

Nautilus® Plus NSP Stainless Steel D.E. Filter Installation, Operation & Service Manual

IMPORTANT SAFETY INSTRUCTIONS
READ AND FOLLOW ALL INSTRUCTIONS
SAVE THESE INSTRUCTIONS

Table of Contents

SECTION I.	FILTER OPERATION.	1
SECTION II.	FILTER INSTALLATION.	3
SECTION III.	TROUBLE SHOOTING.	10
SECTION IV.	TECHNICAL DATA	11
A.	REPLACEMENT PARTS	11

WARNING

Before installing this product, read and follow all warning notices and instructions accompanying this filter. Failure to follow safety warnings and instructions can result in severe injury, death, or property damage. Call (800) 831-7133 for additional free copies of these instructions.

Important Notice



Attention Installer.

This manual contains important information about the installation, operation and safe use of this product. This information should be given to the owner/operator of this equipment.

SECTION I. FILTER OPERATION.

A. GENERAL INFORMATION.

1. This filter operates under pressure. When closed properly and operated without air in the water system, this filter will operate in a safe manner.
2. Warning labels should be affixed to the top of the filter and on the clamp bands at all times. Keep safety labels in good condition. Replace missing or damaged safety labels. {For free labels call (805) 523-2400 or (919) 774-4151}.

Pentair Pool Products

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Because reliability matters most

CAUTION

The following information should be read carefully. It outlines the proper manner of care and operation for your filter system. You can expect maximum efficiency and life from your filtration system by following these instructions and taking the necessary preventative care.

3. Your vertical grid diatomaceous earth (D.E.) filter is designed to operate for years with proper maintenance. This filter housing is made of corrosion resistant materials and when installed, operated and maintained in accordance with these instructions, your filter will provide years of service.
4. An External Air Relief Valve has been factory installed for your safety.
5. Your filter must be charged with D.E. at initial start-up before operating filter. This D.E. will cover the vertical filter grid cloth within the filter with a thin coating. Dirty water flows from the pool through the control valve on the side of the filter and into the lower side connection of the filter (part 24). The dirty water flows through the vertical grid elements (part 16) where dirt is filtered out by the D.E. Coating. All grid elements channel cleaned water into a manifold system (part 13) which exits at the upper side connection (part 17) and through the control valve to return back to the pool. By diluting the dirty pool water with clean water, the entire pool becomes gradually cleaned. Your filter and pump should be sized to circulate from 2 to 4 times the volume of water in the entire pool through the filter every day to accomplish the cleaning.
6. As dirt is collected in the coating of D.E. in the filter, the pressure will rise and the flow of water to the pool will be reduced. See other sections in the manual to determine when to clean the filter and how to choose the appropriate cleaning method. This filter will only remove suspended matter and does not sanitize the pool. The pool must be sanitized and pH balanced for sparkling clear water. Your filtration system must be configured and sized to meet you local health codes.

NOTE

Part no.'s in parenthesis refer to the replacement parts as shown in the exploded drawing at the end of the manual.

WARNING

Failure to run your filter or inadequate filtration can result in pool water clarity that could obstruct visibility and allow diving into or on top of obscured objects which can cause serious personal injury or drowning.

7. Clear water is the result of proper filtration as well as proper water chemistry. Pool chemistry is a specialized area and you should consult your local pool service specialist for specific help or instructions. In general proper pool sanitation requires a free chlorine level of 1 to 2 PPM and a pH range of 7.2 to 7.6.

FILTER OPERATIONAL DATA

FILTER MODEL NUMBER	FILTER MODEL (Sq. Ft.)	FLOW RATE (GPM)		TURNOVER CAPACITY (Gallons) (Based on 2.0 GPM/Sq. Ft.)			
		Residential 2.5 GPM/Sq. Ft.	Public 2.0 GPM/Sq. Ft.	6 Hrs.	8 Hrs.	10 Hrs.	12 Hrs.
NSP-24	24	60	48	17,280	23,040	28,800	34,560
NSP-36	36	90	72	25,920	34,560	43,200	51,840
NSP-48	48	120	96	34,560	46,080	57,600	69,120
NSP-60	60	150	120	43,200	57,600	72,000	86,400
NSP-72	72	150	144	51,840	69,120	86,400	103,680

SECTION II. FILTER INSTALLATION.

WARNING



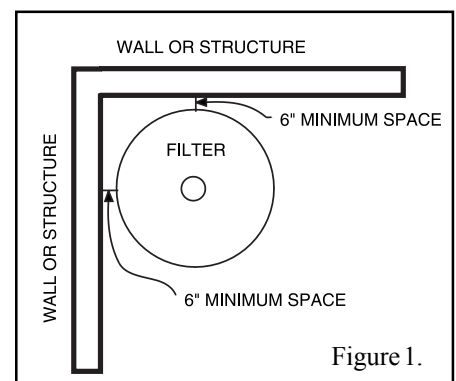
THIS FILTER OPERATES UNDER HIGH PRESSURE. WHEN ANY PART OF THE CIRCULATING SYSTEM, e.g., CLAMP, PUMP, FILTER, VALVE(S), ETC. IS SERVICED, AIR CAN ENTER THE SYSTEM AND BECOME PRESSURIZED. PRESSURIZED AIR CAN CAUSE THE LID TO BE BLOWN OFF WHICH CAN RESULT IN SEVERE INJURY, DEATH, OR PROPERTY DAMAGE. TO AVOID THIS POTENTIAL HAZARD, FOLLOW THESE INSTRUCTIONS.

1. BEFORE REPOSITIONING VALVE(S) AND BEFORE BEGINNING THE ASSEMBLY, DISASSEMBLY, OR ADJUSTMENT OF THE CLAMP OR ANY OTHER SERVICE OF THE CIRCULATING SYSTEM: (A) TURN THE PUMP OFF AND SHUT OFF ANY AUTOMATIC CONTROLS TO ENSURE THE SYSTEM IS NOT INADVERTENTLY STARTED DURING THE SERVICING; (B) OPEN THE AIR RELIEF VALVE; (C) WAIT UNTIL ALL PRESSURE IS RELIEVED.
2. WHENEVER INSTALLING THE FILTER CLAMP **FOLLOW THE FILTER CLAMP INSTALLATION INSTRUCTIONS EXACTLY.**
3. ONCE SERVICE ON THE CIRCULATING SYSTEM IS COMPLETE **FOLLOW SYSTEM RESTART INSTRUCTIONS EXACTLY.**
4. MAINTAIN CIRCULATION SYSTEM PROPERLY. REPLACE WORN OR DAMAGED PARTS IMMEDIATELY, e.g., clamp, pressure gauge, valve(s), O-rings, etc.
5. BE SURE THAT THE FILTER IS PROPERLY MOUNTED AND POSITIONED ACCORDING TO INSTRUCTIONS PROVIDED.

A. GENERAL INFORMATION.

1. Check carton for any evidence of damage due to rough handling in shipment. If carton or any filter components are damaged, notify freight carrier immediately.
2. After inspection, carefully remove filter components from carton.
3. The filter should be mounted on a level concrete slab. Position the filter so that instructions, warnings and the pressure gauge are visible to the operator. It also should be positioned so that the piping connections, control valve and drain port are convenient and accessible for servicing and winterizing.
4. Provide space and lighting for routine maintenance access. Do not mount electrical controls over filter. Install electrical controls (e.g., on/off switches, timers, control systems, etc.) at least five (5) feet from the filter. This will allow you enough room to stand clear of the filter during system start up.
5. Allow sufficient clearance around the filter to permit visual verification that the clamp is properly installed around the tank flanges, see Figure 1.
6. Allow sufficient space above the filter to remove the filter lid for cleaning and servicing. This distance will vary with the model of filter you are using. See Table 1. for the required vertical clearance.
7. Filter plumbing connections are provided with an O-ring seal. If you have a Multi-port Valve, assemble the valve to tank, being sure O-rings on valve fittings are in place and are clean. To avoid damage to the O-rings, use only a silicone base lubricant, applied lightly, such as silicone grease, Mytilube or similar product on O-rings and O-ring grooves prior to assemble. Do not use pipe joint compound, glue or solvent on the bulkhead connections.
8. If you have a two position slide valve, align the valve with tank so that the handle is toward the top of the tank, push valve into ports and turn the valve nuts snugly on tank fittings. It is not necessary to cinch valve nuts to tank fitting beyond hand tightness.

Model	Size	Vertical Clearance Req.	NSF
184941	24 sq. ft.	61 in.	yes
184942	36 sq. ft.	67 in.	yes
184943	48 sq. ft.	73 in.	yes
184944	60 sq. ft.	79 in.	yes
184945	72 sq. ft.	85 in.	yes



9. Assemble piping and pipe fittings to pump and valve. All piping must conform to local and state plumbing and sanitary codes.
10. Use Teflon tape or Plastojoint stick on all male connections of pipe and fittings. Use only pipe compounds suited for plastic pipe. Support pipe to prevent strains on filter, pump or valve.
11. Long piping runs and elbows restrict flow. For best efficiency use the fewest possible fittings, large diameter pipe (at least 1½", preferably 2") and locate equipment as close to the pool as possible.
12. A check valve is recommended between the filter and heater to prevent hot water "back up" which will damage the filter and valve. Another check valve is recommended between the filter and the pump to prevent D.E. from migrating back to the pool when the filter is off.
13. The maximum operating pressure of this unit is 50 pounds per square inch. Never operate this filter above this pressure or attach a pump to this filter that has more than 50 psi shut off pressure.
14. Never install a chlorinator upstream of the filter - always downstream and with a check valve in between the chlorinator and filter.
15. A positive shut off valve is not recommended at the outlet of the filtering system. If the system is ever run with such a valve closed, the internal air relief system becomes inoperative and an explosive situation could exist. Additionally, running the system with no flow will seriously damage the equipment.
16. A positive shut off valve is also not recommended at the waste port of the valve. If the system is ever run with such a valve closed, the filter pressure will go abnormally high and increase the risk of vessel separation. Additionally, running the system with no flow will seriously damage the equipment.
17. Never store pool chemicals within 10 ft. of your pool filter and pump. Pool chemicals are corrosive and should always be stored in a cool, dry and well ventilated area.

⚠ WARNING



Chemical fumes and/or spills can cause severe corrosive attack to the filter and pump structural metallic components. Structurally weakened filter components can cause filter or valve attachments to blow off and could cause severe bodily injury or property damage.

B. INITIAL START-UP.

1. On a new pool, clean the pool before filling with water. Excess dirt and large particles can cause damage to pump and filter.
2. Check clamp assembly for tightness. See Filter Disassembly and Assembly procedures.
3. Move valve handle to filter position. **Open air bleeder screw (Item 1) on the filter top.** Check pump strainer pot to be sure it is full of water. Replace pump lid.

⚠ WARNING



Conditions where air enters the filter and the tank lid is not installed properly can cause the lid to separate and could cause serious bodily injury and/or major property damage. Always stand clear of the filter when it is in operation or when power to the pump is turned on.

4. Open all suction and return line valves. Stand clear of filter during the following operations.
5. Start pump. The tank will fill with water and expel air from air bleeder.
6. Remove the skimmer lid, put the recommended amount of diatomaceous earth (D.E.) into the skimmer. The D.E. will be drawn into the filter and deposited evenly upon the grid elements. Now the filter is providing the pool with bright, clean water.

NOTE

Do not operate filter without D.E. charge for more than two minutes. Do not use more than the recommended amount of D.E. in your filter.

C. D.E. RECOMMENDATION.

The amount of D.E. should be 1 pound for each 10 square feet of filter area or:

7. On a new pool installation, it will require approximately one week to obtain and maintain the water clarity of which your filter is capable. It is recommended to disassemble and clean the filter after initial pool clean up (approximately 48 hours of operation). Follow the instructions given in this manual for disassembly, cleaning and reassembly.
8. Be sure to note the operating pressure of the filter when it is clean and properly charged with D.E. As the filter removes dirt from the pool, the pressure will gradually increase. As a guide, when the pressure has increased 7 to 10 psi from the initial reading, it is time to backwash the filter.

MODEL	POUNDS OF D.E.
NSP-24	2.4
NSP-36	3.6
NSP-48	4.8
NSP-60	6.0
NSP-72	7.2

NOTICE: ½ pound of D.E. will fill a 13 oz. coffee can.

Alternately another method for determining when to backwash the filter is by judging a drop in the amount of water flowing from the filter by observing the flow from the inlet fittings in the wall of the pool. As a general rule, backwashing is needed when the flow rate becomes about 2/3 the rate of a clean filter.

D. FILTER DISASSEMBLY/ASSEMBLY.

Before Disassembling Filter:

Backwash filter according to instruction under "Filter Backwash Procedure" but stop after instruction #7. Do not precoat with new D.E.

E. DISASSEMBLY.

1. Be sure pump is turned off and all pressure has been released from system.

⚠ WARNING

Releasing clamp with pressure on system will cause tank lid to blow off, causing severe injury or property damage! **NEVER** adjust, tighten or loosen band clamp when tank is under pressure! Turn off system and release pressure before working on the filter.

2. Remove filter drain plug and drain all water from tank.

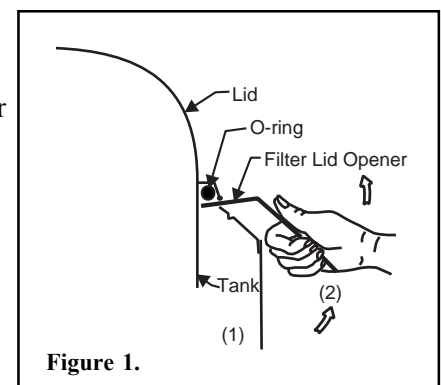
⚠ WARNING

Clamp hardware and filter surface could have sharp edges which can cause bodily injury if improperly handled. Please use caution when performing the following procedures:

3. To remove the clamping ring, partially unscrew the adjustment knob and release the head of the T-bolt from the slotted bracket.
4. Remove the tank lid with screwdriver or with a tool available from the manufacturer. Avoid cutting rubber O-ring or bending of lid or tank O-ring channel. See Figure 1.

F. ASSEMBLY.

1. Thoroughly clean air relief filter screen on top of manifold EVERY time filter is opened. Be sure to remove all debris from screen.
2. Inspect tank seal (or tank o-ring, Item 35) for cuts, nicks, etc. If damaged, replace with a new one.
3. Clean tank seal area of tank shell (both halves) and tank seal.
4. Inspect, clean and lubricate the O-ring (Item 25) on the upper pipe assembly (Item 17).



5. Replace holding wheel over center rod; place washer over rod and turn holding wheel until elements spread to widest gap. Replace washer or hold-down spring (800 series only) then screw wing nut on rod. **Do not tighten nut beyond finger tight.** Be sure to clip air vent tube back into slot on holding wheel. Clean vent tube screen cap of any debris.
6. Remove rubber tank seal and clean both tank seal and channel. Lubricate tank seal with a non-water soluble grease or silicone lubricant and replace tank seal in channel.
7. Clean the inside surface of the tank lid where it seals against the tank seal. Place lid on tank; push down on lid to seat in place.
8. Replace the clamping ring. Engage the head of the T-bolt into the slotted bracket and tighten the adjustment knob. **(Hand tighten only.)**

▲WARNING



Do not over tighten the clamp band. Tightening the clamp band beyond recommended procedures may damage the clamp band and cause unexpected failure, sudden release of pressure and injury or damage. Over tightening may also deform tank seal, causing leakage at band clamp. Corroded components cannot be repaired and must be replaced. If you are experiencing corrosion, consult your pool service company or dealer.

▲WARNING

Always visually inspect filter components during normal servicing to insure structural safety. Replace any item which is corroded, bent or otherwise visually deteriorated. Deteriorated filter components can allow the filter top or attachments to blow off and could cause severe bodily injury or property damage.

G. FILTER CARE.

Keep pool water pH at the recommended levels (7.2 to 7.6) as well as other pool chemicals at their proper levels to avoid deterioration of the stainless steel tank. The tank is stainless steel, but is not corrosion proof if the pool chemistry is allowed to act aggressively. Under such conditions the steel can experience pitting which will be most apparent in the flange area where the O-ring seats and seals the two halves of the filter. To minimize this tendency, it is recommended to keep the flanges clean of surface corrosion by removing any corrosion with fine emery cloth or stainless steel wool, (do not use steel wool) and to coat the O-ring with a substance such as petroleum jelly, silicone grease, Mytilube or similar product. If corrosion is allowed to progress, the filter will eventually leak at the O-ring seal. This process cannot be arrested or corrected by tightening the closure band, though that may temporarily stop the leak.

H. CLEANING FREQUENCY.

The filter on a new pool should be backwashed, disassembled and cleaned after approximately 48 hours of operation to clean out plaster dust and/or construction debris.

Once a new pool has been established, the dirt collected will gradually increase the filter pressure. When the filter pressure increases 7 to 10 psi over the initial pressure or when the flow has been reduced by about 1/3 from when the filter was clean, it is time to backwash the filter. Different areas and water conditions will have different normal cleaning intervals.

If at any time the starting pressure after backwashing the filter indicates 2 to 6 psi higher than normal starting pressure, it is time to perform a manual filter cleaning or a chemical cleaning procedure in the worst cases.

It is a good idea to disassemble the filter and perform a chemical cleaning procedure twice a year to remove accumulated body oils, etc.

In areas that have freezing winter temperatures, protect equipment by backwashing and either manually cleaning or chemically cleaning before winter storage. Be sure all water is drained from the filter using the drain plug. The air bleeder must be opened as well as all other valves.

I. FILTER BACKWASH PROCEDURE.

WARNING

To prevent equipment damage and possible injury, turn pump OFF before changing valve position.

NOTE

When backwashing with a separation tank, see Separation Tank Owner's Manual for instructions.

1. Stop pump. Ensure that the backwash line is open and any valving is adjusted to allow the free flow of water.
2. Change valve positions.
 - a. If using Multi-port Valve, set to backwash position.
 - b. If using Two-Position Slide Valve, raise handle to fully extended position.
3. Stand clear of filter.
4. Start pump, this will circulate water backwards through the filter to flush D.E. cake and contaminants into the separation tank or to waste.
5. If system has a sight glass, backwash until water in glass runs clear.
6. If system does not have a sight glass:
 - a. Backwash one minute.
 - b. Stop pump and change valve position.
 1. If using Multiport Valve, set to rinse position.
 2. If using Two-Position Slide Valve, push handle down to filter position.

WARNING

To prevent equipment damage and possible injury, turn pump OFF before changing valve position.

- c. Stand clear of filter.
- d. Restart pump, run for one minute.
- e. Repeat steps a, b, c, and d three times.

Cycling is effective when cake and contaminants are difficult to break and flush out of the filter.

CAUTION

Do not vacuum pool while backwashing filter. Vacuum hose can restrict flow and prevent proper backwashing.

7. Stop pump.
8. Open air bleeder screw and release all pressure from tank and system.
9. Follow "Initial Start-Up" procedure to restart system.
10. Compare pressure reading on gauge with reading recorded after initial start-up. The two readings should be very close; if not, do "Manual Filter Cleaning Procedure".

J. MANUAL FILTER CLEANING.

NOTE

At least once a year, disassemble and clean filter regardless of operating pressure readings. This can be done conveniently while winterizing pool in cold climates. Use this method regularly if no means of backwashing is available.

BEFORE DISASSEMBLING FILTER:

1. Backwash filter as recommended but do not precoat with new D.E.
2. STOP PUMP.
3. OPEN air bleeder screw.
4. WAIT until all pressure is released from filter tank and system before loosening clamp.

⚠ WARNING

Releasing clamp with pressure on system will cause tank lid to blow off, causing severe injury or property damage! **NEVER** adjust, tighten or loosen band clamp when tank is under pressure! Turn off system and release pressure before working on the filter.

5. Disassemble filter.

⚠ WARNING

To avoid severe injury or property damage, follow instructions exactly under "Disassembly" (Page 5).

6. Grasp element assembly at top manifold using hand holds and lift to remove it (Figure 2).
7. Hose down element assembly and clean with bottle brush (Figure 3). Use detergent solution or filter cleanser available from a pool service store.

NOTE

To avoid damaging fabric, do not allow filter element to rub on concrete or any abrasive surface during cleaning.

NOTE

Do not expose element cloth to direct sun for long periods. Direct sun will cause cloth to deteriorate.

8. Inspect grid cloth for tears, calcification, plugged areas, etc. If necessary, soak element in filter cleanser to remove buildup of oils, etc. One of the following cleaners is recommended:

FILTER-CLEANSE - Great Lakes Biochemical

FILTER-FREE - Hydrotech Chemical Corp.

KLEEN-IT - Bio Lab, Inc.

Mix a solution following the manufacturer's instructions on the label. Place the entire grid assembly in a plastic container and add the solution so the entire grid assembly is submerged. Allow to stand overnight (12 hours). The following day, wash with a hose and remove all of the solution from the grid so it does not return to the pool. If calcified, perform the chemical cleansing procedure described under "Chemical Cleaning Procedures".

9. Thoroughly clean air relief filter screen.
10. With filter drain open, hose down the internal portion of filter and thoroughly clean sealing area of tank halves.
11. Replace the grid assembly by setting the manifold opening directly over the connector pipe. Push down on the grid assembly and check to see that it is seated properly.
12. Thoroughly clean drain plug seal and sealing area and replace and tighten plug.

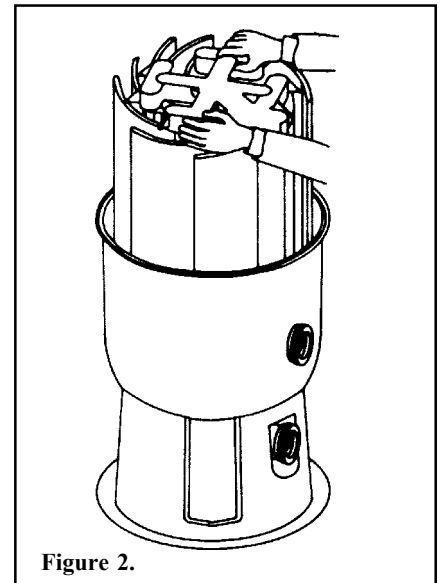


Figure 2.

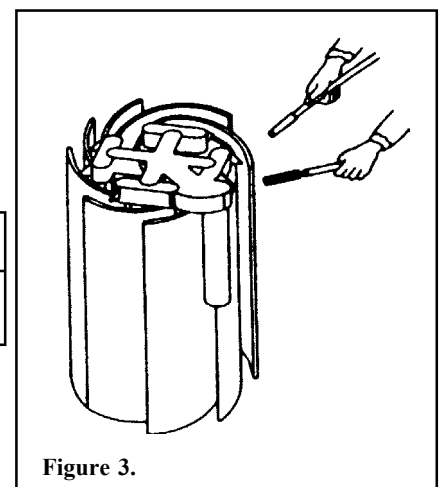


Figure 3.

⚠ WARNING

To avoid severe injury or property damage, follow instructions exactly under "Assembly" (Page 5)!

13. If unit is returning to service, see "Initial Start-up" (Page 4).
14. If cleaning is part of seasonal shutdown, see "Winterizing" (Page 9).

K. CHEMICAL CLEANING.

1. STOP PUMP.
2. OPEN air bleeder screw.
3. WAIT until all pressure is released from filter tank and system before loosening clamp.

⚠ WARNING

Releasing clamp with pressure on system will cause tank lid to blow off, causing severe injury or property damage! **NEVER** adjust, tighten or loosen band clamp when tank is under pressure! Turn off system and release pressure before working on the filter.

⚠ CAUTION

Do not expose element cloth to direct sunlight for long periods. Direct sunlight will cause the cloth to deteriorate. To avoid damaging fabric, do not allow filter element to rub on concrete or any abrasive surface during cleaning.

4. Disassemble Filter.

⚠ WARNING

To avoid sever injury or property damage, follow instructions exactly under "Disassembly" (Page 5)!

5. Disassemble and inspect element grid assemblies for tears and worn areas. Replace as needed.
6. Rinse each grid thoroughly with water.
7. Wash each grid with a mild soap solution. If necessary, soak element grids in filter cleaner to remove buildup of oils, etc.
8. Rinse thoroughly to remove all soap film.
9. To remove mineral buildup from filter cloth, soak each element grid two to four hours in a solution of one part muriatic acid to ten parts water. Some foaming may occur.



⚠ WARNING

Working with muriatic acid can be dangerous. When cleaning elements always wear rubber gloves and eye protection. Add acid to water, do not add water to acid. Splashing or spilling acid can cause severe personal injury and/or property damage.

10. Rinse each element grid thoroughly with water.
11. Reassemble element grids.
12. Inspect inside of filter tank and remove all debris remaining after backwashing.
13. Thoroughly clean air relief screen on top of manifold. Be sure to remove all debris from screen.
14. Follow "Filter Assembly" procedure (Page 5).

⚠ WARNING

To avoid severe injury or property damage, follow instructions exactly under "Assembly" (Page 5)!

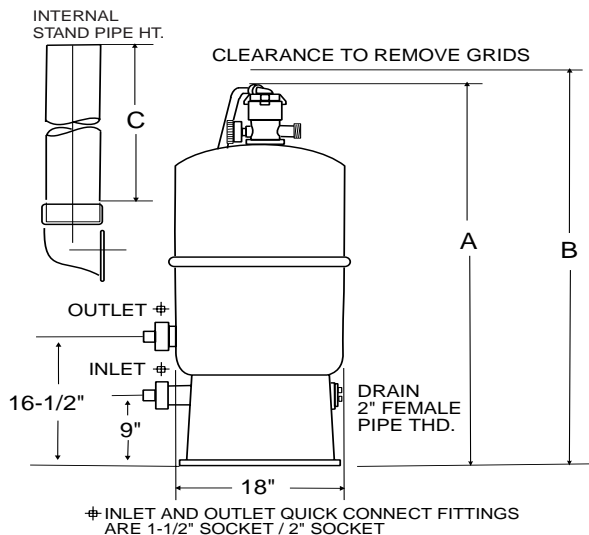
15. If unit is returning to service, see "Initial Start-up" (Page 4).
16. If cleaning is part of seasonal shutdown, see "Winterizing" procedures, below.

L. WINTERIZING PROCEDURE

1. Backwash and manually clean the filter following the recommended procedures.
2. We recommend removing the internal grid assembly and store in a dry area.
3. Reassemble the filter following the recommended procedures.
4. Open air bleeder valve. Open all system valves. Position Multiport Valve between port positions (winterizing position) to allow passage to all ports and relieve pressure on the sealing gasket.
5. Remove drain plugs from filter, separation tanks and pumps.
6. Drain system piping.
7. We recommend covering the equipment with a tarpaulin or plastic sheet to inhibit deterioration from the weather.

SECTION III. TROUBLESHOOTING.

System Problem	Cause	Remedy
D.E. Leaking back to pool.	1. After backwashing and re-coating the filter with D.E. some amount of "puffback" is normal.	The D.E. will eventually be filtered out of the pool. No action necessary.
	2. Damaged Grid or O-ring in filter assembly.	Allow pressure to build to 5-11 psi above clean filter condition before backwashing, see SECTION II-F.5.
	3. Improper assembly of internal parts.	Correct assembly of parts.
	4. Missing or defective check valve.	Install or repair check valve.
Pool water not sufficiently clean.	1. Improper precoat of D.E. on grids.	Use recommended amount of D.E.
	2. Inadequate turnover rate.	Consult dealer or pool service technician.
	3. Pool chemistry not adequate to inhibit algae growth.	Maintain pool chemistry or consult pool service technician.
High filter pressure after backwash.	1. Insufficient backwashing.	Backwash until water runs clear.
	2. Filter cloth plugged with D.E. and contaminants.	Manually clean filter grids.
	3. Filter cloth plugged with mineral deposits.	Chemically clean filter grids.
	4. Partially closed valve or restriction in return line.	Open valve or remove obstruction in return lines.
Return flow to pool diminished and low filter pressure.	1. Obstruction in pump hair and lint strainer.	Clean basket in strainer.
	2. Obstruction in pump.	Disassemble and clean pump.
	3. Obstruction in suction line to pump.	Clean skimmer basket. Remove obstruction in lines. Open valves in suction line.
Requires frequent backwash (short filter cycle).	1. Improper backwash.	Backwash until water runs clear.
	2. Pool chemistry not adequate to inhibit algae growth.	Maintain pool chemistry or consult pool service technician.
	3. Improper precoat of D.E. on grids.	Use recommended amount of D.E.
	4. Plugged grids.	Manually clean or chemically clean as required.
	5. Flow rate too high.	Restrict flow to capacity of filter.
Leakage at the clamp.	1. Improper torque on closure band hardware.	Reassemble clamp following procedure under Assembly on page 5.
	2. Debris contamination on tank seal and flanges.	Clean tank seal and flanges. Lubricate tank seal.
	3. Cut or damaged tank seal.	Replace tank seal.
	4. Corrosion pits on flanges.	Replace tank and consult pool service technician for source of corrosion.



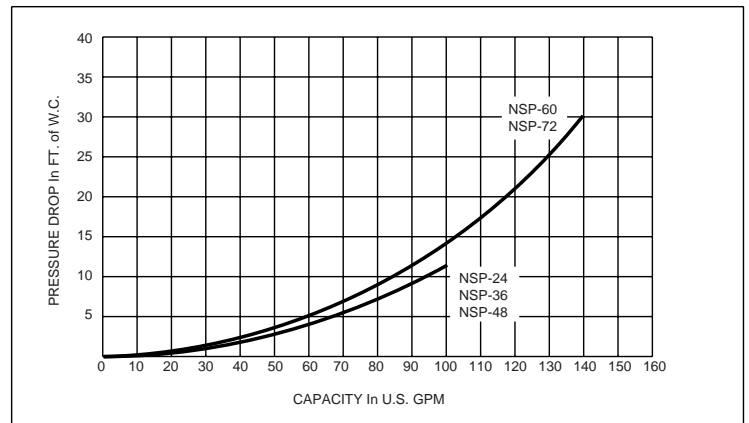
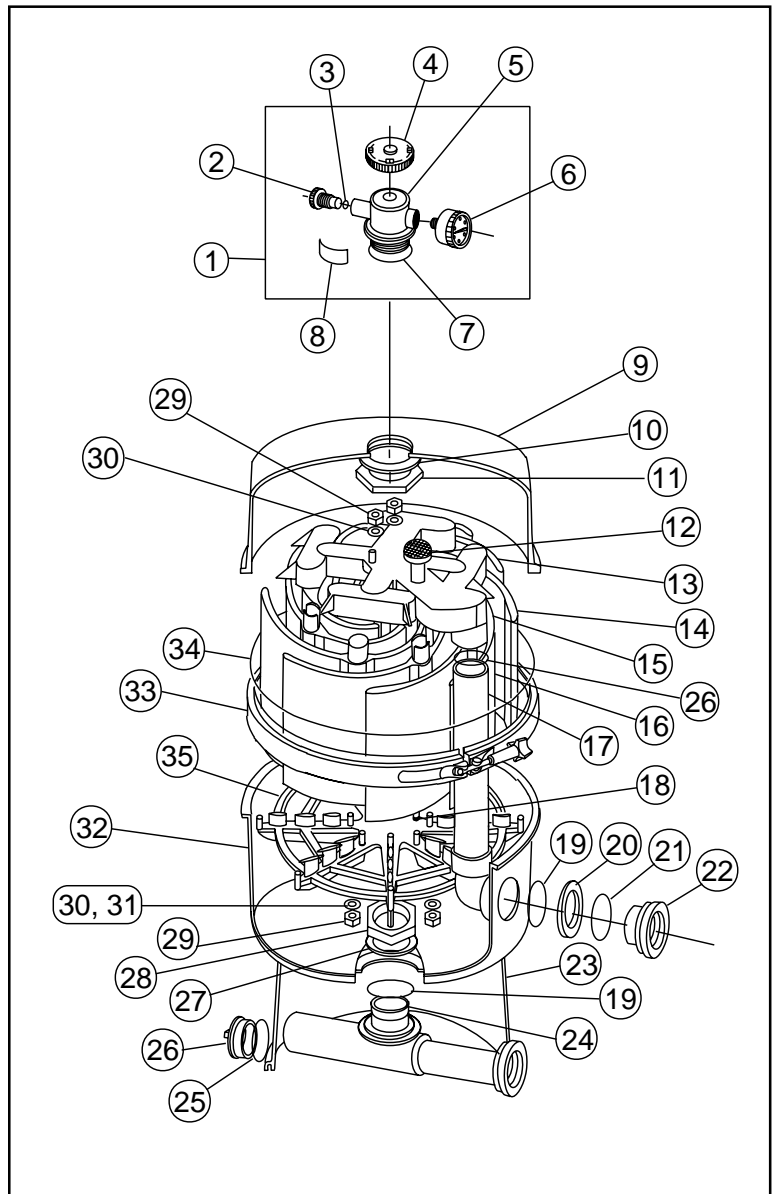
Dimensional Sheet

MODEL	A DIM.		B DIM.		C DIM	
	INCHES	METRIC	INCHES	METRIC	INCHES	METRIC
NSP-24	32	813 mm	61	1549 mm	5 1/2	140 mm
NSP-36	38	965 mm	67	1702 mm	11 1/2	292 mm
NSP-48	44	1118 mm	73	1854 mm	17 1/2	445 mm
NSP-60	50	1270 mm	79	2007 mm	23 3/8	594 mm
NSP-72	56	1422 mm	85	2159 mm	29 3/8	746 mm

SECTION IV. TECHNICAL DATA

A. REPLACEMENT PARTS

ITEM	PART NO.	DESCRIPTION	QTY.
1	273550	AIR RELIEF ASSEMBLY	1
2	273512	BLEEDER	1
3	273513	O-RING BLEEDER	1
4	273501	CAP	1
5	273550	VALVE BODY - MACHINED	1
6	155050	PRESSURE GAUGE	1
7	154492	O-RING	2
8	272546	LABEL, WARNING	1
9	191808	SHELL-TOP, NSP-24	1
9	191821	SHELL-TOP, NSP 36-72	1
10	273505	SPACER	1
11	154412	BULKHEAD NUT	1
12	172855	STRAINER-AIR VENT	1
13	192193	MANIFOLD GRID COMPLETE	1
14	59001000	GRID-PARTIAL, NSP-24	1
14	59001700	GRID-PARTIAL, NSP-36	1
14	59002300	GRID-PARTIAL, NSP-48	1
14	59002900	GRID-PARTIAL, NSP-60	1
14	59003500	GRID-PARTIAL, NSP-72	1
15	59001100	GRID-FULL, NSP-24	7
15	59001800	GRID-FULL, NSP-36	7
15	59002400	GRID-FULL, NSP-48	7
15	59003000	GRID-FULL, NSP-60	7
15	59003600	GRID-FULL, NSP-72	7
16	192324	GRID ASSY.-COMPLETE, NSP-24	1
16	192325	GRID ASSY.-COMPLETE, NSP-36	1
16	192326	GRID ASSY.-COMPLETE, NSP-48	1
16	192327	GRID ASSY.-COMPLETE, NSP-60	1
16	195060	GRID ASSY.-COMPLETE, NSP-72	1
17	194981	PIPING ASSY.-UPPER, NSP-24	1
17	194982	PIPING ASSY.-UPPER, NSP-36	1
17	194983	PIPING ASSY.-UPPER, NSP-48	1
17	194984	PIPING ASSY.-UPPER, NSP-60	1
17	194985	PIPING ASSY.-UPPER, NSP-72	1
18	192182	ROD 5/16 X 15-1/2 in. MANIFOLD RETAINER, NSP-24	2
18	192183	ROD 5/16 X 21-1/2 in. MANIFOLD RETAINER, NSP-36	2
18	192184	ROD 5/16 X 27-1/2 in. MANIFOLD RETAINER, NSP-48	2
18	192185	ROD 5/16 X 33-1/2 in. MANIFOLD RETAINER, NSP-60	2
18	195002	ROD 5/16 X 39-1/2 in. MANIFOLD RETAINER, NSP-72	2
19	154492	O-RING - 2 in. BULKHEAD	2
20	194893	SPACER - 2 in. EXTERNAL	1
21	192320	O-RING - BULKHEAD	1
22	194801	BULKHEAD - 2 in. W/GROOVE	1
23	154722	FOOT - NSP/PF	1
24	194913	PIPING ASSY. LOWER W/DRAIN	1
25	192323	O-RING	2
26	195829	PLUG - 2 in. DRAIN	1
27	154747	SPACER - 2.8 in. DIA. X 1/4 in. PVC	1
28	154412	NUT - 2 in. BULKHEAD	1
29	192013	NUT - 5/16 in., 16 s/s	4
30	072173	WASHER 5/16 in. s/s FLAT	2
31	174955	WASHER 5/16 in. s/s LOCK	2
32	197092	BOTTOM ASSY., NSP-24/w PIPING	1
32	197096	BOTTOM ASSY., NSP-36/w PIPING	1
32	197093	BOTTOM ASSY., NSP-48/w PIPING	1
32	197094	BOTTOM ASSY., NSP-60/w PIPING	1
32	197095	BOTTOM ASSY., NSP-72/w PIPING	1
33	191805	CLAMP-RING ASSY., INCLUDES:	1
	076033	KNOB	1
	072173	WASHER 5/16 in. s/s FLAT	1
34	071442	TANK SEAL (O-RING)	1
35	192194	GRID, RETAINER/BAFFLE	1



SAVE THESE INSTRUCTIONS.

Pentair Pool Products

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