

NAUTILUS® FNS & NS FILTERS REPLACEMENT KIT

CLAMP KIT INSTALLATION

1. Remove contents of kit and check against parts list at end of instructions to insure all components are present.
2. Backwash filter according to instructions under "FILTER BACKWASH PROCEDURE" in your filter INSTALLATION, OPERATION & SERVICE MANUAL. Stop after instruction #7. Do not precoat with new D.E.
3. 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 major property damage! NEVER adjust, tighten or loosen "V" band clamp when tank is under pressure!

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

CAUTION: 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.

5. Loosen clamp nuts alternately until one is removed. Lift clamp assembly off of filter.

NOTE: If you are installing one of the following replacement kits, remove tank top at this point and refer to AIR RELIEF INSTALLATION on next page; Kit P/N: 181013, 181014, 181015, 181016, 181017, 181018, 181019, 181020, 181021, and 181022.

6. Remove second nut from clamp assembly. If replacing entire band assembly, (Kit P/N 181011 for NS and Kit P/N 181012 for FNS), the old band should be discarded and the following instructions will apply to installation of the new band assembly. The threaded end of the T-bolt should protrude through the trunnion per Figure 1.

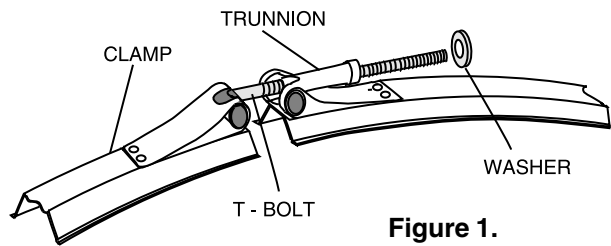


Figure 1.

7. Place one of the washers (with the small hole- 5/16" inside diameter) on the threaded end of the T-bolt and slide washer down bolt until it is against the trunnion. See Figure 1.
8. Place one of the washers (with the large hole-7/16" inside diameter for NS and 17/32" inside diameter for FNS) over the shank of the brass nut. Place one of the springs over the shank of the brass nut so that the washer with the large hole is captured between the end of the spring and the head of the brass nut. See Figure 2.

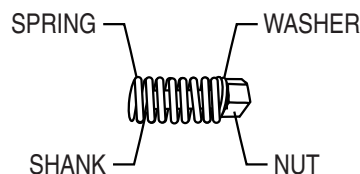


Figure 2.

9. Thread shank of nut onto T-bolt 2 turns maximum.
10. Pre-assemble second washer with large hole, nut and spring for opposite side of band clamp assembly.
11. Insure flanges on tank halves are free of dirt and or D.E.
12. Place clamp around tank flange making sure threaded end of T-bolt protrudes through trunnion as in Figure 1.
13. Place remaining washer (with the small hole- 5/16" inside diameter) on the threaded end of the T-bolt and slide washer down bolt until it is against the trunnion. See Figure 1.
14. Thread shank of nut onto T-bolt - 2 turns minimum. If end of T-bolt does not protrude through trunnion far enough to engage shank of nut, make sure that first spring assembly is tight against trunnion per Figure 3, and band is tight against tank.

READ AND FOLLOW ALL SAFETY INSTRUCTIONS

PULL BAND HALVES
APART UNTIL NO GAP
EXISTS AT "A" OR
BETWEEN SPRING
AND WASHERS.

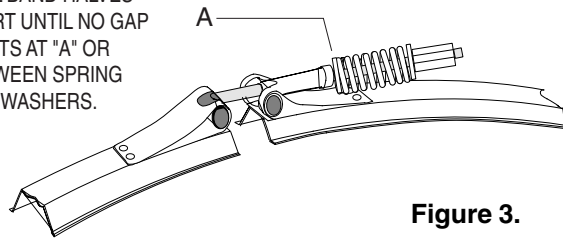


Figure 3.

15. Tighten nuts evenly and alternately until spring coils touch each other. Tap clamp around tank with rubber hammer to assist seating of clamp.
16. Use only those components supplied in this kit or Pentair Water Pool and Spa replacement parts when dealing with the bands and spring tensioning devices.

WARNING

Use of non original equipment parts on band clamps with spring tensioning devices may cause these tensioning devices to malfunction, resulting in improper clamp installation. Improper clamp installation could cause the filter top to blow off and cause severe personal injury and/or property damage.

CAUTION: 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.

17. Follow instructions under "INITIAL START-UP" section of your filter INSTALLATION, OPERATION & SERVICE MANUAL to return your filter to operation.

AIR RELIEF INSTALLATION

1. Make sure steps 1 through 5 outlining pump shut down and clamp removal have been completed.
2. Thoroughly clean air relief filter screen on top of manifold. Be sure to remove all debris from screen.
3. Inspect tank seal for cuts, nicks, etc. If damaged, replace with a new one.
4. Prepare tank top for alteration by removing existing air bleeder assembly and cleaning tank top inside and out. If you received a new top with the 2-3/8" diameter hole in it, or your existing top already has a 2-3/8" diameter hole in it, skip to step 8.

5. For FNS (Fiberglass) tanks, use a 2-3/8" diameter hole saw to carefully cut a larger hole in the tank top. The 2-3/8" diameter hole should be centered on the original 13/32" diameter hole as shown in Figure 4. DO NOT allow hole saw to scratch the outside surface of the tank top past the new 2-3/8" diameter hole. This is an o-ring sealing surface and scratches in this area will cause the o-ring seal to leak.

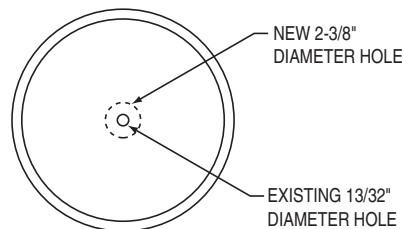


Figure 4.

6. Using heavy gloves and a dust mask (same as used for installing fiberglass insulation) for protection, carefully remove any loose fibers from the hole. Lightly sand the inside of the hole with a 200-220 grit non-clogging sand screen such as Carborundum Abrasives' S/C Sand Screen M755S silicone carbide 220 grit. DO NOT enlarge the hole past 2-13/32" diameter.

CAUTION: The sanding operation will generate glass fibers and loose dust. Protect yourself from these by the use of gloves and mask as noted in #6 above. Without these protective items, glass fibers and loose dust could be imbedded in the skin and/or inhaled, possibly causing injury.

7. For NS (Stainless Steel) tanks, a good quality steel punch must be used to make the larger hole. It may be necessary to use 2 punches; (1) to enlarge the hole from 13/32" diameter to accommodate a larger mandrel for the 2-3/8" diameter punch and (1) 2-3/8" diameter punch. The punches must be capable of punching through .060 thick steel. Follow punch manufacturer's instructions on use of punch in making the larger hole. The 2-3/8" diameter hole should be centered on the original 13/32" diameter hole as shown in Figure 4. The final hole size should be 2-3/8" diameter minimum and 2-13/32" diameter maximum. Remove any metal burrs in the hole with a file. DO NOT allow punch or file to scratch the outside surface of the tank top past the new 2-3/8" diameter hole. This is an o-ring sealing surface and scratches in this area will cause the o-ring to leak. DO NOT enlarge the hole past 2-13/32" diameter. DO NOT USE A HOLE SAW TO MODIFY STAINLESS STEEL TANKS.

READ AND FOLLOW ALL SAFETY INSTRUCTIONS

8. Remove Air Relief from box and check parts list at end of instructions to insure all components are present.
9. Lightly lubricate o-rings (ITEM 7) with Dow Corning #203 silicone lubricant or similar product, and place them in appropriate o-ring grooves on Air Relief Body (ITEM 5) and Top Spacer (ITEM 11). See Figure 5 for assembly sequence and part location.
Note: Items 1 through 5 are pre-assembled for ease of installation.
Note: That the flat side of Bottom Spacer (ITEM 12) goes against Securing Nut (ITEM 13).

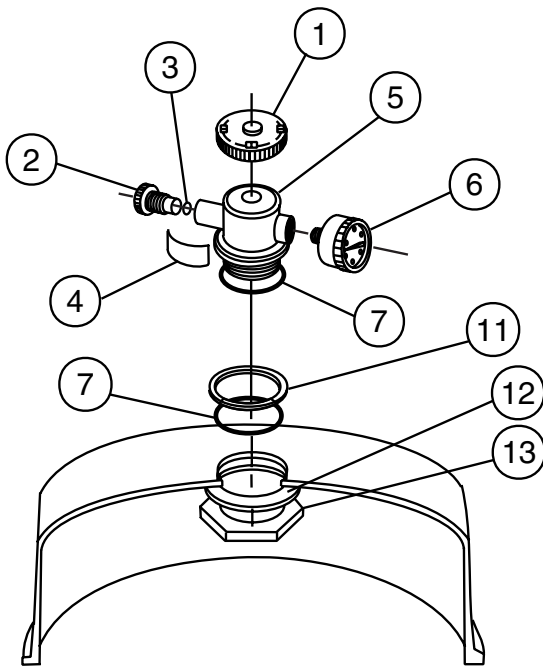


Figure 5.

10. Once Air Relief assembly has been installed, tighten Securing Nut with tool P/N 151603 while holding Air Relief Body securely. An alternate method of tightening the body is to tighten the nut hand tight and then rotate the body clockwise to tighten.
11. If your kit is equipped with a new Bracket Support, replace the existing Bracket Support on your Grid Assembly per following instruction Steps 12 through 17. If not, skip to Step 18.
12. Remove Air Screen and 1/4" diameter tube from top of manifold.
13. Re-drill 1/4" diameter hole per Figure 6.

14. Remove nuts and lockwashers holding down original Bracket Support and remove support.
15. Fill original 1/4" diameter hole with silicone sealer and place new Bracket Support in position so that the holes in the Bracket Support line up with the holes in the Manifold that the retaining rods pass through.
16. Push Retaining Rod up through hole in Manifold and new Bracket Support and secure with lockwashers and nut. Repeat for second Retaining Rod.
17. Place original Air Screen and Tube into new 1/4" diameter hole.
18. Clean Tank Seal area of Tank Shell (both halves) and Tank Seal.
19. Lubricate the Tank Seal with petroleum jelly, silicone grease, or similar product.
20. Carefully install Tank Seal and upper Tank Shell.
CAUTION: Be sure upper Tank Shell contacts seal surface evenly and seal area is clean and free from dirt, etc.
21. Go to Step 6 of CLAMP KIT INSTALLATION on front page to continue installation.

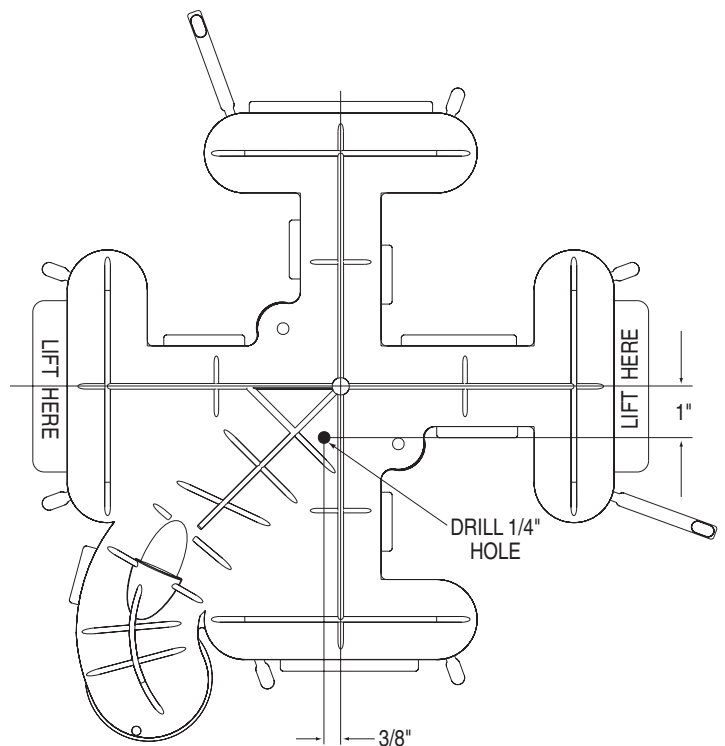


Figure 6.

READ AND FOLLOW ALL SAFETY INSTRUCTIONS

NAUTILUS® FNS & NS FILTERS REPLACEMENT KIT

PARTS LIST

Refer to the REPLACEMENT PARTS section of the INSTALLATION, OPERATION & SERVICE MANUAL supplied with this kit for reference to item numbers.

KIT P/N	ITEM	P/N	DESCRIPTION	QTY.
181010	41	195610	WASHER FNS/INS SM ID	2
	42	195612	SPRING FNS/INS	2
	43	195611	WASHER FNS/INS LG OD	2
	44	194997	NUT, MACHINED	2
	14	194996	WARNING LABEL, CLAMP	2
	48	154603	WARNING LABEL, TANK	1
	–	195000	MANUAL	1
	–	195627	INSTALLATION INSTRUCTIONS	1
181011	10	194996	WARNING LABEL, CLAMP	2
	20	152121	BAND ASSEMBLY	1
	39	53006300	WASHER, NS SMALL ID	2
	40	194988	SPRING, NS	2
	41	53004800	WASHER, NS LARGE ID	2
	42	194989	NUT, MACHINED	2
	44	98738900	WARNING LABEL, TANK	1
	–	195627	INSTALLATION INSTRUCTIONS	1
181012	–	273539	MANUAL AIR RELIEF INSTRUCTIONS	1
	–	195151	BAND ASSEMBLY	1
	14	194996	WARNING LABEL, CLAMP	2
	22	195008	SEAL-TRAPEZOID - 18" DIA.	1
	41	195610	WASHER, FNS, LARGE ID	2
	42	195612	SPRING FNS/INS	2
	43	195611	WASHER FNS, SMALL ID	2
	44	194997	NUT, MACHINED	2
181013	48	154603	WARNING LABEL, TANK	1
	–	195000	MANUAL	1
	–	195618	WARRANTY FORM	1
	–	195627	INSTALLATION INSTRUCTIONS	1
	–	181011	NS CLAMP ASSEMBLY W/SPRINGS	1
	7	154492	O-RING	1
	11	273502	SPACER, TOP	1
	27	273550	AIR RELIEF ASSEMBLY	1
181014	13	194908	BULKHEAD NUT	1
	12	273505	SPACER	1
	–	195000	MANUAL	1
	–	195618	WARRANTY FORM	1
	–	195627	INSTALLATION INSTRUCTIONS	1
	–	181013	NS CLAMP ASSEMBLY W/AIR RELIEF	1
	46	192277	SHELL-TOP NS 60 AFTER DEC. 16, 1991	1
	–	195000	MANUAL	1
181015	–	181013	NS CLAMP ASSEMBLY W/AIR RELIEF	1
	46	192276	SHELL-TOP NS 24	1
	–	181013	NS CLAMP ASSEMBLY W/AIR RELIEF	1
	46	192277	SHELL-TOP NS 36	1
	–	181013	NS CLAMP ASSEMBLY W/AIR RELIEF	1
	46	192278	SHELL-TOP NS 48/72	1
	–	181013	NS CLAMP ASSEMBLY W/AIR RELIEF	1
	46	192279	SHELL-TOP NS 60 PRIOR TO DEC. 16, 1991	1
181016	–	181013	NS CLAMP ASSEMBLY W/AIR RELIEF	1
	46	192277	SHELL-TOP NS 36	1
	–	181013	NS CLAMP ASSEMBLY W/AIR RELIEF	1
	46	192278	SHELL-TOP NS 48/72	1
	–	181013	NS CLAMP ASSEMBLY W/AIR RELIEF	1
	46	192279	SHELL-TOP NS 60 PRIOR TO DEC. 16, 1991	1
	–	181013	NS CLAMP ASSEMBLY W/AIR RELIEF	1
	46	192277	SHELL-TOP NS 60 AFTER DEC. 16, 1991	1
181017	–	181013	NS CLAMP ASSEMBLY W/AIR RELIEF	1
	46	192278	SHELL-TOP NS 48/72	1
	–	181013	NS CLAMP ASSEMBLY W/AIR RELIEF	1
	46	192279	SHELL-TOP NS 60 PRIOR TO DEC. 16, 1991	1
	–	181013	NS CLAMP ASSEMBLY W/AIR RELIEF	1
	46	192277	SHELL-TOP NS 60 AFTER DEC. 16, 1991	1
	–	181013	NS CLAMP ASSEMBLY W/AIR RELIEF	1
	46	192279	SHELL-TOP NS 60 PRIOR TO DEC. 16, 1991	1
181018	–	181013	NS CLAMP ASSEMBLY W/AIR RELIEF	1
	46	192279	SHELL-TOP NS 60 PRIOR TO DEC. 16, 1991	1
	–	181013	NS CLAMP ASSEMBLY W/AIR RELIEF	1
	46	192277	SHELL-TOP NS 60 AFTER DEC. 16, 1991	1
	–	181013	NS CLAMP ASSEMBLY W/AIR RELIEF	1
	46	192277	SHELL-TOP NS 60 AFTER DEC. 16, 1991	1
	–	181013	NS CLAMP ASSEMBLY W/AIR RELIEF	1
	46	192277	SHELL-TOP NS 60 AFTER DEC. 16, 1991	1
181019	–	181013	NS CLAMP ASSEMBLY W/AIR RELIEF	1
	46	192277	SHELL-TOP NS 60 AFTER DEC. 16, 1991	1
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	46	192277	SHELL-TOP NS 60 AFTER DEC. 16, 1991	1
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	46	192277	SHELL-TOP NS 60 AFTER DEC. 16, 1991	1
181020	–	181013	NS CLAMP ASSEMBLY W/AIR RELIEF	1
	46	192277	SHELL-TOP NS 60 AFTER DEC. 16, 1991	1
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	46	192277	SHELL-TOP NS 60 AFTER DEC. 16, 1991	1
	–	181013	NS CLAMP ASSEMBLY W/AIR RELIEF	1
	46	192277	SHELL-TOP NS 60 AFTER DEC. 16, 1991	1
181021	–	181013	NS CLAMP ASSEMBLY W/AIR RELIEF	1
	46	192277	SHELL-TOP NS 60 AFTER DEC. 16, 1991	1
	–	181013	NS CLAMP ASSEMBLY W/AIR RELIEF	1
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	46	192277	SHELL-TOP NS 60 AFTER DEC. 16, 1991	1
	–	181013	NS CLAMP ASSEMBLY W/AIR RELIEF	1
	46	192277	SHELL-TOP NS 60 AFTER DEC. 16, 1991	1
181022	–	181013	NS CLAMP ASSEMBLY W/AIR RELIEF	1
	46	192277	SHELL-TOP NS 60 AFTER DEC. 16, 1991	1
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	–	181013	NS CLAMP ASSEMBLY W/AIR RELIEF	1
	46	192277	SHELL-TOP NS 60 AFTER DEC. 16, 1991	1
	–	181013	NS CLAMP ASSEMBLY W/AIR RELIEF	1
	46	192277	SHELL-TOP NS 60 AFTER DEC. 16, 1991	1

KIT P/N	ITEM	P/N	DESCRIPTION	QTY.
181014	–	181012	FNS CLAMP ASSEMBLY W/SPRINGS	1
	7	154492	O-RING	1
	11	273502	SPACER, TOP	1
	12	273505	FNS SPACER	1
	13	194908	BULKHEAD NUT	1
	47	174755	BRACKET SUPPORT	1
	49	273550	AIR RELIEF ASSEMBLY	1
	–	181013	NS CLAMP ASSEMBLY W/AIR RELIEF	1
181015	–	181013	NS CLAMP ASSEMBLY W/AIR RELIEF	1
	46	192276	SHELL-TOP NS 24	1
181016	–	181013	NS CLAMP ASSEMBLY W/AIR RELIEF	1
	46	192277	SHELL-TOP NS 36	1
181017	–	181013	NS CLAMP ASSEMBLY W/AIR RELIEF	1
	46	192278	SHELL-TOP NS 48/72	1
181018	–	181013	NS CLAMP ASSEMBLY W/AIR RELIEF	1
	46	192279	SHELL-TOP NS 60 PRIOR TO DEC. 16, 1991	1
181019	–	181013	NS CLAMP ASSEMBLY W/AIR RELIEF	1
	46	192277	SHELL-TOP NS 60 AFTER DEC. 16, 1991	1
181020	15	195947	TANK-TOP FNS 24/36 BLK W/EXT. AIR RELIEF	1
	21	195351	FNS BAND ASSEMBLY, COMPLETE	1
	22	195008	SEAL-TRAPEZOID - 18" DIA.	1
	23	195337	RETAINER, TANK SEAL	1
	47	174755	BRACKET SUPPORT	1
	–	195000	MANUAL	1
	–	195618	WARRANTY FORM	1
	–	195627	INSTALLATION INSTRUCTIONS	1
181021	15	195948	TANK-TOP FNS 48 BLK W/EXT. AIR RELIEF	1
	21	195351	FNS BAND ASSEMBLY, COMPLETE	1
	22	195008	SEAL-TRAPEZOID - 18" DIA.	1
	23	195337	RETAINER, TANK SEAL	1
	47	174755	BRACKET SUPPORT	1
	–	195000	MANUAL	1
	–	195618	WARRANTY FORM	1
	–	195627	INSTALLATION INSTRUCTIONS	1
181022	15	195949	TANK-TOP FNS 60 BLK W/EXT. AIR RELIEF	1
	21	195351	FNS BAND ASSEMBLY, COMPLETE	1
	22	195008	SEAL-TRAPEZOID - 18" DIA.	1
	23	195337	RETAINER, TANK SEAL	1
	47	174755	BRACKET SUPPORT	1
	–	195000	MANUAL	1
	–	195618	WARRANTY FORM	1
	–	195627	INSTALLATION INSTRUCTIONS	1

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