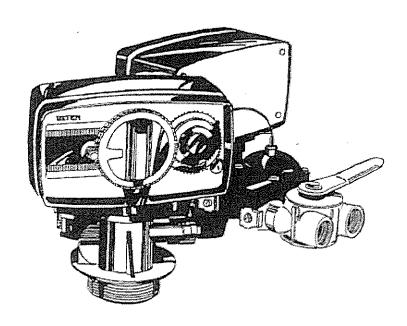


**Quality Water Treatment Products** 



# WTFNDR Series Residential Metered Nitrate System

Installation and Operation Manual

March 2015 Version

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# Installation and Operating Instructions for WTFN Top Mount Nitrate Filters

#### Model #:

WTFN240DR	Nitrate Filter
WTFN320DR	Nitrate Filter
WTFN480DR	Nitrate Filter
WTFN640DR	Nitrate Filter

## Shipping Carton Description / unit:

# of cartons	Contents	Description
1	Mineral tank	Distributor pipe installed
1	WTFN control valve	WTFN control valve and bypass

Note: The WTFN320DR units have a vortech distributor and do not require gravel.

#### Filter Media is Packaged as Follows:

Model #	Gravel (preloaded at factory)	Media
WTFN240DR	15 lbs.	0.75 CF A-520E
WTFN320DR	n/a	1.0 CF A-520E
WTFN480DR	15 lbs.	1.5 CF A-520E
WTFN640DR	20 lbs.	2.0 CF A-520E

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.

#### Water Filter Positioning:

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

#### Water Filter Tank Loading:

- 1. (Note: only for the 240, 480, and 640 units) Center the distributor and make sure it is resting on the bottom of the tank. The top of the distributor pipe should be flush with the top of the tank (this was prefitted at the factory).
- 2. Cover the top opening of the distributor pipe before filling the tank with media.
- 4. Pour the appropriate media provided with the unit into the top of the tank. See page one for your specific model number unit to determine the amount of media to load into the mineral tank.

Model #	Media
WTFN240DR	0.75 CF A-520E
WTFN320DR	1.0 CF A-520E
WTFN480DR	1.5 CF A-520E
WTFN640DR	2.0 CF A-520E

5. Remove the material used to cover the top opening of the distributor pipe.

#### WTFN Control Valve:

- 1. Turn the control valve upside down and ensure that the control valve distributor o'ring is in place. Use silicone lubricant on the o'ring.
- Place the control valve onto the distributor pipe and into the tank opening.
- 3. Thread the control valve hand tight. Do not overtighten.
- 4. The control valve's drain connection is 1/2" npt and is located on the back right of the control valve.

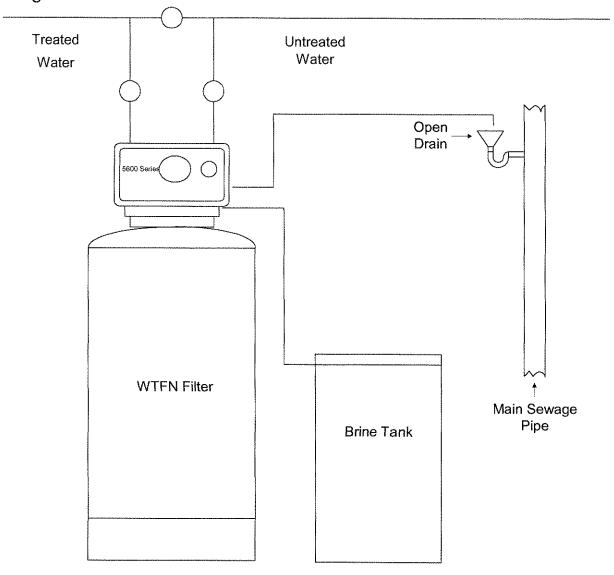
#### Service and Drain Piping:

 Pipe filter system into the service lines (see Figure 1) using the bypass valve assembly supplied with the unit. The inlet and outlet connections of the control valve are located on the back of the valve body. As you face the timer the inlet is on the right and and the outlet is on the left. 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 valve. 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 top of the valve body as you face the timer. The drain line must be of adequate size to allow for full regeneration flow.
  - The control valve drain connection is 1/2" npt.
  - Never decrease the drain piping size to below 5/8".
  - Maximum drain line length is 20 feet.
  - Maximum drain line height is 8 feet above the control
  - valve.
  - The end of the drain line must be piped to an open drain.
  - Always follow local plumbing codes when piping drain lines to a waste pipe.

UNDER NO CIRCUMSTANCES SHOULD THERE BE A DIRECT CONNECTION WITH SANITARY SEWAGE FACILITIES.

Figure 1



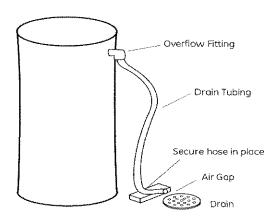
#### Electrical Requirements:

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

- 1. Provide a properly grounded 115V/60 HZ electrical outlet.
- 2. Maximum amperage required is 3 amps.
- 3. Make sure the electrical service provides power 24 hours per day. Avoid using outlets that are switch controlled.
- 4. Follow all local electrical codes when installing our water treatment equipment.

#### Brine Tank:

- The brine tank should be located directly beside the water filter mineral tank.
- 2. Connect one end of the 3/8" poly tubing to the compression fitting on the top of the brine shutoff valve located in the brine tank and the other end to the compression fitting located on the right side of the WTFN control valve.
- 3. Make sure the plastic gripper assembly is properly positioned on each end of the tubing.
- 4. The brine shutoff valve contains a float that controls the water level in the brine tank. The float height was preset at the factory.

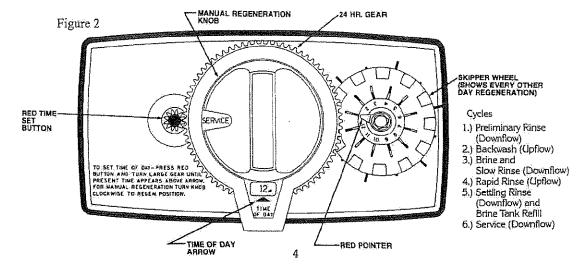


#### Filling Water Filter with Water:

- 1. Close inlet and outlet ball valves.
- Turn Manual Regeneration Knob in a clockwise direction until you reach the Backwash position.
- Open inlet ball valve 1/4 turn and allow water to fill tank slowly for approximately 10 minutes. After all air has been purged from tank, fully open inlet ball valve and allow water to run in this position for 15 minutes.
- Turn the Manual Regeneration Knob in a clockwise direction until you reach the Rapid Rinse position. Allow the unit to stay in this position for approximately 10 minutes to purge the media fines to drain.

5. Plug the timer into the electrical outlet. The timer will automatically advance to the service position after completing the Rapid Rinse cycle. If water runs dirty to service, place unit in backwash position and allow the timer to go through a complete regeneration. The total regeneration will take approximately 2 hours. The unit will be in the service position after regeneration is complete.

#### WTFN Control Valve Timer Settings:



#### Time of Day Setting

- To set the proper time of day, depress the Red Time Set Button and turn the 24 Hour Gear until the correct time of day is aligned with the Time of Day Arrow. Note whether the time is A.M. or P.M.
- 2) The timer is preset to regenerate at 12:00 AM.

# Regeneration Frequency Setting (1-99 Days Between Regeneration Option) (the factory default is 2 AM)

- 1) Locate the Skipper Wheel on the timer. (See Figure 2).
- 2) The Skipper Wheel has a total of 12 pins which means you have a variety of choices for regeneration frequency. To set a regeneration simply slide a pin to the outside of the Skipper Wheel. This exposes the pin beyond the outer edge of the Skipper Wheel and will engage a regeneration cycle on that day. le: Sliding the # 1 pin to the outside sets the timer to regenerate once every 12 days.

3) The recommended regeneration frequency will change according to your water quality problems. We usually recommend a regeneration frequency of 1x6 days for normal water conditions and 1x3 days for severe water conditions. Please contact installer for assistance.

#### Final Check:

- 1. Make sure the water level in the brine tank is at least 1" above the plastic grid plate.
- 2. Fill the brine tank with Solar Salt
- 3. Make sure the drain line connection meets all plumbing codes and that the drain line size can handle the backwash flow rate of the filter.
- 4. Make sure the Inlet and Outlet ball valves are open and the Bypass ball valve is closed.
- 5. Make sure the control valve timer is plugged into an electrical outlet with power 24 hours per day.
- 6. Check all piping for leaks.

# Troubleshooting

# **Symptom:** Unit Fails to Regenerate

Cause	Solution
Faulty electrical supply	Verify that electrical power is getting to the outlet
Low inlet water pressure	Verify a minimum 20 psi inlet water pressure
Drain line is restricted	Insure that the drain line is free of blockage
Defective timer motor	Replace the timer motor
Plugged backwash flow control	Clean or replace the backwash flow control
All skipper pins are slid inward	Slide the desired number of pins outward
The injector is plugged	Clean the injector

# **Symptom:** Hard Water When Unit is in Service Position

Cause	Solution
The bypass valve is open or	Insure that the bypass valve is in
defective	the service position
No salt in the brine tank	Add solar salt to the brine tank
Not enough water in the brine	Verify that the 5600 timer is set
tank	for the proper amount of salt
	usage
Unit fails to draw brine (salt	See symptom: Unit fails to draw
water)	brine
Excessive water usage	Set the timer to regenerate more
	often
Loss of cation resin	See symptom: Loss of cation
	resin
Change in raw water hardness	Test the raw water hardness
level	level and adjust regeneration
	frequency
Leak at the distributor tube	Verify that the distributor is flush
	with the top of the tank

# **Symptom:** Unit uses too Much Salt

Cause	Solution
Improper salt usage timer setting	Verify that salt usage setting on the back of the timer is set according to the Specification Reference Table
Excessive water in the brine tank	See symptom: Excessive water in Brine Tank

# **Symptom:** Loss of Cation Resin

Cause	Solution
Backwash flow control is missing	Verify that the proper backwash
or is the incorrect size	flow control is installed
Air in the system	Verify that the well system is
	operating properly

# **Symptom:** Excessive Water in the Brine Tank

Cause	Solution
Injector is plugged	Clean or replace the injector
Defective or damaged	Replace the piston/spacers
piston/spacers assembly	assembly
The brine float assembly seals	Replace the 464 brine float
on the 464 brine tank shutoff are	assembly
dirty or worn	
Salt setting at the back of the	Verify that the salt setting on the
timer assembly is set incorrectly	timer assembly corresponds with
	the reference table
Drain line is restricted	Insure that there are no
	restrictions in the drain line
	piping
Plugged backwash control	Clean the backwash flow control
	(BWFC)

# **Symptom:** Unit Fails to Draw Brine

Cause	Solution
Injector is plugged	Clean or replace the injector
Loose suction line connection	Verify that all suction line connections are tight
Drain line is restricted	Insure that there are no restrictions in the drain line piping
Low inlet water pressure	Verify a minimum 20 psi inlet water pressure
Improper installation of distributor pipe	Verify that the distributor is flush with the top of the tank

## **Symptom:** Continuous Flow to Drain

Cause	Solution
Defective or damaged	Replace the piston/spacers
piston/spacers assembly	assembly
Piston rod assembly is damaged	Replace piston rod assembly
Drive motor failure	Replace the drive motor

#### **Symptom:** Loss of Water Pressure

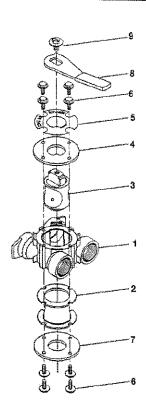
Cause	Solution
Dirt build-up in softener tank	Clean or replace the Cation Resin
Dirt build-up in the inlet piping to the Water Softener Unit	Clean or replace the inlet piping
Distributor pipe is plugged	Clean or replace the distributor pipe

# **Symptom:** Control Valve Cycles Continuously

Cause	Solution	
Defective timer assembly	Replace the timer assembly	

## WTFN FILTER CONTROL VALVE & PARTS

# MODEL 5600 by-pass valve assembly



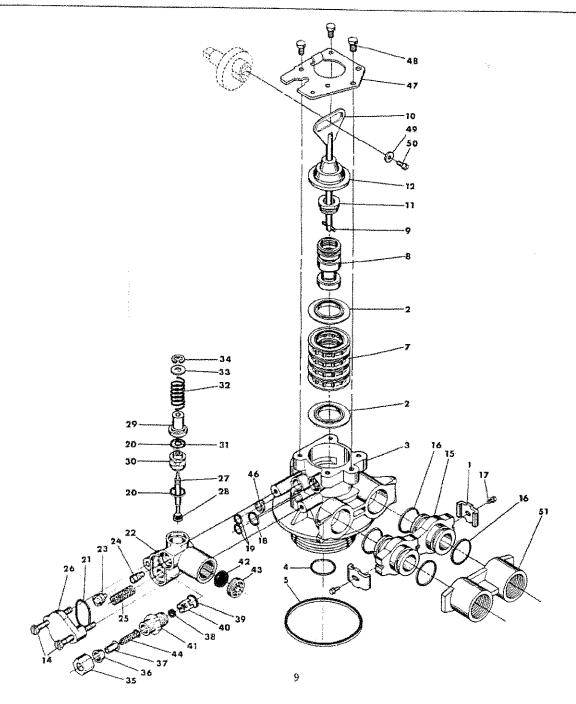
#### PARTS LIST

item No.	Quantity	Part No.	Description
1	1	. 17290	By-Pass Valve Body, 3/4"
	1	. 17290NP	By-Pass Valve Body, 3/4" Nickel Plate
	1	. 13399,	By-Pass Valve Body, 1"
	1	. 13399NP ,	By-Pass Valve Body, 1°, Nickel Plate
2	1	. 11726	Seal, By-Pass
3	1	. 11972	Plug, By-Pass
4 , ,		. 11978	Side Cover
5 ,	<i>.</i> . 1	. 13604-01	Label
6	8	. 15727	Screw
7	1	, 11986	Side Cover
В	1	. 11979	Lever, By-Pass
9	<b>1</b> . <i></i> .	, 11989	Screw, Hex Heart 1/4-14

# **MODEL 5600**

# control valve assembly

(see opposite page for parts list)



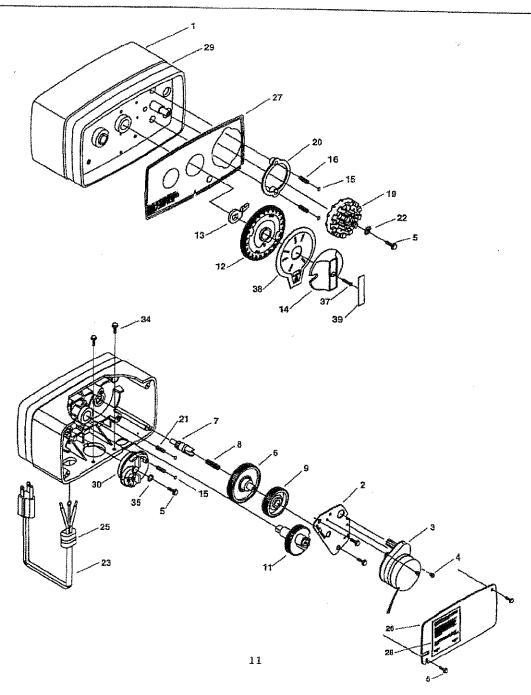
#### MODEL 5600 CONTROL VALVE ASSEMBLY PARTS LIST

ITEM NO.	NO.	REQ'D.	PART I	10.		DESCRIPTION
1		. 2 ,	. 13255			Adapter Clin
2		.5	. 13242			Seal
3		, 1, , , , , , , , ,	. 14449			Valve Body Assembly , 1" Dist
		1	. 14450			Value Body Assembly - 13/4 Diet
4			. 13304			"O" Ring - Distributor Tube - 1"
		1,,,,,,,,,,	. 10244			"O" Ring - Distributor Tube - 12/4"
5		. 1	. 12281	*****		"O" Films - Ton of Tank
6						Not Assigned
7		. 4	. 14241	* 7		Spacer
8 , ,	, , , ,	. 1 , , , ,	. 13247	* * 7 * * * *		Piston - Standard
		1	. 13781	+ + • + • • •		Piston - Low Water
		1	. 13852			Piston - Filter
9		.1	. 10696			Piston Pin
10		.1	. 13001			Piston Rod Assembly
11		.1	. 12953			Piston Retainer
12,.		.1	. 13446	••••••		End Pluo Assembly Strt White
		********	. 13446	-10		End Plun Assembly Filter - Black
		********	. 13446	-20		End Pluc Assembly I no Water - Gray
13						Not Assigned
14		.2	. 13315			Screw - Injector Mounting
15		.2	. 13709			Adapter Coupling
16,		.4	. 13305			*O" Ring - Adapter Coupling
17		. 2	. 13314			Screw - Adapter Coupling
10	* * + *		. 12638			"O" Ring - Drain
130	• • • •		. [330]	* * *, * * *		"O" Ring - Injector
20		*	10000		* 1.0 × 4	"O" Ring - Brine Spacer "O" Ring - Injector Cover
を りょ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・		. 1	10000	* * * * * * * * * * * * * * * * * * *		"U" Hing - Injector Cover
23	* * * *	. 4	10019	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		. Injector Body . Injector Nozzle - Specify Size
24		. 1	. 10914			. injector Nozzie - Specify Size . injector Throat - Specify Size
25		. 1	. 10227			. Injector Screen
26		. 1	. 13166	}		. injector Cover
27		. 1	. 13172			. Brine Valve Stem
28.,,		.1	. 12626	}		. Brine Valve Seat
29		. 1	. 13165	1 * * * * *	,	. Brine Valve Cap
30		. 1	. 13167	, , , , , , , ,		. Brine Valve Spacer
31			. 12550	]		. Quad Ring
32,		. ]	. 11973		< * * 4 °	. Spring - Brine Valve
33		. ]	. 16098	3 , , , , , ,	* * * * *	. Washer - Brine Valve
34,	• • • •		. 11981	[-01.,,,	****	. Retaining Ring
90.,,,,			10025	* * * * * * * *		. B.L.F.C. Fitting Nut
- 3U-,,,,,		. * * * * * * * * * * * * * * * * * * *	10330	,	· · · · ·	. B.L.F.C. Ferrule . B.L.F.C. Tube Insert
28			1200		* * * * *	. B.L.F.C. Button25 GPM
901,			12000		* * * * .	. B.L.F.C. Button25 GPM . B.L.F.C. Button50 GPM
30		1,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	12000	, , , ,	* * * * *	. 6.E.R.C. Button - Jou GPM . "O" Ring - B.L.R.C.
40	, ,	1.	13045			. B.L.F.C. Button Retainer
41		. 1	13244	,,,,,, 1	* * * *	. B.L.F.C. Fitting
42		. 1	, ,,,,,,		,	. D.L.F.C. Button - Specify Size
43		. 1	. 13173	3		. D.L.E.C. Button Retainer
44		. 1	. 12767	7		. Screen - Brine Line
45		. , † , , . ,	. 15348	9		. "O" Ring - D.L.F.C. (not shown)
46		1 , ,	. 13497	7		. Air Disperser
47		1 , ,	. 13546	5		. End Plug Retainer
48		. <b>. 3</b>	. 12112	2 , , ,		. Screw
49,,,,,		† , , ,	. 13360	3		. Washer
50		1	. 13290		6 k b 4'	. Screw
51.,.,.	:	<u>]</u>	. 13708	3 , ,		. Adapter - 3/4" N.P.T.
		. 1	. 13398	3 , , , , , ,	• • • •	. Adapter - 1" N.P.T.

# **MODEL 5600**

# control valve drive assembly

(see opposite page for parts list)



#### MODEL 5600 CONTROL VALVE DRIVE ASSEMBLY PARTS LIST

	NO. REQ'D.	PART NO.	DESCRIPTION	
1	1	13162-000	Orive Housing	
2	1,,,,,,,,,,,	13175	Motor Mounting Plate	
3	1	13400	Motor - 1 10V., 60 Hz.	
	1	1 2 4 G A	Marine DAM COLL	
4	3	11384	Screw - Motor Mtg. & Ground Wire	
5		13295	Screw - Component Mounting	197
6	1	13017	Idia Con	
7	1	13018	Idios Dinion	
8	4	13312	Comma (Alexander)	
9 .	*	13164	Original Communication	
11	1	13170	Main Come & Cinet	
12	1	10205	24 Hour Gear Assembly, Silver	
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	4	102051	24 Hour Gear Assembly, Silver 24 Hour Gear Assy, Tan	
13.	4	13011	Cycle Actuator Gear	
14	4	14177	Knob - Manual Regeneration	
15	Å	13300	NID - Manual Hegeneration	
16	9	13011	Spring - Detent - Skipper Wheel	
19.	4	13311	Skipper Wheel Assembly - 12 Day	
,	4	14860	Skipper Wheel Assembly - 7 Day	
20	4	13864	Olipper Wheel Assembly - 7 Day	
21		14457	Spring - Detent - Main Gear	
22	1	13014	Regeneration Pointer	
23		11842	Electrical Cord - Standard	
24	2	12681	Wire Connector (Not Shown)	
25	1	13547	Strain Datinf	
26,	7	13229	Rack Count	
27		13309	Front Label - Brown on Beige	
	1	13437	Front I about Division in Direct	
28	1	13310	Bear I shell	
29	7	13348	Tana String - Brown on Daige	
÷	1	13436	Tape Stripe - Blue on Silver Brine Carn Assembly, 3-18	
30		60514	Brine Carn Assembly, 3-18	
	7	BU514-01	Bling Com Anna E 55	
34	2	12473	Screw-Drive Mounting	
35	1	12037	Washer	
37	1 . , , ,	15151	Screw - Knob	
38,	1	14176	Valve Position Dial - Standard	
	*********	14278	Valve Position Dial - I ow Water	
	1	1547B	Valve Position Dial - Chemical Filter	
عد عد	1	16715	Value Profition Out - Elifor	
39	1	14175	Knob Label - Beige	
	1	14207	Knob Label - Silver	

#### QUALITY WATER TREATMENT SYSTEMS

#### LIMITED WARRANTY

This LIMITED WARRANTY applies to original purchasers of water conditioners and filters ("Unit" or "Units") distributed by the Milby Company. The Units are made from the finest materials available and are warranted for the periods shown below so long as the Units are operated in conformity with the specified Physical Properties and only in residential applications.

Any component part of a purchased Unit identified in the attached Warranty Registration Card by model and serial number that is installed by a licensed contractor according to the applicable installation manual and local plumbing and electrical codes will be repaired or replaced, at Milby's option, if a failure occurs due to defective material or workmanship. Any accident to the Unit, misuse, abuse or alteration of the Unit, or any unauthorized attempt to repair the Unit will void this warranty. Modifications or repairs by anyone other than an authorized Milby dealer are not covered by this warranty.

PHYSICAL PROPERTIES		
Max. Pressure	75 PSI	
Max. Temperature	100 Degrees Fahrenheit	
Min. Temperature	32 Degrees Fahrenheit	

COMPONENT PART	WARRANTY PERIOD
Media Tank	10 yrs. From Date of Purchase
Salt Storage Tank	5 yrs From Date of Purchase
Control Valve	3 yrs From Date of Purchase
Media Performance due to misapplication, faulty installation, or clogging	None

Under this warranty, Milby will only repair or replace a Unit or component part with an identical or similar Unit or component part distributed by Milby. A replacement Unit or component part shall be warranted only for the remainder of the warranty period of the original purchased Unit or part. The purchaser is responsible for all other costs, including, but not limited to (1) labor charges for service, removal, repair or reinstallation of the Unit or component part, (2) shipping, delivery, handling and administrative charges for necessary or incidental costs for any materials required for installation of the replacement Unit or component parts.

THERE ARE NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES FOR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WHATSOEVER WITH RESPECT TO THE INSTALLATION, OPERATION, REPAIR OR REPLACEMENT OF A UNIT AND/OR ITS COMPONENT PARTS THAT EXTEND BEYOND THE APPLICABLE LIMITED WARRANTY HEREIN. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

UNDER NO CIRCUMSTANCES SHALL MILBY BE LIABLE TO THE PURCHASER OR ANY OTHER PERSON FOR WATER DAMAGE, LOSS OF USE OF THE UNIT, INCONVENIENCE, LOSS OR DAMAGE TO PERSONAL PROPERTY, OR ANY OTHER SPECIAL OR CONSEQUENTIAL DAMAGES, WHETHER ARISING OUT OF BREACH OF WARRANTY, BREACH OF CONTRACT, TORT, OR OTHERWISE. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO 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.

To obtain coverage under this warranty, the consumer must complete and return the attached Warranty Registration Card within thirty (30) days from the date of purchase to Milby at: Attn: Customer Service, Milby Company, 6201 South Hanover Road, Elkridge, Maryland 21075-5651. Any claim under this warranty should be initiated with the dealer who sold the Unit to the purchaser. If this is not practicable, the purchaser should contact Milby directly at 410-796-7700.

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22	WARRANTY REGISTRATION CARD
es er	Purchaser Name:
**	and Address
解除	Model # Date of Purchase:
墨	Dealer Name:
超版	and Address
100	

#### MILBY COMPANY

6201 South Hanover Road Elkridge, MD 21075-5651

Phone: 410- 796-7700 Fax: 410- 796-7739