Meteor Filter System Kit Owner's Manual

IMPORTANT SAFETY INSTRUCTIONS READ AND FOLLOW ALL INSTRUCTIONS SAVE THESE INSTRUCTIONS

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WARNING

Before installing this product, read and follow all warning notices and instructions accompanying this system. 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 this 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.

Pentair Pool Products 1620 Hawkins Ave., Sanford, NC 27330 • (919) 774-4151 10951 West Los Angeles Ave., Moorpark, CA 93021 • (805) 523-2400



Section 1. Pump Safety Instructions.

When installing and using this electrical equipment, basic safety precautions should always be followed, including the following:

- 1. READ AND FOLLOW ALL INSTRUCTIONS.
- 2. WARNING To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.
- 3. WARNING Risk of Electric Shock. Connect only to a grounding type receptacle protected by a ground-fault circuitinterrupter (GFCI). Contact a qualified electrician if you cannot verify that the receptacle is protected by a GFCI.
- 4. Do not bury cord. Locate cord to minimize abuse from lawn mowers, hedge trimmers, and other equipment.
- 5. WARNING To reduce the risk of electric shock, replace damaged cord immediately.
- 6. WARNING To reduce the risk of electric shock, do not use extension cord to connect unit to electric supply; provide a properly located outlet.
- 7. CAUTION For continued protection against possible electric shock, this unit is to be mounted to the base in accordance with the installation instructions.
- 8. CAUTION If this pump is equipped with a 25 ft. cord, it is for use with storable pools only. Do not use with permanently installed pools. A storable pool is constructed so that it may be readily disassembled for storage and reassembled to its original integrity. A permanently installed pool is constructed in or on the ground or in a building such that it cannot be readily disassembled for storage.

9. SAVE THESE INSTRUCTIONS.

AWARNING



This filter operates under pressure. With the valve clamped properly and operated without air in the system, this filter will operate in a safe manner. Air entering the filter and the valve not clamped correctly can cause the valve to be blown off, which could cause severe personal injury and/or property damage.



AWARNING

To reduce the risk of electric shock, do not use an extension cord. Only connect to a GFCI protected receptacle. Failure to do so could result in an electrical shock to pool users, installers, or others which can result in serious personal injury or death.

Section II. How Your Filter Works.

Your high rate sand filter is designed to produce clear, sparkling water and operate for years with a minimum of maintenance when installed, operated and maintained in accordance with these instructions.

Your filter uses special filter sand to remove dirt particles from the water. Dirt is collected in the filter by the sand bed as water flows through the filter. Water enters the filter through the valve on top of the filter and is distributed evenly downward across the sand bed. The dirt is removed by the sand and the clean water flows through the piping (laterals) at the bottom of the filter, up through the center pipe, back to the valve on top of the filter, where the clean water is returned to the pool through the piping or hoses.

After a period of time, dirt will accumulate in the filter causing a resistance to the flow of water through the filter. This resistance results in a diminished flow of water and a rise in the pressure of the filter. Eventually the filter sand will have removed so much dirt and the filter pressure risen to such a point that it will be necessary to clean (backwash) your filter.

By setting the valve on top of the filter to the backwash position, the flow of water is automatically reversed through the filter so that the flow of water is directed to the bottom of the filter, up through the sand bed flushing, the dirt and debris out through the waste line. Once the backwash procedure is complete, the valve is manually returned to its filter position to resume normal filtration.

The filter's function is to remove suspended matter from the water and does not sanitize the water. For sparkling clear water the water must be sanitized as well as balanced. Pool chemistry is a specialized area, and you should consult your local pool service specialist for specific details. 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.

AWARNING

Failure to operate your filter system or inadequate filtration can cause poor water clarity obstructing visibility in your pool. Poor water clarity may obscure objects in the water which while swimming and diving could cause severe personal injury or death. Never swim in a pool with poor water clarity.

Section III. Installation.

bottom of the tank.

To install this filter system, you will need the following simple tools - screwdriver and pliers.

- 1. Carefully remove the equipment from the carton and check for any evidence of damage due to rough handling or shipping. If any of the equipment is damaged, immediately notify the organization from where the equipment was purchased.
- 2. This filter system should be mounted on a level concrete slab, preferably concrete poured in a form or on a platform constructed of concrete block or brick. Position the filter system so that the piping connections, control valve and drain port are convenient and accessible for operation, service and winterizing.
- 3. Do not mount electrical controls (on/off switches, timers etc.) over the filter. You need to be able to stand clear of the filter when starting the pump.

Media - Your sand filter uses a #20 grade Silica filter sand for its media		Table 1		
(.4555mm). It should be free of all limestone or clay. Most pool supply and building material stores carry Silica sand. See Table 1 for the appropriate amounts of Silica sand for these filter systems.	Model	Max. Filtration Area	Amount of Sand	
	18" Meteor	1.63 sq. ft.	65-100 lbs.	
half full of water. Pour the Silica sand into the top of the filter tank	20" Meteor	2.0 sq. ft.	100-150 ibs.	
slowly, so that the weight does not damage the lateral assembly in the	22" Meteor	2.5 sq. ft.	150-200 lbs.	

5. Install the sand funnel in the top of the filter tank and fill the tank about half full of water. Pour the Silica sand into the top of the filter tank slowly, so that the weight does not damage the lateral assembly in the

4. Media - Your sand filter uses a #20 grade Silica filter sand for its media

- 6. After filling the filter tank with the appropriate amount of Silica sand remove the sand funnel and wash away any loose sand from the opening of the filter tank.
- 7. Be sure that all sealing surfaces are clean on the filter tank. Apply a light coating of silicone based lubricant to the gasket of the control valve and place the control valve over the opening in the top of the filter tank so that the center pipe slips into the bore of the control valve.
- 8. Position the control valve so that the port locations are in the desired position. Control valve port locations are labeled with the location they should be connected to.
- 9. Install the valve clamp halves over the flanges of the filter tank and the control valve. Ensure that the valve clamp halves are securely installed over both flanges before attaching and tightening the two bolts and nuts. Tighten the two bolts and nuts securely until both clamp halves touch.



AWARNING

This filter operates under pressure. With the valve clamped properly and operated without air in the system, this filter will operate in a safe manner. Air entering the filter and the valve not clamped correctly can cause the valve to be blown off, which could cause severe personal injury and/or property damage.

 Assemble all piping to the pump and valve. The pump to filter hose must be connected to the port marked pump on the control valve first, then it can be connected to the pump. Make sure the O-ring is in place on the pump swivel union connection before attaching the hose to the pump.

ACAUTION

Use only teflon tape (3 layers) on all threaded male connections, see Figure 1. Do not use Teflon tape on fittings with an O-ring seal, see Figures 2 and 3. Use of petroleum based pipe joint compounds can damage components of this system causing leaks.



- 11. Connect black hoses to the equipment and the pool with the clamps provided.
 - a. Connect skimmer suction port from pool to pump inlet.
 - b. Connect filter valve return port to return fitting of pool, see Figure 4.
- 12. Never install a pump in this system that exceeds the maximum pressure of this filter (see data label).

Section IV. Initial Start Up.

- 1. Be sure the correct amount of Silica filter sand is in the tank and that all connections have been made and are secure.
- 2. Check that the backwash is open so that water is free to flow from the pool and out the backwash line. Set the control valve to Backwash position.
- 3. **Stand clear of the filter.** Prime and start pump according to the pump instructions allowing the filter tank to fill with water. Once the water flow is steady out of the waste line, run the pump for at least two minutes. This initial backwashing of the filter is recommended to remove any impurities of fine sand particles in the Silica sand media.



AWARNING

This filter operates under pressure. With the valve clamped properly and operated without air in the system, this filter will operate in a safe manner. Air entering the filter and the valve not clamped correctly can cause the valve to be blown off, which could cause severe personal injury and/or property damage.

ACAUTION

Always turn pump off before changing valve positions. Changing valve positions while the pump is running can damage the control valve, which may cause personal injury or property damage.

- 4. Turn the pump off and set valve to rinse position. Ensure that all pool suction and return lines are open so that water is free to flow from the pool to waste. **Stand clear of filter** and start the pump.
- 5. Run the pump for at least two minutes.
- 6. Turn the pump off and set valve to filter position. Ensure that all pool suction and return lines are open so that water is free to flow from and to the pool. Stand clear of filter and start the pump.
- 7. Your filter has now started its filtering cycle. You should check that water is returning to the pool and take note of the operating pressure. My original starting pressure is _____ PSI with the filter clean.
- 8. Check the system for water leaks. If a leak is found, shut pump off before correcting the leak.
- 9. As the filter removes dirt and impurities from the pool water, the accumulation will cause the filter pressure to rise and flow to diminish. When the pressure gauge reading is 5 to 7 PSI higher than the clean filter reading noted above, it is time to backwash the filter.

ACAUTION

To prevent damage to the pump and filter and for proper operation of the system, clean pump strainer and skimmer baskets regularly.

Section V. Cleaning Frequency.

- 1. Cleaning frequency will vary from pool to pool and with other factors such as weather condition, heavy rains, dust, pollen, bather load, and water chemistry. Check the pressure gauge reading on a regular basis and when the pressure gauge reading increases 5 to 7 PSI over the initial clean filter reading, it is time to backwash your filter.
- 2. It is important NOT to backwash the filter solely on a timed basis such as every two days. It is also important to note that backwashing too frequently actually causes poor filtration.

Section VI. Filter and Control Valve Functions.

FILTER - From pump, through valve, downward through filter sand bed, up through center pipe to valve return port, and back to the pool for normal filter action and vacuuming pool through filter.

- BACKWASH From pump, through valve down through center pipe, up through filter sand to valve, and out waste port. This position is used for cleaning filter by reversing flow.
- RINSE From pump through valve downward through filter sand, up through center pipe to valve and out waste port. This position is used for start up cleaning and resettling filter bed after backwashing.
- WASTE From pump, through valve (bypasses filter) and goes to waste port. This position is for vacuuming directly to waste, lowering pool level, or draining pool.
- CLOSED NO FLOW IN THIS POSITION DO NOT USE THIS SETTING WITH PUMP OPERATING.
- RECIRCULATE- From pump, through valve, bypasses filter and goes to return port and back to pool. This position is for circulating water without going through filter.

WINTERIZING - Valve position for a winterized filter, see page 10.

Section VII. Filter Backwash Procedures.

AWARNING

Failure to operate your filter system or inadequate filtration can cause poor water clarity obstructing visibility in your pool. Poor water clarity may obscure objects in the water which while swimming and diving could cause severe personal injury or death. Never swim in a pool with poor water clarity.

- 1. Turn off pump.
- 2. Ensure that suction and backwash lines are open so that water is free to come from the pool and flow out the backwash line. Set the control valve to backwash position.
- 3. Stand clear of the filter and start pump.
- 4. Backwash filter for approximately 3-5 minutes or until backwash water is clean.
- 5. Turn off pump. Set control valve back to rinse position.
- 6. Stand clear of the filter and start pump.
- 7. Rinse filter for approximately 3-5 minutes.
- 8. Turn off pump. Set control valve back to filter position.
- 9. Stand clear of the filter and start pump.
- 10. The filter has now started its filtering cycle. Check that water is returning to the pool and take note of the filter pressure.
- 11. The filter pressure in step 10 above should not exceed the pressure originally observed on the filter when it was initially started. If after backwashing the pressure is 4-6 PSI above the start condition, it may be necessary to change the sand in the filter.

Section VIII. Winterizing the Filter.

- 1. In areas that have freezing winter temperatures, the pool equipment must be winterized to protect it from damage.
- 2. Backwash the filter. Shut off the pump and set the control valve to the winterize position.
- 3. Remove the drain port cap at the bottom of the filter.

IMPORTANT NOTE

Remove drain port cap only for draining water from filter. Removing the entire fitting will allow sand to drain also. Do not remove the entire fitting on the 18" filter. This will damage the filter. The filter will drain slowly. Leave the drain port cap off and store it during the time the system is shut down.

ACAUTION

The control valve should be left in the winterize position during the shutdown season so that the rubber seal of the valve diverter has no pressure on it. Failure to do so can damage the valve diverter seal which can cause property damage from leaking water.

- 4. Drain all appropriate system piping.
- 5. It is recommended that the pump and filter be covered with a tarpaulin or plastic sheet to inhibit deterioration from the weather. DO NOT wrap pump motor with plastic.

Section IX. Troubleshooting.

Problem	Cause	Remedy
Pool water not sufficiently clean.	1. Pool chemistry not adequate to inhibit algae growth.	Maintain pool chemistry or consult pool service technician.
	2. Too frequent a backwash cycle.	Allow pressure to build to 10 PSI above clean filter condition before backwashing.
	3. Improper amount or wrong sand size.	Check sand bed depth and sand size or consult pool service technician.
	4. Inadequate turnover rate.	Run system for longer time or consult dealer or pool service technician.
Higher filter pressure.	1. Insufficient backwashing	Backwash until effluent runs clear.
	2. Sand bed plugged with mineral deposits	Chemically clean filter.
	3. Partially closed valve or restriction.	Open valve or remove obstruction in return line.
Short filter cycles.	1. Improper backwash.	Backwash until effluent runs clear.
	2. Pool chemistry not adequate to inhibit algae growth.	Maintain pool chemistry or consult pool service technician.
	3. Plugged sand bed.	Manually remove top 1" surface of sand bed and chemically clean as required.
	4. Flow rate too high.	Restrict flow to capacity of filter.
Return flow to pool diminished, low filter pressure.	1. Obstruction in the pump hair and lint pot.	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.
Sand returning to pool	1. Broken underdrain lateral.	Replace broken or damaged laterals.
	2. Backwash rate too high.	Reduce backwash flow rate.

Replacement Parts

Find <u>No.</u>	Part <u>No.</u>	Description
1	50118100	MPV, 8 pos., 18" and 20" filter
1	50118200	MPV, 8 pos., 22" filter
2	51020900	Clamp, multiport valve
3	98209000	Screw, clamp
4	98211400	Nut, clamp
5	51021700	MPV gasket, 18", 20", 22"
6	58811200	Tank assy., 18" filter
6	58811500	Tank assy., 20" filter
6	58811100	Tank assy., 22" filter
7	51005000	O-ring, drain/insp. fittings
8	86300300	Fitting, drain sand/water
9	86300500	Gasket, drain cap
10	86300400	Cap, drain
11	55007800	Drain assy., complete
12	55216000	Skid base, 18" filter
12	55215000	Skid base, 20, & 22" filter
13	57002100	Clamp, hose, clr. braided assy.
14	85019200	Hose adapter
15	50152300	O-ring, hose assy.
16	85020100	Hose, clr. braided, 18" filter
16	85020200	Hose, clr. braided, 20" filter
16	85020300	Hose, clr. braided, 22" filter
17	79302100	Hose, clr. braided assy., 18" filter
17	79302200	Hose, clr. braided assy., 20" filter
17	79302300	Hose, clr. braided assy., 22" filter
17	79304201	Hose, clr. braided assy., 18, 20 & 22"
	85005900	Hose, 6 ft. crg., blk., filter to pool
	98200700	Bolt, 5/16-18 x 1/4"
	98317000	Nut, 5/16-18 x 1/4"
	53003200	Gauge, pressure
	55025700	Lateral, 18", 20", 22"
	55027500	Standpipe assy, 18" filter
	55027600	Standpipe assy, 20" filter
	55027700	Standpipe assy, 22" filter
	55013200	Funnel, sand filling
	85019300	Backwash adaptor
	85019000	Backwash sight glass, 18", 20" filter
10	82019100	Backwash sight glass, 22" filter
18		IVIaxim pump



Section XI. Pump Instructions.



To reduce the risk of electric shock, do not use an extension cord. Only connect to a GFCI protected receptacle. Failure to do so could result in an electrical shock to pool users, installers, or others which can result in serious personal injury or death.

AWARNING

1. To prime pump - (pump must be off).

Unscrew lid from pot and fill pot with water to level of suction line. Inspect O-ring, lubricate with silicone lubricant. Screw lid into pot, hand tighten, lid shoulder will come to rest on pot surface. Turn pump on, depending upon elevation above water level and horizontal distance of suction line, priming time will vary. If filter is installed, open air relief valve, before turning pump on, until a steady stream of water comes out, then close air relief valve. Pump is now primed. If pump is installed below water level, close return line prior to filling hair/lint pot with water. Line must be re-opened before turning pump on.

2. To clean basket - (pump must be off).

Follow procedure above to prime pump. After removing lid, remove basket and empty debris. Replace basket and proceed to fill pot with water. It is important to visually inspect the basket, through the see through lid, at least once a week. A dirty basket will reduce the efficiency of your system, and can put an abnormal load on the pump which could result in costly repair bills.

ACAUTION

DO NOT RUN PUMP DRY. If pump is run dry, the mechanical seal will be damaged and external leakage will occur. When a seal is damaged, the seal must be replaced.

ACAUTION

ALWAYS MAINTAIN PROPER WATER LEVEL IN THE POOL. Water level must be half way up the skimmer opening. A low water level can cause the pump motor to run dry which will damage the mechanical seal and cause external leakage.

3. Shaft Seal - (Rotary Seal). The shaft seal consists of two parts:

a. Rotating ceramic seal, pressed fit into the impeller.

b. A stationary spring loaded seal, press fitted into the rear of the volute.

ACAUTION

The highly polished and lapped faces of the seal are easily damaged. Handle with care. This centrifugal pump requires little or no service, however, the shaft seal will wear with normal use over the years, and will require periodic replacement.

- 4. The electric motor
 - a. The electric motor should be protected from foreign matter, water splashing, hosing and the weather. Enclosures should be well ventilated to prevent overheating. If a motor becomes wet, permit it to dry before running it. If a motor has been damaged by water or dirt, the warranty is void.
 - b. The motors used on these pumps are 48 frame through bolt motors. The through bolts are used to secure the volute to the motor. When replacing motor, mark the end bells and the motor shell to indicate alignment. Remove the four nuts from the through bolts at shaft end. Place shaft through back of volute and locate through bolts in line with brass inserts located in four legs at rear of volute, be sure end bell and shell marking line up. Securely fasten motor to volute.
 - c. Protect motor from heat. Provide ample ventilation.
 - d. Protect motor from dirt and chemicals. Keep motor, motor vents and surrounding area clean. Avoid sweeping or stirring up dust near the motor while it is running. Avoid stirring (or spilling) water chemicals near the motor.
 - e. Protect motor from moisture. Provide protection from rain, snow, lawn sprinklers, etc. Locate motor on a slight elevation so that water will not run or puddle nearby. Do not splash water on or near the motor.

Meteor High Rate Sand Filter System Pentair Pool Products Limited Warranty

PENTAIR POOL PRODUCTS manufactures its Meteor High Rate Sand Filter System under high standards of workmanship and with high quality materials. Accordingly, Pentair Pool Products expressly warrants those system components as follows:

WARRANTY COVERAGE - All internal components of Pentair Pool Products' Meteor High Rate Sand Filter system which are actually manufactured by Pentair Pool Products are warranted to be free from detects in material and/or workmanship for a period of three (3) years from the date of purchase. In addition, the tanks of such filters are warranted to be be free from defects in material and/or workmanship for a period of five (5) years from date of purchase. The 5 and 8 position multiport valve and the Maxim[™] pump used on the Meteor filter System have a one (1) year warranty. The obligation of Pentair Pool Products under the Meteor tank warranty will be limited to either repair or replacement of the filter tank, at Pentair Pool Products' option.

EXCLUSIONS FROM THIS WARRANTY-This warranty does not cover:

- 1. Any item manufactured by other companies and installed by Pentair Pool Products (such as air or water valves, gauges, plumbing fittings, pipes, bolts, nuts, cartridges, motor, hoses, mechanical seals, etc.).
- 2. Problems resulting from oversizing of pump and or reduction of valve piping sizes, or from failure to turn pump off before changing the position of the filter valve or any operating valves for the pool and its accessories.
- 3. Problems resulting from failure to comply with instructions contained in the Owners Manual.
- 4. Problems resulting from abuse, misuse, negligence or accident by any party other than Pentair Pool Products.
- 5. Problems resulting from exposure to temperatures below freezing or in excess of 125 degrees Fahrenheit.
- 6. Problems resulting in whole or in part from alteration or modification of the filter by any party.
- 7. Failure due to chemical corrosion, caused by failure to maintain the water chemistry in conformity with the standards of the swimming pool and spa industry.
- 8. External damage to chamber, bulkhead areas, or bottom threads that occur through improper plumbing or damage during installation.

WARRANTY OBLIGATIONS OF PENTAIR POOL PRODUCTS -

Should a defect in workmanship and/or material in any item covered by this warranty become evident during the term of the warranty, then upon the consumer following the procedures set forth below, Pentair Pool Products will at its option, repair or replace such item or part at its own cost and expense. Pentair Pool Products will not however be responsible under this warranty for any cost of shipping or transportation of the filter or part thereof to or from the service department, also Pentair Pool Products is not liable for any loss of time, inconvenience, incidental expenses such as telephone calls, labor or material charges incurred in connection with the removal or replacement of the equipment or any other incidental or consequential damages.

PLEASE NOTE - 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.

PROCEDURE FOR OBTAINING PERFORMANCE -In order to obtain the benefits of this warranty the consumer who made the original retail purchase will contact Pentair Pool Products, Customer Service Department, 10951 West Los Angeles Ave., Moorpark, CA 93021 as soon as possible after discovery of the defect, but in no event later than the expiration date of the warranty period provided in this warranty. Upon receipt of this communication, Pentair Pool Products will promptly notify the customer of the address to which the defective item may be shipped. The customer shall then ship the item, freight prepaid, to the address indicated together with a letter stating the model number, serial number, and the date of purchase of the item which is claimed to be defective, and the name and address of the consumer and a brief description of the problems encountered.

WARRANTY PROTECTS ORIGINAL PURCHASER - This warranty extends to the consumer who made the original retail purchase only and is not enforceable by any other party.

WARRANTIES OR REPRESENTATIONS BY OTHERS - No dealer or other person has any authority to make any warranties or representations concerning Pentair Pool Products or its products. Accordingly, Pentair Pool Products is not responsible for any such warranties or representations.

OTHER RIGHTS - This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

SAVE THESE INSTRUCTIONS

Pentair Pool Products

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