timer is plugged into an electrical outlet with power 24 hours per day.
4. Check all piping for leaks.

**Specification Reference Table**

Model #	Conditioned Water Flow Rate	Backwash Required	Backwash Timing	Slow Rinse Timing	Fast Rinse Timing
MBA-MM-1040	5.0 gpm	6.0 gpm	15 Minutes	0 Minutes	10 Minutes
MBA-MM-10	5.0 gpm	6.0 gpm	15 Minutes	0 Minutes	10 Minutes
MBA-MM-13	8.0 gpm	10.0 gpm	15 Minutes	0 Minutes	10 Minutes
MBA-MM-1665	12.0 gpm	15.0 gpm	15 Minutes	0 Minutes	10 Minutes

## Troubleshooting

**Symptom:** Water conditioner fails to regenerate. Dirty water.

Possible Cause	Solution
Power supply to 742 control has been interrupted.	Determine reason for power interruption and correct. Reset time of day.
Water pressure lost.	Restore water pressure.
Corrupted programming of 742 Logix timer.	Reprogram timer assembly.
Defective 742 Logix timer.	Replace timer assembly.
Manual bypass valve is open.	Close manual bypass valve.
Leak at riser pipe seal.	Insure that riser pipe is properly sealed at o'ring seal. Inspect pipe for cracks.

**Symptom:** Loss of Media to Drain

Possible Cause	Solution
No flow control installed in drain line.	Install drain line flow control.

**Symptom:** Leak to Drain

Possible Cause	Solution
No flow control installed in drain line.	Install drain line flow control.
Insufficient water pressure.	Increase water pressure above 25 psig (172kPa) minimum.
Damaged valve disk or obstruction in valve disk.	Inspect and if damaged, replace all valve disks or remove obstruction.

**Symptom:** Loss of Water Pressure

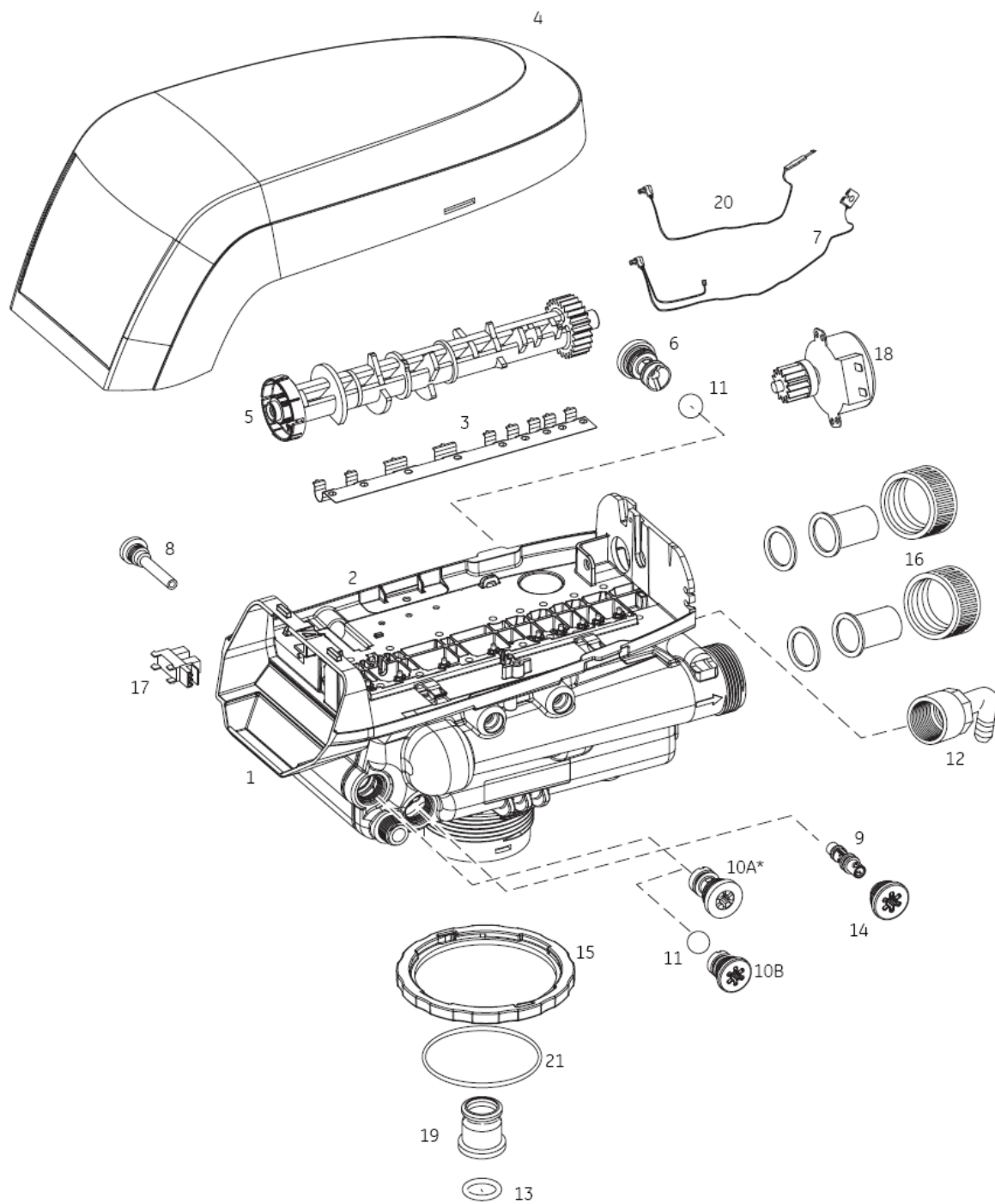
Possible Cause	Solution
Fouled filter media bed due to iron accumulation.	Clean control valve and rebed mineral tank with new media.
Slots in riser pipe or laterals are filled with media fines.	Inspect and clean distributor pipe slots as needed.

## TROUBLESHOOTING

### 700 Series Controller Troubleshooting

Problem	Possible Cause	Solution
ERR 1 is displayed	Controller power has been connected and the control is not sure of the state of the operation.	Press the UP arrow and the control should reset.
ERR 2 is displayed	Controller power does not match 50 or 60 Hz.	Disconnect and reconnect the power. If problem persists, obtain the appropriate controller or AC adapter for either 50 or 60 Hz power.
ERR 3 is displayed	Controller does not know the position of the camshaft. Camshaft should be rotating to find Home position.	Wait for two minutes for the controller to return to Home position. The hourglass should be flashing on the display indicating the motor is running.
	Camshaft is not turning during ERR 3 display.	Check that motor is connected. Verify that motor wire harness is connected to motor and controller module. Verify that optical sensor is connected and in place. Verify that motor gear has engaged cam gear. If everything is connected, try replacing in this order: —Wire harness —Motor —Optical sensor —Controller
	If camshaft is turning for more than five minutes to find Home position:	Verify that optical sensor is in place and connected to wire. Verify that camshaft is connected appropriately. Verify that no dirt or rubbish is clogging any of the cam slots. If motor continues to rotate indefinitely, replace the following components in this order: —Wire harness —Motor —Optical sensor —Controller
Four dashes displayed: — — : — —	Power failure occurred	Press SET to reset the time display.

# Performa Exploded View



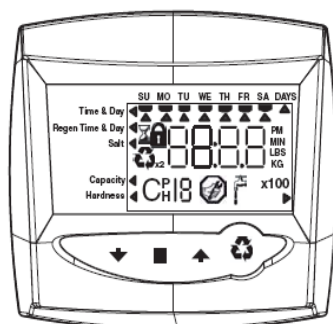
\*Warning: Do not use the flow control ball with #10A.

## Performa Parts List

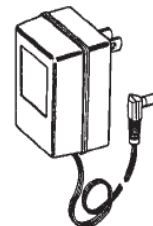
Part				Part			
Code	No.	Description	Qty.	Code	No.	Description	Qty.
1	1244651	Valve Assembly w/o Flow Controls	1	1035735	"K" Injector (High Efficiency) - Pink		
2	1235338*	Top Plate, 268/700 Series Valves	1		(12-inch tank)		
3	1235339*	Valve Disc Spring, One Piece, Performa Valve	1	1035736	"L" Injector (High Efficiency) - Orange		
					(13 & 14-inch tanks)		
4	1236246*	Cover, Valve, 255/Performa 700/860 Series Controller	1	1032978	Plugged Injector for 263 Filter		
				1032985	Plugged Injector Cap		
5		Performa Logix Camshafts	1	10A	1000222	Regenerant Refill Controller, No Bal, 0.33 gpm	1
	1235352*	Cam, 263-268/700-860 Series Valve, STD, Black		10B	1243510	Regenerant Refill Controller	
	1237402*	Cam, 269/700-860 Series Valve, STD, Green		11	1030502	Ball, Refill Flow Control	
	1237403*	Cam, 273/700-860 Series Valve, STD, Gray		*	1030334	Plugged Refill Flow Control - for 263 Valve	
	1237404*	Cam, 273/700-860 Series Valve, TWIN (insert)		12	1002449	Drain Fitting Elbow (3/4-inch hose barbed)	1
	1237405*	Cam, 278/700-860 Series Valve, STD, Brown		13	1010428	O-Ring	1
	1237406*	Cam, 278/700-860 Series Valve, TWIN, Tan (insert)		14	1000269	Injector Cap with O-Ring	1
6		Drain Control Assembly:	1	15	1035622	Tank Ring	1
	1000209	No. 7 (1.3 gpm; 4.9 Lpm)		*	1041174	Valve Disc Kit: Standard	
	1000210	No. 8 (1.7 gpm; 6.4 Lpm)		16	Plumbing Adapter Kits:		1
	1000211	No. 9 (2.2 gpm; 8.3 Lpm)			1001606	3/4-inch Copper Tube Adapter Kit	
	1000212	No. 10 (2.7 gpm; 10.2 Lpm)			1001670	1-inch Copper Tube Adapter Kit	
	1000213	No. 12 (3.9 gpm; 14.76 Lpm)			1001608	22-mm Copper Tube Adapter Kit	
	1000214	No. 13 (4.5 gpm; 17 Lpm)			1001613	3/4-inch CPVC Tube Adapter Kit	
	1000215	No. 14 (5.3 gpm; 20 Lpm)			1001614	1-inch CPVC Tube Adapter Kit	
	1239760	Blending Valve Kit 900/700 Series Top Plate			1001615	25-mm CPVC Tube Adapter Kit	
*		Drain Line Flow Control (External)	1		1001769	3/4-inch NPT Plastic Pipe Adapter Kit	
	1030355	Drain Line Flow Control, 5 gpm (19 Lpm)			1001603	1-inch NPT Plastic Pipe Adapter Kit	
	1030356	Drain Line Flow Control, 6 gpm (22.5 Lpm)			1001604	3/4-inch BSPT Plastic Pipe Adapter Kit	
	1030357	Drain Line Flow Control, 7 gpm (26.5 Lpm)			1001605	1-inch BSPT Plastic Pipe Adapter Kit	
	1030358	Drain Line Flow Control, 8 gpm (30 Lpm)			1001611	3/4-inch BSPT Brass Pipe Adapter Kit	
	1030359	Drain Line Flow Control, 9 gpm (34 Lpm)			1001610	1-inch NPT Brass Pipe Adapter Kit	
	1030360	Drain Line Flow Control, 10 gpm (38 Lpm)			1001612	1-inch BSPT Brass Pipe Adapter Kit	
7	1235269	Motor/Optical Cable Assembly, 700 Series Controller	1	17	1235373	Module, Sensor, Photo Interrupter	1
8	1000226	Screen/Cap Assembly w/ O-Ring	1	18	1235361	Motor w/Spacer & Pinion, 700 Series Controller, 12 V, 50/60 Hz	1
9		Injector (High Efficiency) Options					
	1035730	"E" Injector (High Efficiency) - Yellow (6-inch tank)		19	1001986	13/16 inch Rubber Insert (Optional)	1
	1035731	"F" Injector (High Efficiency) - Peach (7-inch tank)		20	1235446	Turbine Cable	1
	1035732	"G" Injector (High Efficiency) - Tan (8-inch tank)		21	1010154	Tank O-Ring	1
	1035733	"H" Injector (High Efficiency) - Lt Purple (9-inch tank)		*	1033444	Internal Turbine Meter	
	1035734	"J" Injector (High Efficiency) - Lt Blue (10-inch tank)		*	1233187	Motor Locking Pin	
				*	1299336	Chlorine Generator Kit	
				*	1033444	Turbine Assembly	
				*	1041174	Valve Disc Kit, Standard	
				*	1239979	Cable Harness, Remote Regen 740F	
				*	1239711	Switch Kit, Front Mount, 0.1 amp	
				*	1239752	Switch Kit, Front Mount 5 amp	
				*	1239753	Switch Kit, Top Plate Mount, 0.1 amp	
				*	1239754	Switch Kit, Top Plate Mount, 5 amp	

\*Not shown on drawing.

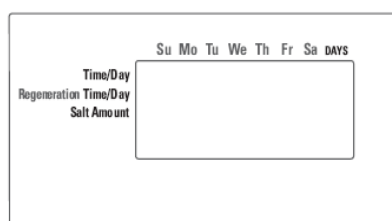
## Logix 700 Series Controllers Parts List



742/762 Control



AC Adapter



700 Control Overlays

Part				Part			
Code	No.	Description	Qty.	Code	No.	Description	Qty.
		Electronics Modules/Controllers	1			AC Adapter	
1242150		Logix 742 Controller		1000810		Japanese	
1242162		Logix 742 F Controller		1000811		North American	
1242168		Logix 762 Controller		1000812		Australian	
1242170		Logix 762F Controller		1000813		British	
		Electrical Components		1000814		European	
1235269		Motor/Optical Cable Assembly, 700 Series Control		1030234		Transformer Extension Cord 15 foot (4.5m)	
1235373		Module, Sensor, Photo Interrupter		1235448		North American Outdoor AC Adapter	
1235361		Motor w/Spacer & Pinion, 700 Series Controller 12V, 50/60 Hz				Overlays	
1244336		Refill Sensor Probe for Salt Detector Applications		1238472		Overlay, 716 Controller, English	
1256257		Remote Mount Kit		1238476		Overlay, 740C/742C Controller, English	

# 12 YEAR LIMITED WARRANTY

As of Oct. 1, 1995

This Residential Water Conditioner is warranted for a period of **one year** from date of purchase by first user against defects in materials and workmanship. In addition, the complete control valve is warranted for **five years**. The control valve body (excluding internals and electrical parts) is warranted for **six years**. The mineral tank, plastic brine tank or cabinet tank (excluding mineral) is warranted against rust, corrosion or bursting for a period of **twelve years** from date of manufacture. Except, as specifically set forth in this paragraph, Master Water Conditioning Corporation makes no other warranties, express or implied.

This warranty shall be void if the conditioner is moved from the place of original installation, or if damage is caused by misuse, misapplication, accident, freezing, flood, fire or if not installed in accordance with instructions furnished by Master Water Conditioning Corporation.

This warranty shall be void in the event of damages from external sources or where the conditioner has been operated at pressure in excess of 100 pounds per square inch or at a temperature greater than 100 degrees F. or less than 32 degrees F. Incidental costs or consequential damages are not covered by this warranty.

All defective parts shall be returned prepaid to Master Water Conditioning Corporation for inspection. **Master shall not be liable for labor charges other than Master factory repairs.**

This warranty gives you specific legal rights, and you may have other rights which vary from state to state. Some states do not allow limitations on duration of implied warranties or exclusion of incidental or consequential damages, so the above limitations may not apply to you.

All claims must be submitted in writing to Master Water Conditioning Corporation at 224 Shoemaker Road, Pottstown, Pennsylvania 19464 within thirty (30) days from the discovery of the defect. Master Water Conditioning Corporation thereafter will correct defective parts and workmanship or rusting, corrosion or bursting within sixty (60) days.

Failure to notify Master by completing, signing and returning the registration card within twenty (20) days of the purchase shall void the warranty.



224 Shoemaker Rd. Pottstown, Pa. 19464