

INSTALLATION AND OPERATION MANUAL

BF850FL

Harmsco[®] Upflow Filter Housing

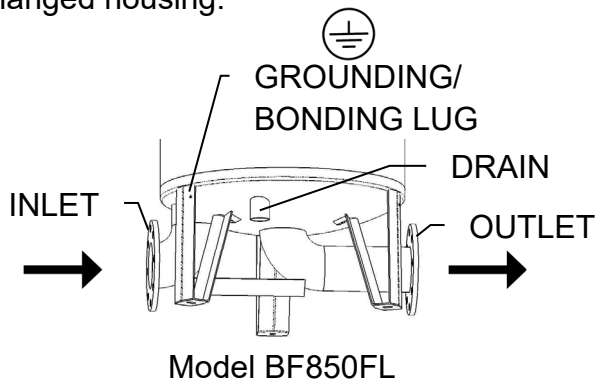


HARMSCO[®]

Clean & Clear Filtration Since 1958
With Patented Up-flow Filtration Technology

BF850FL Installation

The following diagram shows a typical installation procedure for Harmsco Betterfilter commercial flanged housing:

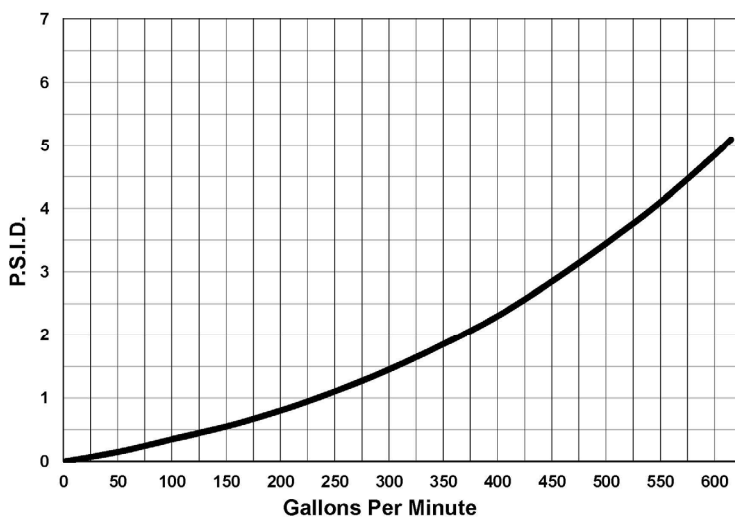


1. Install pipe from pump to 4" flange marked "inlet".
2. Pipe outlet line to flange marked "outlet".
3. Install valve in drain line to 1-1/2" nipple marked "drain".
4. Tighten all flange bolts.

Notes:

- Shut-off valves should be installed on inlets, outlets and drain pipe to isolate the filter when necessary.
- Install Vent Valve into Lid
- Pressure gauges are recommended before and after the filter to easily calculate the pressure differential and determine when the cartridges should be cleaned and replaced.
- To protect against corrosion, all filters must be bonded and grounded using approved grounding Wire connected to grounding lug provided on leg. **Failure to bond and ground the filter Properly will void all warranties.**
- Use expansion/vibration coupling materials appropriate for your application.
- ALWAYS adhere to state and local plumbing codes and requirements for design and installation.
- When necessary, install check valves to prevent reverse flow.
- Do not install the unit where repeated pressure transients/water hammers occur. Damage caused by repeated pressure transients/water hammers shall void all warranties.

BF850FL Performance Curve *



NOTICE:

Maximum Operating Pressure: 50 PSI

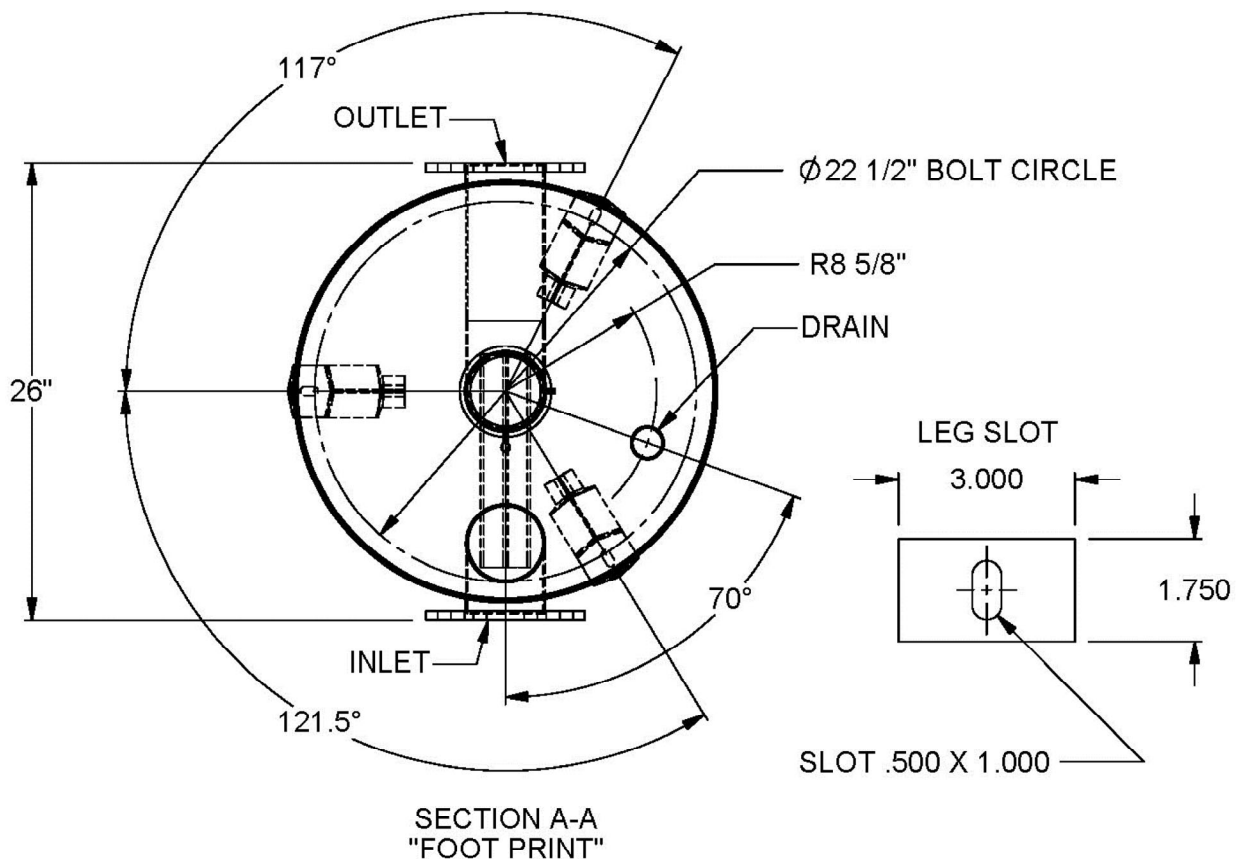
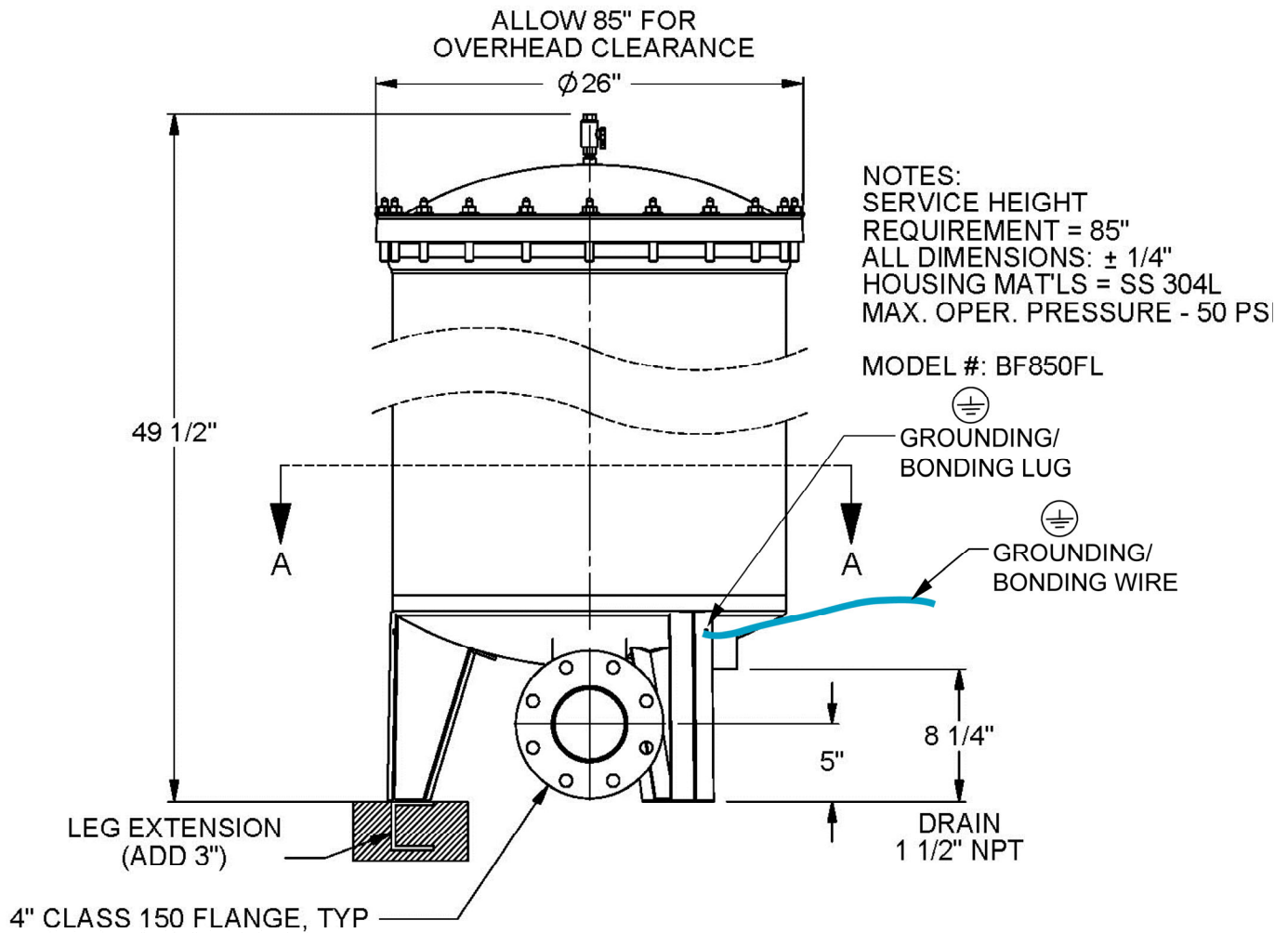
Maximum Flow Rate: 318 GPM

*Operating Pressures and Flow Rates will vary depending upon filter cartridge use, condition, cleanliness, as well as water cleanliness.

*Curve data developed using new cartridge with clean water.

-As cartridges load, do not exceed the maximum head loss of 25-30 PSI differential pressure.

*Refer to cleaning instructions for best results.



HOW TO REMOVE AND REPLACE CARTRIDGES IN A BF850FL

1. If applicable or necessary, turn off pump and isolate housing with shut-off valves.
2. Drain filter housing to relieve internal pressure.
3. Unscrew hex nuts and remove, along with washers (Items #11 & #12).
4. Lift lid (Item #13) from filter.
5. Remove retainer rings (Item #1).
6. Remove stainless steel top disc (Item #2), along with rim gasket (Item #3), from unit.
7. Take off rim gasket (Item #3) from stainless steel top disc (Item #2) and clean both parts with rubbing alcohol or similar.
8. Lift out cartridges (Item #18) from filter housing.
9. Clean and dry O-ring sealing surface of Tank (item #16).
10. Dependent on the application, replace or clean cartridges. If replacing the cartridges, transfer the nipples (Item #4) from the used cartridges to the new cartridges.
(Always follow State and Federal laws with regard to cartridge disposal.)
11. Remove, clean and inspect O-rings (Items #14 & #15), then return to vessel.
12. Place cartridges over boss (Item #10) on the sub base assembly in housing.
13. Replace rubber rim gasket (Item #3) properly onto stainless steel top disc (Item #2) making sure it is clean of debris and contaminants.
14. Set stainless steel top disc assembly (Items #2 & #3) into Tank (item #16).
15. Replace retainer rings (Item #1) "hand tighten only".
16. Replace lid (Item #13) making sure it is cleaned, dry and free of debris and contaminants.
17. Lubricate studs with a lubricant suitable for your application. **NOTE:** This must be done for every instance the lid is removed. Not doing so will damage the threads.
18. Replace Hex Nuts & Washers (Items #11 & #12).
Tighten hex nuts as shown in the "HEX NUT TIGHTENING DIAGRAM"
19. Close drain valve.
20. Ensure all in-line valves are in open, flow through position. (In parallel installations ensure that there is no reverse flow when opening valves).**
21. If applicable, turn on pump.

NOTICE:

Maximum Operating Pressure: 50 PSI

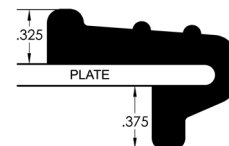
Maximum Flow Rate: 318 GPM

*Operating Pressures and Flow Rates will vary depending upon filter cartridge use, well as water cleanliness.

**When necessary, install check valves to prevent reverse flow.

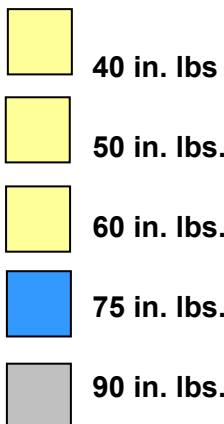
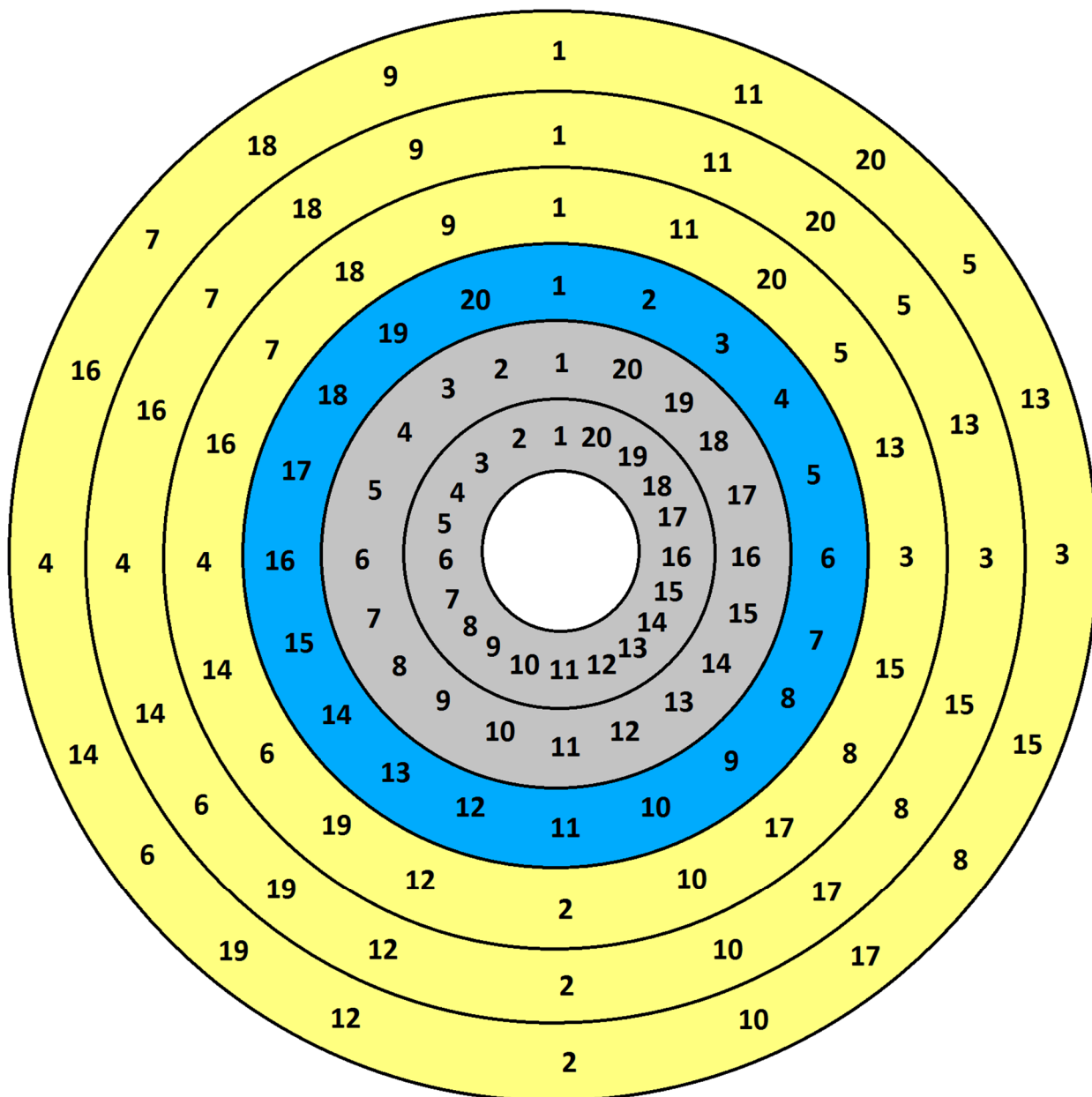
Rim Gasket Profile:

355 Style



condition, cleanliness, as

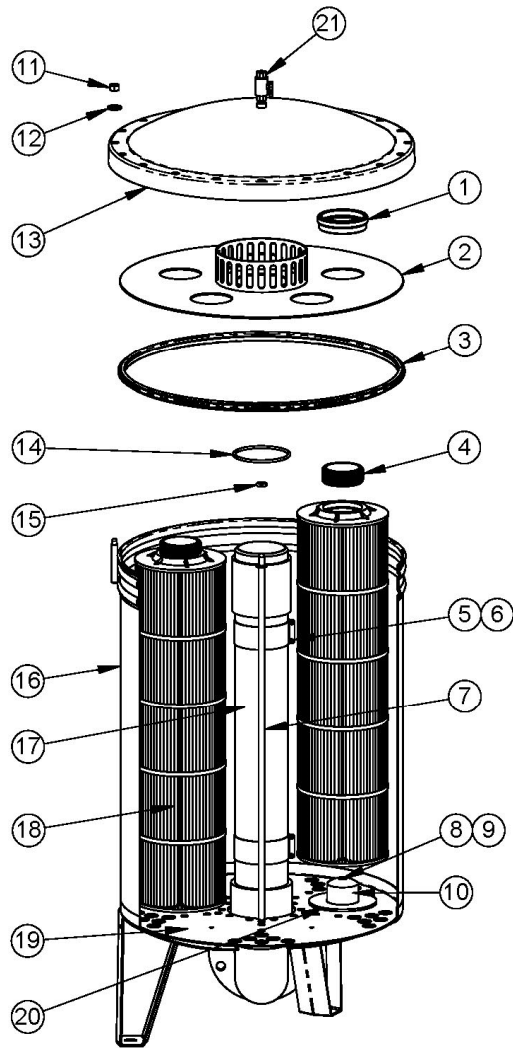
HEX NUT TIGHTENING DIAGRAM



*IMPORTANT

Tighten Hex nuts systematically, as shown in the diagram above, working from the outside inward. The number corresponds to the hex nut in sequence to be tightened. Use a torque wrench to tighten to each specified value per color.

Caution: Over-tightening can cause damage to rim gasket and damage the housing.



MODEL BF850FL			
ITEM	DESCRIPTION	PART NO.	QTY.
1	Ring, Cartridge Retainer	904	5
2	24" Top Disc-BF850FL(Rim Gskt)	650-R	1
3	24" Rim Gasket - EPDM (BF)	353 or 355	1
4	Nipple, Cartridge Retainer	908	5
5	Screw, 10-32x3/4 Pan HD SS	888	4
6	Nut, 10-32 Hex SS	889	4
7	Aligning Rod	658-4	1
8	Screw, 1/4-20 Hex SS	648	5
9	Nut, 1/4-20 Hex SS	649	5
10	Boss, Cartridge	641	5
11	Hex Nut, Brass	202-H	20
12	Washer, SS	205	20
13	Lid, 24" BF	613-C	1
14	O-ring, 4" Standpipe	353-349	1
15	O-ring, Aligning Rod	353-310	1
16	Tank	***	1
17	Standpipe Assembly, BF850FL	645	1
18	Cartridge, HC/170-*	HC/170-*	5
19	24" BTM Disc Wldmnt	659	1
20	Seal, Bottom (BF850FL)**	640	5
21	Vent Valve	1884	1

* Specify HC/170, HC/170TC or HC/170TC-AM

** Natural Gum Rubber

*** Contact sales@harmsco.com

Replacement Cartridges

Standard pleated polyester filter elements

Cartridges rated for temperatures to 140°F (60°C). Polyester-Plus™ filter media is cleanable and cartridges are reusable in most applications and micron ratings.

CARTRIDGE CLEANING: Harmsco filter cartridges are cleanable and reusable in most applications and most micron ratings. For best results, clean cartridges when pressure differential is 12-15 psi above start-up differential. If cartridges are to be replaced allow pressure differential to climb to 25-30 psi above start-up differential or when flow has diminished to an unacceptable level, indicating cartridge is at capacity.

Cartridge Cleaning in Aqueous Applications: Clean cartridges with pressure nozzle using standard hose. Direct spray at an angle to remove particulate. Follow these directions for best results:

Oils in aqueous solution: Soak cartridges in a solution of tri-sodium phosphate or similar strong detergent (2lbs to ten gallons of water). Soak up to twelve hours. Rinse after soaking.

Organic matter and algae in aqueous solutions: Use tri-sodium phosphate or similar strong detergent as described above, plus one pint of liquid chlorine to kill organic matter and algae. Soak cartridges one hour or longer until surface is no longer slippery. Rinse after soaking.

Calcium & mineral deposits: Follow the directions for oils described above. Soak cartridges thoroughly for approximately ten minutes in a solution of one part muriatic acid to twenty parts of water. Rinse cartridges thoroughly with water.

Caution: Do not rinse cartridges with acid until oils and organic matter are removed. Use detergent first and follow with acid soak for mineral removal. Flush cartridges with water after muriatic or tri-sodium phosphate baths.

Cartridge Product Code	Cartridge Dimensions			Ship Weight with carton (Qty: 1 Cartridge)
	L	x	OD x ID	
HC/170	30-3/4"	7-3/4"	3" FPT	10 lbs
HC/170TC	30-3/4"	7-3/4"	3" FPT	10 lbs
HC/170TC-AM	30-3/4"	7-3/4"	3" FPT	10 lbs

HARMSCO® INC. LIMITED WARRANTY UPFLOW SWIMMING POOL CARTRIDGE FILTER

I. The filter unit is warranted against all defects in material and workmanship for the first year. During that year Harmsco will pay factory labor and parts for repair of the unit, together with shipping charges to and from the factory, provided proper shipping instructions have first been obtained from the factory.

This warranty excludes the following:

1. Any fresh water unit installed for sea water use. 2. Defects caused by improper installation, operation or care. 3. Damage caused by chemicals. (We strongly discourage the storage of chemicals or the use of chemical feeders near your unit). Make sure adequate ventilation is provided. If you can not comfortably breathe in closed pump room, ventilation is not adequate. 4. Gasket, top discs, bottom discs, cartridge lifter or holding rods, cartridges, outlet pipes, PVC fittings. 5. The cost of labor and material expended in removal and reinstallation of the unit. 6. Damage caused by electrolysis or galvanic attack. 7. Damage caused by salt added to the water for the purpose of generating chlorine. 8. Any unit not grounded and bonded. 9. Damage caused to the filter housing as a result of Repeated Pressure Transients or Water Hammers.

II. Service under this warranty is to be provided by the dealer who sold the unit. If the dealer can not service the unit, please contact the factory:

HARMSCO, INC., 7169 49th Terrace North, West Palm Beach, FL 33407 ATTN: Service Dept. (561) 848-9628.

Please be prepared with the following information:

- Model number of your filter
- Date of installation
- Name of installer
- Images of the problem, housing, and installation
- Nature of problem
- Your address and telephone number

Factory repair may be obtained by shipping your unit to the factory after first obtaining proper shipping instructions from the factory. The shipping charges are the purchaser's obligation, unless the unit has been installed for less than one year, in which event Harmsco will pay the charges.

The shipping address is: HARMSCO, Inc 7169 49th Terrace North, West Palm Beach, FL 33407

Any unit shipped to the factory must have all piping removed or a labor charge (at the then prevailing rate) will be made for removal.

A letter of explanation, including the following information, must be enclosed:

- Model number of your filter
- Nature of problem
- Date of installation
- Your address and telephone number
- Name of installer

III. Harmsco allows for repair or replacement of warranted fresh water filter units during the ten (10) year period following initial installation at a prorated price.

The replacement or repair price shall be prorated upon the following schedule.

Years of service & replacement price

2nd yr. 20% of then current list 4th yr. 40% of then current list 6th yr. 60% of then current list 8th yr. 80% of then current list

3rd yr. 30% of then current list 5th yr. 50% of then current list 7th yr. 70% of then current list 9th & 10th yr. 90% of then current list

Specifically coated filters for sea water (SW) use are warranted for one year only from the date of installation. The warranty for filters with special coatings is limited to the recoating of the defective parts, due to failure in materials or workmanship, for one year from date of installation. Waterwarmer units and portable (BKP) units are warranted for one year.

IV. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

V. There are no implied warranties for fitness nor merchantability which extend beyond the duration of this written warranty. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

Harmsco, Inc. disclaims liability under this warranty for any damage to the filter unit caused by the use of improperly sized or improperly fitted filter cartridges.

Harmsco, Inc. disclaims liability under this warranty for any filter installed on any application other than a swimming pool.

This product is manufactured under one or more of the following patents: CANADA NO. 977,693; GREAT BRITAIN NO. 1,372,014; W. GERMANY NO. 2,261,817; FRANCE NO. 7,246,864; EUROPEAN PATENT APPLICATION 85,904,374.7; U.S. NO. 8,696,906; 5,196,119; 5,174,896; 4,187,179; 3,720,322

Harmsco® Filtration Products 7169 49th Terrace North. Riviera Beach, FL 33407

Toll Free: (800) 327-3248 • Fax: (561) 845-2474 • Local: (561) 848-9628 • E-mail: sales@harmsco.com

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