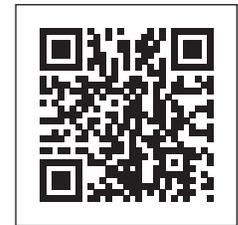


CLEAN AND CLEAR[®] PLUS CARTRIDGE FILTER CARTRIDGE CLEANING GUIDE

This guide provides instructions regarding the proper procedures and safety measures when opening, cleaning and reassembling the Clean & Clear Plus Cartridge Filter. For your safety, follow all instructions given in this guide, and the *Clean and Clear Plus Installation and User's Guide (P/N 178558)*.

This information should be read carefully since it outlines the proper manner of care and operation for your filter system. As a result of following these instructions and taking the necessary preventative care, you can expect maximum efficiency and life from your filtration system.

To access video instructions and digital copies of all Clean and Clear Plus manuals and guides, visit www.pentair.com/cleanandclearplus, or scan the QR code to the right.



⚠ WARNING



THIS SYSTEM OPERATES UNDER HIGH PRESSURE

When any part of the circulating system, (e.g., closure, pump, filter, valve(s), etc.), is serviced, air can enter the system and become pressurized. Pressurized air can cause the top closure to separate which can result in severe injury, death, or property damage. To avoid this potential hazard, follow these instructions:

1. Let air and pressure out of system before and after servicing.
 - a. **Shut off pump and RELIEVE PRESSURE by opening the manual air/pressure relief valve before servicing, including before tightening the clamp bolt.** Follow the *Opening the Filter, page 4* instructions exactly.
 - b. Follow the start-up instructions given *Start-Up Instructions on page 6* exactly after completing service. **The air/pressure relief valve must remain open until water comes out**, allowing all air out of the system.
2. Install lid and clamp ring properly.
 - a. Follow the *Installing the Filter Lid and Clamp Ring on page 5* instructions exactly. **The nut must be tightened until the spring is compressed when clamp is installed.** Tap the clamp with a rubber mallet or similar tool after clamp installation to ensure proper seating.
3. Maintain circulation system properly to help prevent air entering the system.
 - a. Replace worn or damaged parts immediately, (e.g., closure, pressure gauge, valve(s), O-rings, etc.).
 - b. Maintain proper water level in the pool or spa.
4. Verify that the return line to the pool is unobstructed. Ensure return valves are open and any winterizing plugs are removed.

⚠ WARNING

Your filter is a piece of machinery, do not tamper with it, attempt to disassemble it or otherwise adjust it unless you fully understand it's operation. Serious injury or death can occur if the equipment is improperly handled. Consult a pool service professional for maintenance and service assistance.

⚠ WARNING

Always disconnect power to the pool circulating system at the circuit breaker before servicing the filter. Ensure that the disconnected circuit is locked out or properly tagged so that it cannot be switched on while you are working on the filter. Failure to do so could result in serious injury or death to serviceman, pool users or others due to electric shock.

IMPORTANT SAFETY INSTRUCTIONS
READ AND FOLLOW ALL INSTRUCTIONS
SAVE THESE INSTRUCTIONS

CUSTOMER SERVICE AND TECHNICAL SUPPORT

Hours: 8:00AM to 7:30PM EST (5:00AM - 4:30PM PST)

Call: (800) 831-7133

Visit: www.pentair.com

Fax: (800) 284-4151

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When to Clean Your Filter

A filter's operating pressure increases as dirt is filtered from your pool. This buildup of pressure will vary due to different bathing loads, temperature, environmental conditions, etc.

Clean your filter when the filter's pressure gauge reads approximately 10 psi higher than the Original Starting Pressure or when significant reduction in flow is noticed. When using a variable speed pump the Original Starting Pressure will be dependent on the pump speed (RPM) when recording the original operating pressure.

Opening the Filter

Follow these instructions **exactly** to prevent the lid from separating during system start-up, operation or servicing.

⚠ WARNING



This filter operates under high pressure. Air can also enter the system and become pressurized.

If there is air in the system, there will be positive pressure that could cause the lid to separate from the filter when you release the clamp or during system start-up or operation.

If there is no air in the system, there may be negative pressure, which would make the system hard to open.

Follow these instructions exactly. Opening the relief valve equalizes the pressure and releases any trapped air within the system, making it safe and easy to open.

RECOMMENDED EQUIPMENT:

- Socket Wrench
- 7/8-inch Socket
- Socket Extender (if needed)

PROCEDURE:

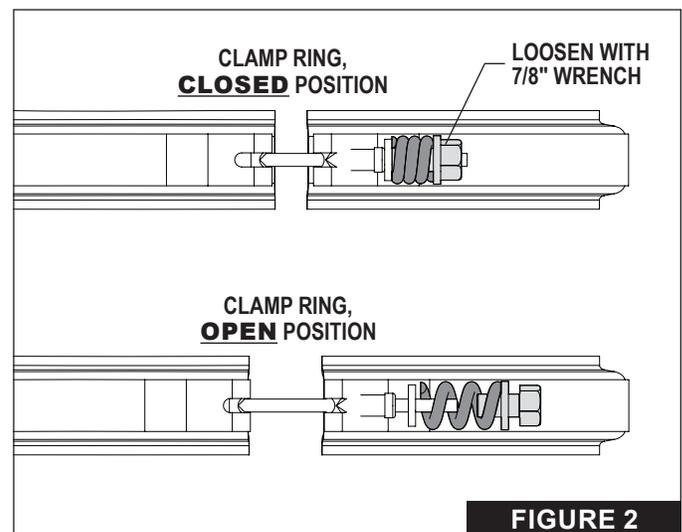
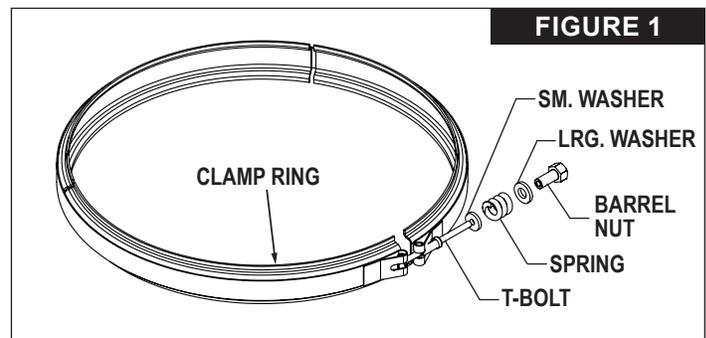
1. **Shut off pump and relieve all pressure from the filtration system.**
 - a. Turn the pump OFF, shut OFF any automatic controls (e.g., timers), and disconnect power at the circuit breaker to ensure that the system is not inadvertently started during maintenance.
 - b. Open the Manual Air Relief Valve by turning the top of the valve 1/4 turn counterclockwise until it snaps into the full open position.
 - c. Stand clear of the filter and wait until all pressure is relieved. **Pressure gauge must read zero (0) psi.**
2. Open the drain plug at the bottom of the filter and allow all water to drain from the filter.
3. Using a 7/8-inch wrench, loosen the clamp barrel nut, allowing the spring coils to decompress. See **FIGURE 2**.
4. Remove the barrel nut, spring and two washers from the T-bolt and place them aside.
5. Remove the clamp ring from the filter and place it aside.
6. Carefully lift the filter lid away from the tank bottom.

DO NOT lift the filter lid by the air relief valve. This can damage the valve.

Note: If the lid is tightly sealed to the tank bottom you may have to gently wiggle the filter lid side to side to separate the tank halves. **DO NOT use a screwdriver or pry-bar to lift the lid. This can damage the O-ring.**

7. Place the tank lid and O-ring in a safe place where it will not be damaged while performing maintenance.

Note: Minimize the amount of debris that comes in contact with the tank O-ring while it is exposed.



Cleaning the Filter Cartridges

1. Follow *Opening the Filter on page 2* exactly.
2. Remove the pump strainer pot lid and clean the pump strainer basket. Reinstall the strainer basket and lid.
3. Remove the Compression Spring and Spring Adapter from the Top Manifold.
4. Remove the Top Manifold from the filter cartridges and lay the manifold aside. See **FIGURE 3**.
5. Carefully remove each cartridge separately.
6. Using a garden hose with a straight flow nozzle, hold the nozzle at a 45-degree angle to the cartridge and wash the entire cartridge from top to bottom (see **FIGURE 4**).

Note: Pay special attention to the area between pleats.

7. For cartridges used in pools where high levels of perspiration, suntan lotions or other oils are present:

- a. Soak the cartridge for at least one hour in one of the following:

- A commercial filter cleaner

WARNING

Heed all manufacturers' instructions and warnings when using polyhexamethylene biguanide sanitizers or other cartridge filter cleaner solutions.

- 1 cup trisodium phosphate (TSP) to 5 gallons of water
- 1 cup dishwasher detergent to 5 gallons of water

- b. Thoroughly rinse each cartridge to remove oils and cleaning solution.

CAUTION

Failure to remove all oils and cleaning solutions before acid soaking will result in permanent restriction of water flow through the filter and will cause premature cartridge failure.

8. Wash out the inside of the filter tank and bottom manifold. Water and debris will drain out through the open drain plug.
9. Inspect the gasket around the outer lip of the bottom plate. The gasket must be firmly and evenly seated around the entirety of the outer lip.
10. Place the bottom manifold, cartridges and top manifold into the tank, ensuring the spring and standpipe assembly are retained on the top manifold.
11. Ensure the O-ring is clean and seat it onto the tank bottom.
12. To acid soak the cartridges, continue to *Acid Soaking the Filter Cartridges, page 9* or to close the filter, refer to *Reinstalling the Filter Lid and Clamp Ring, page 5*.

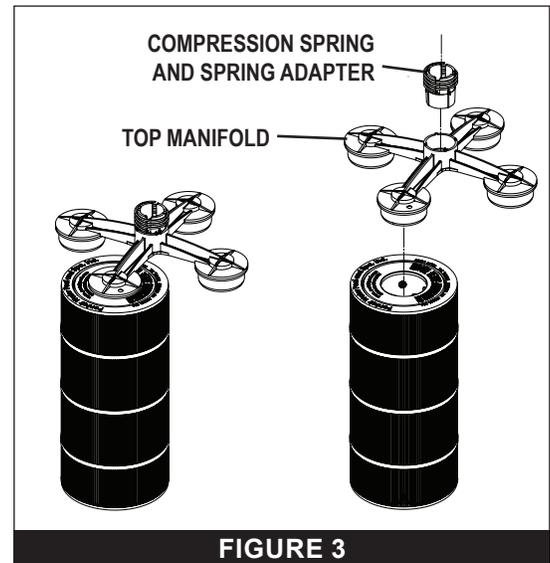


FIGURE 3

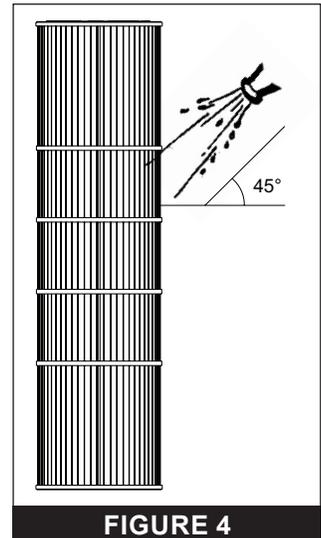


FIGURE 4

Acid Soaking the Filter Cartridges

After an extended period of operation, it may be necessary to soak the cartridges in an acid solution. Acid soaking will remove algae, calcium carbonate, iron and other mineral build-ups from the cartridges. If not removed, these mineral deposits can lead to the restriction of water flow through the filter and can impede efficient operation of the equipment.

⚠ WARNING



Muriatic acid is corrosive and can lead to inflammation or burns to body tissue.

ALWAYS wear rubber gloves, safety glasses and an N-95 dust mask when handling acid to prevent serious bodily injury.

⚠ CAUTION

To prevent degradation of the acid by UV light, store muriatic acid in an opaque container and away from direct sunlight.

RECOMMENDED EQUIPMENT:

- Large Plastic Container
- Garden Hose with a Straight Flow Nozzle
- Muriatic Acid (stored in opaque container)
- Rubber Gloves
- Safety Glasses
- N-95 Dust Mask

PROCEDURE:

1. Remove all oils and cleaning solutions from the cartridges.

⚠ CAUTION

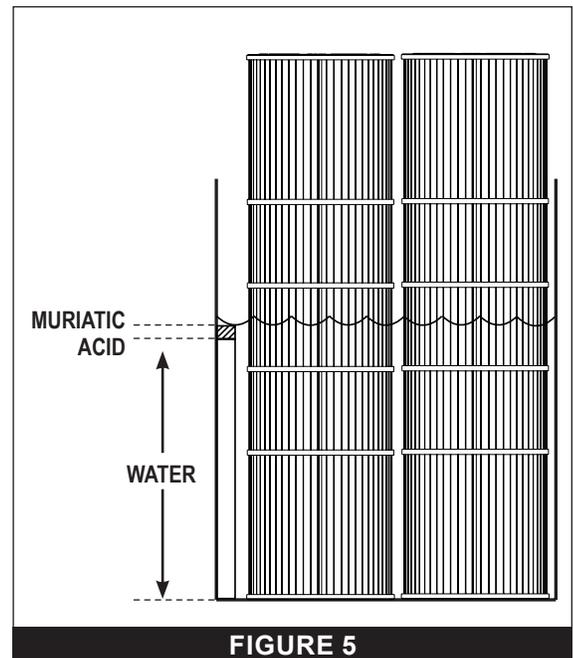
Acid soaking without performing this step will result in permanent restriction of water flow through the filter and premature cartridge failure.

2. Put on protective equipment - rubber gloves, safety glasses and N-95 dust mask.
3. In a large plastic container, create a solution of one part muriatic acid to twenty parts water. See **FIGURE 5**.

⚠ WARNING

Always introduce the muriatic acid as close to the water's surface as possible. This will minimize splash and reduce the risk of user contact with the acid.

4. Gently place the bottom of the cartridges into the acid solution. Allow the cartridges to soak in the solution for 10 minutes, or until bubbling stops.
5. Turn the cartridges over, placing the top halves into the solution. Allow the top halves of the cartridges to soak for 10 minutes, or until bubbling stops.
6. Remove the cartridges from the acid solution.
7. Using a garden hose with a straight flow nozzle, thoroughly wash down the entire filter element. Wash from the top down, holding the nozzle at a 45-degree angle to the cartridge. See **FIGURE 4**, page 4.
8. Reinstall the cartridges and dispose of the acid solution in accordance with local regulations.
9. Follow *Reinstalling the Filter Lid and Clamp Ring on page 5* exactly.



Reinstalling the Filter Lid and Clamp Ring

WARNING Follow these instructions exactly to prevent the lid from separating from the filter during system start-up or operation.

RECOMMENDED EQUIPMENT:

- Socket Wrench
- 7/8-inch Socket
- Socket Extender (if needed)
- Rubber Mallet

PROCEDURE:

1. Ensure the O-ring is clean and properly seated on the tank bottom. Seat the filter lid onto the tank bottom so the O-ring fits in between the tank halves.
2. Hold the ends of the clamp ring apart and place over both upper and lower tank flanges. Bring the ends of the filter clamp together.
3. Insert the T-bolt through the other side of the clamp and hold together.
4. Place the small washer onto the T-bolt.
5. Place the spring, large washer and barrel nut onto the T-bolt and tighten the nut by hand. Ensure the clamp ring fits easily on the tank flanges.
6. After tightening by hand:
 - a. Use a 7/8-inch socket wrench to tighten further.
 - b. Tap around the entire clamp ring with a rubber mallet (or similar tool) multiple times to fit the clamp properly.
 - c. Continue to tighten until the spring coils touch.
 - d. Tap around the entire clamp again and verify the spring coils remain touching. If not, continue to tighten the nut.

Note: The clamp is installed correctly only when the spring coils remain touching after tapping the clamp. See **FIGURE 6**.

7. Close the drain plug at the bottom of the filter.
8. Follow *Start-Up Instructions, page 6* exactly.

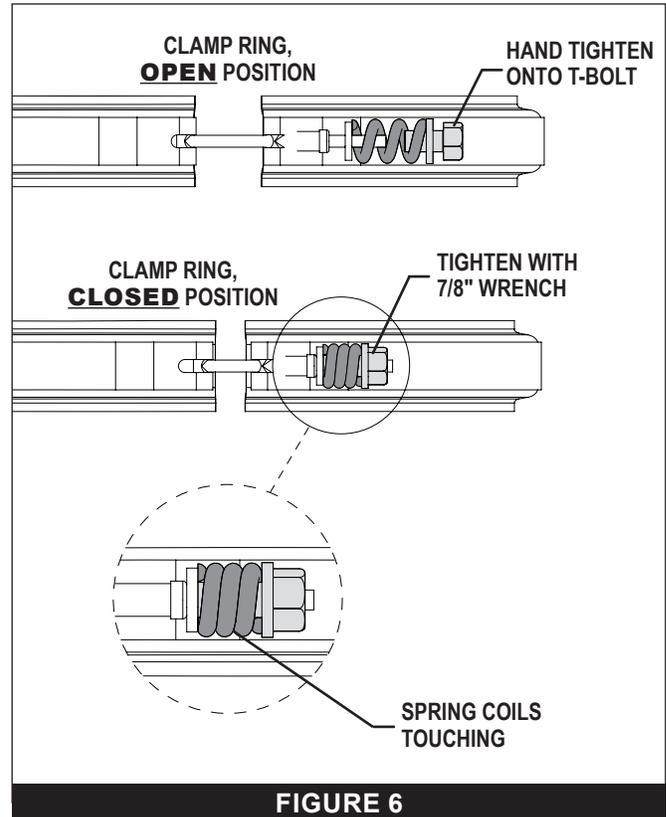


FIGURE 6

Note: Check the spring coils at least once a month to ensure proper tension. If spring coils do not touch then **shut off pump and relieve pressure** and tighten the nut and tap filter clamp until the coils touch.

WARNING



DO NOT tighten the nut or attempt to adjust the clamp ring or lid while the system is turned on or under pressure. This could cause the lid to separate from the filter.

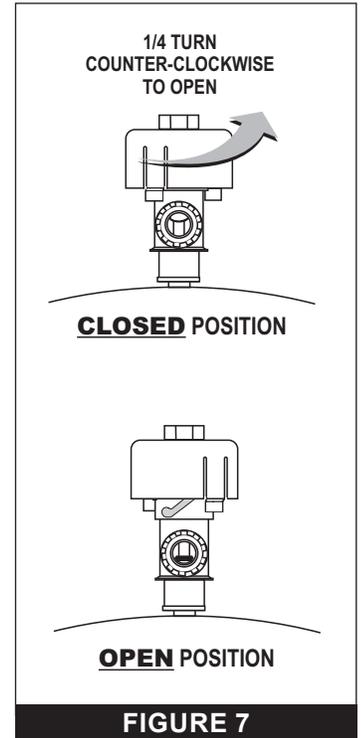
Start-Up Instructions

⚠ WARNING Follow these instructions exactly to prevent the lid from separating from the filter during system start-up or operation.

1. Ensure the **spring on the clamp ring is fully compressed, with coils touching**. Refer to *Reinstalling the Filter Lid and Clamp Ring*, page 5.
2. Open the Manual Air Relief Valve by turning the top of the valve 1/4 turn counterclockwise, until it snaps into the full open position. See **FIGURE 7**.
3. Stand clear of the filter, then start the pump.
4. Watch for proper operation. The system is not working properly if:
 - a. The pressure gauge indicates pressure before water out-flow appears.
 - b. A solid stream of water does not appear within 30 seconds after the pump's inlet basket fills with water.
 - c. Water leaks from where the two halves of the filter come together.

If any of these conditions exist, **shut off the pump immediately**. Open the manual air relief valve to relieve pressure and clean the valve. If the problem persists, call Pentair Technical Service at (800) 831-7133 for assistance.

5. After a steady stream of water appears, close the manual air relief valve by turning the valve cover assembly a quarter turn clockwise.
6. The first time the system is started up, fill out **TABLE 1** and the corresponding label on the equipment:
 - a. Record the "Original Starting Pressure"
 - b. Fill in the pressure at which the filter should be cleaned. This is approximately 10 psi higher than the "Original Starting Pressure".
 - c. If the system includes a variable speed pump, record "Original Pump RPM".



ORIGINAL STARTING PRESSURE IS: _____ psi.
(pounds per square inch)

SERVICE THE CARTRIDGES AT: _____ psi.

ORIGINAL PUMP RPM: _____ RPM.
(for Variable Speed Pumps Only)

TABLE 1



1620 HAWKINS AVE., SANFORD, NC 27330 • (919) 566-8000
10951 WEST LOS ANGELES AVE., MOORPARK, CA 93021 • (805) 553-5000

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