PENTAIR

MASTERTEMP® POOL AND SPA HEATER
INSTALLATION AND USER'S GUIDE

⚠WARNING

FOR YOUR SAFETY - READ BEFORE OPERATING

If you do not follow these instructions exactly, a fire or explosion may result, causing property damage, personal injury or loss of life. For additional free copies of this manual; call (800) 831-7133.

FOR YOUR SAFETY - This product must be installed and serviced by authorized personnel, qualified inpool/spa heater installation. Improper installation and/or operation can create carbon monoxide gas and flue gases which can cause serious injury, property damage, or death. For indoor installations, as an additional measure of safety, Pentair Aquatic Systems strongly recommends installation of suitable **Carbon Monoxide detectors** in the vicinity of this appliance and in any adjacent occupied spaces. Improper installation and/or operation will void the warranty.

120/240 VAC NATURAL GAS/LP GAS		
Models	**Natural**	**Propane**
175K BTU/HR	460792	460793
200K BTU/HR **(ASME)**	461000	461001
200K BTU/HR	460730	460731
200K BTU/HR **(HD ASME)**	461032	–
250K BTU/HR	460732	460733
250K BTU/HR **(HD)**	460806	–
250K BTU/HR **(ASME)**	460771	460772
250K BTU/HR **(HD ASME)**	461020	–
300K BTU/HR	460734	460735
400K BTU/HR	460736	460737
400K BTU/HR **(HD)**	460805	–
400K BTU/HR **(ASME)**	460775	460776
400K BTU/HR **(HD ASME)**	461021	–

OWNER: Retain For Future Reference

⚠WARNING Improper installation, adjustment, alteration, service or maintenance can cause propertydamage, personal injury or death. Installation and service must be performed by a qualified installer, service agency or the gas supplier.

FOR YOUR SAFETY

WHAT TO DO IF YOU SMELL GAS

- Do not try to light any appliance.
- Do not touch any electrical switch; do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

DO NOT store or use gasoline or other flammable vapors and liquids in the vicinity of this or other appliances.

Pentair Water Pool and Spa, Inc.
1620 Hawkins Ave., Sanford, NC 27330 • (800) 831-7133 or (919) 566-8000
10951 W. Los Angeles Ave., Moorpark, CA 93021 • (800) 831-7133 or (805) 553-5000

Customer Service and Tecnincal Support

If you have questions about ordering Pentair Aquatic Systems replacement parts, and pool products, please call:

Phone: (800) 831-7133

Fax: (800) 284-4151

(8 A.M. to 4:30 PM Eastern Time/Pacific Time)
Web sites: www.pentairpool.com - www.staritepool.com

P/N 472592 Rev. L 8/14

Contents

Section 1: Heater Identification Information

To identify the heater, see rating plate on the inner front panel of the heater. There are two designators for each heater, one is the Model Number and the other is the Heater Identification Number (HIN).

a. Heater Identification Number (HIN)

The following *example* simplifies the identification system:

1) **MT** : MasterTemp
2) **Model Size** : (**175, 200, 250, 300** or **400**) : Input rating (Btu/hr) X 1000
3) **Fuel Type** : (**LP** = Propane gas or **NA** = Natural gas)
4) **Construction** : (**STD** = Standard Model)
(**HD** = Heavy Duty Model)
(**ASME** = ASME Certified Model)
(**HD ASME** = Heavy Duty ASME Model)

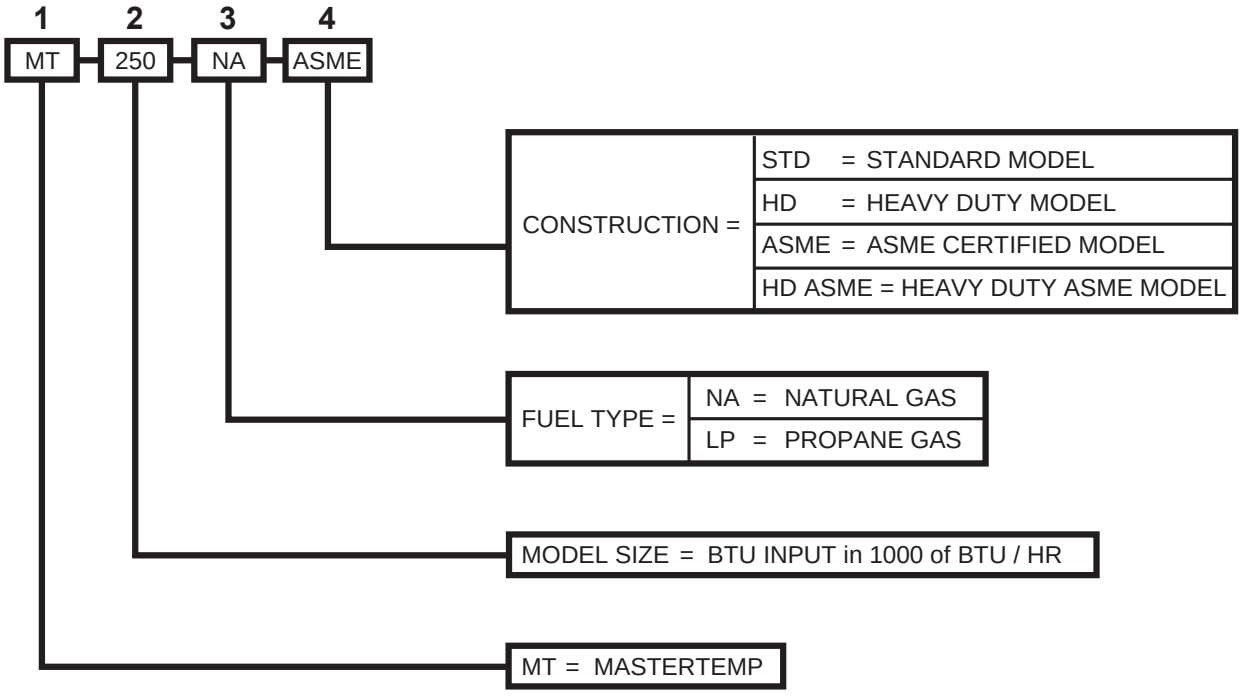
HEATER IDENTIFICATION INFORMATION — (HIN)

H. I. N.

HEATER IDENTIFICATION NUMBER

ID DESIGNATOR FOR PENTAIR AQUATIC SYSTEMS MASTERTEMP® HEATERS

Example:



Section 2: Warning and Safety Instructions

IMPORTANT SAFETY INSTRUCTIONS
READ AND FOLLOW ALL INSTRUCTIONS
SAVE THESE INSTRUCTIONS

MASTERTEMP®
Pool and Spa Heater

Congratulations on your purchase of the MasterTemp Pool and Spa Heater. Proper installation and service of your new heating system and correct chemical maintenance of the water will ensure years of enjoyment. The MasterTemp heater is a compact, lightweight, efficient, induced-draft, gas fired high performance pool and spa heater that can be directly connected to schedule 40 PVC pipe. The MasterTemp heater also comes equipped with the Pentair multifunction temperature controller which shows, at a glance, the proper functioning of the heater. All MasterTemp heaters are designed with a direct ignition device, HSI (hot-surface ignition), which eliminates the need for a standing pilot. The MasterTemp heater requires an external power source (120/240 VAC 60 Hz) to operate.

SPECIAL INSTRUCTIONS TO OWNER: Retain this manual for future reference. This instruction manual provides operating instructions, installation and service information for the MasterTemp high performance heater. The information in this manual applies to all MasterTemp heater models. **READ AND REVIEW THIS MANUAL COMPLETELY,** it is very important that the owner/installer read and understand the section covering installation instructions, and recognize the local and state codes before installing the MasterTemp heater. Its use will reduce service calls and chance of injury and will lengthen product life. History and experience has shown that most heater damage is caused by improper installation practices.

IMPORTANT NOTICES

For the installer and operator of the MasterTemp heater: The manufacturer's warranty may be void if, for any reason, the heater is improperly installed and/or operated. Be sure to follow the instructions set forth in this manual. If you need any more information, or if you have any questions regarding to this pool heater, please contact Pentair Aquatic Systems at (800) 831-7133.

WARRANTY INFORMATION

The MasterTemp pool and spa heater is sold with a limited factory warranty. ***Specific details are described on the warranty registration card which is included with the product.*** Return the warranty registration card after filling in the serial number from the rating plate inside the heater.

Pentair Aquatic Systems high standards of excellence include a policy of continuous product improvement resulting in your state-of-the-art heater. We reserve the right to make improvements which change the specifications of the heater without incurring an obligation to update the current heater equipment.

These heaters are designed for the heating of chlorine, bromine or salt system swimming pools and spas or in non-stationary installations, and should never be employed for use as space heating boilers or general purpose water heaters. The manufacturer's warranty may be void if, for any reason, the heater is improperly installed and/or operated. Be sure to follow the instructions set forth in this manual.

⚠CAUTION

OPERATING THIS HEATER CONTINUOUSLY AT WATER TEMPERATURE BELOW 68° F. WILL CAUSE HARMFUL CONDENSATION AND WILL DAMAGE THE HEATER AND VOID THE WARRANTY. Do not use the heater to protect pools or spas from freezing if the final maintenance temperature desired is below 68° F., as this will cause condensation related problems.

CODE REQUIREMENTS

Installation must be in accordance with all local codes and/or the latest edition of the National Fuel Gas Code, ANSI Z223.1 and the latest edition of the National Electrical Code, NFPA 70 (US).

Installation in Canada must be in accordance with the latest CAN/CGA-B149.1 or .2 and CSA C22.1 Canadian Electric Code, part 1.

The heater, when installed, must be electrically grounded and bonded in accordance with local codes, or, in absence of local codes, with the National Electrical Code, ANSI/NFPA70 (US) or in Canada in accordance with the Canadian Electric Code, part 1.as applicable.

⚠DANGER

CARBON MONOXIDE GAS IS DEADLY – Exhaust from this pool heater contains toxic levels of carbon monoxide, a dangerous, poisonous gas you cannot see or smell.

CONSUMER INFORMATION AND SAFETY

⚠WARNING

The U.S. Consumer Product Safety Commission warns that elevated water temperature can be hazardous. See below for water temperature guidelines before setting temperature.

1. Spa or hot tub water temperatures should never exceed 104° F (40° C). A temperature of 100° F (38° C) is considered safe for a healthy adult. Special caution is suggested for young children.
2. Drinking of alcoholic beverages before or during spa or hot tub use can cause drowsiness which could lead to unconsciousness and subsequently result in drowning.
3. Pregnant women beware! Soaking in water above 102° F (39° C) can cause fetal damage during the first three months of pregnancy (resulting in the birth of a brain-damaged or deformed child). Pregnant women should stick to the 100° F (38° C) maximum rule.
4. Before entering the spa or hot tub, the user should check the water temperature with an accurate thermometer. Spa or hot tub thermostats may err in regulating water temperatures by as much as 4° F (2.2° C).
5. Persons with a medical history of heart disease, circulatory problems, diabetes or blood pressure problems should obtain their physician's advice before using spas or hot tubs.
6. Persons taking medication which induce drowsiness, such as tranquilizers, antihistamines or anticoagulants should not use spas or hot tubs.

⚠WARNING

Should overheating occur or the gas supply fail to shut off, turn off the manual gas control valve to the heater. Do not use this heater if any part has been under water. Immediately call a qualified service technician to inspect the heater and to replace any part of control system and gas control which has been under water.

SAFETY INFORMATION

The MasterTemp® pool heaters are designed and manufactured to provide many years of safe and reliable service when installed, operated and maintained according to the information in this manual. Throughout the manual, safety warnings and cautions are identified by the "⚠" symbol. Be sure to read and comply with all of the warnings and cautions.

⚠ DANGER — CARBON MONOXIDE GAS IS DEADLY

READ OWNERS MANUAL COMPLETELY BEFORE OPERATING

THIS PRODUCT MUST BE INSTALLED AND SERVICED BY A PROFESSIONAL SERVICE TECHNICIAN, QUALIFIED IN POOL HEATER INSTALLATION. Some jurisdictions require that installers be licensed. Check with your local building authority about contractor licensing requirements. Improper installation and/or operation could create carbon monoxide gas and flue gases which could cause serious injury or death. Improper installation and/or operation will void the warranty.

Exhaust from this pool heater contains toxic levels of carbon monoxide, a dangerous, poisonous gas you cannot see or smell. Symptoms of carbon monoxide exposure or poisoning include dizziness, headache, nausea, weakness, sleepiness, muscular twitching, vomiting and inability to think clearly. IF YOU EXPERIENCE ANY OF THE ABOVE SYMPTOMS, IMMEDIATELY TURN OFF THE POOL HEATER, LEAVE THE VICINITY OF THE POOL OR SPA AND GET INTO FRESH AIR IMMEDIATELY. THE POOL HEATER MUST BE THOROUGHLY TESTED BY A GAS PROFESSIONAL BEFORE RESUMING OPERATION.

EXCESSIVE CARBON MONOXIDE EXPOSURE CAN CAUSE BRAIN DAMAGE OR DEATH.

NEVER use this pool heater indoors without specified ventilation system (and properly installed vent pipe).

NEVER use this pool heater in the home or in partly enclosed areas (such as garages), unless the specified ventilation system is used. If used outdoors, install far from open windows, doors, vents and other openings.

Pentair strongly recommends that all vents, pipes and exhaust systems be initially and periodically tested for proper operation. This testing can be accomplished by using a hand-held carbon monoxide meter and/or by consulting with a gas professional.

Pool heaters must be used in conjunction with carbon monoxide detectors installed near the pool heater. The carbon monoxide detectors must be periodically inspected for proper operation so as to insure continued safety. Broken or malfunctioning carbon monoxide detectors must be replaced immediately.

⚠ WARNING — FOR YOUR SAFETY

This product must be installed and serviced by a professional service technician, qualified in pool heater installation. Some jurisdictions require that installers be licensed. Check with your local building authority about contractor licensing requirements. Improper installation and/or operation could create carbon monoxide gas and flue gases which could cause serious injury or death. Improper installation and/or operation will void the warranty.

⚠ WARNING — **This heater is equipped with an unconventional gas control valve that is factory set with a manifold pressure of -.2 inches wc.** Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life. Installation or service must be performed by a qualified installer, service agency or the gas supplier. If this control is replaced, it must be replaced with an identical control.

Do not attempt to adjust the gas flow by adjusting the regulator setting.

SAFETY INFORMATION, (cont'd.)

⚠ WARNING — Risk of fire or explosion from incorrect fuel use or faulty fuel conversion. Do not try to run a heater set up for natural gas on propane gas or vice versa. Only qualified service technicians should attempt to convert heater from one fuel to the other. Do not attempt to alter the rated input or type of gas by changing the orifice. If it is necessary to convert to a different type of gas, consult your Pentair dealer. Serious malfunction of the burner can occur which may result in loss of life. Any additions, changes, or conversions required in order for the appliance to satisfactorily meet the application needs must be made by a Pentair dealer or other qualified agency using factory specified and approved parts. The heater is available for use with natural gas or LP (propane) gas only. It is not designed to operate with any other fuels. Refer to the nameplate for the type of gas the heater is equipped to use.

- Use heater only with the fuel for which it is designed.
- If a fuel conversion is necessary, refer this work to a qualified service technician or gas supplier before putting the heater into operation.

⚠ WARNING — Risk of fire or explosion from flammable vapors. Do not store gasoline, cleaning fluids, varnishes, paints, or other volatile flammable liquids near heater or in the same room with heater.

⚠ WARNING — Risk of explosion if unit is installed near propane gas storage. Propane (LP) gas is heavier than air. Consult local codes and fire protection authorities about specific installation requirements and restrictions. Locate the heater away from propane gas storage and filling equipment as specified by the Standard for the Storage and Handling of Liquefied Petroleum Gases, CAN/CSA B149.2 (latest edition) or ANSI/NFPA 58 (latest edition).

⚠ WARNING — Risk of fire, carbon monoxide poisoning, or asphyxiation if exhaust venting system leaks. Only qualified service technicians should attempt to service the heater, as leakage of exhaust products or flammable gas may result from incorrect servicing.

⚠ WARNING — Risk of asphyxiation if exhaust is not correctly vented. Follow venting instructions exactly when installing heater. Do not use a drafthood with this heater, as the exhaust is under pressure from the burner blower and a draft hood will allow exhaust fumes to blow into the room housing the heater. The heater is supplied with an integral venting system for outdoor installation. A vent conversion kit (See Page 24 for Part Numbers for Conversion Kits) is available for installations in enclosures (Canada) or indoors (U.S.). Use the specified venting, and only the specified venting, when heater is installed in an enclosure or indoors. In Canada, this pool heater can only be installed outdoors or in an enclosure that is not normally occupied and has no openings directly into occupied areas. See Page 19 for enclosure venting requirements.

⚠ CAUTION — Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation. Wiring errors can also destroy the control board.

- Connect heater to **120** or **240** Volt, 60 Hz., Single Phase power only.
- Verify proper operation after servicing.
- Do not allow children to play on or around heater or associated equipment.
- Never allow children to use the pool or spa without adult supervision.
- Read and follow other safety information contained in this manual prior to operating this pool heater.

CONSUMER INFORMATION AND SAFETY

⚠WARNING

The U.S. Consumer Product Safety Commission warns that carbon monoxide is an "invisible killer". Carbon monoxide is a colorless and odorless gas.

1. Carbon monoxide is produced by burning fuel, including natural gas and propane.
2. Proper installation, operation and maintenance of fuel-burning appliances in the home is the most important factor in reducing carbon monoxide poisoning.
3. Be sure that fuel burning appliances such as heaters are installed by professionals according to manufacturer's instructions and codes.
4. Always follow the manufacturer's directions for safe operation.
5. Have the heating system (including vents) inspected and serviced annually by a trained service technician.
6. Examine vents regularly for improper connections, visible cracks, rust or stains.
7. Install battery-operated carbon monoxide alarms. The alarms should be certified to the requirements of the most recent UL, IAS, CSA and IAPMO standard for carbon monoxide alarms. Test carbon monoxide alarms regularly and replace dead batteries.

GENERAL SPECIFICATIONS

NOTICE:

- Combustion air contaminated by corrosive chemical fumes can damage the heater and will void the warranty.
- The Combination Gas Control Valve on this heater differs from most appliance gas controls. If it must be replaced, for safety reasons replace it only with an identical gas control.
- The access door panels must be in place to provide proper ventilation. Do not operate the heater for more than five (5) minutes with the access door panels removed.
- This heater is design certified by CSA International as complying with the Standard for Gas Fired Pool Heaters, ANSI Z21.56/CSA 4.7, and is intended for use in heating fresh water swimming pools or spas.
- The heater is designed for the heating of chlorine, bromine or salt system swimming pools and spas. It should **NOT** be used as a space heating boiler, or general purpose water heater.
- The heater is design certified by CSA International for installation on combustible flooring. Specified minimum clearances must be maintained to combustible surfaces (see “Heater Clearances”, page 18).
- The heater should be located in an area where leakage of the heater or connections will not result in damage to the area adjacent to the heater or to the structure. When such locations cannot be avoided, it is recommended that a suitable drain pan, adequately drained, be installed under the heater. The pan must not restrict air flow.
- The heater may not be installed within 5 ft. (1.5M) of the inside surface of a pool or spa unless it is separated by a solid fence, wall or other permanent barrier.

Section 3: Installation Instructions

HEATER DESCRIPTION

Figure 1 is a diagram of the heater showing how it operates. Precisely matched orifice plates meter the air and gas into the mixer. The blower draws the air and gas through the mixer and forces it into the burner's flame holder. A sealed heat exchanger surrounds the flame holder, discharging exhaust gases out the flue.

Two inch PVC water piping connects directly to the manifold/header on the heat exchanger using 2" PVC slip unions provided with the heater. The outer manifold remains cool; no heat sinks are required. A thermal regulator and an internal bypass regulate the water flow through the heat exchanger to maintain the correct outlet temperature. The heater operator control panel board assembly is located on top of the heater.

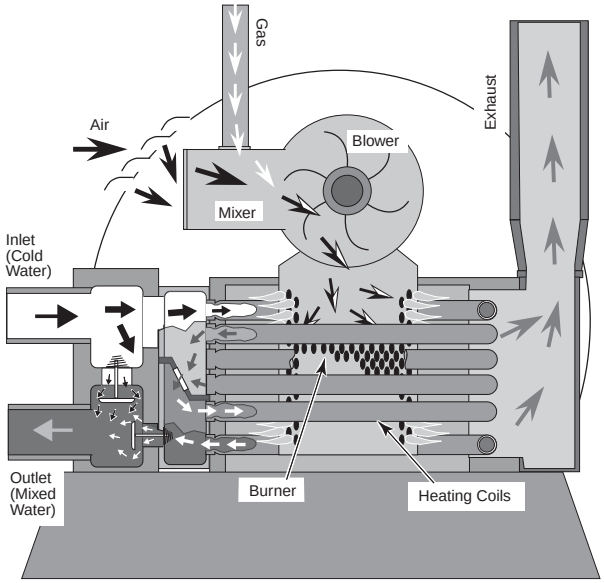


Figure 1.

SEQUENCE OF OPERATION

An electronic temperature sensing **thermistor** in the manifold adapter inlet controls the heater operation. When the inlet water temperature drops below the temperature set on the **operating control**, the **burner controller** supplies power to the combustion **air blower** through a series of **safety interlocks**. The interlocks consist of:

- the **pressure switch** (**PS**), which senses that the pump is running,
- the **high limit switch** (**HLS**), which opens if the heat exchanger outlet temperature goes above 135° F (57° C), and
- the **air flow switch** (**AFS**), which senses the pressure drop across the air metering orifice,
- the **automatic gas shut-off** (**AGS**) switch, which opens if the heat exchanger outlet temperature goes above 140° F (60° C).
- the **stack flue sensor** (**SFS**), which shuts down the heater if the flue gas temperature reaches 480° F (249° C).

The air flow switch (AFS) senses the pressure drop across the air metering orifice. As soon as there is sufficient air flow, the AFS closes, closing the circuit to the **hot surface igniter** (**HSI**), which ignites the fuel mixture. On a call for heat, the blower and HSI are energized. In about 20 seconds, the gas valve opens and ignition occurs. The HSI then switches to a sensing mode and monitors the flame.

The heater is equipped with a digital operating control that enables the user to pre-set the desired pool and spa water temperatures. The control enables the user to select between pool and spa heating, and features a digital display that indicates the water temperature.

PUTTING THE HEATER INTO SERVICE

If the heater is installed below the level of the pool, or more than two feet above pool level, the pressure switch setting should be adjusted. See WATER PRESSURE SWITCH, in the SAFETY CONTROLS Section.

Before putting the heater into service for the first time, follow the instructions under "BEFORE START-UP" (page 33) in the front of this manual. Check for proper operation of the heater by following the steps under "OPERATION INSTRUCTIONS."

Damage to equipment caused by improper installation or repair will void the warranty.

SPECIFICATIONS

These installation instructions are designed for use by qualified personnel only, trained especially for installation of this type of heating equipment and related components. Some states require installation and repair by licensed personnel. If this applies in your state, be sure your contractor bears the appropriate license. See Figure 2 for Outdoor and Indoor Installations.

DIMENSIONS IN INCHES

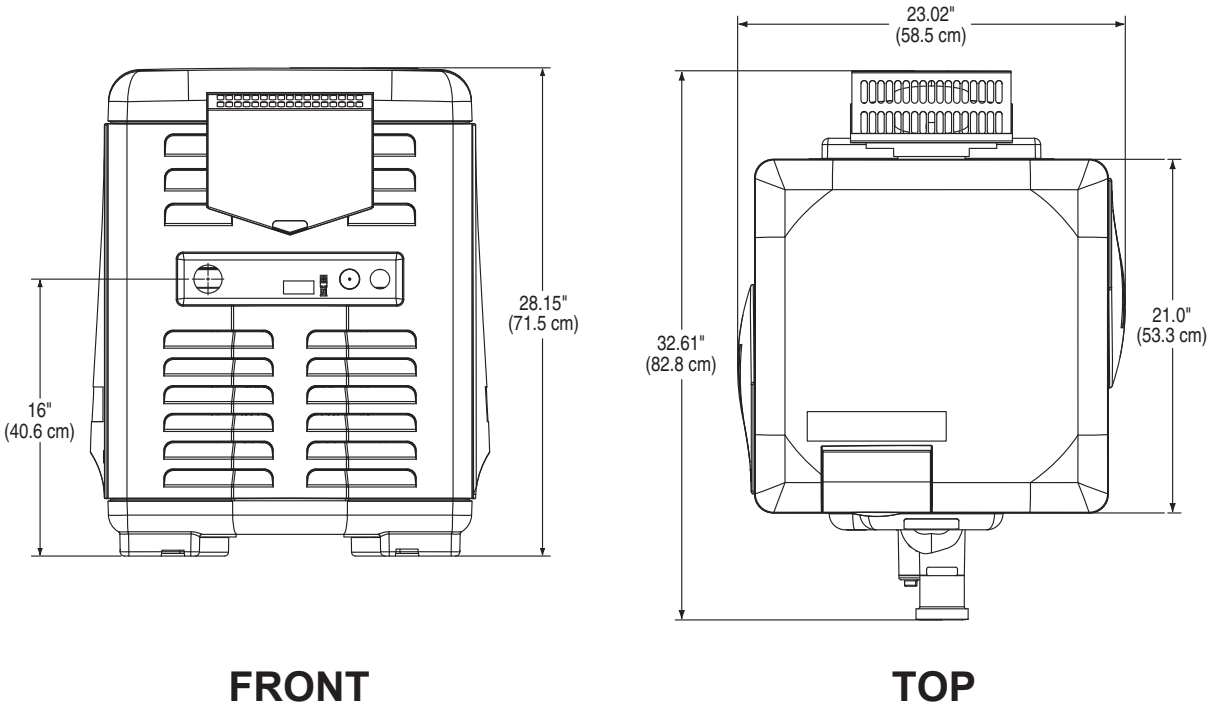


Figure 2.

PLUMBING CONNECTIONS

The MasterTemp heater has the unique capability of direct schedule 40 PVC plumbing connections. A set of bulkhead fittings is included with the MasterTemp heater to insure conformity with Pentair's recommended PVC plumbing procedure. Other plumbing connections can be used. See Figure 3 for plumbing connections.

⚠CAUTION

Before operating the heater on a new installation, turn on the circulation pump and bleed all the air from the filter using the air relief valve on top of the filter. Water should flow freely through the heater. Do not operate the heater unless water in the pool/spa is at the proper level. If a manual by-pass is installed, temporarily close it to insure that all air is purged from the heater.

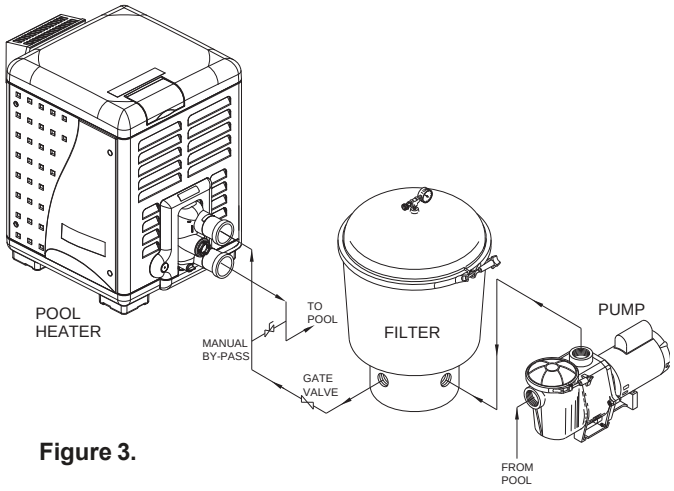


Figure 3.

WATER CONNECTIONS

The heater requires proper water flow and pressure for its operation. See Figure 5 for the recommended installation. The filter pump discharges to the filter, the filter discharges to the heater, and the heater discharges directly to the pool or spa.

A manual bypass valve should be installed across the heater when the pump flow exceeds 120 GPM (454 LPM). See "WATER FLOW RATE" on page 13- Table 1 for setting of the manual by-pass valve.

Make sure that the outlet plumbing from the heater contains no shut-off valves or other flow restrictions that could prevent flow through the heater (except for pool installations as noted below, or winterizing valves where needed). To switch flow between the pool and spa, use a diverter valve. Do not use any valve that can shut off the flow.

Install the chemical feeder downstream of the heater. Install a chemical resistant one-way check valve between the heater and the chemical feeder to prevent back-siphoning through the heater when the pump is off.

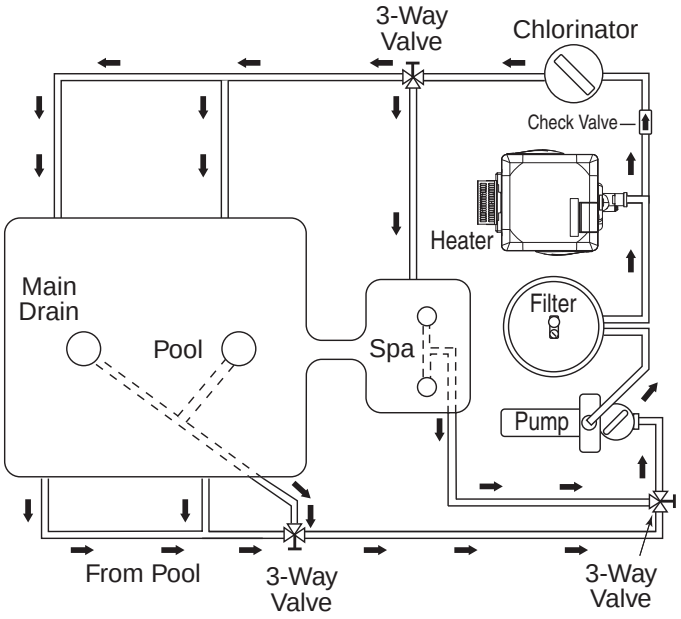


Figure 5.

NOTICE: If the heater is plumbed in backwards, it will cycle continuously. Make sure piping from filter is not reversed when installing heater.

Connect the heater directly to 2" PVC pipe, using the integral unions provided. Heat sinks are not required. The low thermal mass of the heater will prevent overheating of the piping connected to the pump even if the heater shuts down unexpectedly.

Occasionally a two-speed pump will not develop enough pressure on the low speed to operate the heater. In this case, run the pump at high speed only to operate the heater. If this does not solve the problem, do not try to run the heater. Instead, correct the installation.

Do not operate the heater while an automatic pool cleaner is also operating. If the circulation pump suction is plugged (for example by leaves), there may not be adequate flow to the heater. Do not rely on the pressure switch in this case.

VALVES

When any equipment is located below the surface of the pool or spa, valves should be placed in the circulation piping system to isolate the equipment from the pool or spa. Check valves are recommended to prevent back-siphoning. Back-siphoning is most likely to occur when the pump stops, creating a pressure-suction differential. Do **NOT** sanitize the pool by putting chlorine tablets or sticks into the skimmer(s). When the pump is off, this will cause a high concentration of chlorine to enter the heater, which could cause corrosion damage to the heat exchanger.

⚠CAUTION

Exercise care when installing chemical feeders so as to not allow back siphoning of chemical into the heater, filters or pump. When chemical feeders are installed in the circulation of the piping system, make sure the feeder outlet line is down stream of the heater, and is equipped with a positive seal noncorrosive "Check Valve", (P/N R172288), between the feeder and heater.

MANUAL BY-PASS

Where the water flow rate exceeds the maximum 120 GPM, a manual bypass should be installed and adjusted. After installing the valve, adjust the valve to bring the flow rate within the acceptable range. Then remove the valve handle or lock it in place to avoid tampering. See Figure 4.

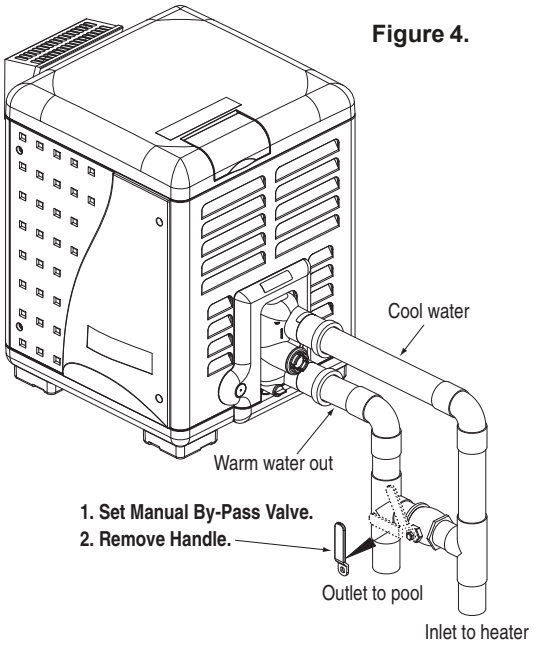
Table 1.

Model	Min. (GPM) (LPM)	Max. (GPM) (LPM) *
175	20 (76)	120 (454)
200	20 (76)	120 (454)
250	25 (95)	120 (454)
300	30 (114)	120 (454)
400	40 (152)	120 (454)

*** Do not exceed the maximum recommended flow rate for the connecting piping.**

*** Pumps 2 HP or larger can produce water pressure flow in excess of 120 GPM. For these pumps, a BY-PASS VALVE is recommended.**

Figure 4.



See page 46 for Pressure Relief Valve Installations.

BELOW POOL LEVEL INSTALLATION

If the heater is below water level, the pressure switch must be adjusted. This adjustment must be done by a qualified service technician. See following **CAUTION** before installation.

⚠CAUTION

BELOW OR ABOVE POOL INSTALLATION

The water pressure switch is set in the factory at 3.00 PSI (± 0.75 PSI). This setting is for a heater installed at pool level. If the heater is to be installed more than 1' above or below, the water pressure switch must be adjusted by a qualified service technician. See page 35, Figure 29.

FLOW SWITCH

If the heater is installed more than 5' above the pool or more than 4' below the pool level, you will be beyond the limits of the pressure switch and a flow switch must be installed. Locate and install the flow switch externally on the outlet piping from the heater, as close as possible to the heater. Connect the flow switch wires in place of the water pressure switch wires.

GAS CONNECTIONS

GAS LINE INSTALLATIONS

Before installing the gas line, be sure to check which gas the heater has been designed to burn. This is important because different types of gas require different gas pipe sizes. The rating plate on the heater will indicate which gas the heater is designed to burn. The Table 2, shown on page 15, show which size pipe is required for the distance from the gas meter to the heater. The table is for natural gas at a specific gravity of .65 and propane at a specific gravity of 1.55.

When sizing gas lines, calculate three (3) additional feet of straight pipe for every elbow used. When installing the gas line, avoid getting dirt, grease or other foreign material in the pipe as this may cause damage to the gas valve, which may result in heater failure.

The gas meter should be checked to make sure that it will supply enough gas to the heater and any other appliances that may be used on the same meter. The gas line from the meter will usually be of a larger size than the gas valve supplied with the heater. Therefore a reduction of the connecting gas pipe will be necessary. Make this reduction as close to the heater as possible.

The heater requires a gas supply of not less than 4" (10.2 cm) wc and not more than 14" (35.6 cm) wc. Gas supply pressures outside of this range may result in improper burner operation. A minimum flowing or dynamic inlet pressure (while the heater is running) of 4" (10.2cm) wc is required to maintain input rating with no more than a 2" pressure drop between static and dynamic. The gas supply must be installed in accordance with the *National Fuel Gas Code*, *ANSIZ223.1*, or standard *CSA B149.1*, *Natural Gas and Propane Installation Codes*, as applicable and all applicable local codes. Install a manual shut-off valve and a sediment trap and union located outside the heater panels, see Figure 6. Do not use a restrictive gas cock. The following minimum gas pipe sizes are recommended for natural gas supply piping, see Table 2 on page 15. For low pressure LP gas, pipe size may be reduced by 1/4", with a minimum pipe size of 1/2". Check for compliance with local codes.

The heater and any other gas appliances must be disconnected from the gas supply piping system during any pressure testing on that system, (greater than ½ PSI). The heater and its gas connection must be leak tested before placing the heater in operation. **Do not use flame to test the gas line.** Use soapy water or another nonflammable method.

NOTE

A manual main shut-off valve must be installed externally to the heater.

⚠WARNING

DO NOT INSTALL THE GAS LINE UNION INSIDE THE HEATER CABINET. THIS WILL VOID YOUR WARRANTY.

SEDIMENT TRAPS

Install a sediment trap and union located outside the heater panels in accordance with National code requirements. Do not use a restrictive gas cock. The sediment trap shall be either a tee fitting with a capped nipple in the bottom outlet which can be removed for cleaning, as illustrated in Figure 6, or an other device recognized as an effective sediment trap. All gas piping should be tested after installation in accordance with local codes.

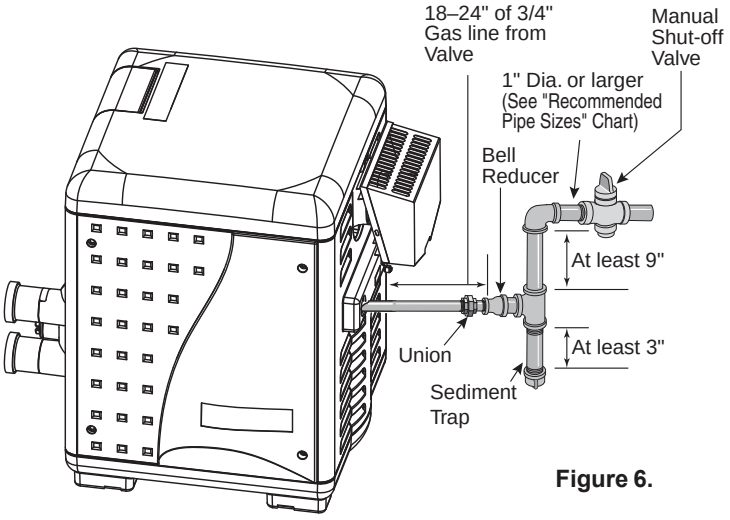


Figure 6.

GAS PIPE SIZING

STAGE TWO "LOW PRESSURE" GAS PIPE SIZING

Table 2.

PIPE SIZING FOR GAS LINE CONNECTIONS														
MAXIMUM EQUIVALENT PIPE LENGTH (Ft.)														
Natural Gas at 1000 B.T.U. per Cubic Foot														
Propane Gas at 2500 B.T.U. per Cubic Foot														
	1/2"		3/4"		1"		1-1/4"		1-1/2"		2"		2-1/2"	
MODEL	NAT	PRO	NAT	PRO	NAT	PRO	NAT	PRO	NAT	PRO	NAT	PRO	NAT	PRO
175	-	20'	30'	80'	125'	250'	450'	600'	-	-	-	-	-	-
200	-	20'	30'	80'	125'	250'	450'	600'	-	-	-	-	-	-
250	-	10'	20'	50'	70'	150'	250'	500'	600'	-	-	-	-	-
300	-	-	10'	30'	50'	100'	200'	350'	400'	600'	-	-	-	-
400	-	-	-	10'	20'	60'	100'	150'	200'	450'	400'	-	-	-

TESTING GAS PRESSURE

Before operating the heater, the heater and its gas connections must be leak tested. **Do NOT use an open flame to test for leaks.** Test all gas connections for leaks with soapy water or another non-flammable method (see page 14).

The heater and its individual shut-off valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 1/2 psig (3.5 kPa).

The heater must be isolated from the gas supply system by closing its individual manual shut-off valve during any pressure testing of the gas supply at test pressures equal to or less than 1/2 psig (3.5 kPa).

CHECKING THE GAS PRESSURE THROUGH THE COMBINATION GAS CONTROL VALVE

⚠WARNING

Risk of fire and explosion. Improper installation, incorrect adjustment, alteration, service, or maintenance of the Combination Gas Control Valve can lead to fire or explosion, causing loss of life, personal injury, and/or property damage. If it is necessary to adjust the gas valve, this must be done by only by a qualified service agency. **These instructions are for the use of qualified service technicians only!**

This appliance is equipped with an unconventional gas control valve that is factory set with a manifold pressure of –.2" (–0.5cm) wc. Installation or service must be performed by a qualified installer, service agency, or the gas supplier. If this control valve is replaced, it must be replaced with an identical control.

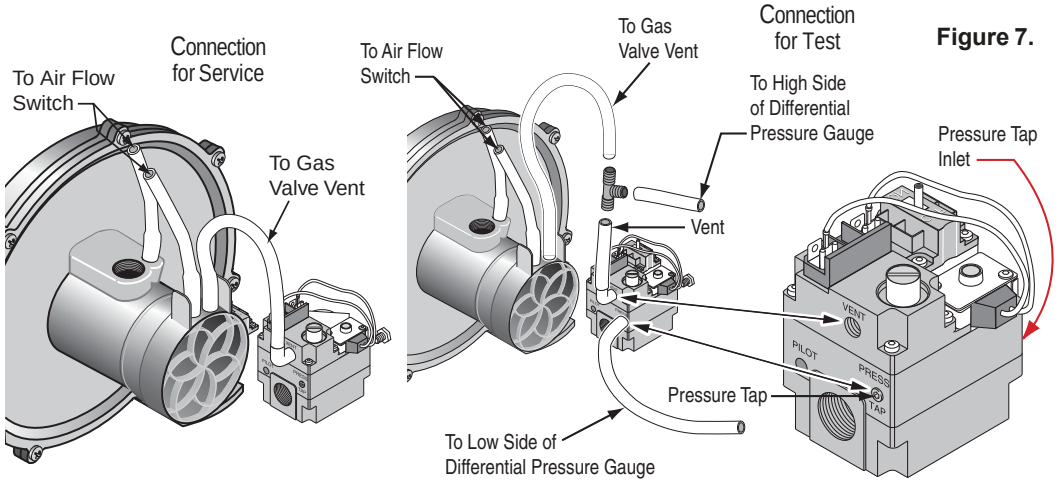


Figure 7.

The combination gas valve incorporates dual shut-off valves and a negative-pressure regulator. For proper operation, the regulated pressure at the outlet manifold of the valve must be –0.2" (–0.5cm) wc below the reference pressure at the blower mixer inlet, and the gas valve 'VENT' tap must be connected to the end cap air orifice as shown in Figure 7.

Do not attempt to adjust the gas input by adjusting the regulator setting. The correct gas regulator setting is required to maintain proper combustion and must NOT be altered.

⚠CAUTION

The use of Flexible Connectors (FLEX) is NOT recommended unless they are properly sized according to the supplier recommendations for the heater rating.

GAS PRESSURE REQUIREMENTS

Gas Pressure	Model	Natural	Propane
		Inches W.C.	
Maximum Inlet	MT	14	14
Minimum Inlet	MT	4	4
Manifold	MT	-0.2 ± 0.1	-0.2 ± 0.1
NOTE: All readings must be taken while heater is operating. Any adjustments or readings made while heater is off will result in performance problems.			

Table 3.

OUTDOOR INSTALLATION (U.S. and Canada)

For heaters located outdoors, using the built-in stackless venting system.

⚠WARNING

Risk of explosion if a unit burning propane gas is installed in a pit or other low spot. Propane is heavier than air. Do not install the heater using propane in pits or other locations where gas might collect. Consult your local building code officials to determine installation requirements and specific installation restrictions of the heater relative to propane storage tanks and filling equipment. Installation must meet the requirements for the Standard for the Storage and Handling of Liquid Petroleum Gases, ANSI/NFPA 58 (latest edition) in the U.S., or CAN/CSA B149.2 (latest edition) in Canada. Consult local codes and fire protection authorities about specific installation restrictions.

Locate the heater on a level surface in an open area that is protected from drainage or run-off. Install the heater in an area where leaves or other debris will not collect on or around the heater.

To avoid damage to the electronic components in the heater, take care to prevent prolonged exposure to driving sources of water (such as lawn sprinklers, heavy roof runoff, hoses, etc.). Avoid operation in persistent, extreme, moist or salty environments. In extreme weather, shut down the heater and disconnect the power to it until the weather has moderated. In areas subject to hurricanes or very high winds, purchase the Bolt Down Bracket Kit, P/N 460738.

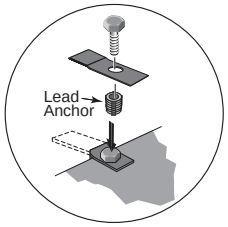
HEATER CLEARANCES – OUTDOOR

IMPORTANT!

- **In an outdoor installation it is important to ensure water is diverted from overhanging eves with a proper gutter/drainage system. The heater must be set on a level foundation for proper drainage.**
- **This unit shall not be operated outdoors at temperatures below -20° F.**

If the heater is located under a roof overhang, there must be at least three (3) feet (1m) of clearance between the bottom of the overhang and the top of the heater exhaust vent, see Figure 8. If the heater is under a roof overhang, the space around the heater must be open on three sides. **DO NOT, under any circumstances, install the heater under ANY deck.**

For Heater mounting bolts and clamps, purchase separately Bolt Down Bracket Kit, Part No. 460738.



For minimum exhaust vent clearances for all building openings, including but not limited to vented eaves, doors, windows, gravity air inlet, see Figure 9, show below.

In Canada, the heater must be installed with the top of the vent at least 10 feet (3m) below, or to either side of, any opening into a building.

Orient the heater for convenient access to the water connections and the gas and electrical connections.

Note: Check local building codes for installing the heater from any property line set back requirements (see the installation diagram below).

⚠CAUTION

If installing the heater next to or near an air conditioning unit or a heat pump, allow a minimum of 36 in. (91.4 cm) between the air conditioning unit and the heater.

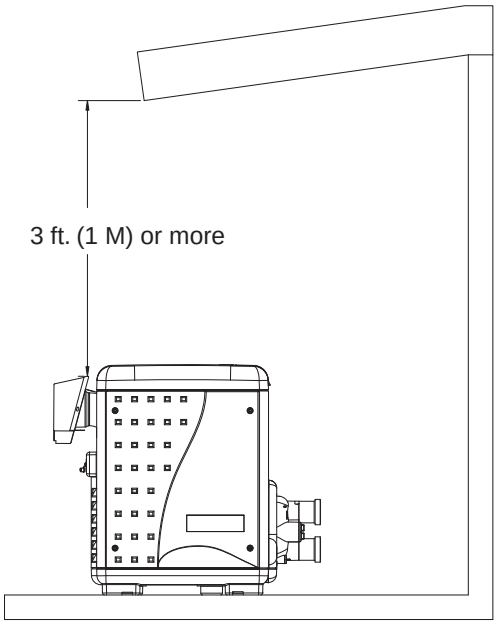


Figure 8.

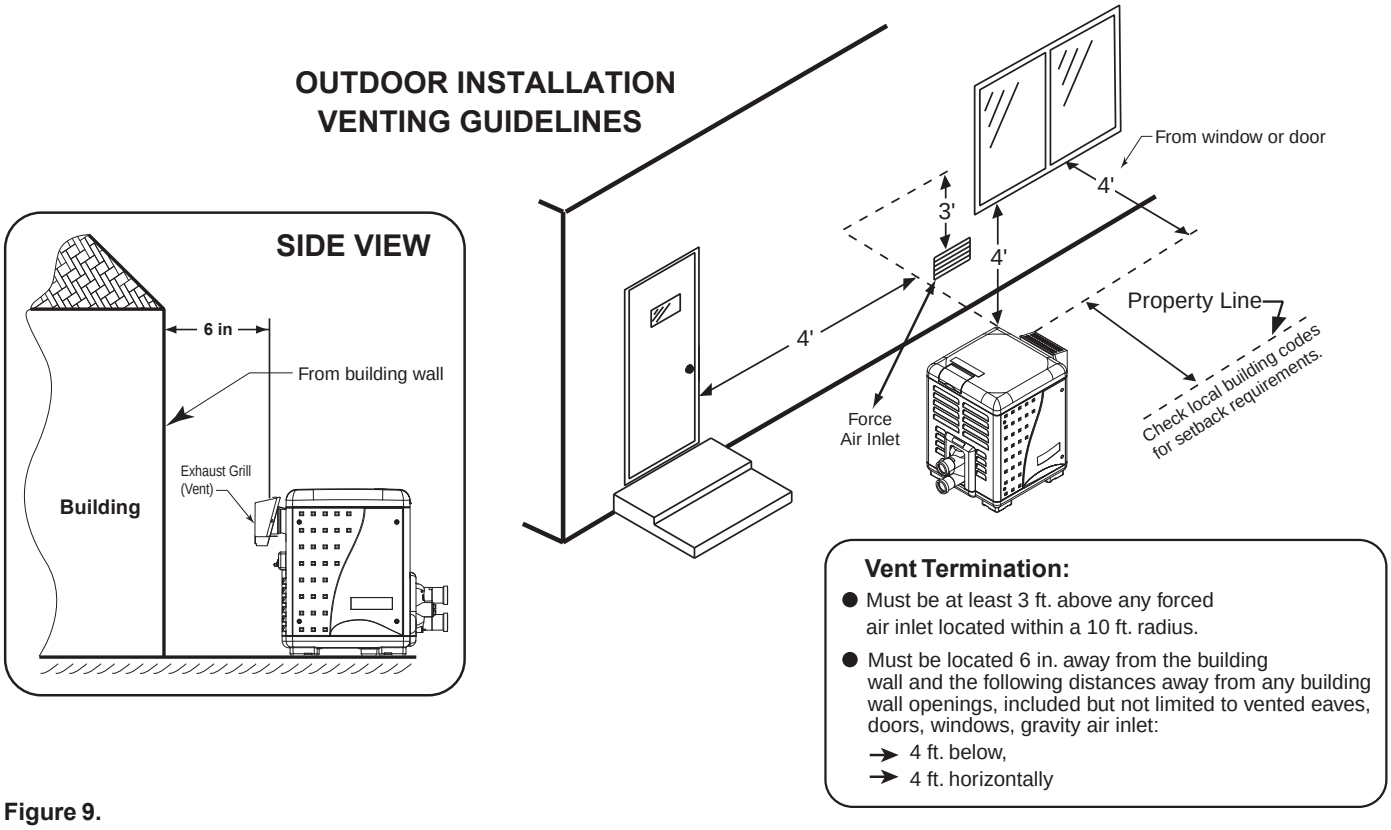


Figure 9.

INDOOR VENTING — General Requirements

The heater may be installed as a Category I or Category III appliance.

Vented Appliance (Category I) – **Vertical only**

An appliance that operates with a *nonpositive* vent static pressure and with a vent gas temperature that avoids excessive condensate production in the vent, see pages 20-23.

Vented Appliance (Category III) – **Vertical or Horizontal**

An appliance that operates with a *positive* vent static pressure and with a vent gas temperature that avoids excessive condensate production in the vent, see pages 24-26.

If you are considering connecting this heater to a pre-existing vent system, make sure that the vent system meets the appropriate venting requirements as given in this manual on pages 18-28. If not, replace the vent system. **DO NOT** use a draft hood with this heater.

The MasterTemp heaters are capable of a 270-degree discharge rotation and operate with a positive vent static pressure and with a vent gas temperature less than 400° F (204° C). The total length of the horizontal run must not exceed the length that is listed in Table 11 on page 21-22.

HEATER CLEARANCES — General Requirements

INDOOR INSTALLATION (U.S.) OR OUTDOOR SHELTER (CANADA)

The following clearances must be maintained from combustible surfaces:

TOP .....6 in. (15 cm)
EXHAUST SIDE .....6 in. (15 cm)
HEADER SIDE .....6 in. (15 cm)
DOOR PANELS† .....6 in. (15 cm)

Note (†) For service access it is advisable to allow for sufficient clearance on at least one door panel. The heater is design certified by CSA International for installation on combustible flooring. For installation on carpeting, the heater must be mounted on a metal or wood panel that extends at least three inches (10cm) beyond the base of the heater. If the heater is installed in a closet or alcove, the entire floor shall be covered by the panel. On an outdoor shelter installation, the exhaust discharges into a vent pipe. Orient the heater so that the vent pipe does not interfere with adjustment of the operating controls. The control panel located on the top panel can be rotated to any of the three sides of the heater for easy access. However, the control panel must not be located on the side where the vent is located.

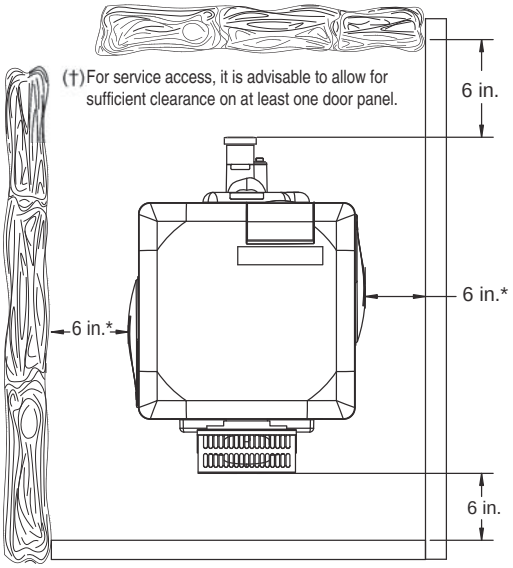


Figure 10.

OUTSIDE VENT COVER REMOVAL

The heater is supplied from the factory with a built-in stackless outside vent for outdoor installation. Remove the outside vent cover for outdoor shelter installation.

COMBUSTION AIR SUPPLY

For indoor installation, the heater location must provide sufficient air supply for proper combustion and ventilation of the surrounding area.

The minimum requirements for the air supply specify that the room in which a heater is installed should be provided with two permanent air supply openings; one within 12 inches (30cm) of the ceiling, the other within 12 inches (30cm) of the floor for combustion air, in accordance with the latest edition of ANSI Z223.1, or the National Fuel Gas code, the CSA B149.1, Natural Gas and Propane Installation Codes, as applicable, and any local codes that may apply. These openings shall directly, or through duct, connect to outdoor air.

Note: For indoor installations where combustion air might be insufficient, see "Direct Air Intake Duct with 3-inch PVC Pipe (Indoor Installation)" below.

Air Supply Requirements Guide

for MasterTemp Heaters

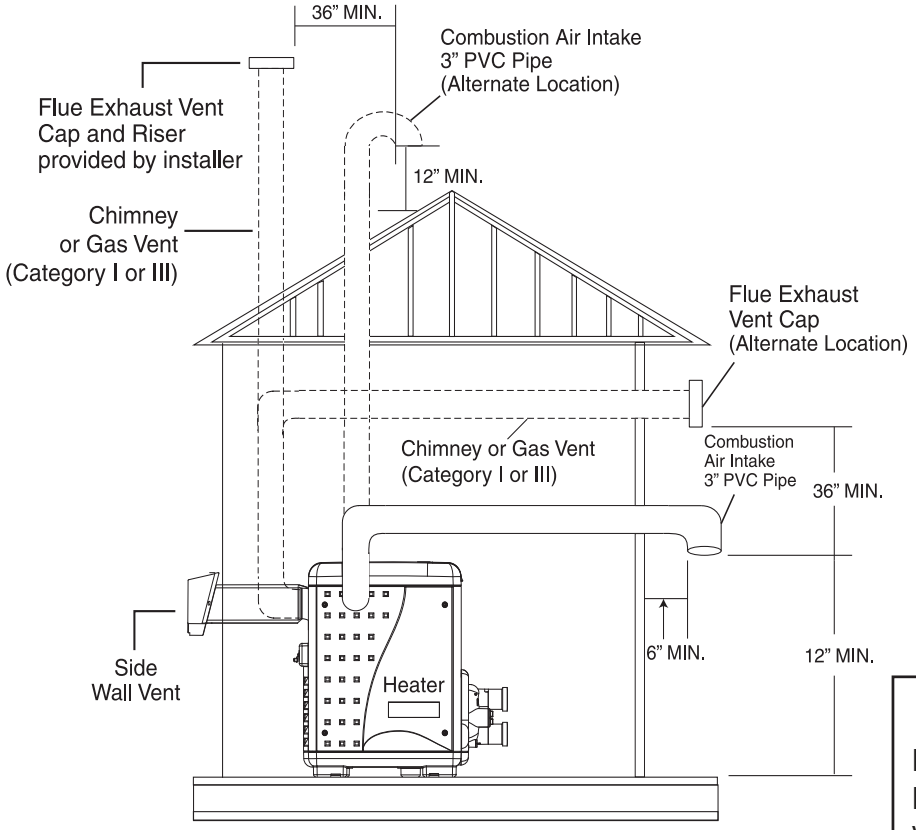
Minimum Net Free Open Area for Each Opening* (Square Inches/Centimeters)				
Model	All Air From Inside Building		All Air From Outside Building	
	Combustion	Vent	Combustion	Vent
175	200 sq. in. 1290 sq. cm.	200 sq. in. 1290 sq. cm.	50 sq. in. 323 sq. cm.	50 sq. in. 323 sq. cm.
200	200 sq. in. 1290 sq. cm.	200 sq. in. 1290 sq. cm.	50 sq. in. 323 sq. cm.	50 sq. in. 323 sq. cm.
250	250 sq. in. 1613 sq. cm.	250 sq. in. 1613 sq. cm.	63 sq. in. 406 sq. cm.	63 sq. in. 406 sq. cm.
300	300 sq. in. 1935 sq. cm.	300 sq. in. 1935 sq. cm.	75 sq. in. 484 sq. cm.	75 sq. in. 484 sq. cm.
400	400 sq. in. 2580 sq. cm.	400 sq. in. 2580 sq. cm.	100 sq. in. 645 sq. cm.	100 sq. in. 645 sq. cm.
* Area indicated is for one of two openings; one at floor level and one at the ceiling.				

Table 4.

Direct Air Intake Duct with 3-inch PVC Pipe (Indoor Installation)

For indoor heater installations where combustion air supply might be insufficient, the MasterTemp® Heater is certified for a direct air intake duct using 3-inch PVC pipe. If outside air is drawn through 3" PVC duct directly into the heater, PVC pipe can be installed in accordance with the following requirements:

The air intake opening MUST be installed at least 1 ft. above the roof line or normal snow levels for free air flow. The Category I or III exhaust vent termination cap must have at least 3 ft. minimum vertical clearance from air intake duct. (See diagram on page 20).



Combustion 3 in. PVC Pipe Inlet Air Intake Duct Requirements*

Combustion Air Intake 3 in. Pipe (Vertical or Horizontal)	
No. of 90° Elbows	Maximum Length in Feet (M)
0	70 ft. (21.3 M)
1	58 ft. (17.7 M)
2	46 ft. (14.0 M)
3	34 ft. (10.4 M)
4	22 ft. (6.7 M)

Table 5.

⚠WARNING!

DO NOT USE PVC PIPE FOR FLUE EXHAUST VENT. FLUE EXHAUST VENT TEMPERATURES CAN BE IN EXCESS OF 400° F. FLUE EXHAUST VENT **MUST BE** CATEGORY I or CATEGORY III METAL VENT.

Note (*): Combustion Air Intake Duct Connection Kit (Part Number 461031) for all MasterTemp heater models can be purchased separately. See page 52 for parts list.

NOTE

Each 90-degree elbow reduces the maximum horizontal PVC air intake duct run by 12 feet and each 45-degree elbow in the PVC air intake duct run reduces the maximum run by 6 feet. See the Table 5 above for the maximum lengths using 90-degree elbows.

Corrosive Vapors and Possible Causes

Area	Likely Contaminants
Chlorinated swimming pools and spas	Pool or spa cleaning chemicals. Acids, such as hydrochloric or muriatic acid.
New construction and remodeling areas	Glues and cements, construction adhesives, paints, varnishes, and paint and varnish strippers. Waxes and cleaners containing calcium or sodium chloride.
Beauty parlors	Permanent wave solutions, bleaches, aerosol cans containing chlorocarbons or fluorocarbons.
Refrigeration plants or various industrial finishing and processing plants	Refrigerants, acids, glues and cements, construction adhesives.
Dry cleaning and laundry areas	Bleaches, detergents, or laundry soaps containing chlorine. Waxes and cleaners containing chlorine, calcium or sodium chloride.

Table 6.

⚠CAUTION

Chemicals should not be stored near the heater installation. Combustion air can be contaminated by corrosive chemical fumes which can void the warranty.

VENT INSTALLATION – INDOOR INSTALLATION (U.S.) OR OUTDOOR SHELTER (CANADA)

(Category I)

Always vent the heater to the outdoors, see Note*.

• Vent it vertically using Type "B" double wall vent connector pipe.

NOTE *: Vent must be at least eight (8) feet away from nearest vertical surface. Vents extending five (5) feet or more above the roof must be braced or guyed. Consult your local code officials for detailed information.

Locate the heater so as to minimize the length of horizontal venting and the number of vent elbows required. Horizontal vent runs must slope up 1/4" per foot (2cm/M) from the heater to allow exhaust condensate to drain and it is recommended to have a condensate drain as described in the venting installation instructions.

VERTICAL VENTING - NEGATIVE PRESSURE

(See Figures 11, 12 and 13)

Vent the heater vertically in a negative pressure (positive draft) system in accordance with the National Fuel Gas Code, ANSI Z223.1/NFPA 54 and/or CSA B149.1, Natural Gas and Propane Installation Codes, and local codes. Type "B" Double-wall vent connector is recommended; however single-wall pipe is allowed by the National Fuel Gas Code in some circumstances. Consult your local code official for detailed information. **Do not** use a draft hood with this heater.

To connect a negative pressure metal gas vent to the heater, order the appropriate Metal Flue Collar from the chart below:

Metal Flue Collar	Part No.
4 x 6"	77707-0076
4 x 8"	77707-0077

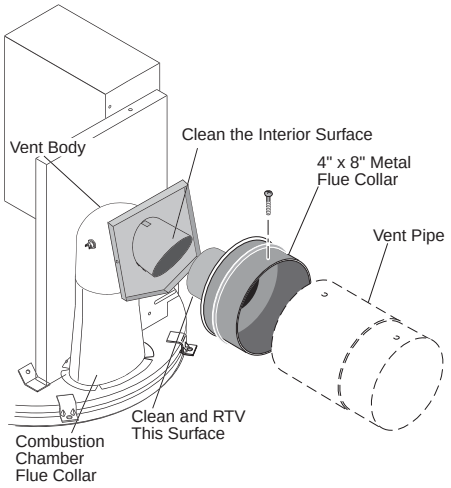


Figure 11.

1. See Table 7, to determine allowable vent sizes for your heater.

NOTICE: Table 7 is for installations in which the total lateral vent length (that is, the horizontal distance from the flue collar to the main vertical portion of the vent) is less than 1/2 the total vent height (the vertical distance from the flue collar to the vent termination) and which have three or less elbows in the system. For venting systems which do not meet these conditions, consult the National Fuel Gas Code, ANSI Z223.1 (U.S.), or the standards CSA B149.1 and B149.2 (Canada).

Read "VERTICAL VENTING – NEGATIVE PRESSURE" before using this table.

Table 7. **– Permitted Minimum and Maximum Vent Heights By Size and Heater Model**

Type "B" Double-Wall Vent with Type "B" Double-Wall Connector in Feet (Meters)					
Vent Size	**Model 175 Height min./max.**	**Model 200 Height min./max.**	**Model 250 Height min./max.**	**Model 300 Height min./max.**	**Model 400 Height min./max.**
6 in.	6 ft. (1.8)/100 ft. (30.5)	6 ft. (1.8)/100 ft. (30.5)	18 ft. (5.5)/100 ft. (30.5)	30 ft. (9)/100 ft. (30.5)	Not Rec.
7 in.	6 ft. (1.8)/100 ft. (30.5)	6 ft. (1.8)/100 ft. (30.5)	8 ft. (2.4)/100 ft. (30.5)	10 ft. (3)/100 ft. (30.5)	15 ft. (4.6)/100 ft. (30.5)
8 in.	6 ft. (1.8)/100 ft. (30.5)	6 ft. (1.8)/100 ft. (30.5)	6 ft. (1.8)/100 ft. (30.5)	6 ft. (1.8)/100 ft. (30.5)	8 ft. (2.4)/100 ft. (30.5)
9 and 10 in.	6 ft. (1.8)/50 ft. (15.3)	6 ft. (1.8)/50 ft. (15.3)	6 ft. (1.8)/50 ft. (15.3)	6 ft. (1.8)/100 ft. (30.5)	6 ft. (1.8)/100 ft. (30.5)
Type "B" Double-Wall Vent with Single-Wall Connector in Feet (Meters)					
Vent Size	**Model 175 Height min./max.**	**Model 200 Height min./max.**	**Model 250 Height min./max.**	**Model 300 Height min./max.**	**Model 400 Height min./max.**
6 in.	6 ft. (1.8)/15 ft. (4.6)	6 ft. (1.8)/15 ft. (4.6)	6 ft. (1.8)/15 ft. (4.6)	Not Rec.	Not Rec.
7 in.	6 ft. (1.8)/8 ft. (2.4)	6 ft. (1.8)/8 ft. (2.4)	6 ft. (1.8)/8 ft. (2.4)	10 ft. (3)/20 ft. (6)	15 ft. (4.6)/50 ft. (15.3)
8 in.	Not Rec.	Not Rec.	Not Rec.	6 ft. (1.8)/20 ft. (6)	8 ft. (2.4)/20 ft. (6)
9 in.	Not Rec.	Not Rec.	Not Rec.	Not Rec.	6 ft. (1.8)/6 ft. (1.8)
10 in.	Not Rec.	Not Rec.	Not Rec.	Not Rec.	Not Rec.

NOTE

The allowable vent runs for each vent pipe diameter are different and can not be exceeded.

Each 90-degree elbow reduces the maximum horizontal vent run by 12 feet and each 45-degree elbow in the vent run reduces the maximum vent run by 6 feet. See Table 7 on page 21 for the maximum vent lengths using 90-degree and 45-degree elbows.

2. Install the metal Flue Collar in the Vent Body of the heater (located under the outside vent cover). Fasten the metal Flue Collar to the Vent Body with two #10 sheet metal screws. Use high temperature silicone RTV to seal the Flue Collar to the Vent Body. Before connecting the metal Flue Collar to the Vent Body, wet a clean cloth or paper towel with isopropyl alcohol (rubbing alcohol) and vigorously wipe the socket of the Vent Body. Immediately wipe the cleaned surfaces dry with a clean cloth or paper towel. Repeat for the exterior of the 4" end of the metal Flue Collar. Attach the metal Flue Collar to the Vent Body using the RTV supplied with the kit, following the vent manufacturer's instructions (included with kit).
3. Attach the vent pipe to the metal Flue Collar with sheet-metal screws.

⚠WARNING

Risk of fire or asphyxiation if vent is not assembled according to manufacturer's instructions or if vent parts from different manufacturers are mixed. Vent parts from different manufacturers ARE NOT interchangeable. Mixing parts from more than one manufacturer may cause leaks or damage to vent. When assembling a vent, pick one manufacturer and be sure that all vent parts come from that manufacturer and are specified by the manufacturer for your system. Follow manufacturer's instructions, local code requirements, National Fuel Gas Code requirements (U.S.) or standards CSA B149.1 and B149.2 (Canada) carefully during assembly and installation.

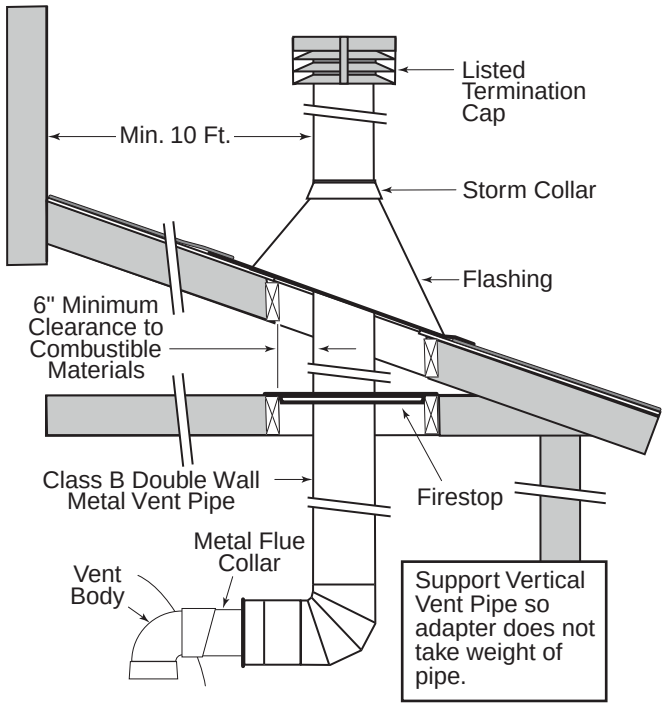


Figure 12. – Typical Metal Vent Pipe Installation - U.S. (Vertical – Negative Pressure)

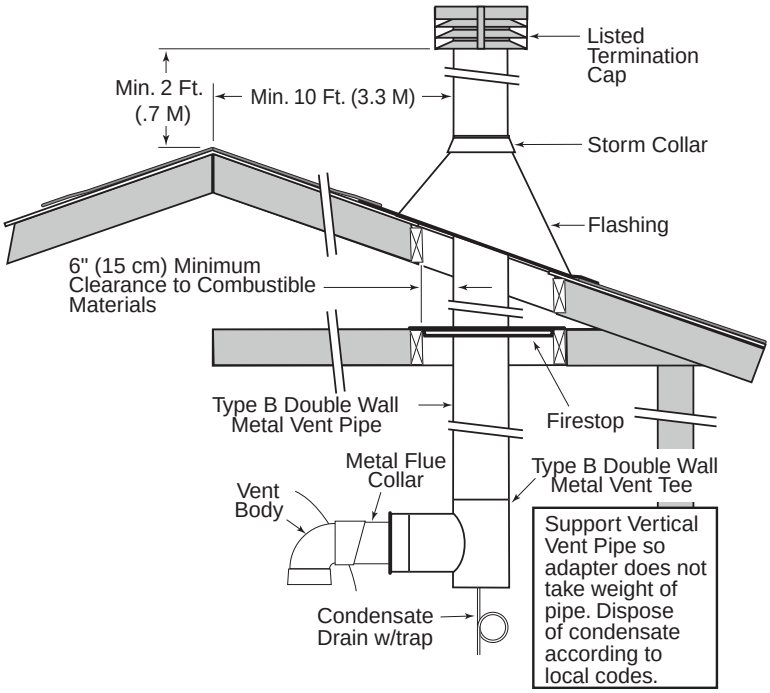


Figure 13. – Typical Metal Vent Pipe Installation - Canada (Vertical – Negative Pressure)

4. Install vent pipe so that it can expand and contract freely as the temperature changes. Support the vent pipe according to applicable codes and the vent manufacturer's instructions. Pipe support must allow the vent pipe free movement out and back, from side to side, or up and down as necessary, without putting a strain on the heater or vent body. Slope horizontal pipe runs up from the heater at least 1/4" per foot (2cm per meter). Install Listed condensate drains at low points where condensate might collect. Plumb condensate drains to a drain through hard piping or high temperature tubing such as silicone rubber or EPDM rubber – do not use vinyl or other low temperature tubing. Follow drain manufacturer's installation instructions.

5. Use Listed fire stop for floor and ceiling penetrations. Use Listed thimble for wall penetrations. Use a Listed roof flashing, roof jack, or roof thimble for all roof penetrations. Do not fill the space around the vent (that is, the clear air space in the thimble or fire stop) with insulation. The roof opening must be located so that the vent is vertical.

6. **Do not run the heater vent into a common vent with any other appliance.**

⚠WARNING

Fire Hazard. Do not vent the heater directly into a masonry chimney. Installation into a masonry chimney must use a chimney liner and must meet the National Fuel Gas Code, ANSI Z223.1/NFPA 54 and/or CSA B149.1, Natural Gas and Propane Installation Codes requirements and all local code requirements.

⚠WARNING

Risk of fire, carbon monoxide poisoning, or asphyxiation. It is recommended to use a CO Monitor and Fire Alarm in rooms that contain gas fired appliances.

HORIZONTAL OR VERTICAL VENTING - POSITIVE PRESSURE (See Figures 14, 15, and 16)

(Category III)

Vent the heater either horizontally or vertically using an optional vent adapter of the 4-inch special gas approved Category III vent pipes. Install the vent pipe in accordance with local codes and the provisions of the National Fuel Gas Code, ANSI Z223.1 (U.S.), or the standards CSA B149.1, Natural Gas and Propane Installation Codes (Canada), and the vent manufacturer's instructions. Do not use a draft hood with this heater. Install the vent according to the vent manufacturer's detailed instructions. **Note:** Maintain clearance between the vent pipe and combustible surfaces according to the vent manufacturer's instructions and code requirements. Do not place any insulating materials around the vent or inside the required clear air space surrounding the vent. See Table 11 for maximum permissible vent lengths.

NOTE

The allowable vent runs for each vent pipe diameter are different and can not be exceeded. Each 90° elbow reduces the maximum horizontal vent run by 12 feet and each 45-degree elbow in the vent run reduces the maximum vent run by 6 ft. See the Table 8 below for the maximum vent lengths using 90° elbows.

The MasterTemp heater is a "Category III" appliance **(which requires a four (4) inch special gas approved "Category III" vent pipe)** and is a forced-draft pool and spa heater which uses positive pressure to push flue gases through the vent pipe to the outside. ***Flue gases under positive pressure may escape into the dwelling with any cracks or loose joints in the vent pipe, or improper vent installation.*** The vent pipe must be of a sealed-seam construction, such as those listed for use with "Category III Appliances", and for operating temperatures less than 400°F (204°C). Vent pipe construction will be of UL 1738 approved non-corrosive material, such as stainless steel. A condensate trap may be needed. The use of "Approved" thimbles, roof jacks and/or side vent terminals are required; and the proper clearances to combustible materials must be maintained in accordance with type of vent pipe employed—in the absence of a clearance recommendation by the vent pipe manufacturer, the requirements of the Uniform Mechanical Code should be met. ***See page 19, for heater ventilation air requirements.*** It is recommended that vent runs over 18 feet may need to be insulated to reduce condensation related problems and/or the use of a condensate trap in the vent run close to the heater may be necessary in certain installations such as cold climates. Horizontal vents 3' (1M) or less in length do not require a condensate tee. The MasterTemp heater is suitable for through-the-wall venting.

Table 8.

4 in. Special Gas Vent (Vertical or Horizontal)*	
No. of 90° Elbows	**Maximum Length in Feet (M)**
0	70 ft. (21.3M)
1	58 ft. (17.7M)
2	46 ft. (14.0M)
3	34 ft. (10.4M)
4	22 ft. (6.7M)

*Minimum vent length is one foot (.34M), or in accordance with vent manufacturer's instruction, and local and national codes. Horizontal vents 3'(1M) or less in length do not require a condensate tee, but must slope down toward the outlet at 1/4" to the foot (2cm/M) to allow condensate to drain.

⚠CAUTION

Do **NOT** combine exhaust vent pipes to a common exhaust vent in multiple unit installations. Run separate vent pipes.

CONNECTING SPECIAL METALIC GAS VENT TO THE HEATER

1. Order an optional appliance adapter kit, *(Pentair offers optional appliance adapter kits, call Customer Service at (800) 831-7133 for more information):* Part No. 77707-0086 for Saf-T Vent® or Saf-T Vent® CI. Part No. 77707-0087 for Z-Vent.
2. Remove the outside vent cover.
3. Install the Appliance Adapter in the Vent Body of the heater (located under the outside Vent Cover). Before connecting the Appliance Adapter to the Vent Body, wet a clean cloth or paper towel with isopropyl alcohol (rubbing alcohol) and vigorously wipe the socket of the Vent Body. Immediately wipe the cleaned surfaces dry with a clean cloth or paper towel. Repeat for the exterior of the heater end of the Appliance Adapter. Attach the appliance adapter to the vent body using the adhesive specified by the vent manufacturer, following the vent manufacturer's instructions.

⚠WARNING

Risk of carbon monoxide poisoning if adapter is improperly attached. Mechanical connections (such as screws) can cause cracking and leaks in the adapter. Do **NOT** drill holes or use screws to connect the appliance adapter to the heater vent body. Attach with manufacturer's specified adhesive.

⚠WARNING

Risk of fire or asphyxiation if vent is not assembled according to manufacturer's instructions or if vent parts from different manufacturers are mixed. Vent parts from different manufacturers ARE NOT interchangeable. Mixing parts from more than one manufacturer may cause leaks or damage to vent. When installing a vent, pick one manufacturer and be sure that all vent parts come from that manufacturer and are specified by the manufacturer for your system. Follow manufacturer's instructions and local and National Fuel Gas Code (U.S.) or CSA B149.1, Natural Gas and Propane Installation Codes (Canada) requirements carefully during assembly and installation.

4. Install vent pipe so that it can expand and contract freely as the temperature changes. Support the vent pipe according to applicable codes and vent manufacturer's instructions. Pipe support must allow the vent pipe free movement out and back, from side to side, or up and down as necessary, without putting a strain on the heater or vent body. It is recommended to slope the horizontal pipe runs up from the heater at least 1/4" per foot (2cm/M). Install "Approved" condensate drains at low points where condensate might collect. Plumb condensate drains to a drain through hard piping or high-temperature tubing such as silicone rubber or EPDM rubber – do not use vinyl or other low temperature tubing. Follow drain manufacturer's installation instructions.
5. Use an "Approved" firestop for floor and ceiling penetrations. Use an "Approved" thimble for wall penetrations. Use an "Approved" roof flashing, roof jack, or roof thimble for all roof penetrations. Do not fill the space around the vent (that is, the clear air space in the thimble or firestop) with insulation. The roof opening must be located so that the vent is vertical.
6. **Vent Termination – Vertical** (See Figures 14 and 15), for height of vent termination above the roof. Use an "Approved" vent terminal specified by local and national codes and your manufacturer's instructions. A roof termination must be vertical. In Canada, the Vent Cap location shall have a minimum clearance of 4 feet (1.2M) horizontally from electric meters, gas meters, regulators, and relief openings.
7. Make sure entire installation is sealed according to approved standard.

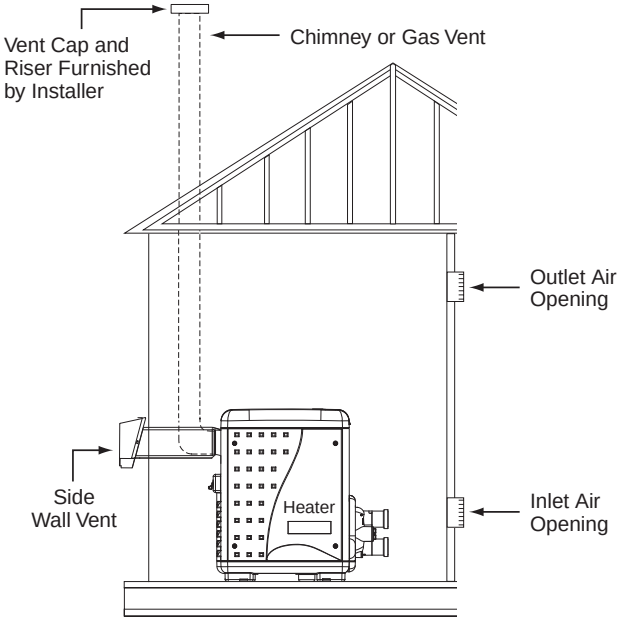


Figure 14.

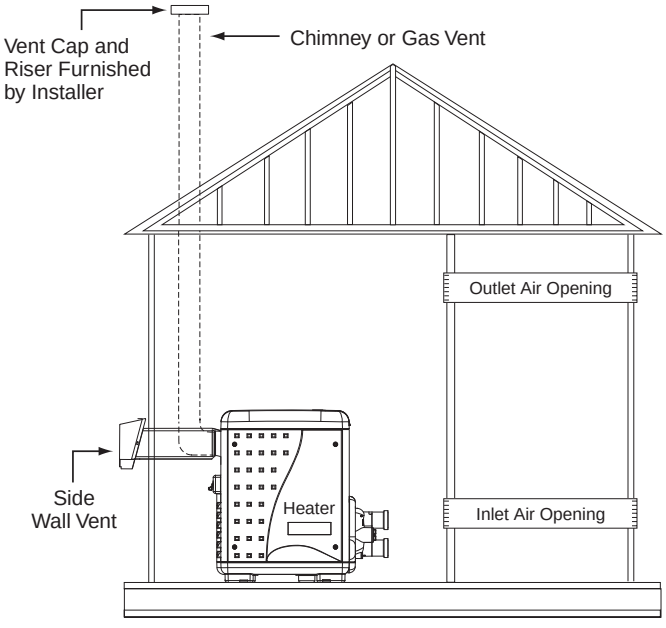


Figure 15.

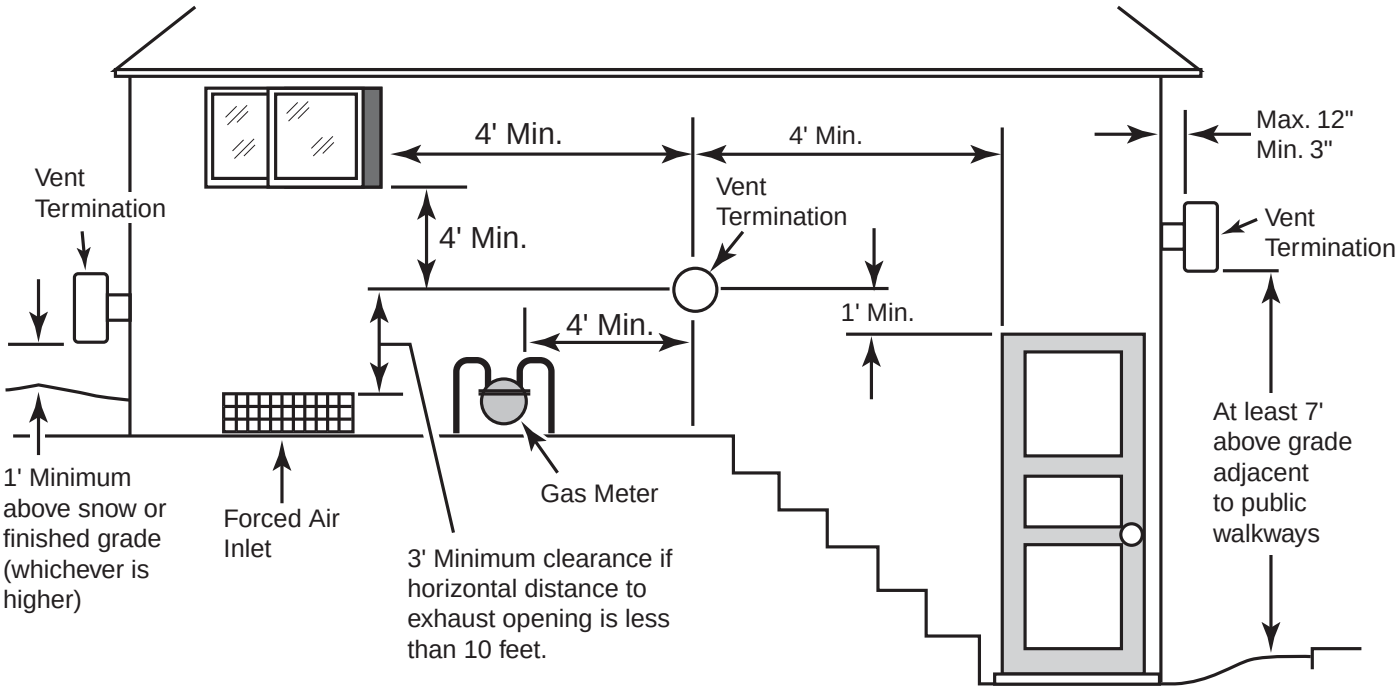


Figure 16.

8. **Vent Termination – Horizontal**

The terminal must be located (U.S. – See Figure 16):

- at least 3" and at most 12" out from the wall (see Figure 17), following the vent manufacturer's instructions
- at least 12" above finished grade or the normally expected snow accumulation level, whichever is higher
- at least 4 feet below or horizontally from, or 1 foot above, any doors or windows or gravity air inlet to a building
- at least 3 feet above any forced air inlet located within 10 feet
- at least 4 feet horizontally from electric meters, gas meters, regulators and relief equipment
- at least 7 feet above grade adjacent to walkways or similar traffic areas

The terminal must be located (Canada – See Figure 16):

- at least 10 feet (3.3M) from any opening into a building
- at least 12" (.3M) above finished grade or the normally expected snow accumulation level, whichever is higher
- at least 4 feet (1.2M) horizontally from electric meters, gas meters, regulators and relief equipment
- at least 7 feet (2.1M) above grade adjacent to walkways or similar traffic areas

Allow at least three feet (1M) vertical clearance over vent termination when terminating under an overhang.

Avoid corners or alcoves where snow or wind could have an effect. Exhaust may affect shrubbery and some building materials. Keep shrubbery away from termination. To prevent staining or deterioration, sealing or shielding exposed surfaces may be required.

⚠WARNING

Fire Hazard. Do not run the heater vent into a common vent with any other appliance. Do not run the Special Gas Vent into, through, or within any active vent such as a factory built or masonry chimney.

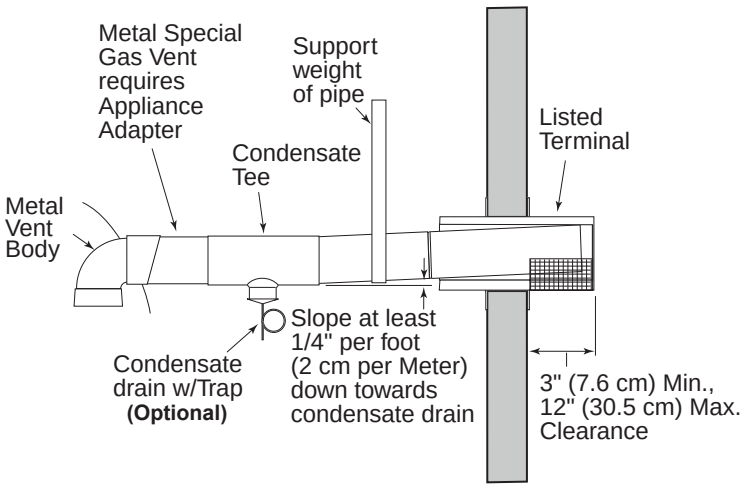


Figure 17.

OUTDOOR SHELTER INSTALLATION

In Canada, this pool heater can only be installed outdoors or in an enclosure that is not normally occupied and has no direct openings into occupied areas.

⚠WARNING

Risk of asphyxiation if exhaust is not correctly vented. Follow venting instructions exactly when installing heater. Do not use a draft hood with this heater, as the exhaust is under pressure from the burner blower and a draft hood will allow exhaust fumes to blow into the room housing the heater. Exhaust venting to the outdoors is required for all outdoor shelter installations.

⚠WARNING

Risk of explosion if a unit burning propane gas is installed in a pit or other low spot. Propane is heavier than air. Do not install the heater using propane in pits or other locations where gas might collect. Consult your local building code officials to determine installation requirements and specific installation restrictions of the heater relative to propane storage tanks and filling equipment. Installation must meet the requirements for the Standard for the Storage and Handling of Liquefied Petroleum Gases, CAN/CSA B149.2 (latest edition) or ANSI/NFPA 58 (latest edition). Consult local codes and fire protection authorities about specific installation restrictions.

The heater is design certified by CSA International for installation on combustible flooring; in alcoves; basements; in closet or utility rooms (in the U.S.).

GARAGE OR UTILITY ROOM INSTALLATION

In Canada, the heater must be installed in a room that is not normally occupied and has no openings directly to occupied areas.

⚠WARNING

Risk of fire and explosion if installed at floor level in an automotive garage or near gasoline or flammable liquid storage. Gasoline fumes are heavier than air and will settle to floor level in closed spaces. Gasoline fumes and spilled gasoline or other volatile liquids (such as some paints and varnishes) will travel across the floor and can be ignited by a gas appliance.

In any utility room or residential garage installation, install the heater with the base at least 18 inches (.5M) above the floor, see Figure 18. In a garage, install a rail or wall to protect the heater from physical damage by a moving vehicle.

Provide an adequate ventilation air supply (See Table 4, page 19)**.**
Choose a location that will avoid contamination by chemical fumes.

⚠CAUTION

A Propane (LPG) fired heater must not be installed in a garage in Massachusetts, by order of the Massachusetts State Fire Marshal. For more information, call the Massachusetts State Fire Marshal's office.

NOTICE: Combustion air contaminated by corrosive chemical fumes can damage the heater and will void the warranty (See Table 6, page 20).

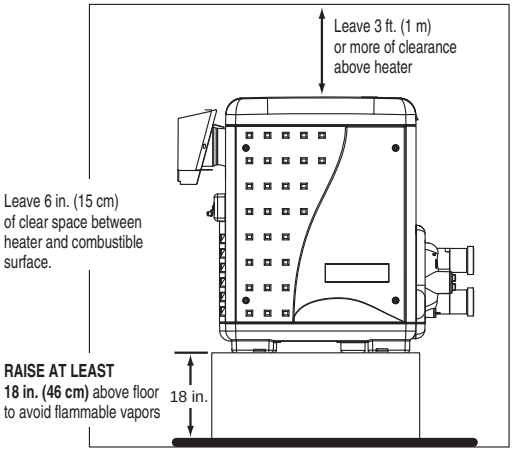


Figure 18.

CONTROL PANEL INDEXING

On an outdoor shelter installation, the exhaust discharges into a vent pipe. Orient the heater so that the vent pipe does not interfere with adjustment of the operating controls. The control panel located on the top panel can be rotated to any of the three sides of the heater for easy access, see Figure 19.

1. Remove the bolts from the door panels. Remove both door access panels.
2. Remove the four corner wing nuts that secure the top panel. Lift the top panel upward to remove the top panel.
3. Rotate the top panel to the desired position located at 90° angles. *Note that the control panel must **NOT** be located on the side where the vent is located.*
4. Replace the top panel down onto the side panels. Be sure that there are no wires caught under the panel.
5. Secure the top panel using the four corner wing nuts.
6. Reattach the door access panels.

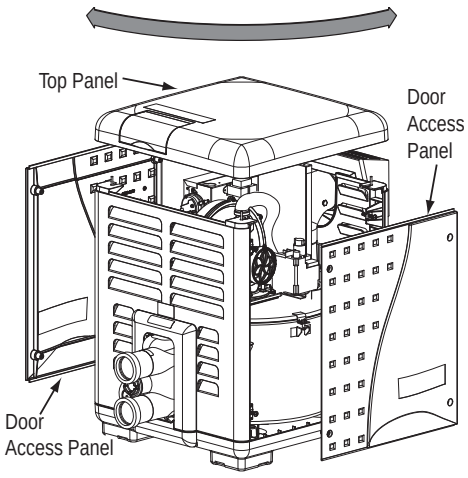


Figure 19.

FINAL INSTALLATION CHECK

Check that horizontal vent pipe runs slope uniformly at least 1/4" per foot (2cm per meter) to condensate drain(s). No sags, no dips, no high or low spots.

Check that vent is supported at elbows, tees, and horizontal and vertical runs according to manufacturer's instructions and code requirements.

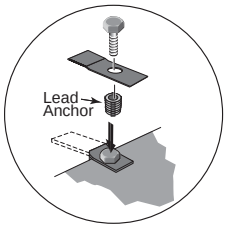
Check that vent supports and wall and ceiling penetrations allow free movements up, down, and sideways without putting any strains on the heater or vent body.

Check for at least six inch (15cm) free air clearance between the heater vent pipe and combustible materials.

Check that all joints are completely together and sealed.

In Florida, building codes require that the heater be anchored to the equipment pad or platform to withstand high wind pressures created during hurricanes. A Bolt Down Bracket Kit, P/N 460738, is available with anchor clamps designed to hold the unit to the equipment pad in high wind conditions. Installation of the anchor clamps are recommended in all installations and are required in Florida, (See Florida Building Code 301.13).

For Heater mounting bolts and clamps, purchase separately Bolt Down Bracket Kit, Part No. 460738.



ELECTRICAL CONNECTIONS

Electrical Rating: 60 Hz 120 / 240 Volts AC, single phase

Enclose the incoming AC power line to the heater, in an approved flexible conduit connected directly to the junction box on the inside of the access door panel. Line voltage field wiring should be 14 gauge, with a circuit capacity of 15 Amps.

⚠CAUTION

This heater is designed to operate at 120 or 240 VAC. It is not recommended to be connected to OR operate on a 208 VAC.

NOTE

- Before making any electrical connections to the power supply, remove the access door panels, open the control box and plug in the correct plug (120 VAC or 240 VAC). See plugs below.

⚠CAUTION

The heater ships from the Factory with the 240 VAC plug installed. Installing the 120V plug and then connecting the heater to 240V line current will immediately destroy the transformer, control board and ignition control module, and will void warranty. If you install the 240V plug and connect the heater to 120 VAC line current, the heater will not operate.

- If any of the original wiring supplied with this heater must be replaced, installer must supply (No. 18 AWG, 600V, 105° C. U.L. approved AWM low energy stranded) copper wire or it's equivalent.

Please read the boxes headed **"IMPORTANT! READ ME FIRST!"** on pages 38 and 42 before proceeding.

1. All wiring must be in accordance with all applicable codes.
2. The heater, when installed, must be electrically grounded and bonded in accordance with local codes or, in the absence of local codes, with the National Electrical Code or the Canadian Electrical Code (as applicable). A bonding lug is provided on the outside of the panel under the vent for this purpose.
3. Electrical power circuits to the pool heater must follow local codes and National Electrical Code or Canadian Electrical Code (as applicable).
4. All wiring between the heater and devices not attached to it, or between separate devices which are installed in the field, must be "Type T" wire rated for 35°C rise.
5. All line voltage wiring shall be enclosed in approved flexible conduit, and shall be securely attached to the field wiring box located inside the access door panel. The conduit or cable connector at the field wiring box should contain an insulating bushing or its equivalent to prevent abrasion of the wires as they enter the box.
6. **The filter pump should run continuously when the heater is on, and for at least 5 minutes after the heater turns off.** Any switches in the pump circuit (including circuit breakers) that can disconnect the pump must also disconnect the heater.
7. Do not wire single-pole switches, including protective devices, into a grounded line. The heater is not sensitive to polarity.

Connect the **L1** of the power supply to the **black** wire, the **L2** or neutral lead to the **red** wire, and the **ground** wire to the **green** wire. A time clock controlling the filter pump should have a low-voltage Fireman's Switch that switches off the heater at least 15 minutes before shutting off the pump.

Always use crimp type connectors when connecting two wires.

AC VOLTAGE SELECT PLUGS: (120 VAC or 240 VAC)

Figure 20.

CONNECTION OF FIREMAN'S SWITCH OR REMOTE CONTACT

⚠CAUTION

If, while there is line voltage connected to the heater, you touch either line voltage terminal with any 24VAC wire that is connected to the control board (including the Fireman's Switch jumper), you will immediately destroy the control board and void the warranty.

REMOTE CONTROL CONNECTIONS

1. Switch off power to heater at main circuit breaker panel.
2. Unbolt and remove the access door panels.
3. Open control box cover (see Figure 21).

4a. *To connect a 2-Wire Control* (such as Pentair's IntelliTouch® or EasyTouch® Control Systems) *or a timer:*

- Remove the factory installed jumper from the Fireman's Switch terminals.
- Connect wires between the Fireman's Switch terminals on the heater and the relay. Connect wires from the controller or timer to the Fireman's Switch. Controller, timer or relay should be sized to handle 24VAC at 0.5 Amp (because it will be completing the 24VAC control board circuit on the heater as shown in Figure 22). DO NOT apply line voltage to the Fireman's Switch terminals. Use 18 gauge wire with a minimum 3/64" (1.2mm) thick insulation rated for a temperature rise of at least 105°C.
- Knock-outs are provided to route the wires through the bottom of the control box and past the junction box.

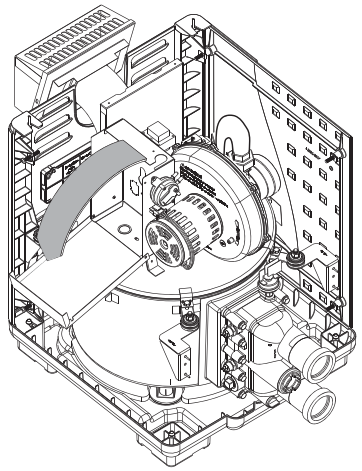


Figure 21.

4b. *To connect a 3-Wire Control:*

- Connect wires between the control board terminals on the heater and the external relays, as shown in Figure 23. Use at least 2 relays per heater, to allow for an "OFF setting" on each heater mode. Select relays that can handle logic level switching. DO NOT apply line voltage to control board terminals.
- Move jumper (as shown on Figure 23) to enable external control and to disable the heater membrane pad's "Pool ON" and "Spa ON" buttons (the "OFF" key on the membrane pad remains functional).
- Knock-outs are provided to route the wires through the bottom and the top of the control box and past the junction box.

5. Close control box cover.
6. Re-install the access door panels.

To control heaters that are operated in parallel, connect wiring at same locations on heater as 2-Wire or 3-Wire Control. It is imperative that each control circuit is isolated from the other control circuits, to avoid that current will flow from one heater to another through the control circuits.

NOTICE: The fuse for the Fireman's Switch is a 1.25 Amp 1¼ x ¼" fast blow fuse, which is commonly available.

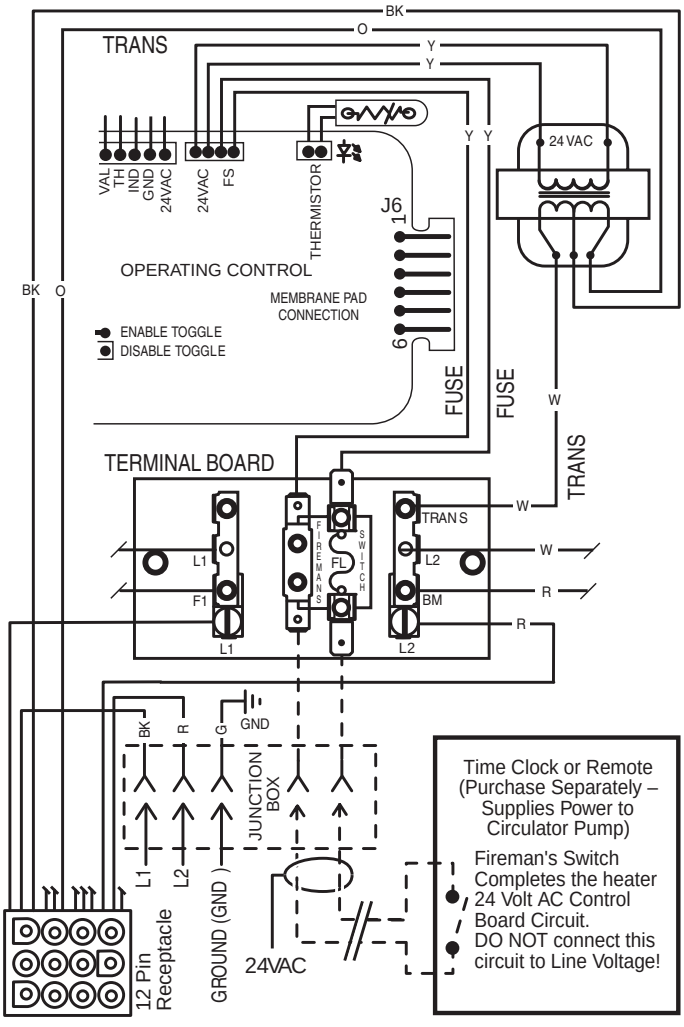


Figure 22.

MASTERTEMP HEATER WIRING DIAGRAM

(3-WIRE SYSTEM)

CONNECTION DIAGRAM

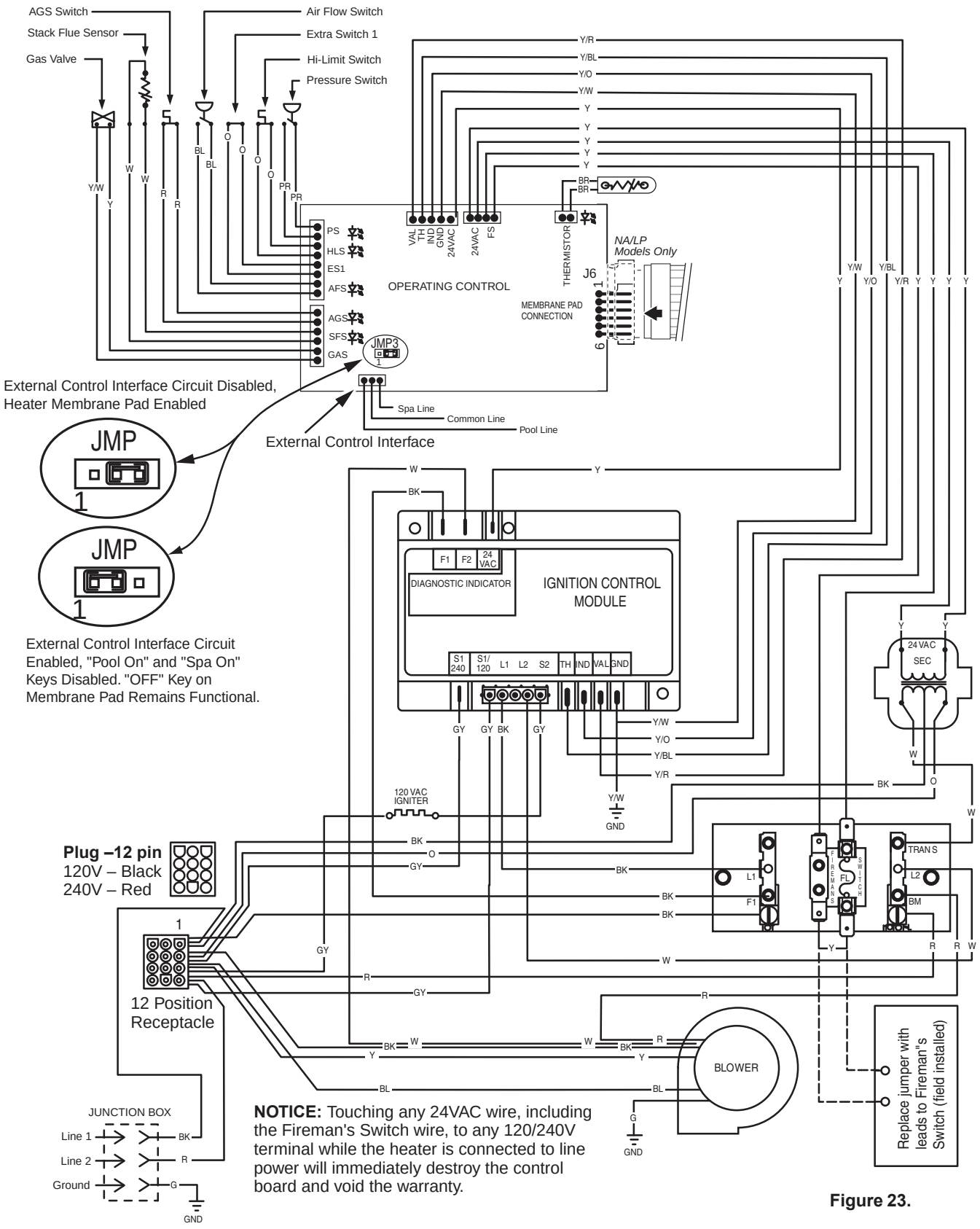
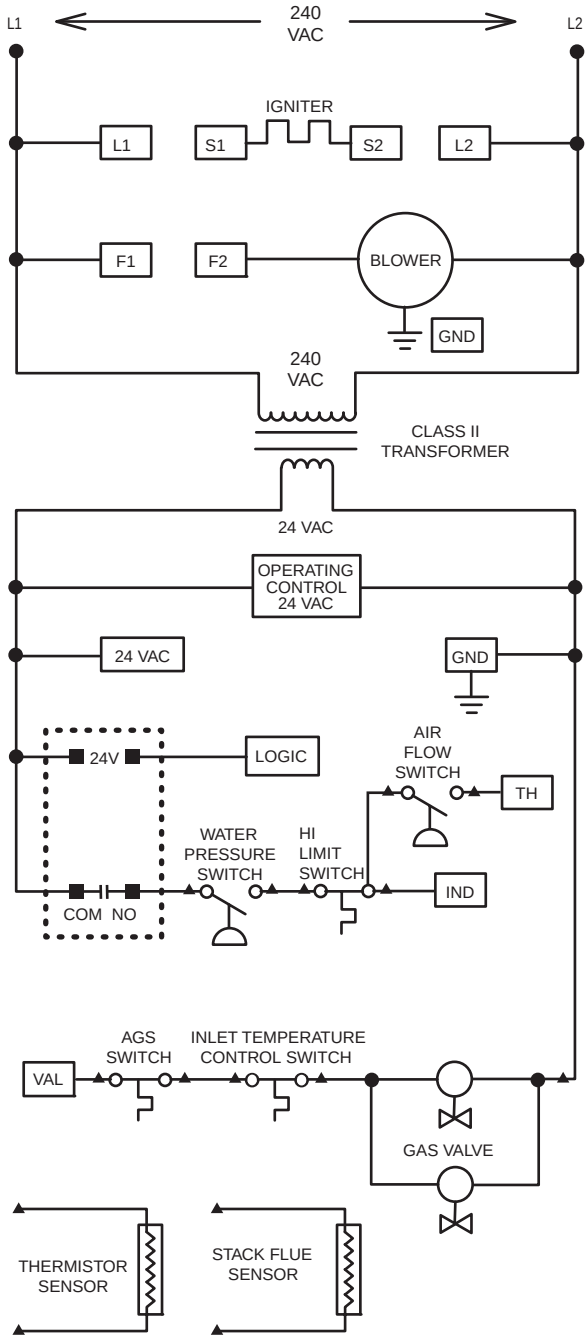


Figure 23.

MASTERTEMP HEATER ELECTRICAL SCHEMATIC LADDER DIAGRAM

LADDER DIAGRAM



NOTES:

1.) L1 L2 F1 F2 S1 24 VAC S2 GND IND VAL AND TH

ARE CONNECTED ON THE IGNITION MODULE.

2.) ▲ PIN AND SOCKET CONNECTOR.

3.) IF ANY OF THE ORIGINAL WIRES AS SUPPLIED WITH THE APPLIANCE MUST BE REPLACED, THEY MUST BE REPLACED WITH TYPE 105° C OR ITS EQUIVALENT.

Figure 24.

Operation Instructions

BASIC SYSTEM OPERATION

Start pump, make sure the pump is running and is primed, to close the water pressure switch and supply power to heater. Be sure the pool and/or spa is properly filled with water. Follow the Lighting/Operating instructions below.

MASTERTEMP HEATER HSI ELECTRONIC IGNITION LIGHTING/OPERATION

FOR YOUR SAFETY: READ BEFORE LIGHTING

⚠WARNING	
	If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or loss of life.
	Do not attempt to light the heater if you suspect a gas leak. Lighting the heater can result in a fire or explosion which can cause personal injury, death, and property damage.

START-UP AND OPERATION

START-UP AND SHUTDOWN INSTRUCTIONS ARE ON THE LABEL ATTACHED TO THE COVER OF THE APPLIANCE CONTROL BOX.

BEFORE START-UP

A. This appliance does not have a pilot. It is equipped with an ignition device which automatically lights the burners. Do not try to light the burners by hand.

B. **BEFORE OPERATING,** smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.

WHAT TO DO IF YOU SMELL GAS

– Do not try to light any appliance.

– Do not touch any electrical switch; do not use any phone in your building.

– Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.

– If you cannot reach your gas supplier, call the Fire Department.

C. Use only your hand to turn the gas control on or off. Never use tools. If you cannot change the ON/OFF setting by hand, don't try to repair it, call a qualified service technician. Forced or attempted repair may result in a fire or explosion.

D. Do not use this heater if any part has been under water. Immediately call a qualified service technician to inspect the heater and to replace any part of the control system and any gas control which has been under water.

E. Do not operate the pool heater unless the pool or spa is properly filled with water.

F. Before operating the appliance for the first time or after it has been off for an extended time, perform the following checklist:

1. Remove debris or other articles from inside the heater and the area around the heater and its exhaust vent. Make sure the ventilation openings are clear of debris or obstruction. For installations in an enclosed space, make sure openings for combustion and ventilation air are unobstructed.
2. Keep heater area clear and free from combustibles, flammable liquids and chemicals.
3. Check that all water connections are tight.
4. Water must be flowing through the heater during operation. Make sure that pool/spa is filled with water and have pump operating. Check that water flow is unobstructed from the appliance. When operating for the first time or after an extended shut-down, run filter pump for several minutes to clear all air from the system.

OPERATING INSTRUCTIONS

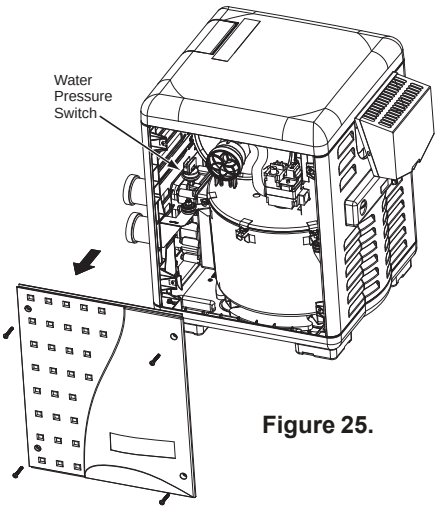


Figure 25.

1. **STOP!** Read the safety information on (page 33).
2. Set both pool and spa thermostats to the lowest settings.
3. Turn off all electric power to the appliance.
4. This appliance does not have a pilot. It is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.
5. Remove the access door panels by unfastening the four screws located on each door, then lift up and out from the bottom of the panel to remove. If necessary, the screws may be used as handles, see Figure 25.
6. **Toggle-Style Valve:** Pull toggle toward you to turn gas off , see Figure 26.
7. Wait five (5) minutes to clear out any gas. If you then smell gas, **STOP!** Follow "B" in the "Before Start-up" instructions (page 33). If you don't smell gas, go to the next step.
8. Push the toggle switch away from you to switch the gas on.
9. Replace the Door Access Panels. All panels must be in place when operating the heater.
10. Set 3-way valves on inlet and outlet to pool or spa, as appropriate.
11. Turn on all electric power to the appliance.
12. Press either the POOL ON or SPA ON button switch on the operating control.
13. Set the thermostat to desired setting (***NOTICE:*** Setpoint must be above actual water temperature or burner will not fire). See "OPERATING the CONTROL PANEL".
14. The blower should come on immediately, and after about 20 seconds, the burner should fire. When operating for the first time, the burner may not fire on the first try because of air in the gas line. If it does not fire at first, push the OFF switch, wait five minutes, and again push the POOL or SPA ON switch. The burner should fire after about 20 seconds. You may have to repeat this until all of the air has cleared the gas line.

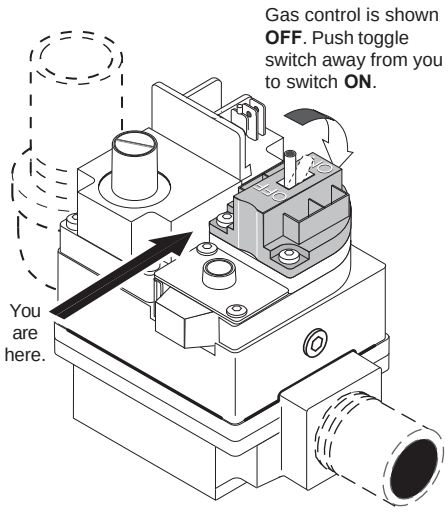


Figure 26.

15. The burner should fire until the pool/spa temperature reaches the desired temperature set on the thermostat. The blower will continue to run for about 45 seconds after the burner shuts off. If any of the safety interlocks should open during burner operation, the burner shuts off immediately, but the blower continues to run for about 45 seconds. Should overheating occur or the gas supply fail to shut off, turn off the manual gas control valve to the appliance.
16. If the appliance will not operate, follow the instructions below "TO TURN OFF GAS TO THE APPLIANCE", and call your service technician or gas supplier.

TO TURN OFF GAS TO APPLIANCE

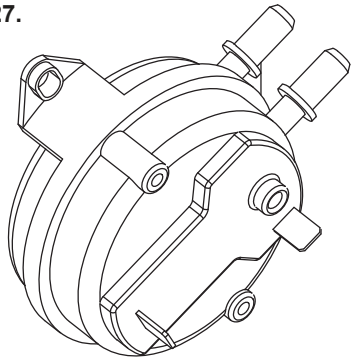
1. Press the OFF button on operating control.
2. Switch off all electric power to the unit.
3. Remove the access door panels, see Figure 25.
4. **Toggle-Style Valve:** Pull toggle toward you to turn gas off, see Figure 26.
5. Replace the Access Door Panels.

SAFETY CONTROLS

AIR FLOW SWITCH (AFS)

The air flow switch, (see Figure 27), is a safety device used to insure that the combustion air blower (fan) is operating and has been designed to monitor the vacuum (negative) pressure within the blower housing. The air flow switch is factory set and is connected upstream of the ignition module. The ignition module does not operate unless the air pressure switch and all safety switches are closed.

Figure 27.



Air Flow Switch

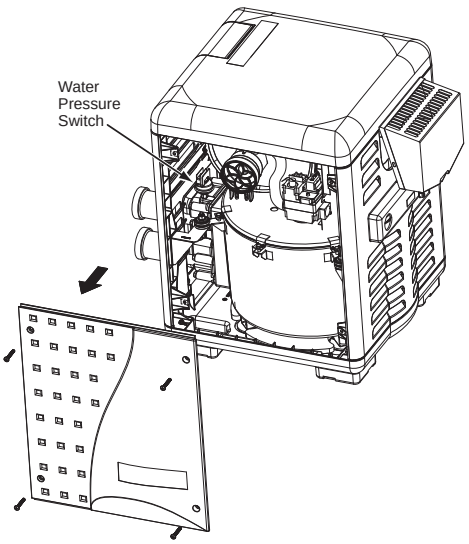
WATER PRESSURE SWITCH

⚠WARNING

Hazardous pressure. Do not bypass the Water Pressure Switch or render it inoperable.

The water pressure switch, (see Figure 28). If the water flow is restricted, the water pressure switch may prevent the burner from firing and cause the "Service System" light to go on. If the light remains on after the filter has been serviced, have a qualified service technician check the system.

Figure 28.



For deck-level heater installations, the Water Pressure Switch is factory set at 3.00 psi (20.6 kPa). ***NOTE:*** *See, Below Pool Level Installation Instructions on page 13*. If the pressure switch is one feet (.3M) below or above the pool water level, reset the switch so that it is open when the pump is off and closed when the pump is running. Turn the star-wheel on the switch clockwise (↷) to raise setting (heater below the pool) and counterclockwise (↶) to lower the setting (heater above the pool – see Figure 29. Test the switch after resetting.

NOTICE: When the heater is mounted more than five feet (1.5M) above or four feet (1.2M) below the deck level, a Pressure Switch is no longer adequate. A Flow Switch must be installed instead.

NOTICE: Heater operation with incorrect Pressure Switch setting may cause operation with no water flow. Operation of the heater without sufficient water flow may severely damage it.

HIGH LIMITS

A "High Limit", is a safety device that opens the electrical circuit and shuts off the heater based on a water temperature set point within the "High Limit Device". The MasterTemp heater series of heaters contains two (2) high limit devices which are located on the main inlet / outlet header.

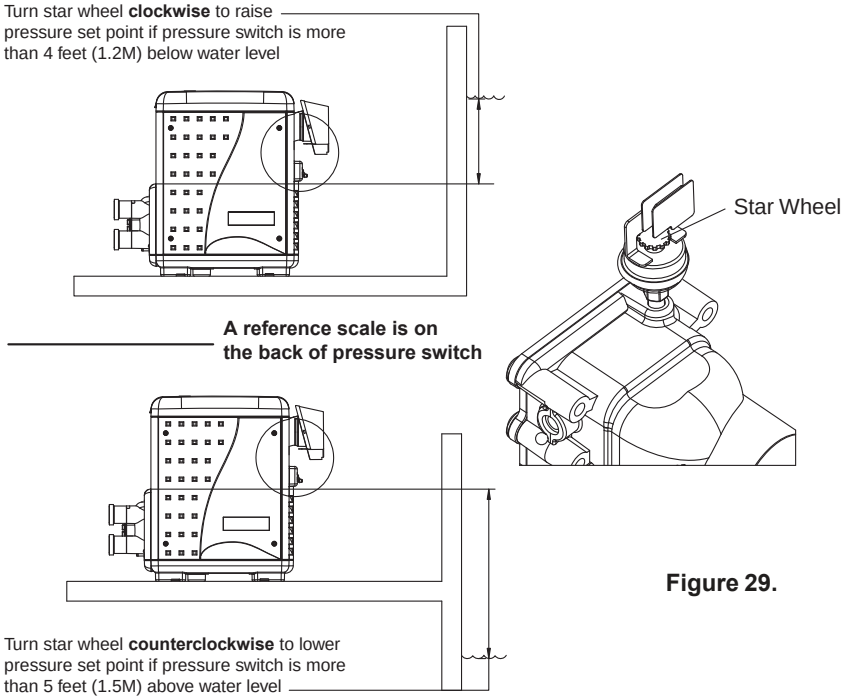


Figure 29.

SAFETY CONTROLS, (cont'd.)

OPERATION OF IGNITION MODULE

The Ignition Module, (see Figure 30), is microprocessor based and operates on 24VAC supplied by the transformer. The control utilizes a microprocessor to continually and safely monitor, analyze, and control the proper operation of the gas flame holder. The module with the presence of the flame sensor, using flame rectification, allows the heater to operate.

Figure 30.

OPERATING THE CONTROL PANEL

The five operating switches are:

POOL ON	Press this button to govern heater operation by the pool temperature setting.
SPA ON	Press this button to govern heater operation by the spa temperature setting.
HEATER OFF	Press this button to switch off the heater.
▲ TEMP	Press this button to raise the temperature setting.
▼ TEMP	Press this button to lower the temperature setting.

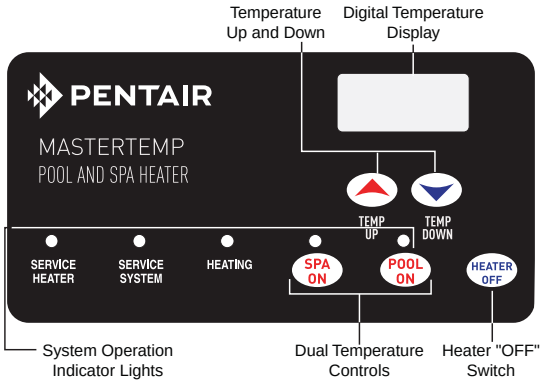


Figure 31.

To toggle the display between degrees Centigrade (°C) and degrees Fahrenheit (°F):

1. Turn the Operating Control OFF.
2. Press **▲TEMP** or **▼ TEMP** for 5 seconds. The display will flash once and change modes (°C to °F or vice versa).
3. Turn the Operating Control ON.

When either the **▲TEMP** or **▼ TEMP** buttons are depressed, the digital display will indicate the temperature setting. After five seconds, the display will return to the actual pool/spa temperature.

In addition to the digital temperature display, there are five indicator lights:

The **POOL ON** light indicates that the pool water temperature is governing operation of the heater.

The **SPA ON** light indicates that the spa water temperature is governing operation of the heater.

The **HEATING** light comes on and stays on when the burner is firing. This light should be on whenever the burner is on. It blinks when the heater is calling for heat but not firing. If this light is on but the burner fails to come on, one of the "service" lights should come on, indicating a fault in the system.

The **SERVICE SYSTEM** light indicates that there is insufficient water flow to the heater. If the pump is operating, this usually indicates that the filter and/or skimmers should be cleaned (some filters may require back-washing). If the light remains on after the filter/skimmers have been serviced, the system should be checked by a qualified service technician.

The **SERVICE HEATER** light indicates a fault in the heater or its controls. If this light comes on, shut down the heater (See "TO TURN OFF GAS TO THE APPLIANCE" on page 34), and have a qualified service technician check the system.

⚠WARNING

Risk of explosion or fire causing burns or death if safety interlocks are disabled. DO NOT attempt to operate heater when SERVICE HEATER light is on or if blower or burner will not start. Instead, follow instructions under "To Switch Off Gas to the Appliance," and call a qualified service technician to repair unit.

TEMPERATURE SETTING

The heater comes factory set at 78° F. for the pool mode and 100° F. for the spa mode. Using the up and down arrows, you can set the thermostats to a minimum temperature of 65° F., or a maximum of 104° F. If you desire to heat only one body of water, the thermostat is capable of an off mode. As an example, if you only wish to heat the spa and not the pool, simply depress and hold the pool down arrow, and the thermostat will lower its setting to 65° F. then go to an off mode.

MAXIMUM TEMPERATURE SET POINT

1. Unbolt and remove the door panels (see Figure 32).
2. Access the control panel board on the underside of the top cover. Locate the yellow button on the corner of the control board.
3. Push the **Max. Temp. Set Point** button on the back of the control board (see Figure 33).

The following sequence should happen:

A. The unit will come on and the **POOL ON** light will come on.

B. Press the ▲**TEMP** or ▼ **TEMP** pad (on TOP of the panel) to set maximum pool temperature.

C. Wait up to 30 seconds; the **POOL ON** light will go off and the **SPA ON** light will come on. To override the time delay, push the **Max. Temp. Set Point** button again.

D. Press the ▲**TEMP** or ▼ **TEMP** button on the control panel and set maximum spa temperature to 104°F (40°C) or less.

E. Wait up to 30 seconds; the **SPA ON** light will go off and the unit will shut down. To override the time delay, push the **Max. Temp. Set Point** button again.

4. Reinstall the access door panels.

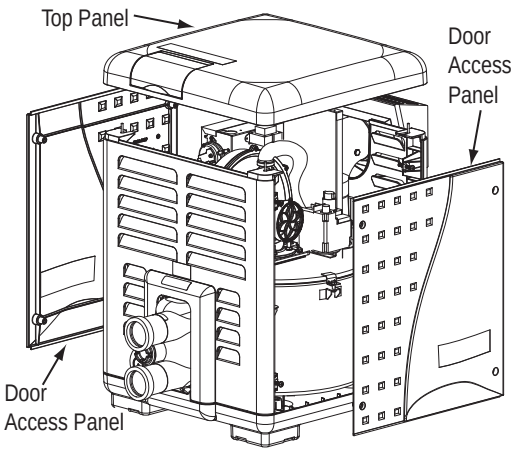


Figure 32.

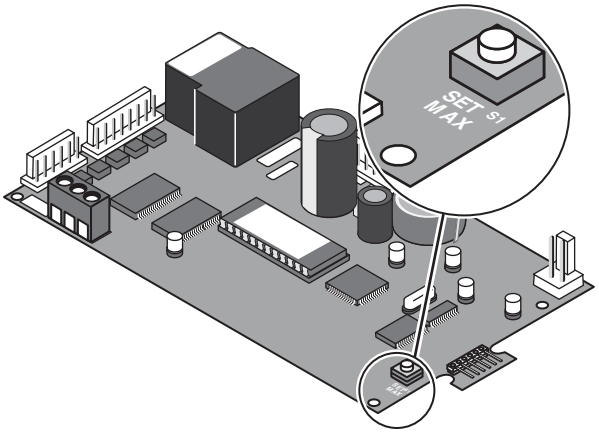


Figure 33.

Troubleshooting Instruction

Initial Troubleshooting

Only qualified, trained service technicians with appropriate test equipment should service the heater. Remember that all parts of the system affect heater operation. Before starting this troubleshooting procedure, make sure that the pump is running correctly, that there are no blockages in the system, that the valves are correctly set and that the time clock is correctly set and is running.

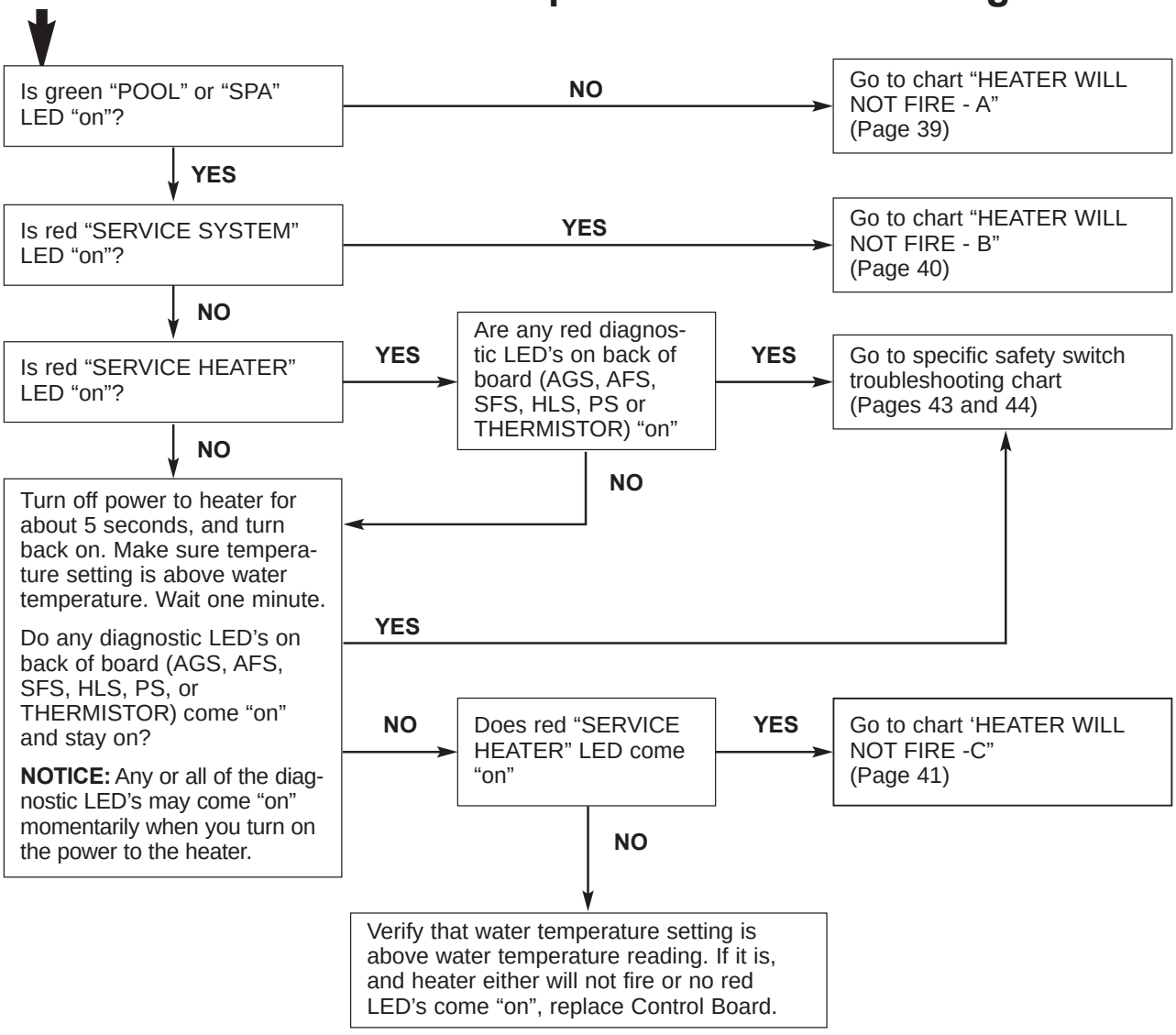
IMPORTANT! READ ME FIRST!

NOTICE: Installing the **black 120 volt** plug in the control box and then connecting the heater to a **240 volt line will destroy the trans - former, control broad, and ignition control module, and will void the warranty.** If you install the red 240 volt plug and then connect the heater to a 120 volt line, the heater will not operate.

READ THE FOLLOWING CAREFULLY:

1. Check the line voltage to your heater. This heater will operate on either 120 Volts AC or 240 Volts AC.
2. Remove the covers and check the 12-pin plug in the back of the control box. The plug must match the voltage in the heater circuit.
3. If the 12-pin plug is not plugged into the back of the control box, select the correct plug from the bag in the control box and plug it in. The **BLACK** plug is for **120 volts,** the **RED** plug is for **240 volts.**

Start here for directions to specific Troubleshooting Chart

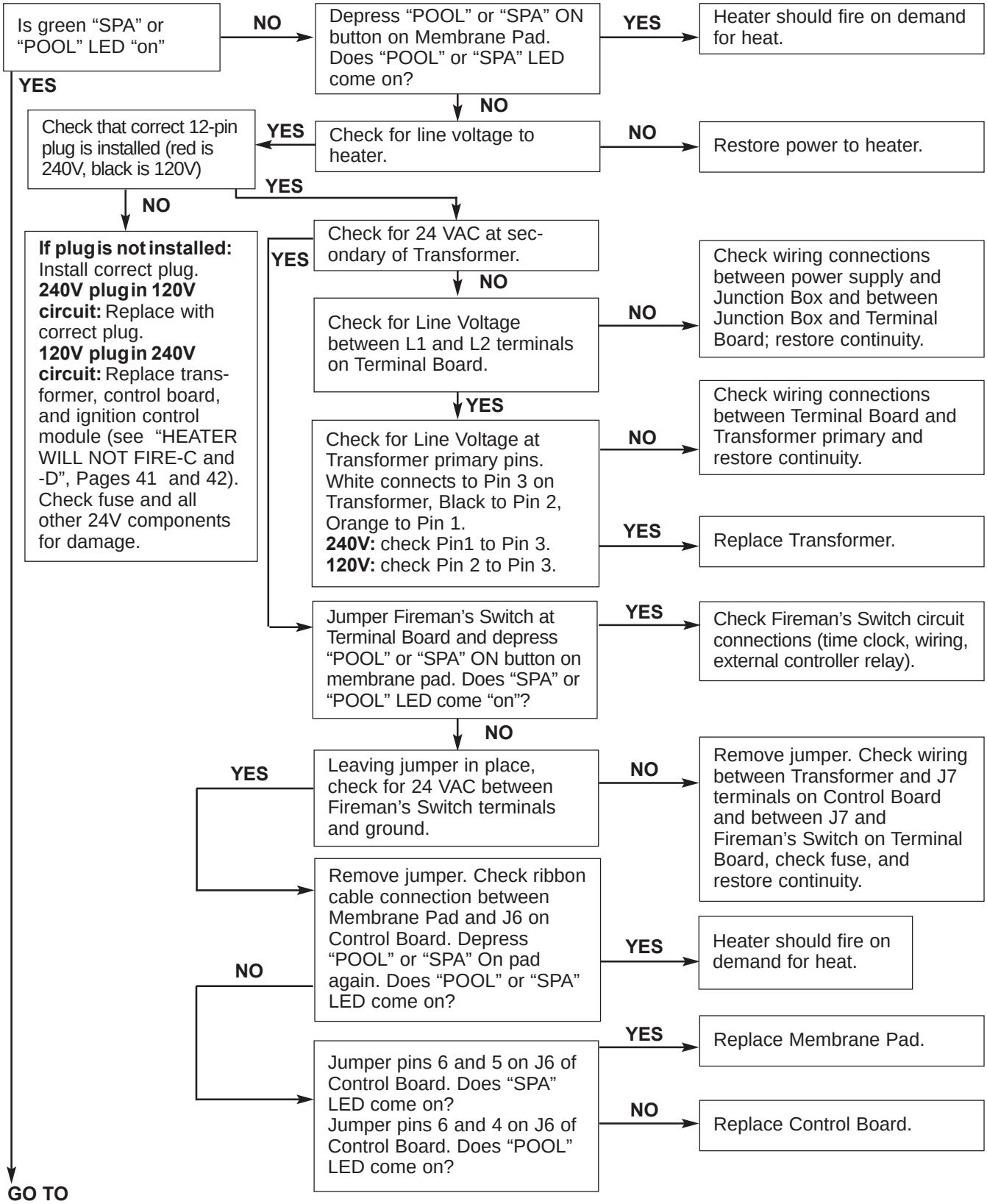


⚠ WARNING **Hazardous voltage. Can shock, burn or kill.** Disconnect power before servicing any components.

⚠ WARNING **Fire and Explosion hazard.** Do not jumper switch terminals to remedy a failed safety switch.

Heater Will Not Fire - A

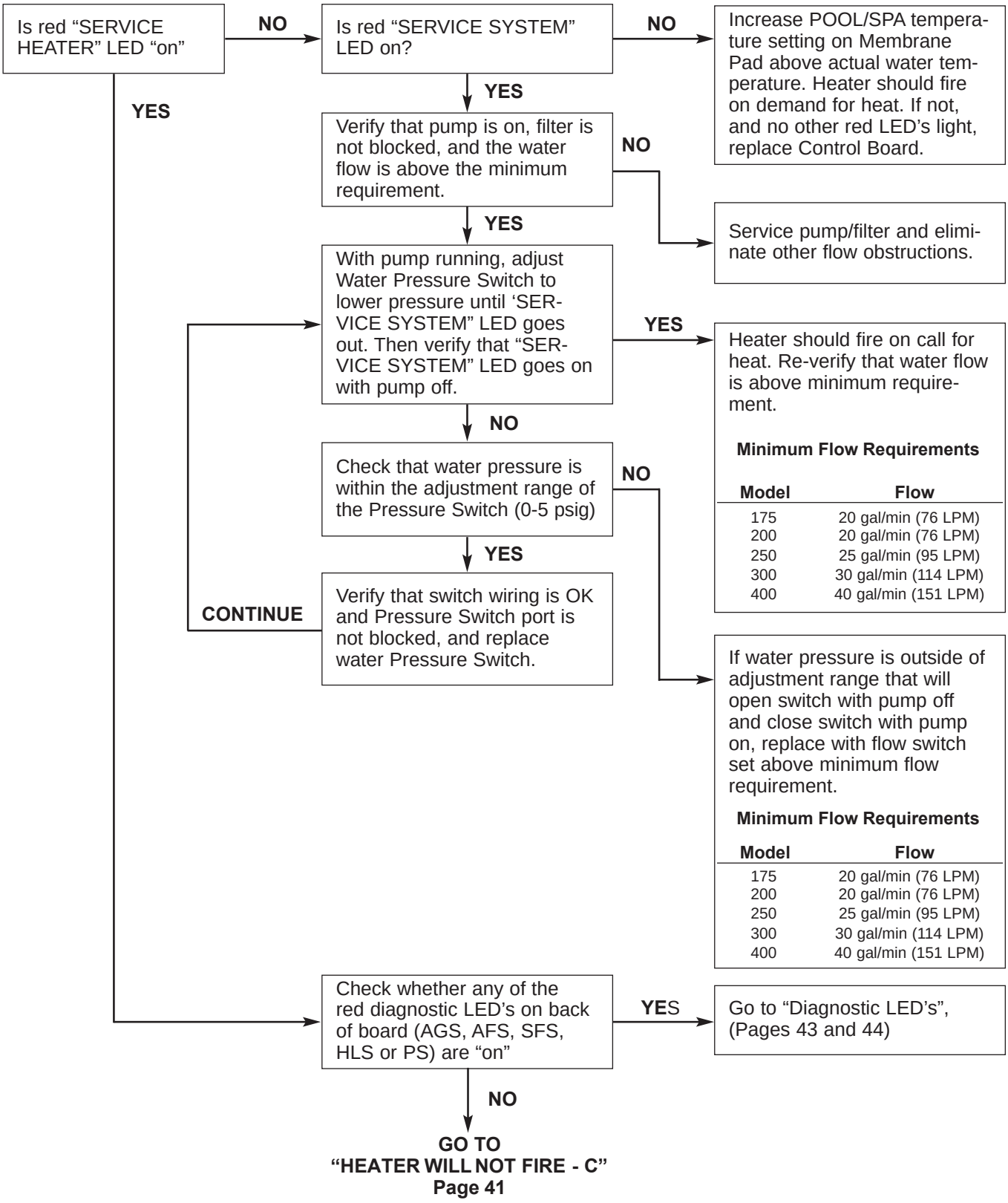
Start



GO TO “HEATER WILL NOT FIRE - B” Page 40

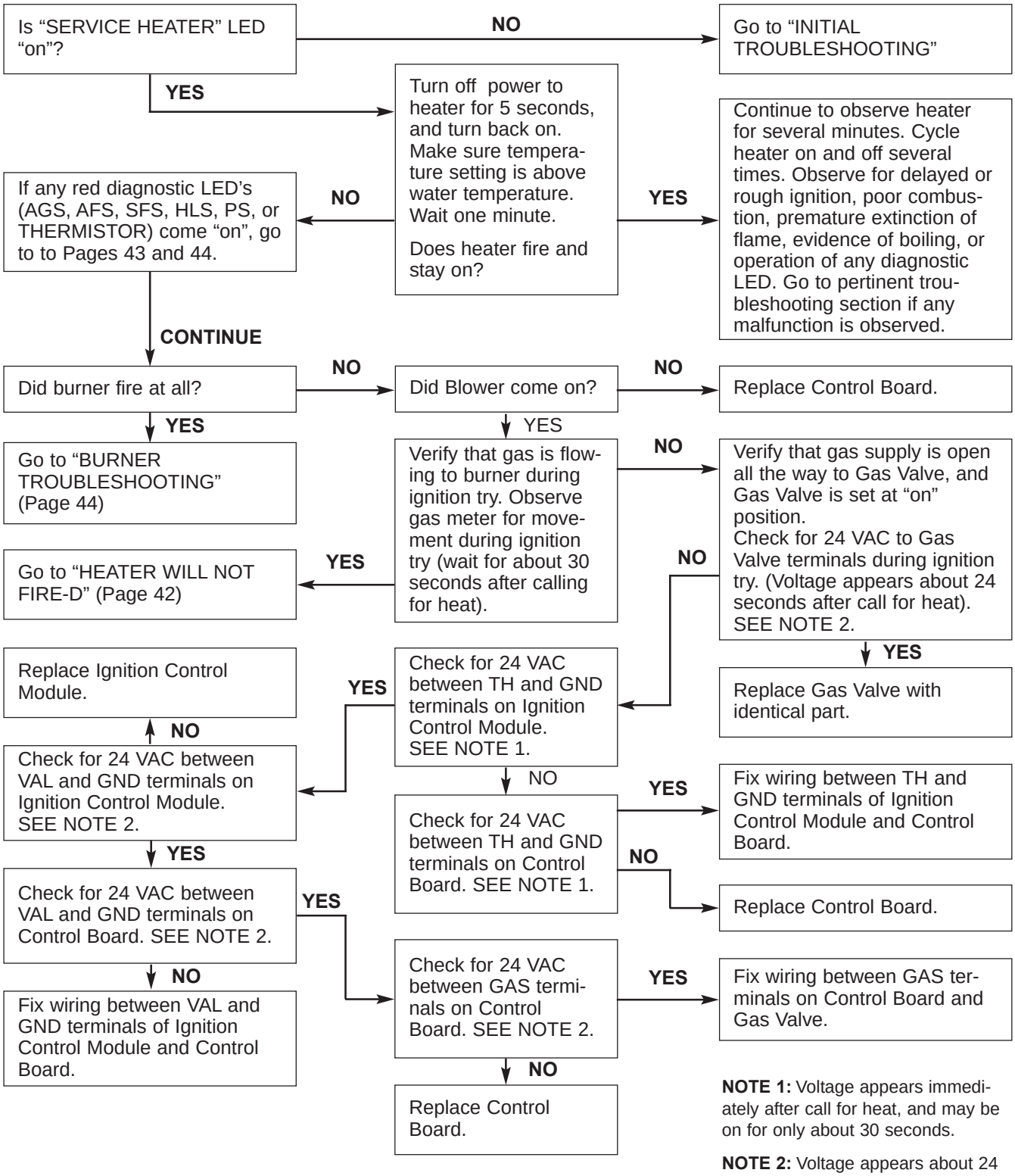
Heater Will Not Fire - B

Start



Heater Will Not Fire - C

Start



NOTE 1: Voltage appears immediately after call for heat, and may be on for only about 30 seconds.

NOTE 2: Voltage appears about 24 seconds after call for heat, and may be on for only about 7 seconds.

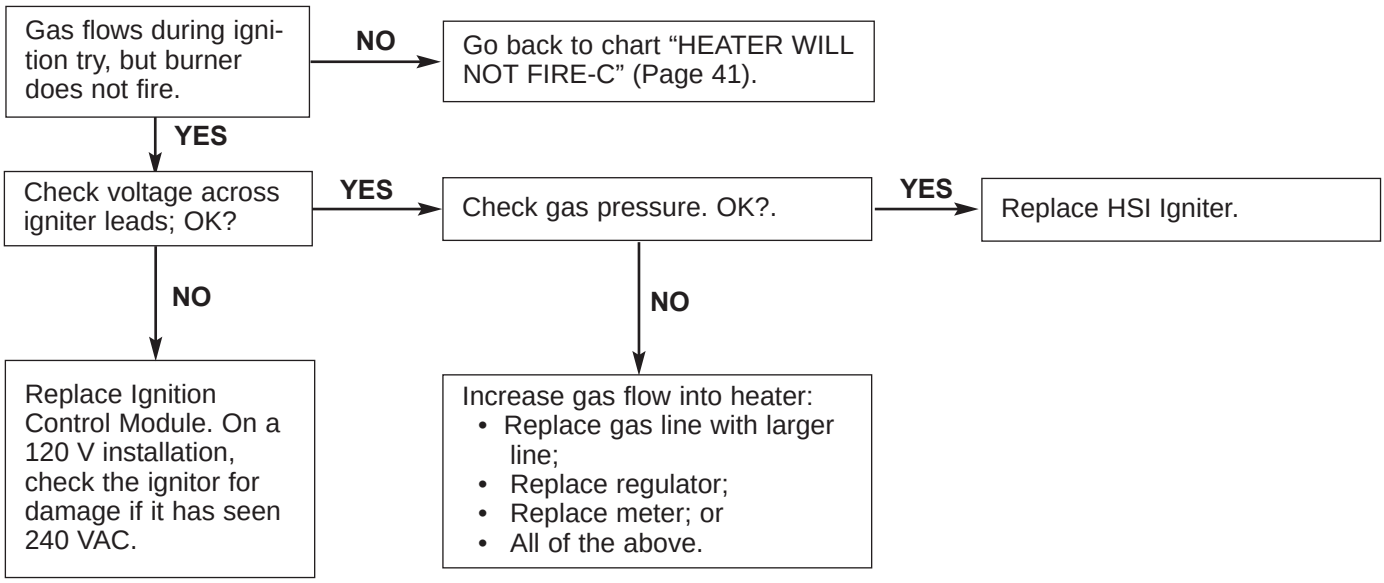
Heater Will Not Fire - D

IMPORTANT! READ ME FIRST!

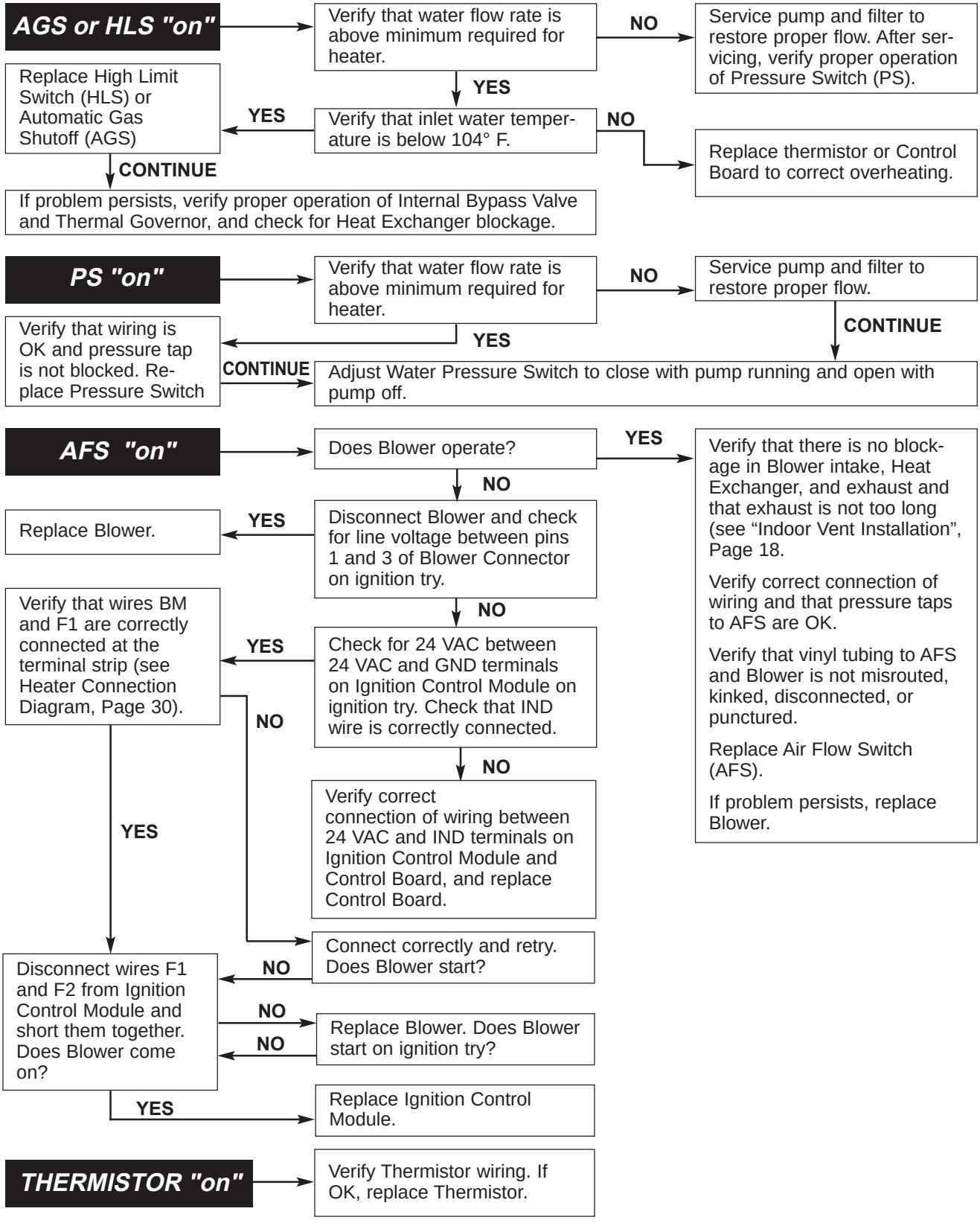
IMPORTANT! READ ME FIRST!!

If your heater is correctly connected to **240 Volts AC,** the Ignition Control Module (ICM) will convert the 240VAC to an intermittent pulse to the ignitor. Digital meters don't read this type of signal well. (An analog meter will give a better reading than a digital meter). If the ICM is bad, your voltmeter will read either 0 VAC or 240 VAC. If your ICM is good, your meter will read some voltage between 0 and 240 VAC. Exactly what reading you get will depend on the meter, but with a good ICM, the reading won't be 0 VAC or 240 VAC, but somewhere in between.

Start



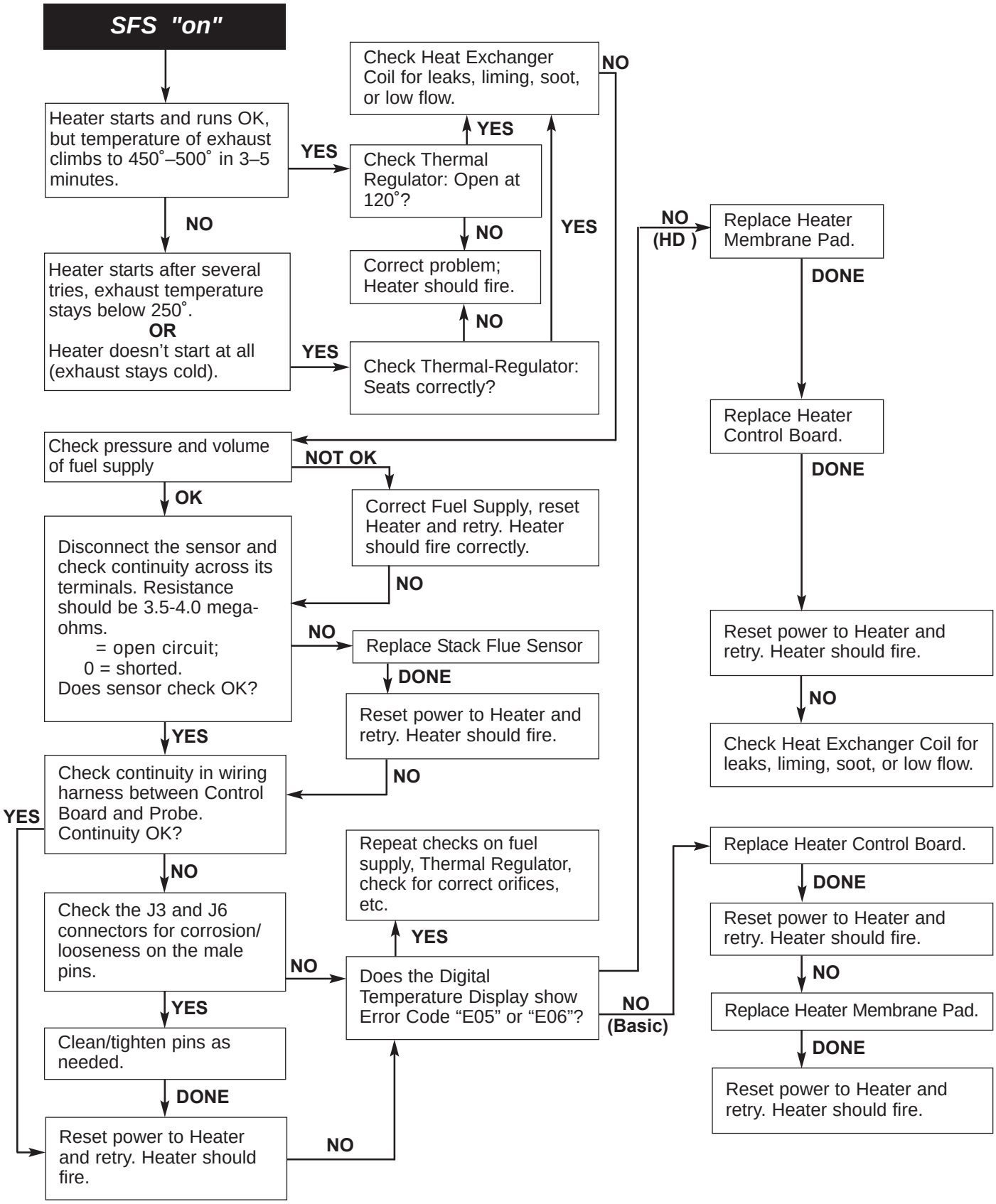
Diagnostic LED's: AGS, AFS, HLS, PS, THERMISTOR



⚠ CAUTION Do not jumper a safety switch to remedy a failed switch.

NOTE: ES1 is a spare and should be jumpered.

Diagnostic LED's: SFS



Burner Troubleshooting

SYMPTOM	CAUSE	REMEDY
Loud, high-pitched whine	Flame is too rich.	Verify pressure tap between gas valve and blower inlet. See page 15 and verify that the gas regulator setting is –0.2" (–0.5cm) wc. Contact a qualified technician or service agency to replace the gas orifice.
Flame is "fluttery." Exhaust may have acrid smell or burner may fail to stay lit.	Flame is too lean.	See page 16 and verify that the gas regulator setting is –0.2" (–0.5cm) wc. Contact a qualified technician or service agency to replace the gas orifice.
Burner pulsates or surges, especially on ignition.	Exhaust vent is too long.	Reduce length of exhaust vent and/or number of elbows.
Combustion appears normal, but flame does not stay lit.	Flame current is not being sensed.	Check for wet or damaged igniter with low resistance to ground. Replace with new igniter. Verify burner flameholder is properly grounded. Replace Ignition Control Module.

Heat Exchanger Troubleshooting

SYMPTOM	CAUSE	REMEDY
Boiling in heat exchanger. May be accompanied by "bumping" sounds.	Low water flow to heater.	Service pump and or filter.
	Heat exchanger plugged.	Service heat exchanger. Correct water chemistry.
	Bypass valve stuck open.	Service bypass valve.
	Thermal governor stuck closed.	Replace thermal governor.
Sweating.	Thermal governor failed.	Replace thermal governor.

Maintenance Instructions

CARE AND MAINTENANCE

⚠WARNING

Risk of fire or explosion from flammable vapors. Do not store gasoline, cleaning fluids, varnishes, paints, or other volatile flammable liquids near heater or in the same room with heater.

The following maintenance is recommended every six months and at the start of every swimming season:

1. Inspect the heater panels and venting system to make sure that there are no obstructions to the flow of ventilating air or burner exhaust. Check that room air intakes are open and clear of obstructions.
2. Keep the area in and around the heater clear and free from combustible materials, gasoline and other flammable vapors and corrosive liquids.
3. Test the operation of the pressure relief valve by lifting the valve lever (if installed).
4. Test for proper operation of the water pressure switch. (See “WATER PRESSURE SWITCH” (page 35) for testing instructions).
5. On enclosed installations with high-temperature Special Gas Vent systems, repeat the “Final Installation Check,” page 28. Check for evidence of joint leakage. Make sure that joints have not slipped partially or completely apart. Check pipe and fittings for cracks or breaks. The combustion air blower is permanently lubricated, and does not require periodic lubrication. The burner does not require maintenance or adjustment by the user. Call a qualified service technician if you suspect that the burner may require maintenance.

PRESSURE RELIEF VALVE (NOT FACTORY INSTALLED)

Canadian code requires and some U.S. local codes may require installation of a Pressure Relief Valve (PRV). Purchase separately and install (P/N 460925) a 3/4" pressure relief valve complying with the ANSI/ASME Boiler and Pressure Vessel Code, having a capacity equal to the Btu/hr rating of the heater.

The relief pressure of the valve MUST NOT EXCEED 50 PSI. The relief valve must be installed vertically. To install the valve, use a 3/4" x 3-1/2” brass nipple at the manifold and one brass elbow and nipple (supplied), as shown in Figure 34. No valve is allowed to be placed between the manifold adapter and the relief valve.

To avoid water damage or scalding from operation of the relief valve, install a drain pipe in the outlet of the pressure relief valve that will direct water discharging from the valve to a safe place for disposal. Do not install any reducing couplings or valves in the drain pipe. The drain pipe must be installed so as to allow complete drainage from the valve and drain line. ***The relief valve should be tested at least once a year by lifting the valve lever.***

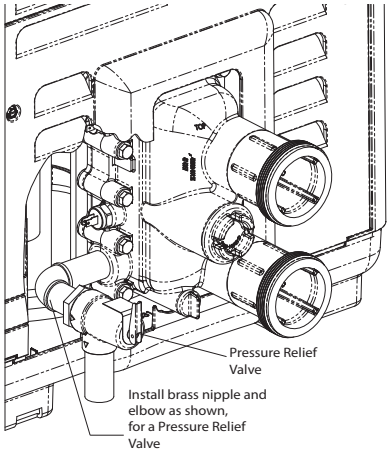


Figure 34.

⚠WARNING

Explosion hazard. Any heater installed with restrictive devices in the piping system downstream from the heater, (including check valves, isolation valves, flow nozzles, or therapeutic pool valving), must have a relief valve installed as described above.

AFTER START-UP

CHECKING WATER FLOW

⚠WARNING

Fire or flooding hazard. If the unit overheats and the burner fails to shut off, follow instructions under "To Turn Off Gas to the Appliance", page 34, and call a qualified service technician to repair unit.

After start-up, the outlet water pipe should feel slightly warmer than the inlet pipe. If it feels hot, or if you hear the water in the heater boiling, there may not be enough water flow to the appliance. Make sure that the filter is not plugged. If water temperature remains high but the unit continues to operate, turn off the appliance and call your service technician.

SPRING AND FALL OPERATION

If the pool is only used occasionally, lower the pool thermostat to 68° F (20° C) and leave the heater on. This will keep the pool and the surrounding ground warm enough so that the heater should restore the pool to a comfortable temperature within about one day.

WINTER OPERATION

⚠CAUTION

- **Operating this heater continuously at water temperatures below 68° F. (20° C) will cause harmful condensation and will damage the heater and void the warranty.**
- **If the heater has been drained for freezing condition, do NOT turn "ON" until the system is circulating water.**
- **Water trapped in the heat exchanger can result in freeze damage to the exchanger or headers. Freeze damage is specifically not covered by the warranty.**
- **When starting the heater for the swimming season with a water temperature below 50° F (10° C), the heater may be used to heat the water; however, make sure that the heater operates continuously until the water temperature reaches the heater's minimum setting of 68° F (20° C). During cold weather, if there is no danger of freezing, operate the filter pump continuously even if the heater is not operating. If air temperatures are expected to drop below freezing (32° F/0° C), shut down the heater and winterize it.**

For outdoor heaters in freezing climates, shut the heater down and drain it for winter as follows:

1. Turn off electrical supply to the heater and pump.
2. Close main gas control valve and manual gas valve (located outside the heater). Turn switch on heater gas valve to OFF.
3. In northern climates where they may be required, open drain cock located on the bottom of the manifold adapter, and drain the heat exchanger and manifold adapter completely. If heater is below pool water level, be sure to close isolation valves to prevent draining the pool (isolation valves are not required and should not be used on heaters installed above pool water level except when needed for winterizing valves). Assist the draining by blowing out the heat exchanger through the pressure switch fitting with low pressure compressed air (less than 5 PSI or 35 kPa).

⚠WARNING

Explosion hazard. Purging the system with compressed air can cause components to explode, with risk of severe injury or death to anyone nearby. Use only a low pressure (below 5 PSI or 35 kPa), high volume blower when air purging the heater, pump, filter, or piping.

4. Remove the Water Pressure Switch. Plug the port in the manifold to prevent bugs and dirt from getting into the manifold.
5. Drain the plastic inlet/outlet manifold through the outlet pipe. If the pipe does not drain naturally to the pool, install a drain cock in the outlet pipe to drain the manifold.
6. Cover air inlet grate with a plastic bag to prevent bugs, leaves, etc., from getting into the heater.

NOTICE: Water trapped in the heater can cause freeze damage. Allowing the heater to freeze voids the warranty.

To return the heater to service after winterizing:

1. Close drain cock and fittings.
2. Before starting the heater, circulate water through the heater for several minutes until all air noises stop. See also "BEFORE START-UP" (page 33) and "CARE AND MAINTENANCE" (page 46).

(See additional notes under Important Notices in Introduction.)

MAINTAINING POOL TEMPERATURE

To maintain pool temperature, make sure that the heater switch and valving are reset to pool settings after using the spa.

ENERGY SAVING TIPS

1. Keep the pool or spa covered when not in use. This will reduce heating costs, reduce water evaporation, conserve chemicals and reduce load on the filtering system.
2. Reduce pool thermostat to 78° F (25° C) or lower; reduce spa temperature to 100° F (38° C). This is accepted as being the most healthy temperature for swimming by the American Red Cross.
3. Use a time clock to start the filter pump at 6 a.m. or later. The swimming pool loses less heat after daybreak.
4. For pools used only on weekends, lower the thermostat setting by 10° F to 15° F (5° C to 8° C) during the week to reduce heat loss. A properly sized heater will restore normal temperature within one day.
5. Turn the heater off when the pool will not be used for an extended period.
6. Follow a regular program of preventive maintenance for the heater each new swimming season. Check operation of the heater and its controls.

CHEMICAL BALANCE

POOL AND SPA WATER

Your pool heater was designed specifically for your spa or pool and will give you many years of trouble-free service, provided you keep your water chemistry in proper condition.

Water chemistry should follow good swimming pool water chemistry practices. When using a chlorinator, install it down stream from the heater and at a lower level than the heater outlet. Install a corrosion resistant positive seal “Check Valve”, (P/N R172288), between the heater and the chlorinator to prevent concentrated chemicals from back-siphoning into the heater. Back-siphoning is most likely to occur when the pump stops, creating a pressure-suction differential. Do NOT sanitize the pool by putting chlorine tablets or sticks into the skimmer(s). When the pump is off, this will cause a high concentration of chlorine to enter the heater, which could cause corrosion damage to the heat exchanger.

Three major items that can cause problems with your pool heater are: improper pH, disinfectant residual, and total alkalinity. These items, if not kept properly balanced, can shorten the life of the heater and cause permanent damage.

⚠CAUTION

Heat exchanger damage resulting from chemical imbalance is not covered by the warranty.

WHAT A DISINFECTANT DOES

Two pool guests you do not want are algae and bacteria. To get rid of them and make pool water sanitary for swimming - as well as to improve the water's taste, odor and clarity - some sort of disinfectant must be used.

Chlorine and bromine are universally approved by health authorities and are accepted disinfecting agents for bacteria control.

WHAT IS A DISINFECTANT RESIDUAL?

When you add chlorine or bromine to the pool water, a portion of the disinfectant will be consumed in the process of destroying bacteria, algae and other oxidizable materials. The disinfectant remaining is called chlorine residual or bromine residual. You can determine the disinfectant residual of your pool water with a reliable test kit, available from your local pool supply store.

You must maintain a disinfectant residual level adequate enough to assure a continuous kill of bacteria or virus introduced into pool water by swimmers, through the air, from dust, rain or other sources.

CHEMICAL BALANCE, (cont'd.)

It is wise to test pool water regularly. Never allow chlorine residual to drop below 0.6 ppm (parts per million). The minimum level for effective chlorine or bromine residual is 1.4 ppm.

pH - The term pH refers to the acid/alkaline balance of water expressed on a numerical scale from 0 to 14. A test kit for measuring pH balance of your pool water is available from your local pool supply store; see Table 9.

Muriatic Acid has a pH of about 0. Pure water is 7 (neutral). Weak Lye solution have a pH of 13-14.

RULE: 7.4 to 7.6 is a desirable pH range. It is essential to maintain correct pH, see Table 9.

If pH becomes too high (over alkaline), it has these effects:

1. Greatly lowers the ability of chlorine to destroy bacteria and algae.
2. Water becomes cloudy.
3. There is more danger of scale formation on the plaster or in the heat exchanger tubing.
4. Filter elements may become blocked.

If pH is too low (over acid) the following conditions may occur:

1. Excessive eye burn or skin irritation.
2. Etching of the plaster.
3. Corrosion of metal fixtures in the filtration and recirculation system, which may create brown, blue, green, or sometimes almost black stains on the plaster.
4. Corrosion of copper tubes in the heater, which may cause leaks.
5. If you have a sand and gravel filter, the alum used as a filter aid may dissolve and pass through the filter.

CAUTION: Do not test for pH when the chlorine residual is 3.0 ppm or higher, or bromine residual is 6.0 ppm or higher. See your local pool supply store for help in properly balancing your water chemistry.

RULE: Chemicals that are acid lower pH. Chemicals that are alkaline raise pH.

ALKALINITY High or Low:

"Total alkalinity" is a measurement of the total amount of alkaline chemicals in the water, and control pH to a great degree. (It is not the same as pH which refers merely to the relative alkalinity/acidity balance.) Your pool water's total alkalinity should be 100 - 140 ppm to permit easier pH control.

A total alkalinity test is simple to perform with a reliable test kit. You will need to test about once a week and make proper adjustments until alkalinity is in the proper range. Then, test only once every month or so to be sure it is being maintained. See your local pool dealer for help in properly balancing the water chemistry.

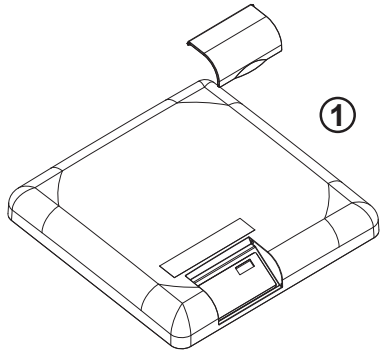
WATER CHEMISTRY PARAMETERS

Table 9.

Disinfectant levels	**Minimum**	**Ideal**	**Maximum**
Free Chlorine, ppm	1.0	2.0-4.0	5.0**
Combined Chlorine, ppm	None	None	0.2
Bromine, ppm	2.0	4-6	10.0
Other Sanitizers	Levels not established. Consult local health department before use.		
Chemical Values			
pH	7.2	7.4-7.6	7.8**
Total Alkalinity (Buffering), ppm as CaCO3	60	80-100	180
Salt ppm	2000	3200	5000**
Total Dissolved Solids, ppm	N/A	N/A	1,500 ppm > TDS at startup*
Calcium Hardness, ppm, as CaCO3	150	200-400	500-1,000
Heavy Metals	None	None	None
Biological Values			
Algae	None	None	None
Bacteria	None	None	Refer to Local Code

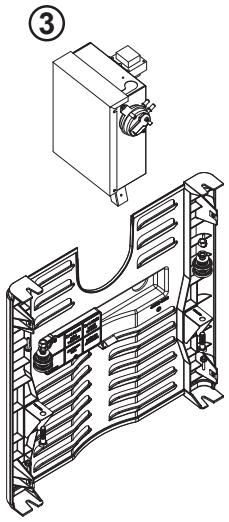
*Start-up TDS includes source water TDS and any other inorganic salt added at start-up.
NOTE (**): Failure to adhere to the listed water chemistry parameters may result in premature failure of the heat exchanger and will **void the heater warranty**.

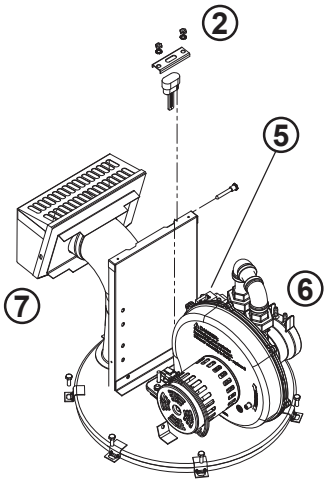
MASTERTEMP HEATER REPLACEMENT PARTS

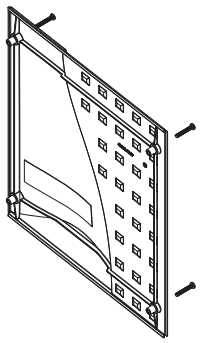


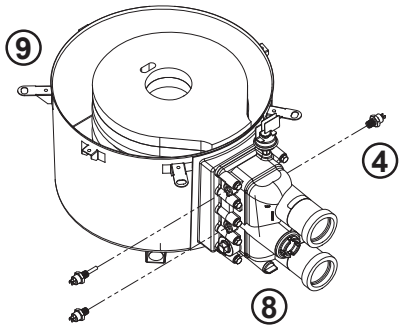
For complete
Electrical System
parts breakdown
(Key Nos. 1 through 4),
See Page 53

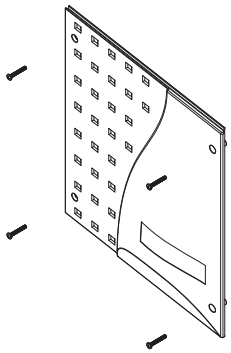
For complete
Burner System
parts breakdown
(Key Nos. 5 through 7),
See Page 51

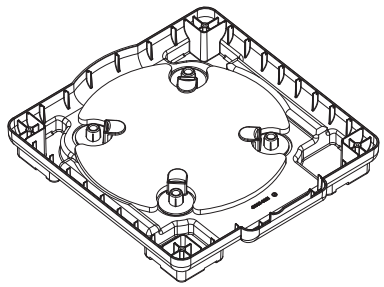


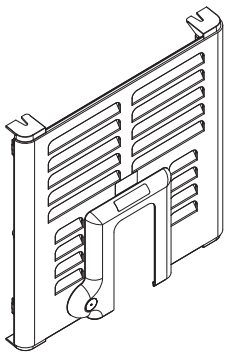








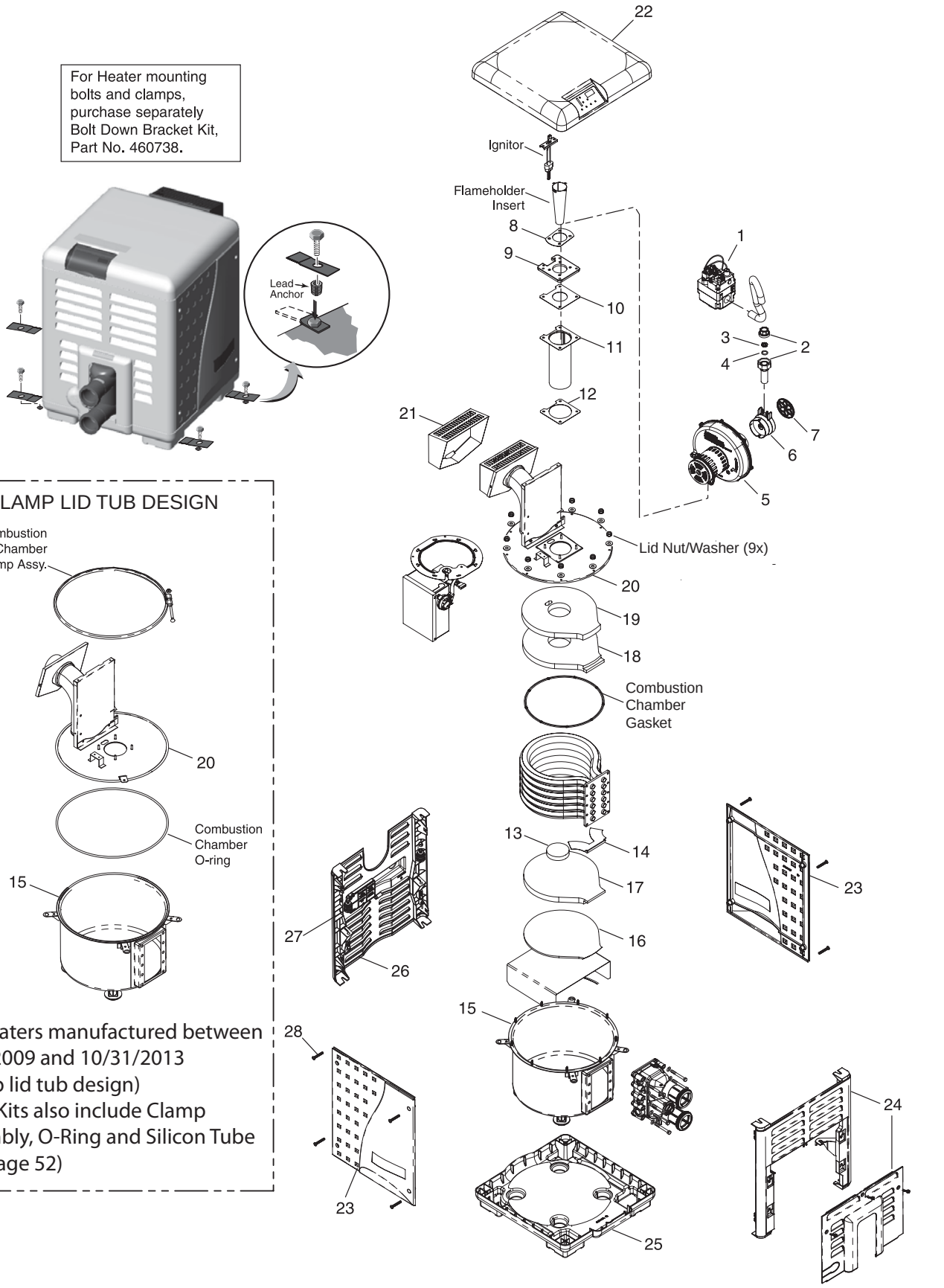




For complete
Water System
parts breakdown
(Key Nos. 8 through 9),
see Page 52

Repair Parts are available from your Pentair dealer.
If your dealer cannot supply you, call Customer Support at 1-800-831-7133.

MASTERTEMP HEATER REPLACEMENT PARTS



MASTERTEMP HEATER REPLACEMENT PARTS

REPAIR PARTS – BURNER SYSTEM

Key No.	Part Description	Qty.	Model 175NA 175LP	200NA 200LP	250NA 250LP	300NA 300LP	400NA 400LP
1	Combination Gas Control Valve Kit	1	42001-0051S	42001-0051S	42001-0051S	42001-0051S	42001-0051S
2	3/4" Union	2	38404-4097S	38404-4097S	38404-4097S	38404-4097S	38404-4097S
3	Gas Orifice	1					
4	Gas Orifice O-Ring	1					
•	Gas Orifice Kit – NG (Incl. Key Nos. 3 and 4)†		460794	77707-0431	460739	460753	77707-0411
•	Gas Orifice Kit – Propane (Incl. Key Nos. 3 and 4)†		460795	77707-0461	460740	460754	77707-0441
•	NG to Propane Conversion Kit (Incl. Key Nos. 3 and 4)†		460794	77707-1461	460741	460755	77707-1441
•	Propane to NG Conversion Kit (Incl. Key Nos. 3 and 4)†		460795	77707-1431	460742	460756	77707-1411
5	Air Blower Kit						
	Natural Gas Units	1	77707-0251	77707-0251	460743	460757	77707-0253
	Propane Units	1	77707-0254	77707-0254	460744	460758	77707-0256
•	Air Orifice Kit (Includes Key Nos. 6 and 7)	1	460798	77707-0111	460745	460759	77707-0113
6	Air Orifice	1					
7	Air Orifice Grill	1	42001-0114S	42001-0114S	42001-0114S	42001-0114S	42001-0114S
•	Blower/Adapter Plate Gasket Kit (Includes Key Nos. 8, 9, 10, 12)	1	77707-0011	77707-0011	77707-0011	77707-0011	77707-0011
•	Flameholder Kit (Includes Key Nos. 10, 11, 12, 13 and on 300 & 400 models only - Flameholder Insert)	1	77707-0202	77707-0202	460746	77707-0203	77707-0204
8	Blower/Adapter Plate Gasket	1					
9	Blower Adapter Plate	1					
10	Flameholder/Adapter Plate Gasket	1					
11	Flameholder Assembly	1					
12	Flameholder/Combustion Chamber Gasket*	1					
13	Flameholder Insulation Cap	1					
•	Flameholder Insert	1					
14	Condensate Evaporator Plate	1					
15	One Piece Metal Chamber/Combustion Chamber Assembly	1	474095♦ 474957♦♦ 42001-0200S♦♦♦	474095♦ 474957♦♦ 42001-0200S♦♦♦	474095♦ 474957♦♦ 42001-0200S♦♦♦	474095♦ 474957♦♦ 42001-0200S♦♦♦	474095♦ 474957♦♦ 42001-0200S♦♦♦
•	Insulation Kit (Includes Key No.13,14,16,17,18,19)	1	77707-0008	77707-0008	77707-0008	77707-0008	77707-0008
16	Bottom Outer Insulation Blanket*	1					
17	1" Bottom Inner Insulation	1					
18	1" Top Insulation	1					
19	Top Outer Insulation Blanket*	1					
•	Lower Enclosure Insulation	1	42001-0074S	42001-0074S	42001-0074S	42001-0074S	42001-0074S
20	One Piece Metal Elbow/Combustion Chamber Cover Assembly	1	474094♦ 474958♦♦ 42001-0214S♦♦♦	474094♦ 474958♦♦ 42001-0214S♦♦♦	474094♦ 474958♦♦ 42001-0214S♦♦♦	474094♦ 474958♦♦ 42001-0214S♦♦♦	474094♦ 474958♦♦ 42001-0214S♦♦♦
•	Combustion Chamber O-Ring Kit	1	474201♦ 474952♦♦	474201♦ 474952♦♦	474201♦ 474952♦♦	474201♦ 474952♦♦	474201♦ 474952♦♦
21	Metal Vent Cover	1	42002-0005S	42002-0005S	42002-0005S	42002-0005S	42002-0005S
	Cover Assembly	1	42001-0214S	42001-0214S	42001-0214S	42001-0214S	42001-0214S
22	Heater Top	1	42002-0034Z	42002-0034Z	42002-0034Z	42002-0034Z	42002-0034Z
23	Side Panel {Service Panel}	1	42002-0039	42002-0039	42002-0039	42002-0039	42002-0039
24	Side Panel {Manifold}	1	42002-0033	42002-0033	42002-0033	42002-0033	42002-0033
25	Heater Bottom	1	42002-0031	42002-0031	42002-0031	42002-0031	42002-0031
26	Side Panel {Flue Stack}	1	42002-0032	42002-0032	42002-0032	42002-0032	42002-0032
27	J-Box Cover	1	42002-0041	42002-0041	42002-0041	42002-0041	42002-0041
28	Screw Kit, Panel	1	474292	474292	474292	474292	474292
•	Combustion Air Intake Duct Connection Kit	1	461031	461031	461031	461031	461031

* Not available separately.

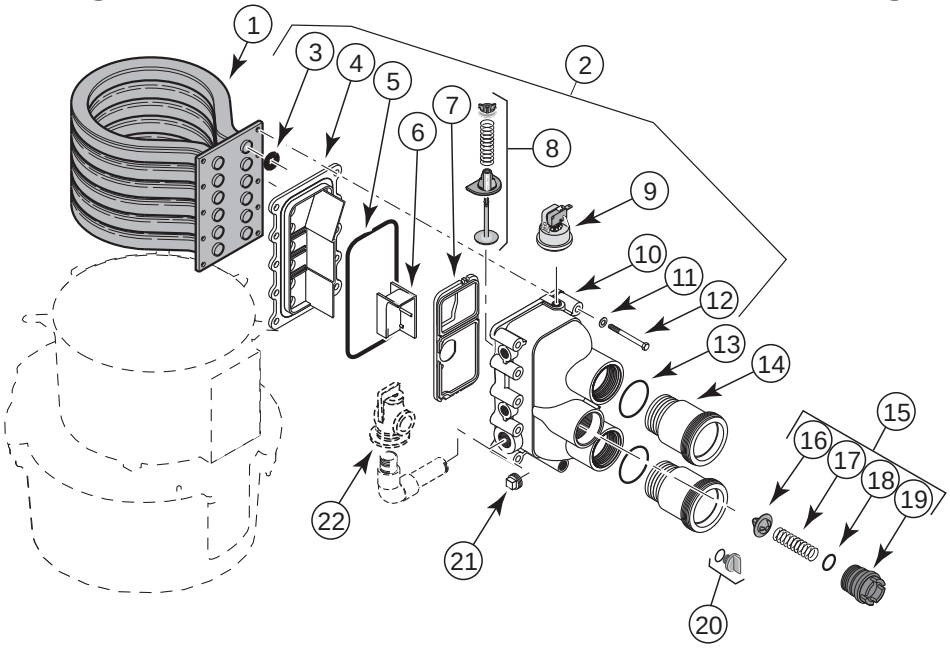
† Not included with heater. Order separately.

♦ For heaters manufactured between 1/12/2009 and 10/31/2013 (clamp lid tub design)
Note: Kits also include Clamp Assembly, O-Ring and Silicon Tube.

♦♦ For heater manufactured AFTER 10/31/2013 (New 9-bolt lid tub design)

♦♦♦ For heater manufactured BEFORE 1/12/2009

MASTERTEMP HEATER REPLACEMENT PARTS

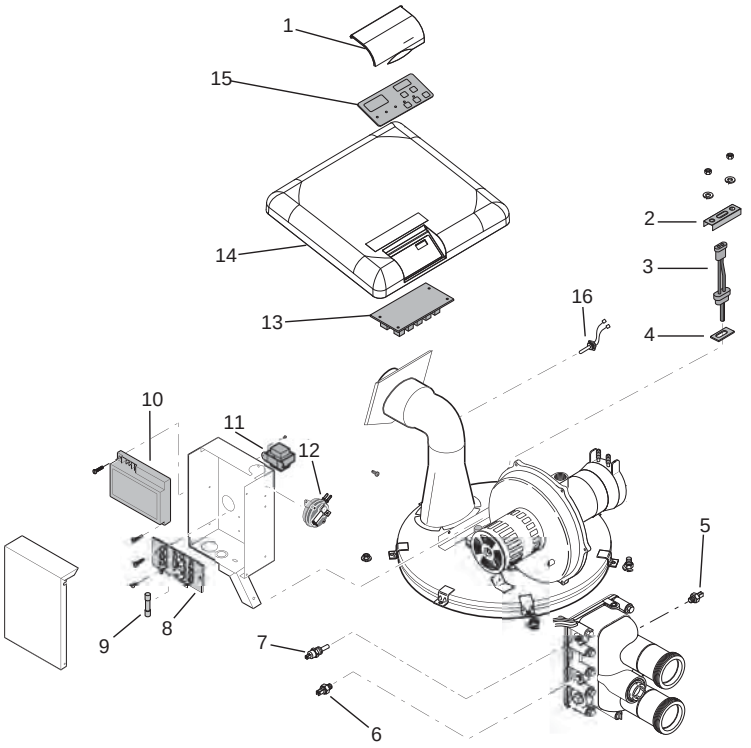


REPAIR PARTS – WATER SYSTEM

Key No.	Part Description	Qty.	Model 175NA - 200NA 175LP - 200LP	250NA 250LP	300NA 300LP	400NA 400LP
1	Tube Sheet Coil Assembly Kit **(NA, LP Series)**					
	(Includes Key No.3)	1	77707-0232 474058♦	460747 474059♦	77707-0233 474060♦	77707-0234 474061♦
1	Tube Sheet Coil Assembly Kit **(NA - HD Series)**					
	(Includes Key No.3)	1	– –	473710 474063♦	– –	77707-0244 474065♦
1	Tube Sheet Coil / Combustion Chamber Kit **(ASME SERIES)**					
	Bronze Header - Key Nos. 3-12, 15, 20-22,	1	– 472732Z	460941 474097♦ 474955♦♦	– – –	460940 474096♦ 474956♦♦
1	Tube Sheet Coil / Combustion Chamber Kit **(HD ASME SERIES)**		–	474349, 474954♦♦	–	474350, 474953♦♦
2	Manifold Kit (Includes Key Nos. 3-14, 21, & Key Nos. 5-7 in "Electrical System", Page 53	1	77707-0014	460748	77707-0015	77707-0016
•	Basic Manifold Kit (includes Key No. 3,5,10-14)		474200	474200	474200	474200
3	Coil/Tubesheet Sealing O-Ring Kit	( )	77707-0117(6)	460749(8)	77707-0118(10)	77707-0119(12)
4	Manifold Bottom Plate	1				
5	Manifold O-Ring	1				
•	O-Ring Kit (Incl. Key Nos. 3, 5)	1	77707-0120	77707-0120	77707-0120	77707-0120
6	Manifold Insert*	1				
7	Manifold Baffle Plate	1				
8	Manifold Bypass Valve	1	77707-0001	77707-0001	77707-0001	77707-0001
9	Water Pressure Switch	1	42001-0060S	42001-0060S	42001-0060S	42001-0060S
10	Manifold	1				
11	5/16" Washer, S.S.	10				
12	5/16x18x2-3/4" Hex Cap screw	10				
13	Connector Tube O-Ring	2				
14	Connector Tube Kit (Includes 1 Connector Tube and 1 O-Ring)	2	77707-0017	77707-0017	77707-0017	77707-0017
15	Thermal Regulator Kit (Incl. Key No. 16, 17, 18, 19 and Spring Clip)	1	77707-0010	77707-0010	77707-0010	77707-0010
16	Thermal Regulator (Includes Spring Clip)	1	38000-0007S	38000-0007S	38000-0007S	38000-0007S
17	Thermal Regulator Spring	1				
18	Thermal Regulator Cap O-Ring	1	35505-1313	35505-1313	35505-1313	35505-1313
•	Thermal Regulator Spring Clip	1				
19	Thermal Regulator Cap	1				
20	Drain Plug	1	U178-920P	U178-920P	U178-920P	U178-920P
21	3/4" Pipe Plug	1	U78-60ZPS	U78-60ZPS	U78-60ZPS	U78-60ZPS
22	Pressure Relief Valve (Recommended - (Purchase Separately)	1	38674-0719	38674-0719	38674-0719	38674-0719

* Not available separately. • Not illustrated.
♦ For heaters manufactured between 1/12/2009 and 10/31/2013 (clamp lid tub design) - Note: Kits also include Clamp Assembly, O-Ring and Silicon Tube.
♦♦ For ASME heater manufactured AFTER 10/31/2013 (New 9-bolt lid tub design)
♦♦♦ For heater manufactured BEFORE 1/12/2009

MASTERTEMP HEATER REPLACEMENT PARTS



REPAIR PARTS – ELECTRICAL SYSTEM

Key No.	Part Description	Qty.	Model			
			175NA - 200NA 175LP - 200LP	250NA 250LP	300NA 300LP	400NA 400LP
1	Heater Display Cover	1	42002-0035	42002-0035	42002-0035	42002-0035
2	Igniter Bracket	1	42001-0030S	42001-0030S	42001-0030S	42001-0030S
3	Igniter/Igniter Gasket Kit Incl. Key Nos. 3 and 4)	1	77707-0054	77707-0054	77707-0054	77707-0054
4	Igniter Gasket	1	42001-0066S	42001-0066S	42001-0066S	42001-0066S
5	Automatic Gas Shutoff Switch (AGS)	1	42002-0025S	42002-0025S	42002-0025S	42002-0025S
6	High Limit Switch	1	42001-0063S	42001-0063S	42001-0063S	42001-0063S
7	Thermistor	1	42001-0053S	42001-0053S	42001-0053S	42001-0053S
8	Terminal Board	1	42001-0056S	42001-0056S	42001-0056S	42001-0056S
9	Fireman's Switch Fuse (1.25A, 1-1/4")	1	32850-0099	32850-0099	32850-0099	32850-0099
10	Ignition Control Module	1	42001-0052S	42001-0052S	42001-0052S	42001-0052S
11	Transformer, 120/240V	1	42001-0107S	42001-0107S	42001-0107S	42001-0107S
12	Air Flow Switch	1	42001-0061S	42001-0061S	42001-0061S	42001-0061S
13	Control Board Kit (NA, LP Series)	1	42002-0007S	42002-0007S	42002-0007S	42002-0007S
•	Heater Wiring Harness - 120/240V	1	42001-0104S	42001-0104S	42001-0104S	42001-0104S
•	120/240 Volt Plug Kit	1	42001-0105S	42001-0105S	42001-0105S	42001-0105S
14	Heater, Top	1	42002-0034Z	42002-0034Z	42002-0034Z	42002-0034Z
15	Membrane Pad (NA, LP Series)	1	472610Z	472610Z	472610Z	472610Z
16	Stack Flue Sensor	1	42002-0024S	42002-0024S	42002-0024S	42002-0024S

• Not available separately.

* Kit parts not available separately.

NOTES

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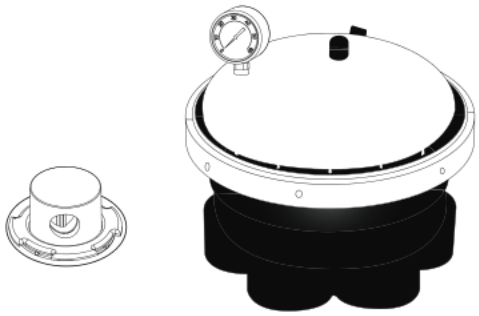
www.pentairpool.com

P/N 472592 REV. L 8/14



Cleaning System Manual

OWNER'S MANUAL

For PCC2000, PV3, Cyclean, Pool Valet,
New Pool Valet, Vantage, Vanquish,
StepClean, SwingSweep and EcoPool

Powered by:
Paramount
Pool Life. Simplified.

004-027-8742-00 REV0523˙3

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TABLE OF CONTENTS

Contact Paramount Pool & Spa Systems at 1.800.621.5886

CONGRATULATIONS

Congratulations on your new pool and thank you for choosing one of Paramount's cleaning or circulation systems. This manual will address all of Paramount's systems, the PCC2000, PV3, Cyclean, Pool Valet, New Pool Valet, Vantage, Vanquish, Step Clean, Swing Sweep, and Eco Pool. Your system may also include a Paramount debris canister and one or more of Paramount's Drains (MDX-R3, MDX2, MDX, Buzztop Channel Drain and/or SDX).

WHAT YOU NEED TO KNOW

Your system's performance will be maximized by adhering to the following operating instructions, and can be affected by seasonal weather conditions that may require extended periods of operation. The cleaning performance directly relates to the type and design of your specific Paramount system.

It is recommended you call your pool builder or a professional service company if your pool requires attention.

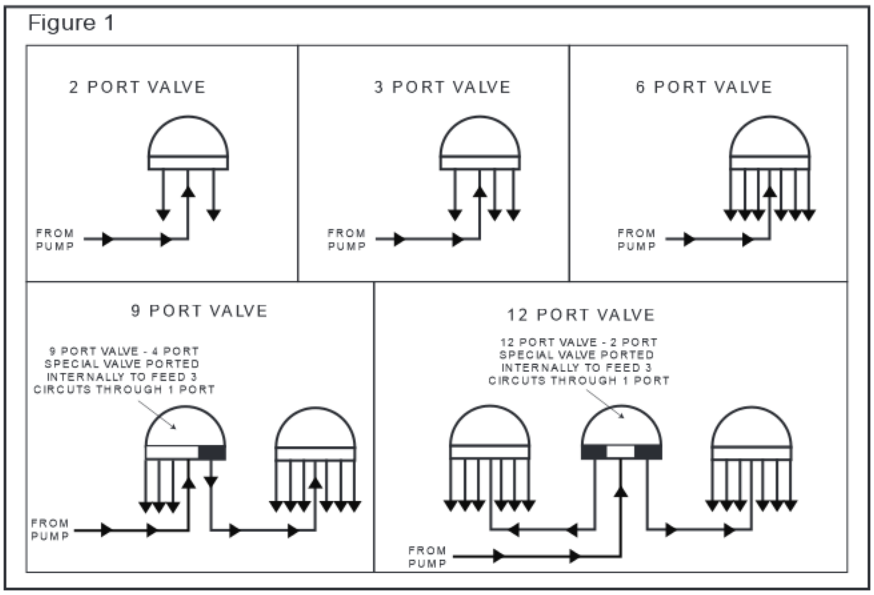
WHAT IS A WATER VALVE?

The Paramount water valve is fully automatic and operates whenever the pump it's connected to is running. Your Paramount Water Valve may be connected to your filter pump or a stand-alone "booster" pump.

The water valve automatically distributes water to different areas of your pool, which can include the floor, steps, benches, spa and water features. It cycles much like an automatic sprinkler system in your yard switching from one circuit to another (Figure 1 shows the combination of water valves). Every water valve has a center port. This is where the water enters the valve. You will have a 2-port, 3-port, 6-port, 9-port or 12-port system depending on the design of your pool. The port count of the water valve indicates the number of circuits that send water back to your pool or to another water valve. Cleaning nozzles or returns are placed at the end of the circuits.

WHAT IS A WATER VALVE? (CONT.)

Figure 1



Combination Water Valves (9-Port and 12-Port)

A 9-port system consists of 2 water valves, a 6-port and a 4-port. The 4-port valve has 3 circuits to the pool and 1 circuit that powers the 6 port valve for a total of 9 circuits going to the pool. On this type of system the 3 circuits on the 4-port valve fire twice as often as the other 6 circuits on the six port valve. Your system is designed specifically to take advantage of this firing sequence.

A 12-port system consists of 3 water valves, two 6-ports and one 2-port, 5 gear valve. The 2-port alternately powers each 6-port valve. Your system is designed specifically to take advantage of this firing sequence.

UNIQUE WATER VALVE FEATURES

The run/pause switch on the top of the valve allows you to pause the system to isolate a circuit in an out of the way area of the pool.

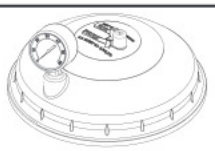
The one-piece replacement module design allows for easy installation.

The gauge on your water valve is important and tells you how the system is operating. Gauges should be replaced when they become unreadable or inaccurate. Never use Teflon tape on a replacement gauge, use a thread sealant that is approved for plastic such as Teflon paste. Hand tighten gauge as over tightening can crack the water valve lid.

WATER VALVE BREAKDOWN

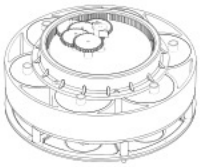
Figure 2

Top Dome Complete
Includes Top, Gauge & Pause Assembly:
005-302-4300-03



Modules:

004-302-4400-00	2 Port 4 Gear
004-302-4402-00	2 Port 5 Gear
004-302-4404-00	3 Port
004-302-4406-00	4 Port
004-302-4408-00	6 Port



Band Clamp Complete
Includes Knob & Nut:
005-302-3570-00

Base O-Ring:
005-302-0100-00

Valve Base (US)*:

005-302-4000-03	2 Port Base 1□1/2 Black
005-302-4010-03	3 Port Base 1□1/2 Black
005-302-4016-03	4 Port Base 1□1/2 Black
005-302-4030-03	6 Port Base 1□1/2 Black

Valve Base (US)*:

005-302-4002-03	2 Port Base 2□Black
005-302-4012-03	3 Port Base 2□Black
005-302-4018-03	4 Port Base 2□Black
005-302-4032-03	6 Port Base 2□Black

Valve Base (Metric):

005-302-4006-03	2 Port Base 63 mm Black
005-302-4009-03	3 Port Base 63 mm Black
005-302-4020-03	4 Port Base 63 mm Black
005-302-4038-03	6 Port Base 63 mm Black

*US 2□is equivelant to Australian 50 mm.

Pressure Gauge:
005-302-3590-00

Band Clamp Nut:
005-302-0640-00

Pause Assembly (Includes
Screw Knob, O-Ring & Pawl)
005-302-3502-00

Band Clamp Knob:
005-302-3600-00

Winterizing Plug:
004-302-1670-00 (Single)
004-302-1672-00 (6 Pieces)

NOTE: Winterizing plug is for 2 inch and 63 mm only.

For 1 ½ inch valve base use a standard #8 winterizing plug.

WATER VALVE INSTRUCTIONS

How to open the water valve

1. TURN OFF ALL EQUIPMENT INCLUDING PUMPS. WARNING! FAILURE TO DO SO CAN RESULT IN INJURY OR DEATH.
2. Remove the band clamp by turning the clamp knob or 7/16 inch nut counter-clockwise until it comes off the bolt. Then carefully pull the clamp away from the valve.
3. Lift the top off the base being careful to not lose or stretch the o-ring.
4. Remove the module by lifting up and out of the base. Note: the module is designed to seal inside the base so it may require a side to side or rocking motion while lifting out. An easy solution is to turn the pump on and off quickly. CAUTION! DO NOT APPROACH THE WATER VALVE WHILE THE THE LID IS REMOVED AND THE PUMP IS ON. FAILURE TO DO SO CAN RESULT IN INJURY OR DEATH.
5. Do not pull the module by the gear mechanism. This can result in damage to the module.

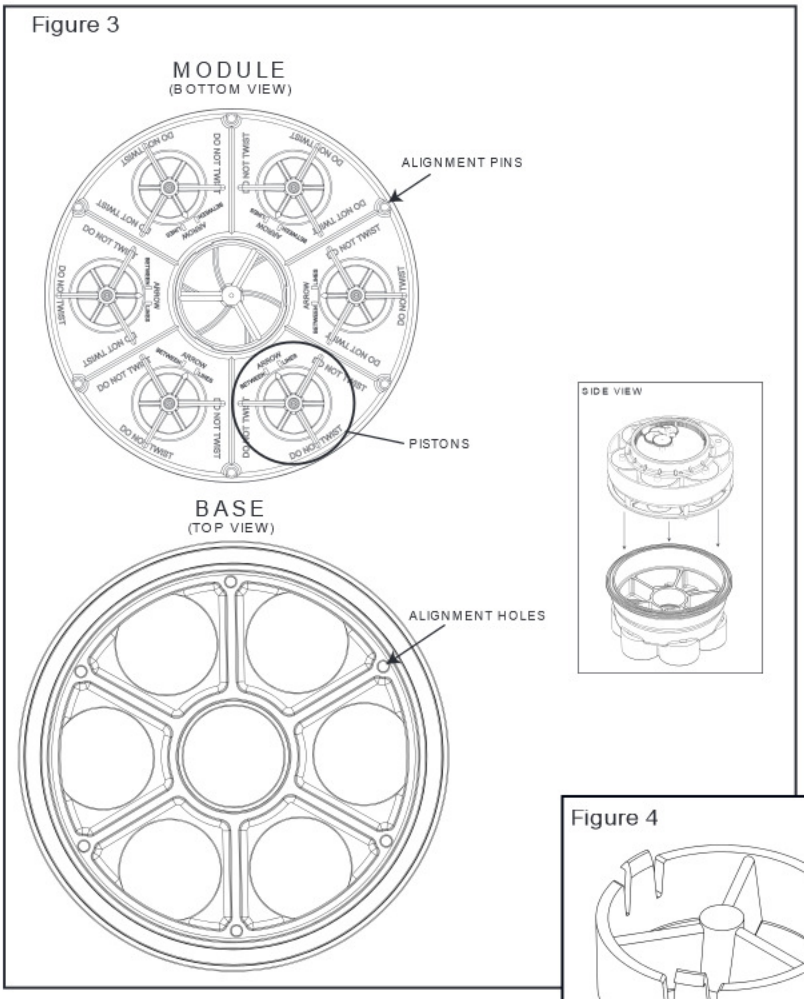
WATER VALVE INSTRUCTIONS (CONT.)

Module Installation (6-port)

1. Check the o-ring and groove for debris, and clean if necessary (this is a quad ring and is almost square, the height is slightly bigger than the width).
2. Replace the o-ring (Part # 005-302-0100-00) if it is stretched or damaged. The o-ring does not require any lubrication. Lubricating o-ring can attract dirt and debris that could prevent it from sealing. Never use petroleum jelly on plastic or rubber parts, as this will damage them.
3. Set the module in the base and turn until the alignment pins on the bottom of the module drop into the alignment holes in the base (Figure 3).
4. The module should fit in the base without forcing it. If it does not seat easily then check the following.
    - (Figure 3) shows the piston portion of the current module design (released 06-2011). These pistons are set at the factory. Do not touch, pull or turn these pistons. Any handling will negatively affect the performance and fit of this product.
    - If the flow optimizer (Figure 4) prevents the module from seating properly in the base you may have to remove it. To remove optimizer press in on the 3 clips and pull to seperate.

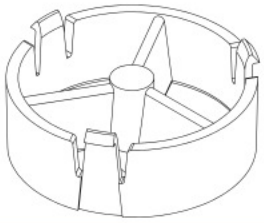
WATER VALVE INSTRUCTIONS (CONT.)

Figure 3



(RELEASED 06-201)

Figure 4



Module Installation & Alignment Guide (2-port, 3-port, 4-port)

1. Check the o-ring and groove for debris and clean if necessary (this is a quad ring and is almost square, the height is slightly bigger than the width).
2. Replace the o-ring (Part # 005-302-0100-00) if it is stretched or damaged. The o-ring does not require any lubrication. Lubricating o-ring can attract dirt and debris that could prevent it from sealing. Never use petroleum jelly on plastic or rubber parts, as this will damage them.
3. The module should fit in the base without forcing it. If it doesn't seat easily then check the following.
    - 2-port module alignment – on the 2-port module the ports on top of the module that are attached together by tubes must be centered over the open ports in the valve base (Figure 5).
    - 3-port module alignment – on the 3-port module the ports on top of the module that are attached together by tubes must be aligned over an open port and a closed port section (Figure 5).
    - 4-port module alignment – on the 4-port module the ports on top of the module that are attached together by a tube

must be aligned over the half of the base that has only one port (Figure 5).

4. Set the module in the base and rotate slightly back and forth until the alignment pins on the bottom of the module drop into the alignment holes in the base (Figure 3).
5. The module should fit in the base without forcing it. If it does not seat easily then check the following.

- (Figure 3) shows the piston portion of the current module design (released 06-2011). These pistons are set at the factory. Do not touch, pull or turn these pistons. Any handling will negatively affect the performance and fit of this product.
- If the flow optimizer (Figure 4) prevents the module from seating properly in the base you may have to remove it. To remove optimizer press in on the 3 clips and pull to seperate.

WATER VALVE INSTRUCTIONS (CONT.)

Alignment Guide

Figure 5

2 PORT / 4 GEAR // MODULE, BASE
Used for basin & spa applications, Eco Systems & Swing Sweep

Module Part# 004-302-4400-00

Base Part# 005-302-4002-03 (2")
005-302-4006-03 (63mm)

3 PORT // MODULE, BASE
Used for Eco Systems & Swing Sweep

Module Part# 004-302-4404-00

Base Part# 005-302-4012-03 (2")
005-302-4009-03 (63mm)

2 PORT / 5 GEAR // MODULE, BASE
Used on 12 port systems to feed the two 6 port valves

Module Part# 004-302-4402-00

Base Part# 005-302-4002-03 (2")
005-302-4006-03 (63mm)

4 PORT // MODULE, BASE
Found on 9 port systems - feeds 6 port valve

Module Part# 004-302-4406-00

Base Part# 005-302-4018-03 (2")
005-302-4020-03 (63mm)

6 PORT // MODULE, BASE

Module Part# 004-302-4408-00

Base Part# 005-302-4032-03 (2")
005-302-4030-03 (1½")
005-302-4038-03 (63mm)

*US notation of 2" is equivalent to Australian 50 mm.

WATER VALVE INSTRUCTIONS (CONT.)

How to close the water valve

1. Check the o-ring and groove for debris, and clean if necessary (this is a quad ring and is almost square, the height is slightly bigger than the width)
2. Replace the o-ring if it is stretched or damaged. The o-ring does not require any lubrication. Lubricating The o-ring can attract dirt and debris that could prevent it from sealing. Never use petroleum jelly on plastic or rubber parts, as this will damage them.
3. Place the run/pause switch in the run position then install the valve top onto the base. The lid may be rotated in any direction for easy viewing of pressure gauge.
4. Place the band clamp around the valve shells and put the clamp knob or 7/16 nut on the threaded bolt.
5. Tighten the knob/nut securely. Note: Gently tap the band clamp starting opposite the knob/nut going around both sides. While periodically tightening the knob/nut. Be careful not to over tighten the knob/nut.
6. Turn on the pump and inspect the water valve for leaks. CAUTION! NEVER stand over any pool equipment when starting the pump after working on it.
7. If you find leaks, turn off the pump and tighten the band clamp more. If it continues to leak, repeat the above steps. If this doesn't work, replace the o-ring.

The Run/ Pause control switch

The run/pause control switch is used to stop the cleaning system circuits from cycling. When switched to the pause position, it will stop on the circuit that is up at that time. The run/pause control switch should only be used when you desire the nozzles not in the up position to remain down or while servicing the system.

Figure 6

Note: The run/pause control switch can be used without turning off the pump, but can cause damage to the water valve or module diaphragms if overused. If you frequently use the run/pause control switch you should turn off the pump first. Always turn the run/pause control switch to the run position when removing and replacing the water valve lid.

NOZZLES (CLEANING HEADS)

All Paramount nozzles are sized and placed specifically for your pool by Paramount. These nozzles have different sized openings and if removed, should be returned to the same location. NOTE: Switching nozzle(s) location will result in poor cleaning and could severely damage your pool equipment.

All of your system nozzles must extend and retract completely with each cycle of the water valve. Depending on the cleaning system, it will take 12 to 18 cycles for a nozzle to rotate 360 degrees. There are two exceptions to this.

1. The PCC2000 and Vantage systems can have one to three nozzles (called Fixed Nozzles) that do not rotate and remain active while pool filter pump is on. These nozzles are located near the main drain and need to be aimed at the main drain.
2. The optional Swing Jet nozzles are placed on the sidewall of a pool, and rotate back and forth between three positions in a 90-degree arc. They must retract and extend fully to move to the next position.

NOZZLE REMOVAL /INSTALLATION

Nozzles may need to be removed from time to time for purposes of winterizing or to flush debris from the lines and/or nozzles. There are 3 methods of removing the 8 different types of nozzles.

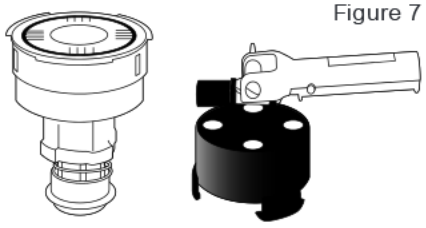
Method 1:

For Vanquish, Vantage and PCC2000 floor nozzles see Figure 7. Using the removal tool common to these nozzles, attach the tool to the end of your pool pole placing it over the nozzle and making sure the tool tabs insert into the nozzle slots. Turn the tool clockwise a ¼ turn to unlock the nozzle and then lift it from the body in the floor of the pool. When replacing the nozzle, be sure the body is free from all debris or the nozzle will not lock in place. Make sure the o-ring on the bottom of the nozzle is in place. Lock the nozzle into the tool on the end of your pool pole and replace the nozzle in the body and turn counter clockwise to lock into the body.

NOTE: Sand and pebbles can get between the body and the nozzle and make it very difficult to remove a nozzle. To make the nozzle removal easier, use a pressure nozzle on a garden hose (like you use to clean the side walk) and blow the debris out between the nozzle and body before using the tool to remove the nozzle.

NOTE: The nozzle is specific to the body it came out of. Always put the nozzle back in the same body it came out of.

Figure 7



Part Number: Vantage 004-602-5440-00, Vanquish 004-577-5440-00, PCC 004-552-5440-00

NOZZLE REMOVAL /INSTALLATION (CONT.)

Method 2:

Some PCC2000 systems used the large floor nozzle in the steps. See Method 1 for removal and installations instructions.

PV3, Cyclen and PCC2000 step nozzles see Figure 8. Using the removal tool common to these nozzles, attach the tool to the end of your pool pole placing it over the nozzle and making sure the tool tabs insert into the nozzle slots. Turn the tool counter-clockwise a ¼ turn to unlock the nozzle and then lift it from the body in the floor of the pool. Make sure the o-ring on the bottom of the nozzle is in place. When replacing the nozzle, lock the nozzle into the tool on the end of your pool pole and replace the nozzle in the body and turn clockwise to lock into the body.

NOTE: Sand and pebbles can get between the body and the nozzle and make it very difficult to remove a nozzle. To make the nozzle removal easier, use a pressure nozzle on a garden hose (like you use to clean the side walk) and blow the debris out between the nozzle and body before using the tool to remove the nozzle.

NOTE: The nozzle is specific to the body it came out of. Always put the nozzle back in the same body it came out of.

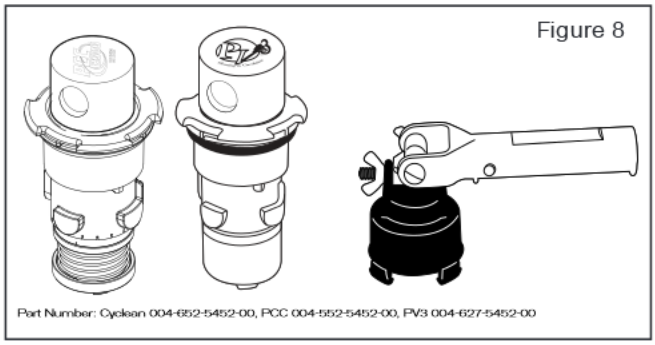


Figure 8

Part Number: Cyclean 004-652-5452-00, PCC 004-552-5452-00, PV3 004-627-5452-00

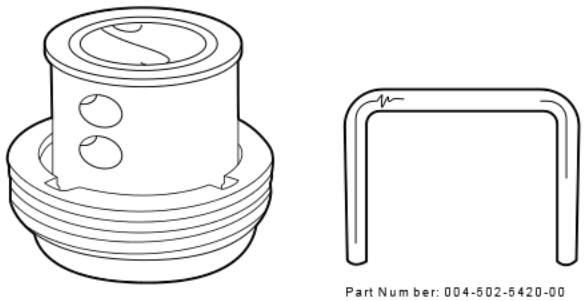
NOZZLE REMOVAL /INSTALLATION (CONT.)

Method 3:

Pool Valet (released in 1980) and Step Clean see Figure 9. Using the removal tool common to these nozzles, place the ends of the U-shaped tool in 2 of the slots and turn counter-clockwise. This is a threaded retainer ring that will require 3 full turns to remove. If you experience difficulty unthreading the retainer ring tap on it gently. This is best accomplished by tapping on the top of the tool. The amount of force necessary can vary depending on how long the nozzle has been installed. When replacing the threaded ring of the nozzle wrap it twice with Teflon tape. This will make for easy removal in the future. Turn it clockwise approximately 3 turns until it is snug in the body.

NOTE: Sand and pebbles can get between the body and the nozzle and make it very difficult to remove a nozzle. To make the nozzle removal easier, use a pressure nozzle on a garden hose (like you use to clean the side walk) and blow the debris out between the nozzle and body before using the tool to remove the nozzle.
NOTE: The nozzle is specific to the body it came out of. Always put the nozzle back in the same body it came out of.

Figure 9



Part Number: 004-502-5420-00

NOZZLE REMOVAL /INSTALLATION (CONT.)

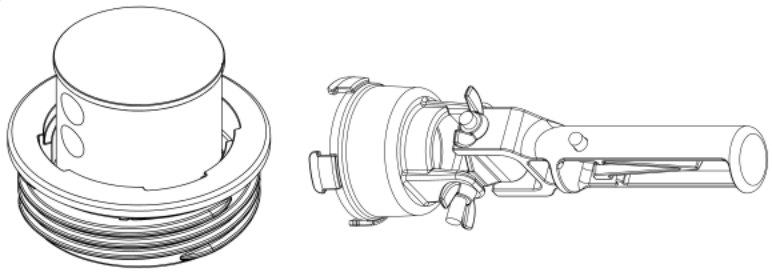
Method 4:

New Pool Valet (October 2012) Using the removal tool common to these nozzles, place the tool in the 4 slots and turn counter-clockwise. This is a threaded retainer ring that will require 1 full turn to remove. If you experience difficulty unthreading the retainer ring tap on it gently. When replacing the nozzle, snap the center of the nozzle into the tool on the end of your pool pole and replace the nozzle in the body, turning clockwise 1 full turn to lock into the body.

NOTE: Sand and pebbles can get between the body and the nozzle and make it very difficult to remove a nozzle. To make the nozzle removal easier, use a pressure nozzle on a garden hose (like you use to clean the side walk) and blow the debris out between the nozzle and body before using the tool to remove the nozzle.

NOTE: The nozzle is specific to the body it came out of. Always put the nozzle back in the same body it came out of.

Figure 10



Part Number: 004-502-5410-00

OPTIONAL PARAMOUNT DEBRIS CANISTER

Your pool may be equipped with the Paramount optional debris canister, which would be located in the deck next to your pool. The debris canister is where the debris from your pool is gathered after it passes through the drain. This debris needs to be emptied from the debris canister's catch basket/bag regularly. It is important to empty the basket in the debris canister on a regular basis, just like your skimmer and pump baskets, so your pool equipment will continue to operate efficiently. This debris canister has a patented water sealed easy to remove twist lock lid that needs no o-ring. The Paramount debris canister's water sealed lid has an equalizer running from the debris canister to the pool to keep water on top of the lid. The equalizer line must be kept clear from obstructions.

Paramount offers a high capacity stainless steel replacement basket for your debris canister (Part # 005-152-8031-00).

RELATIONSHIP WITH POOL EQUIPMENT

Cleaning Systems Powered by the Filter Pump

1. Pumps must be capable of maintaining 20 psi (138 kPa) on the water valve(s) pressure gauge.
2. Your pump must be capable of maintaining 20 psi (138 kPa) at the water valve regardless of the additional features on your pool such as spas, solar heating systems, heat pumps, water features, chlorinators, or any other device that is powered by your pump.
3. Adding items to your filter system after construction (solar, heat pumps, water features, chlorinators, and any thing that takes pressure away from the nozzles) will have a negative effect on the cleaning system. Please contact your builder or Paramount before adding these items.
4. Keeping filter clean is required to maintain the 20 psi (138 kPa) at the water valve. A dirty filter will prevent your system from cleaning the pool.
5. The in-floor system comes with a pressure gauge on the water valve and although the system may operate at lower psi, the best cleaning results require 20 to 24 psi (138-165 kPa) at the water valve pressure gauge. You will see reduced performance if the system is operated at less than ideal pressure.
6. The systems cleaning cycle is determined by many factors (landscape, temperature, weather and condition of pool equipment). To determine your cleaning cycle, run the pool until it is clean. In extreme conditions an extended cycle will be necessary.
7. It is important to keep the skimmer and pump basket(s) empty, so

your pool equipment will power your in-floor system. Failure to do so will negatively affect the performance of your system.

8. When cleaning your cartridge or D.E. Filter care must be taken before removing the filter elements that the filter tank be drained and rinsed out. This is required to prevent dirt and debris from entering the return line and getting into your in-floor system or any other down-line components.

Cleaning Systems Powered by a Booster Pump

1. Because booster pump systems are designed to pull from the skimmer(s) and not use a filter, they are not affected by the typical reductions in performance that affect filter pump systems. Booster pumps need to produce a minimum of 65 gpm (246 lpm) at 60 ft. (179kpa of head).
2. It is important to keep the skimmer and pump basket(s) empty, so your pool equipment will power your in-floor system. Failure to do so will negatively affect the performance of your system.

Filters

1. A clean pool filter is necessary for optimum system performance. Your pool filter needs cleaning when filters pressure increases 5 psi (34 kPa) above the pressure showing when your filter is clean.
2. If the need arises to replace your filter and/or its backwash valve it is important that they are properly sized.

- Sand Filter minimum size 4.9 square feet/.46 square meters
- D.E. Filter minimum size 48 square feet/4.5 square meters
- Cartridge Filter minimum size 200 square feet/19 square meters
- Backwash Valve minimum size 2 inch or 63 mm Europe
- Backwash Valve minimum size 2 inch or 50 mm Australia

NOTE: Larger filter sizes will reduce the amount of cleaning needed.
NOTE: Be sure your replacement filter is adequately sized for your existing pump.

Valves for a Single Pump System

1. The skimmer suction should be restricted to make the main drain pull more, because water takes the path of least resistance, and in-floor systems do most of their cleaning from the main drain
2. Returns, spa over flows, and water features must be turned off or restricted on single pump system so that the in-floor system will have proper pressure. Minimum 20 psi (138 kPa) is needed to run the system.

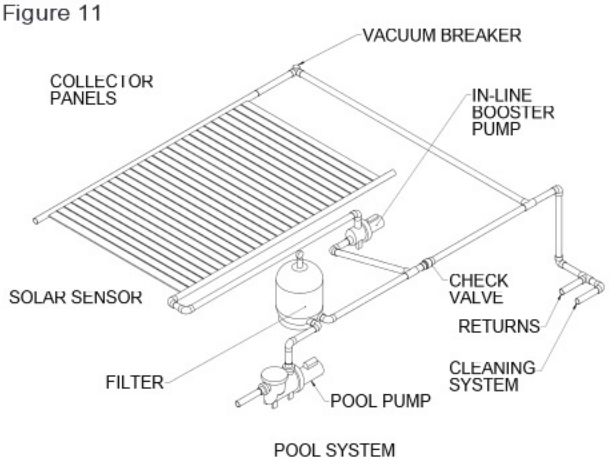
Chlorinators, Tablet or salt systems, Ozone units and Solar Systems

1. Cells on salt chlorinators must be kept clean. Failure to do so will reduce the performance of your in-floor cleaning system.
2. If you add a salt chlorinator after your pools construction it is

recommended to put cells on a bypass loop.

3. Any device that uses a venturi injection system on the return side of the filter is not recommended on single pump in-floor system.
4. Solar systems on a single pump require a specific plumbing method, which includes a small booster pump for the solar system (Figure 11).

Figure 11



OPERATING INSTRUCTIONS

1. On all Paramount in-floor cleaning and circulation systems it is important to keep the skimmer, the pump and the debris canister baskets clean. It is also important to clean your filter when the pressure rises 5 psi (34 kPa) over the clean starting pressure.
2. The gauge on your water valve is important and tells you how the system is operating. Gauges can deteriorate over time and should be replaced when they become unreadable or inaccurate. Never use Teflon tape on a replacement gauge, use a thread sealant that is approved for plastic such as Teflon paste. Hand tighten gauges as over tightening can crack the water valve lid.
3. If a nozzle is stuck open or up when the pump shuts off you may clear it by pushing down on it a few times while pump is on to clear the obstruction.
4. No cleaning system is 100%. Paramount's in-floor guarantee is the strongest in the industry but some attention to the pool is required to keep your backyard oasis beautiful. You must keep your chemicals at proper levels, and brush any small areas that may have a build up of heavy sand or debris. Keep in mind that when excessive debris gets into a pool, such as large amounts of leaves in the fall or dirt during a dust storm, no cleaning system can do the job without some help, so be sure your equipment is maintained.
5. On PCC and Vantage systems that may have fixed nozzles they may need to be adjusted to keep their flow of water aimed in the direction of the debris drain. These nozzles can be turned clockwise when in the up position by pushing down slightly and rotating them towards the main drain.

For further instructions see troubleshooting guide (pg 27-29).

Troubleshooting Guide for Paramount In-Floor Systems

Problem	Diagnosis	Solution
Cleaning nozzles(s) are staying up when the pump is off	Cleaning nozzles could be jammed with sand or debris which could result from improper cleaning of your pool filter. See section Paramount's systems relationship to your pool's equipment.	Isolate the circuit of the jammed or stuck cleaning nozzles using the pause switch on your water valve. With the system pump running push the cleaning nozzles down repeatedly with your foot or pool pole.
Cleaning nozzles on a circuit stay up once the water valve has switched to the next circuit but retract when the system is off.	A circuit in the water valve is staying open due to a jammed piston in the module. This could be caused by debris entering the water valve. NOTE: PCC AND VANTAGE BOOSTER PUMP SYSTEMS MAY HAVE FIXED NOZZLES ON THE FILTER PUMP WHICH STAY UP WHILE THE FILTER PUMP IS ON.	Remove the module from the water valve (see module removal procedure) clean it by holding it in the pool sideways and move it back and forth quickly until it is clean. If there are any pistons in the open position, push them shut being sure not to rotate them. Place the module back in the water valve (see module installation procedure) and turn the system pump on to determine if the cleaning nozzles are now functioning properly. Depending on the age of the module, if this does not solve the problem it may be time to purchase a new module.

It is always best to call a trained professional to service your pool
Further information on your cleaning system can be found at: www.1paramount.com

Troubleshooting Guide for Paramount In-Floor Systems

Problem	Diagnosis	Solution
System is not cleaning as it used to.	Check for minimum operating pressure of 20 psi (138 kPa) on the water valve.	Check the run time of your in floor system. It may need to be extended. Especially during increased demand due to weather conditions or bather load. Refer to the section titled Paramount's systems "relationship to your pool's equipment". If after following these steps and the problem still exists call a trained professional to service your pool.
System is not cleaning as it used to.	Pool drain is plugged.	With the filter pump and booster pump (if applicable) both running adjust your valves on the filter pump to draw 100% from the pool drain. If your filter pump becomes noisy (cavitates) your pool drain may be obstructed. At this point call a trained professional to service your pool.
An area around one nozzle that is going up and down is not being cleaned.	Cleaning nozzle is partially or completely blocked.	Refer to the Nozzle/Installation and Removal section. Remove the nozzle. With the nozzle removed turn on the system pump to blow out the circuit. Check the nozzle for debris stuck inside. Replace the nozzle.

It is always best to call a trained professional to service your pool
Further information on your cleaning system can be found at: www.1paramount.com

Troubleshooting Guide for Paramount In-Floor Systems

Problem	Diagnosis	Solution
The water valve stays on one circuit. One circuit of nozzles running constantly and not switching.	• Run/Pause switch is in the pause position. • The module gear mechanism could be jammed. • System could have incorrectly sized nozzles • System could have a plugged circuit	• Turn the run/pause switch to run. • Take the module out of the water valve (refer to Water Valve Instructions) and confirm that the gear mechanisms turn freely. If it does not, remove all debris. If it still does not work, replace the module. • Check for pressure above 25 psi (172 kPa) at the water valve. If the pressure does not change or changes very slowly (longer than 3 minutes) and if the nozzle(s) have been removed they may have been replaced in the wrong locations. Nozzle(s) are size and location specific to your system. • Remove nozzle(s) refer to the Nozzle/Installation and Removal section. Turn the system pump on to blow out the circuit. Replace Nozzle(s).

It is always best to call a trained professional to service your pool
Further information on your cleaning system can be found at: www.1paramount.com

Paramount Pool & Spa Systems (PP&SS)
295 E. Corporate Place, Suite 100
Chandler, AZ 85225
1.800.621.5886
www.1Paramount.com

Paramount
Pool Life. Simplified.

U.S. Patents: 3,521,304 □3,675,252 □4,188,673 □4,212,088 4,391,005 □4,592,379 □4,939,797 □5,135,579 □5,251,343 5,265,631 □6,301,723 □6,311,728 □6,314,999 □6,360,767 6,367,098 □6,393,629 □6,601,244 □6,810,537 □6,848,124 6,895,608 □6,899,285 □7,055,189 □7,089,606 □7,089,607 D,531,888 D,532,684 □7,178,179 □7,213,275 □7,481,377 7,578,010 □7,708,212 □7,819,338 □7,837,951 other U.S. and international patents pending□

In compliance with the Magnuson-Moss Warranty-Federal Trade Commission Act (Public Law 930637, Paramount Pool & Spa Systems (PP&SS) provides the following limited warranties.

CONDITIONS

□ is limited warranty shall be subject to the original owner complying with the following conditions:

1. □ e swimming pool shall be kept full of water at all times except for purposes for repair or maintenance not to exceed □ve (5) days.
2. □ e PP&SS system shall be operated by the original owner with reasonable care and necessary maintenance.
3. Registration card must be mailed to PP&SS within thirty (30) days of pool completion.

PP&SS NOZZLE AND BODY, (EXCLUDING NEW GENERATION POOL VALET, POOL VALET RETRO) ASSEMBLIES LIMITED LIFETIME MANUFACTURERS WARRANTY

PP&SS warrants to the original owner, materials and equipment to be free of defects for as long as original owner owns pool, determined under this warranty to be for the □Lifetime□ownership by original owner from date swimming pool is plastered or optional interior surface □nish applied. □ e materials and equipment covered under the □Lifetime□warranty are the PP&SS Nozzle and Body Assembly. (PVC plumbing installed, labor, material and all other work performed by contractors is not covered under PP&SS Warranty.)

PP&SS SWINGJETS AND RETROJETS (CARETAKER, CARETAKER 99, GAMMA 3, NET N° CLEAN, POOL VALET RETRO, QUIKCLEAN1, QUIKCLEAN 2) LIMITED MANUFACTURERS 1-YEAR WARRANTY

PP&SS warrants to original owner, materials, and equipment to be free of defects for a period of one (1) year from date of purchase. □ e materials, parts, and/or related component parts supplied or distributed by PP&SS are covered under this one (1) year limited warranty. (PVC plumbing installed, labor, material and all other work performed by contractors is not covered under PP&SS Warranty.)

PP&SS MDX-R3 ANTI-ENTRAPMENT VGB COMPLIANT DEBRIS DRAIN LIMITED MANUFACTURERS 1-YEAR WARRANTY

PP&SS warrants to original owner, materials, and equipment to be free of defects for a period of one (1) year from date of swimming pool start-up. □ e materials, parts and/or related component parts supplied or distributed by PP&SS are covered under this one (1) year limited warranty. (PVC plumbing installed, labor, material and all other work performed by contractors is not covered under PP&SS Warranty.)

PP&SS STEPCLEAN AND NEW GENERATION POOL VALET ASSEMBLIES LIMITED MANUFACTURERS 3-YEAR WARRANTY

PP&SS warrants to original owner, materials, and equipment to be free of defects for a period of three (3) years from date of purchase. □ e bodies, nozzles, water valve and/or related component parts supplied or distributed by PP&SS are covered under this three (3) years limited warranty. (PVC plumbing installed, labor, material and all other work performed by contractors is not covered under PP&SS Warranty.)

PP&SS DISTRIBUTION WATER VALVE LIMITED MANUFACTURERS 3-YEAR WARRANTY

Paramount water valve module and housing are warranted-for a period of three (3) years to be free of manufacturing defects including wear and tear on product from date of pool start-up. □ is warranty applies to the original pool owner only. Replacement parts thereafter are warranted for a period of one (1) year.

PP&SS DEBRIS CONTAINMENT CANISTER LIMITED MANUFACTURERS 3-YEAR WARRANTY

PP&SS warrants to original owner, materials, and equipment to be free of defects for a period of three (3) years from date of swimming pool start-up. □ e materials and equipment covered under this three (3) year warranty is the PP&SS Debris Containment Canister Housing. (PVC plumbing installed, labor, material and all other work performed by contractors is not covered under PP&SS Warranty.) □ e PP&SS Canister Debris Containment Basket, Internal Canister Lid, and Top Deck Lid are covered for a period of one (1) year under this warranty.

OTHER RELATED SYSTEM PARTS, ANCILLARY PARTS AND REPLACEMENT PARTS LIMITED MANUFACTURERS 1-YEAR WARRANTY

PP&SS warrants to original owner, materials, and equipment to be free of defects for a period of one (1) year from date of swimming pool start-up. □ e materials, parts and/or related component parts supplied or distributed by PP&SS are covered under this one (1) year limited warranty. (PVC plumbing installed, labor, material and all other work performed by contractors is not covered under PP&SS Warranty.) Replacement parts are warranted for a period of 1 year from the date of purchase. PP&SS warrants to original owner a one (1) year limited warranty that he PP&SS related component parts to be free of defects from the time of installation.

REPLACEMENT CONDITIONS

□ is warranty is the responsibility of the owner to remove the PP&SS Nozzle & Body Assembly, Distributor Water Valve Top/Bottom Housing, Debris Containment Canister or other related system components described with this warranty, contact PP&SS for an RMA number, and return it to PP&SS. Ship part in question freight pre-paid, and upon con□rmation of defect, PP&SS will repair or replace the PP&SS warranted at no charge to the original owner. □ e repaired or replaced PP&SS item will be returned to the original owner with freight C.O.D. Labor to reinstall the repaired or replaced item is the sole responsibility of the owner.

LIMITATIONS

No warranty extends to any part of the PP&SS parts or components which is caused by any of the following conditions or events:

1. Defects or failures caused by abuse, lack of responsible care, lack of necessary maintenance, improper operation, vandalism, acts of God.
2. Damages or failures caused by abuse, lack of responsible care, lack of necessary maintenance, improper operation, vandalism, acts of God.
3. PP&SS expressly denies any responsibility or liability for incidental or consequential damages arising out of, or as a result of, use or ownership of your PP&SS parts or as a result of use or ownership of your PP&SS parts or components, or other related products covered under this limited warranty.
4. Any defects caused by acts of God, such as storms, earthquakes, ground movement, or freezing, etc., that are beyond the normal conditions.
5. Installation of the PP&SS System by non-authorized installer may render this warranty null and void.
6. Paramount does not warranty against product fading and/or discoloration.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

Implied warranties are limited in duration to the duration of the written limited warranty hereinwithin. Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you.

□ is warranty give you speci□c legal rights, and you may also have other rights that may vary from state to state.

004-027-7987-00 PAR0213 0430'3

POOL INFORMATION

Your Pool Builder will provide the below information upon request:
Pool Builder:_____
Pool Start-up Date: _____
Filter Pressure (After Backwash):_____
Water Valve Pressure (After Backwash): _____
Backwash Filter When Pressure Reaches:_____
Gallons of Water in Pool: _____
Gallons of Water in Spa:_____

NOTES

IMPORTANT INFORMATION ENCLOSED

CONTAINS:
YOUR OWNER'S MANUAL
WARRANTY ACTIVATION CARD
YOUR WARRANTY CERTIFICATE

Powered by:
Paramount
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295 East Corporate Place • Suite 100 • Chandler, AZ 85225
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PENTAIR

TRITON®

FIBERGLASS SAND FILTER

MODELS: TR 40, TR 50, TR 60, TR 100, TR 140, TR 100HD, TR 100C, TR 140C, TR 100C-3, TR 140C-3 and TR 60 with CLEARPRO TECHNOLOGY™

INSTALLATION AND USER'S GUIDE

IMPORTANT SAFETY INSTRUCTIONS
READ AND FOLLOW ALL INSTRUCTIONS
SAVE THESE INSTRUCTIONS

CUSTOMER SERVICE / TECHNICAL SUPPORT

If you have questions about ordering Pentair Aquatic Systems replacement parts, and pool products, please contact:

Customer Service and Technical Support, USA
(8 A.M. to 4:30 P.M. — Eastern/Pacific Times)
Phone: (800) 831-7133
Fax: (800) 284-4151

Web site
Visit *www.pentairpool.com* or *www.staritepool.com* for information about Pentair products.

Sanford, North Carolina (8 A.M. to 4:30 P.M. ET)
Phone: (919) 566-8000
Fax: (919) 566-8920

Moorpark, California (8 A.M. to 4:30 P.M. PT)
Phone: (805) 553-5000 (Ext. 5591)
Fax: (805) 553-5515

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MEMBER NATIONAL SPA & POOL INSTITUTE

P/N 154901 Rev. H 3/18/15

IMPORTANT WARNING AND SAFETY INSTRUCTIONS

IMPORTANT NOTICE:

This guide provides installation and operation instructions for the Triton® Series Fiberglass Sand Filters. Consult Pentair Water Pool and Spa, Inc. with any questions regarding this equipment.

Attention Installer: This guide contains important information about the installation, operation and safe usage of this product. This information should be given to the owner and/or operator of this equipment after installation or left on or near the filter.

Attention User: This manual contains important information that will help you in operating and maintaining this filter. Please retain it for future reference.

⚠WARNING Before installing this product, read and follow all warning notices and instructions which are included. 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.

ENGLISH

Consumer Information and Safety

The Triton Series Sand Filters are designed and manufactured to provide many years of safe and reliable service when installed, operated and maintained according to the information in this manual and the installation codes referred to in later sections. Throughout the manual, safety warnings and cautions are identified by the "⚠" symbol. Be sure to read and comply with all of the warnings and cautions.

THIS FILTER OPERATES UNDER HIGH PRESSURE

⚠WARNING

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. If you are not familiar with your pool filtering system and/or heater:
   a. **Do NOT** attempt to adjust or service without consulting your dealer, or a qualified pool technician.
   b. Read the entire Installation & User's Guide before attempting to use, service or adjust the pool filtering system or heater.
2. Before repositioning valve(s) and before beginning the assembly, disassembly, 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 manual air bleeder valve; (C) wait until all pressure is relieved.
3. Whenever installing the filter closure **FOLLOW THE FILTER CLOSURE WARNINGS EXACTLY**.
4. Once service on the circulating system is complete **FOLLOW INITIAL START-UP INSTRUCTIONS EXACTLY**.
5. Maintain circulation system properly. Replace worn or damaged parts immediately, (e.g., closure, pressure gauge, valve(s), o-rings, etc).
6. Be sure that the filter is properly mounted and positioned according to instructions provided.

IMPORTANT WARNING AND SAFETY INSTRUCTIONS

⚠WARNING This filter must be installed by a licensed or certified electrician or a qualified pool serviceman in accordance with the National Electrical Code and all applicable local codes and ordinances. Improper installation could result in death or serious injury to pool users, installers, or others and may also cause damage to property.

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.

⚠WARNING Do not operate the filter until you have read and understand clearly all the operating instructions and warning messages for all equipment that is a part of the pool circulating system. The following instructions are intended as a guide for initially operating the filter in a general pool installation. Failure to follow all operating instructions and warning messages can result in property damage or severe personal injury or death.

⚠WARNING To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.

⚠WARNING Due to the potential risk that can be involved it is recommended that the pressure test be kept to the minimum time required by the local code. Do not allow people to work around the system when the circulation system is under pressure test. Post appropriate warning signs and establish a barrier around the pressurized equipment. If the equipment is located in an equipment room, lock the door and post a warning sign.

Never attempt to adjust any closures or lids or attempt to remove or tighten bolts when the system is pressurized. These actions can cause the closure to separate and could cause severe personal injury or death if they were to strike a person.

⚠WARNING Never exceed the maximum operating pressure of the system components. Exceeding these limits could result in a component failing under pressure. This instantaneous release of energy can cause the closure to separate and could cause severe personal injury or death if they were to strike a person.

Section 1
Introduction

Triton® Fiberglass Sand Filters Overview

Triton® II Sand Filters

The Triton II filter is the result of over 40 years of product evolution and refinement. It has set the industry standard for effectiveness, efficiency, long runs between service, and providing years of dependable, low maintenance operation.

The Triton II filter features a special internal design that keeps the sand bed level, ensuring even water flow, and resulting in the most efficient filtration possible.

The Triton II filter provides superior filtration performance and delivers a level of dependability and ease of operation and maintenance for a track record that's unsurpassed. Every design detail has been refined to make Triton II the industry standard.

Triton® C and Triton® C-3 Commercial Sand Filters

This filter series features multiple diverters for increased filtration rates in commercial applications up to 20 GPM/Sq. Ft.

Triton® HD Side Mount Sand Filters

All the same great performance and features of the original Triton's with maximum operating pressure of 75 psi for those special high pressure installations such as single pump in-floor cleaning systems.

Triton II - Residential

Triton C - Commercial

Triton C-3 - Commercial

Triton HD - Commercial

ENGLISH

General Features

Triton® II

- Time-proven internal design ensures that all water receives maximum filtration for crystal clear results
- GlasLok™ process creates a one-piece, fiberglass reinforced tank with a UV-resistant coating for years of dependable, corrosion-resistant service
- Flow system design controls filtration quality and ensures maximum run times between backwashing to save you time

Triton® C and Triton® C-3

- Maximum Operating Pressure 50 psi
- Full 2 in. drain
- 8 in. opening for easy access to sand bed
- The Triton C-3 features standard 3 in. flange connections
- TR100C & TR140C models are available in black or almond
- TR100C-3 & TR140C-3 models are available in black only

Triton® HD

- Maximum Operating Pressure 75 psi

Additional Features:

- Combination sand and water drain speeds servicing and winterizing
- All internal parts are threaded for ease of maintenance
- Swing-away water diffuser allows instant access to sand and all internal parts
- NSF-Listed

Section 2
Installation

NOTE: Before installing this product, read and follow all warning notices and instructions starting on page ii.

Installing the Triton® Fiberglass Sand Filter

Only a qualified service person should install the Triton Fiberglass Sand Filter. This filter is designed and intended for use to filter water.

Introduction

The following general information describes how to install the Triton Fiberglass Sand Filter. This filter operates under pressure and if assembled improperly or operated with air in the water circulation system, the top closure can separate and result in an accident causing property damage or serious bodily injury. A warning label has been affixed to the top of the filter and should not be removed. Keep safety labels in good condition and replace if missing or illegible.

How the Filter works

The high rate sand filter is designed to operate for years with a minimum of maintenance and when installed, operated and maintained in accordance with these instructions, it will provide years of trouble free operation.

Dirt is collected in the filter as the water flows through the control valve at the side of the filter and is directed into the top bulkhead. Dirty water flows into the diffuser at the top of the tank and is directed downward into the top surface of the filter sand bed. The dirt is collected in the sand bed and the clean water flows through the laterals and lower piping at the bottom of the filter up into the lower bulkhead. The flow then goes into the control valve at the side of the filter. Clean water is returned through the piping system into the pool.

The pressure will rise and the flow to the pool will be lowered as the dirt is collected in the filter. Eventually, the filter will become so plugged with dirt that it will be necessary to perform the backwash procedure. It is important to know when to backwash the filter. Backwashing is discussed further under the subsequent sections of this guide.

Please note that a filter removes suspended matter and does not sanitize the pool. The pool water must be sanitized and the water must be chemically balanced for sparkling clear water. Your filtration system should be designed to meet your local health codes. As a minimum, you must be sure that your system will turn over the total volume of water in your pool at least two to four times in a twenty-four hour period.

Refer to **Table 1** for Filter Operation Data.

Table 1.

FILTER MODEL MODEL	FILTER AREA (**Sq. Ft**.)	Flow Rate *(GPM) @20 GPM/FT²	Turnover Capacity (**Gallons**) (**Based on 20 GPM / Sq. Ft.**)*			
			4 TURNS PER DAY	**3 TURNS PER DAY**	**2.4 TURNS PER DAY**	**2 TURNS PER DAY**
TR40	1.92	38	13,680	18,240	22,800	27,360
TR50	2.46	49	17,640	23,520	29,400	35,280
TR60	3.14	63	22,680	30,240	37,800	45,360
TR60 ClearPro	3.14	63	22,680	30,240	37,800	45,360
TR100	4.91	74	26,640	35,520	44,400	53,280
TR100HD	4.91	74	26,640	35,520	44,400	53,280
TR100C/TR100C-3	4.91	98	35,280	47,040	58,800	70,560
TR140	7.06	106	38,160	50,880	63,600	76,320
TR140C/TR140C-3	7.06	141	50,760	67,680	84,600	101,520

***TR100, TR100HD AND TR140 ARE BASED ON 15 GPM/SQ. FT.**

⚠WARNING Failure to operate your filter system or inadequate filtration can cause poor water clarity obstructing visibility in your pool and can allow diving into or on top of obscured objects which can cause serious personal injury or drowning.

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 details. In general, proper pool sanitation requires a free chlorine level of 1 to 3 PPM and a pH range of 7.2 to 7.6.

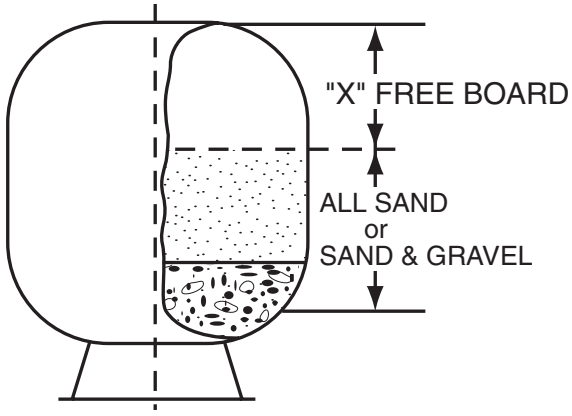
⚠WARNING Filters should never be tested or subjected to air or gas under pressure. All gases are compressible and under pressure create a danger. Severe bodily injury or property damage could occur if the filter is subjected to air or gas pressure.

1. Check carton for any evidence of damage due to rough handling in shipment. If carton or any filter components are damaged, notify the freight carrier immediately.
2. Carefully remove the accessory package and the filter tank from the carton.
3. Mount the filter on a permanent slab, preferably concrete poured in a form or on a platform constructed of concrete block or brick. DO NOT use sand to level the filter or for the pump mounting, as it will wash away.
4. Provide space and lighting for routine maintenance access. Do not mount electrical controls over the filter. One needs to be able to stand clear of the filter when starting the pump. Minimum space requirements may be found on the large nameplate on the filter.
5. Position filter so that the port locations are in the desired final positions. Follow valve installation procedures.
6. If you have a Multiport Valve, assemble the valve to the tank, being sure the o-ring on the valve fittings are in place and are clean. Use a lubricant, applied lightly, such as silicone grease, Dow #33, #40 or GE 300 or 623, or similar product on o-rings and o-ring grooves prior to assembly.
7. If you have a two position slide valve, align the valve with the tank so that the handle is toward the top of the tank, push valve into ports and turn the valve nuts snugly on the tank fittings. It is not necessary to cinch the valve nuts to the tank fitting beyond hand tightness.
8. The shipping straps used to support the TR100C-3, TR140C and the TR140C-3 multi-diffuser should be removed before loading sand and gravel in the filter.
9. Sand specifications – be certain the proper sand is used as described in Table 2. Before pouring the sand into the filter, look inside and check the lower under-drain for broken or loose laterals (or fingers), which may have been accidentally damaged by rough handling during shipment. Replace any broken parts if necessary.

NOTE: The free board distance is the most important variable and should be maintained. Sand density will vary and therefore sand amount is given as a reference.

Table 2.

MODEL	FREE BOARD "X"	ALL SAND* (POUNDS)	FILTER MEDIA† (POUNDS)	
			PEA GRAVEL ‡	SAND
TR40	8 1/4"	175	50	125
TR50	9 3/4"	225	50	175
TR60	10 1/2"	325	50	275
TR60 ClearPro	10 1/2"	325	50	275
TR100	11 1/4"	600	150	450
TR100HD	11 1/4"	600	150	450
TR100C-3	11 1/4"	600	150	450
TR140	13 1/2"	925	275	650
TR140C-3	13 1/2"	925	275	650



† Media required to meet NSF requirements.
‡ Pea Gravel to be 1/4" to 1/8" diameter.
* Sand to be No. 20 standard silica (uniformity coefficient not greater than 1.75) .018-.020 in diameter particle size.

⚠WARNING Failure to position the Automatic Air Vent inside of the Closure will allow excessive trapped air to accumulate in the filter. Trapped air and the closure not properly closed can cause the closure to seperate and could cause severe bodily injury and/or property damage.

10. Pivot the diffuser out of the center of the tank on the TR40, 50, 60, TR60 ClearPro, 100 & 140 by rotating the diffuser assembly counter clockwise. (**NOTE:** The multi-diffuser assembly should not be moved on models TR100HD, TR100C, TR100C-3 and TR140C, TR140C-3. After installing the filter media as described below, check to make sure the tops on the diffusers are parallel to the top of the sand bed.) Fill the tank about half full of water. Pour pea gravel first (if used) and then the sand into the top of the filter at a slow rate so that the impact of the filter media does not damage the laterals. See Table 2 for the proper amounts of sand and gravel. Fill filter to the proper level to maintain freeboard, as shown in Table 2. Pivot the diffuser assembly back to its vertical position if it was moved. Be certain the automatic air vent is protruding into the top of the closure as indicated below in Figure 1. Ensure that the automatic air vent is in the center of the filter closure. Wash away all sand around the threaded opening at the top of the tank.

⚠WARNING

For Threaded Closures

Use care when installing closure. The closure should turn freely in the filter, if resistance to closure insertion is felt, then slowly remove the closure by turning counter-clockwise. The starting thread of the tank and closure must engage properly in order to secure the closure. *Do not cross-thread closure.*

Failure to install the closure properly can cause the closure to seperate and could cause severe bodily injury and/or property damage.

⚠WARNING

For Oval Closures

Use care when installing closure. The closure should be inserted into the tank by placing the small diameter of the oval closure into the larger diameter of the tank opening. Insert the side of the closure that does not have the pressure gauge and air bleeder first. The closure will need to be inserted at a 30° angle. Once the closure is inside the tank, it can be rotated 90° and lifted up to seal the tank. The aluminum bridge with load spring can then be placed over the closure bolt and the hand knob tightened to load the closure properly. The knob should be tightened by hand only. DO NOT USE A WRENCH TO TIGHTEN THE KNOB. You could damage the tank or closure and cause a failure by using a wrench. Failure to install the closure properly can cause the closure to seperate and could cause severe bodily injury or property damage.

NEVER ATTEMPT TO TIGHTEN OR LOOSEN THE CLOSURE WITH THE PUMP RUNNING. Failure to follow this instruction can result in the closure seperating and causing severe bodily injury or property damage.

11. Assemble the pressure gauge and bleeder valve to the closure lid. Clean the lid o-ring and lubricate with silicone grease such as Dow #33, 40 or GE 300, 623 lubricant. Place the closure lid on the filter and tighten, making certain the air vent is up inside the dome of the closure.
12. With the plastic wrench, provided with the filter, tighten the closure as tight as possible using two hands on the wrench handles. As a minimum, the closure must be hand tight + 1/4 turn.
13. The oval closure that is used on the TR140C-3 and the TR100C-3 models will need to be installed as described in the above warning note for oval closures.
14. Assemble piping and pipe fittings to pump and valve. All piping must conform to local and state plumbing and sanitary needs.
15. Use sealant compounds 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.
16. Long piping runs and elbows restrict flow. For best efficiency, use the fewest possible number of fittings, and large diameter pipe (at least 2" for TR100 and TR140, at least 3" for TR100C-3 and TR140C-3).

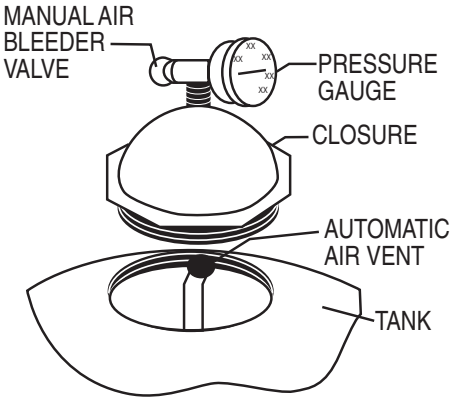


Figure 1.

ENGLISH

⚠CAUTION Operating at excessive vacuum levels can cause the tank to crack and could cause property damage.

17. When installing backwash lines, it is recommended that a vacuum breaker be installed on installations where the backwash line length exceeds 40 ft. or the backwash line discharges more than 10 ft. lower than the surface of the pool. Alternately a vacuum break pit should be provided.
18. A check valve is recommended between the filter and heater to prevent hot water "back-up" which will damage the filter and valve.
19. The maximum operating pressure of the unit is 50 pounds per square inch (psi) and 75 pounds per square inch (psi) for the Triton HD model (only). Never operate this filter above these pressures or attach a pump to this filter that has more than 50 psi shut off pressure or 75 psi shut off pressure for the Triton HD model (only).
20. Never install a chlorinator upstream of the filter. Always locate downstream and with a check valve between the chlorinator and filter.
21. 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 risk of tank separation could exist. Additionally, running the system with no flow will seriously damage the equipment.
22. Never store pool chemicals within 10 ft. of your pool filter. Pool chemicals should always be stored in a cool, dry well ventilated area.
23. The oval closure used on the TR100C-3 and TR140C-3 is designed to provide a vacuum relief mechanism that protects the tank from vacuum conditions. The closure will allow air to enter the tank if the tank is higher that 8 ft. above the water level. In these cases, when the filter restarts after shut down, you may observe air being returned to the pool in the return fittings. This is not unusual, it is simply the automatic air relief in the filter removing the air in the filter.

Initial Start-up

1. On a new pool, clean the pool before filling the pool with water. Excessive dirt and large particles can cause damage to the pump and filter.
2. Ensure the backwash line is open so that water is free to come from the pool and flow out the backwash line. Set the valve position as follows:
   a. If using a Multiport valve, set valve to backwash position.
   b. If using a Two Position Slide Valve, push handle down to backwash position and engage lock by twisting handle.
3. Check pump strainer pot to be sure it is full of water.

⚠WARNING Air entering a filter and tank closure not installed properly can cause the closure to seperate and could cause severe bodily injury and/or property damage.

4. Check closure on filter for tightness.
5. Open the manual air bleeder on the filter closure. Stand clear of the filter and start the pump allowing it to prime.
6. Close the air bleeder on the closure when all the air is removed from the filter and a steady stream of water emerges.

NOTE: Pool filter sand is typically pre-washed and should not require extensive backwashing. However, the shipping process may cause excessive abrasion which could require an extended backwash cycle at initial start-up; continue to backwash until the backwash water is as clear as the pool water.

⚠CAUTION To prevent equipment damage and possible injury, always turn the pump off before changing the valve position.

7. Stop the pump. Set the valve position as follows:
   a. If using a Multiport valve, set the valve to the filter position.
   b. If using the Two Position Slide Valve, raise the handle to filter position and engage valve lock by twisting handle.
8. Ensure all suction and pool return lines are open so that water is free to come from the pool and return to the pool.
9. Open the manual air bleeder on the filter closure. Stand clear of the filter and start the pump.
10. Close the air bleeder on the filter closure when all the air is removed from the filter and a steady stream of water emerges.
11. The filter has now started its filtering cycle. You should ensure that water is returning to the pool and take note of the operating pressure when the filter is clean.

Section 3
Maintenance

This section describes how to maintain your Triton® Fiberglass Sand Filter.

Filter Care

The filter is a very important part of the pool equipment and installation. Proper care and maintenance will add many years of service and enjoyment to the pool. Follow these suggestions for long trouble-free operations:

1. To clean the exterior of the filter of dust and dirt, wash with a mild detergent and water then hose off. Do not use solvents.
2. If internal maintenance is required, sand may be removed by removing the sand drain from the bottom of the filter and flushing with a garden hose. Pentair Water Pool and Spa, Inc. Sand Vacuum P/N 542090 may also be used.
3. If after a number of years, the filter tank appears foggy in color or rough in texture, the tank surface can be painted. We recommend the use of a Quick Dry Spray Enamel. **Do NOT paint the valve.**

⚠WARNING Always visually inspect filter components during normal servicing to ensure structural safety. Replace any item which is cracked, deformed or otherwise visually defective. Defective filter components can allow the filter top or attachments to seperate and could cause severe bodily injury or property damage.

4. The filter closure on your Triton Sand Filter was manufactured with high quality corrosion resistant materials. This part should be carefully inspected whenever servicing your filter. If excessive leakage is noted coming from the closure/tank interface, the closure and o-ring should be carefully inspected and replaced if any signs of deterioration exist.
5. Your filter is a pressure vessel and should never be serviced while under pressure. Always relieve tank pressure and open air bleeder on the filter closure before attempting to service your filter.
6. When restarting your filter, always open the manual air bleeder on the filter closure and stand clear of the filter.

Cleaning Frequency

1. The filter on a new pool should be backwashed, and cleaned after approximately 48 hours of operation to clean out plaster dust and/or construction debris.
2. There are three different ways to identify when the filter needs backwashing.
   a. The most accurate indicator on pool systems with a flow meter is to backwash when the flow decreases 30% from the original (clean filter) flow. For example, if the original flow was 60 GPM, the filter should be backwashed when the flow is reduced by about 20 GPM (or 30%) to 40 GPM.
   b. A more subjective and less accurate indicator is to observe the amount of water flowing from the flow directionals located in the wall of the pool. The filter should be backwashed once it is detected that the flow has been reduced by about 30%.
   c. The most commonly used but less accurate indicator is to backwash when the filter gauge reading increases 10 PSI over the initial (clean filter) reading.
3. It is important not to backwash the filter solely on a timed basis such as every three days. It is also important to note that backwashing too frequently actually causes poor filtration. Factors like weather conditions, heavy rains, dust or pollen, and water temperature all affect the frequency of backwash. As you use your pool, you will become aware of these influences.
4. If at any time the starting pressure after backwashing the filter indicates 4 to 6 PSI higher than normal starting pressure, it is time to perform a chemical cleaning procedure.

Filter Backwash Procedure

⚠WARNING To prevent equipment damage and possible injury, always turn off pump before changing valve positions.

1. Stop the pump.
2. Ensure that the suction and backwash lines are open so that water is free to come from the pool and flow out the backwash line. Set control valve position as follows:
   a. If using a Multiport Valve, set valve to backwash position.
   b. If using a Two Position Slide Valve, push handle down to backwash position and engage lock by twisting handle.
3. **Stand clear of the filter** and start pump.
4. Backwash filter for approximately 3 to 5 minutes or until backwash water is clean.
5. Stop the pump.
   a. If using a Multiport Valve, set valve to rinse position and continue with remaining steps.
   b. If using a Two Position Slide Valve, skip to step 8.
6. **Stand clear of the filter** and start pump.
7. Rinse filter for approximately 30 seconds.
8. Stop the pump and set valve as follows:
   a. If using a Multiport Valve, set valve to filter position.
   b. If using a Two Position Slide Valve, raise handle to filter position and engage valve lock by twisting handle.
9. Ensure that pool return line is open so that water may freely flow from the pool back to the pool.
10. Open manual air bleeder on Triton closure. Stand clear of filter and start pump.
11. Close manual air bleeder of the closure when all the air is removed and a steady stream of water emerges from the bleeder.
12. The filter has now started its filtering cycle. You should ensure that water is returning to the pool and take note of the filter pressure.
13. The filter pressure, in the above Step 12, should not exceed the pressure originally observed on the filter when it was initially started. If after backwashing, the pressure is 4 to 6 PSI above the start condition, it will be necessary to chemically clean the sand bed.

Chemical Cleaning Procedure

1. It is recommended that an approved cleaner be used. Please contact your local pool chemical supplier or retail store for the proper cleaner.

   These cleaners will remove oils, scale and rust from the sand bed in one cleaning operation.
2. Mix a solution following the manufacturers instructions on the label.
3. Backwash the filter as outlined on page 8.
4. If the filter is below pool level, shut off the pump and close appropriate valving to prevent draining the pool.
5. Shut off pump, open filter drain and let filter drain. Place valve in backwash position.
6. After filter has drained, close filter drain and remove the pump strainer pot lid.
7. Ensure that the backwash lines are open.
8. Turn the pump on and slowly pour the cleaning solution into the pump strainer with the pump running.
9. Continue adding solution until the sand bed is saturated with cleaning solution. Replace lid on pump.
10. Shut off the pump and leave filter in backwash position. Allow filter to stand overnight (12 hours).
11. Replace the pump lid and follow backwash procedures on page 8.
12. Do not allow the cleaning solution to get into the pool.

Winterizing your Filter

1. In areas that have freezing winter temperatures, protect the pool equipment by backwashing the filter.
2. After backwashing, shut the pump off, open the manual air bleeder on the closure and adjust the valve as follow:
   a. On the Multiport Valves, move the handle of the valve to the Winterize Position (*).
   b. On the Two Position Slide Valve, if possible, remove the valve piston assembly; clean, lubricate and store in a dry location for the winter.

***NOTE:** The Multiport valve should be left in the winterize position during shutdown season so the valve diverter has no pressure on the rubber seal.

3. On the TR40, 50, 60, and TR60 ClearPro, remove the wing-type plug on the bottom of the filter. On the TR100, TR100HD, TR100C, TR100C-3, and TR140, TR140C, TR140C-3, remove the 1½" drain plug cap. The filter will drain very slowly, and therefore, it is recommended that the drain plug be left out.
4. Drain all appropriate system piping.
5. We recommend covering the equipment with a tarpaulin or plastic sheet to inhibit deterioration from weather. Do **NOT** wrap pump motor with plastic.

Section 4
Troubleshooting

Use the following troubleshooting information to resolve possible problems with your Triton® Filter.

⚠WARNING

THIS FILTER 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. If you are not familiar with your pool filtering system and/or heater:
   a. **Do NOT** attempt to adjust or service without consulting your dealer, or a qualified pool technician.
   b. Read the entire Installation & User's Guide before attempting to use, service or adjust the pool filtering system or heater.
2. Before repositioning valve(s) and before beginning the assembly, disassembly, 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 manual air bleeder valve; (C) wait until all pressure is relieved.
3. Whenever installing the filter closure **FOLLOW THE FILTER CLOSURE WARNINGS EXACTLY**.
4. Once service on the circulating system is complete **FOLLOW INITIAL START-UP INSTRUCTIONS EXACTLY**.
5. Maintain circulation system properly. Replace worn or damaged parts immediately, (e.g., closure, pressure gauge, valve(s), o-rings, etc).
6. Be sure that the filter is properly mounted and positioned according to instructions provided.

NOTE: Turn off power to unit prior to attempting service or repair.

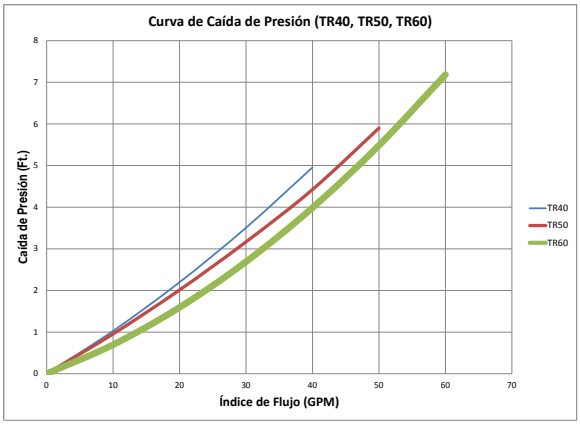
Problems and Corrective Actions

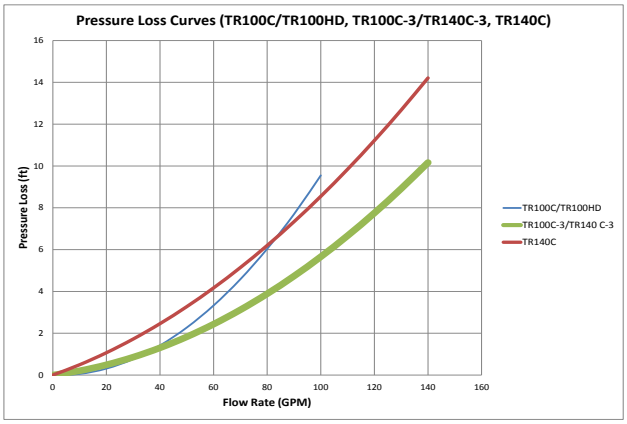
PROBLEM	CAUSE	REMEDY
Pool water not sufficiently clean	1. Pool chemistry not adequate to inhibit algae growth.	Maintain pool chemistry or consult pool service technician.
	2. Too frequent a backwash cycle.	Allow pressure to build to 10 psi above clean filter condition before backwashing.
	3. Improper amount or wrong sand size.	Check sand bed Freeboard and sand size or consult a pool service technician.
	4. Inadequate turnover rate.	Run system for longer time or consult dealer or pool service technician.
High filter pressure	1. Insufficient backwashing.	Backwash until effluent runs clear.
	2. Sand bed plugged with mineral deposits.	Chemically clean filter.
	3. Partially closed valve.	Open valve or remove obstruction in return line.
Short 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, replace with new sand and chemically clean entire sand bed as described in the Chemical Cleaning Procedure.
	4. Flow rate too high.	Restrict flow to capacity of filter.

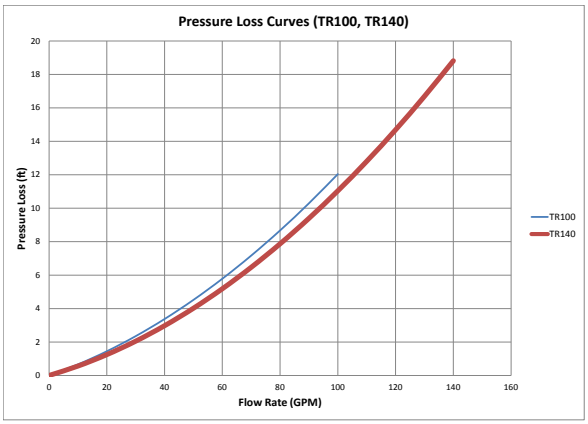
PROBLEM	CAUSE	REMEDY
Return flow to pool diminished, low filter pressure	1. Obstruction in pump hair and lint strainer.	Clean basket in pump strainer.
	2. Obstruction in pump.	Disassemble and clean pump.
	3. Obstruction in suction line to pump.	Clean skimmer basket. Remove obstruction in lines. Open valves in suction line.
Sand returning to pool	1. Broken under drain lateral.	Replace broken or damaged laterals.
Sand loss to waste	1. Backwash rate too high.	Reduce backwash flow rate.
	2. Improper sand size.	Change to proper sand.
	3. Air strainer is damaged or missing.	Replace damage components.
Leak at closure	1. Improperly tightened closure.	Shut off pump, relieve tank pressure, open air bleeder, tighten closure properly.
	2. Dirt or contamination on sealing surface.	Shut off pump, relieve tank pressure, open air bleeder, remove closure and clean all sealing surfaces. Reassemble closure properly.
	3. Damaged part.	Same as above except replace damaged o-ring, closure, tank or any combination of parts as required.
Leak at bulkhead	1. Improper tightened bulkhead assembly.	Shut off pump, relieve tank pressure, open air bleeder, remove closure and remove sand to access leaking bulkhead on TR40, 50, 60, TR60 ClearPro, 100, 100C, 140 or 140C. Hold the 2" bulkhead and tighten the 2" internal locknut. On the TR100C-3/TR140C-3, using the special wrench, P/N 154020, hold the 3" flange spacer and with wrench, P/N 154019, tighten the 3" flange adapter. Hand tighten plus 1/2 turn.
	2. Dirt or contamination on sealing surfaces.	Shut off pump, relieve tank pressure, open air bleeder, remove closure and remove sand to access leaking bulkhead. Remove attached tank internals and remove bulkhead assembly. Clean all mating surfaces and seals. Replace the bulkhead assembly, being careful to assemble properly. Tigthen assembly as indicated above.
	3. Damaged part.	Same as above except replace damaged part or combination of parts.

Section 5
Replacement Parts

Pressure Drop Curve for the Triton® Series Fiberglass Sand Filters







Installing Multiple Filters with Tandem Filter Piping Kits

CAUTION: WHEN MULITPLE FILTERS ARE INSTALLED, WE HIGHLY RECOMMEND THE USE OF A PENTAIR TANDEM FILTER PIPING KIT. THESE KITS INCLUDE PLUMBING SUPPORTS (BETWEEN INLET AND OUTLET PIPING AND BETWEEN OUTLET PIPING AND FLOOR) TO ASSURE INTEGRITY OF THE INSTALLATION. SEE FIGURE A.

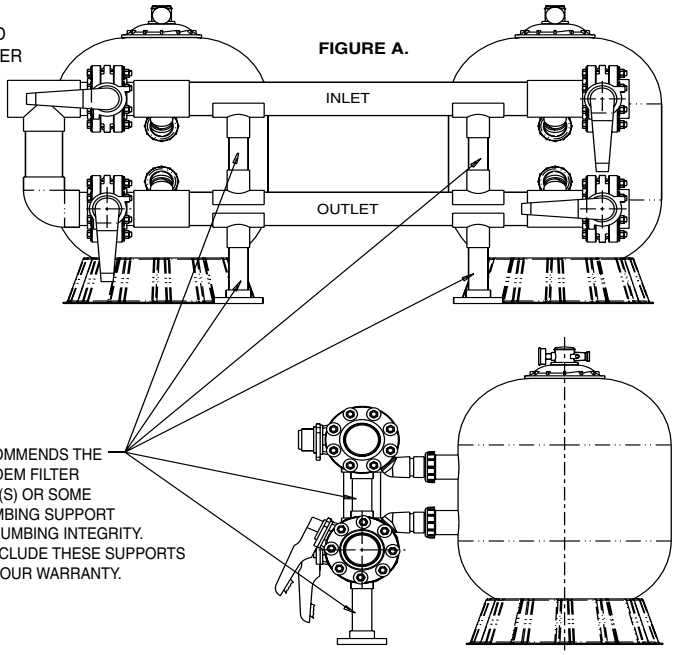


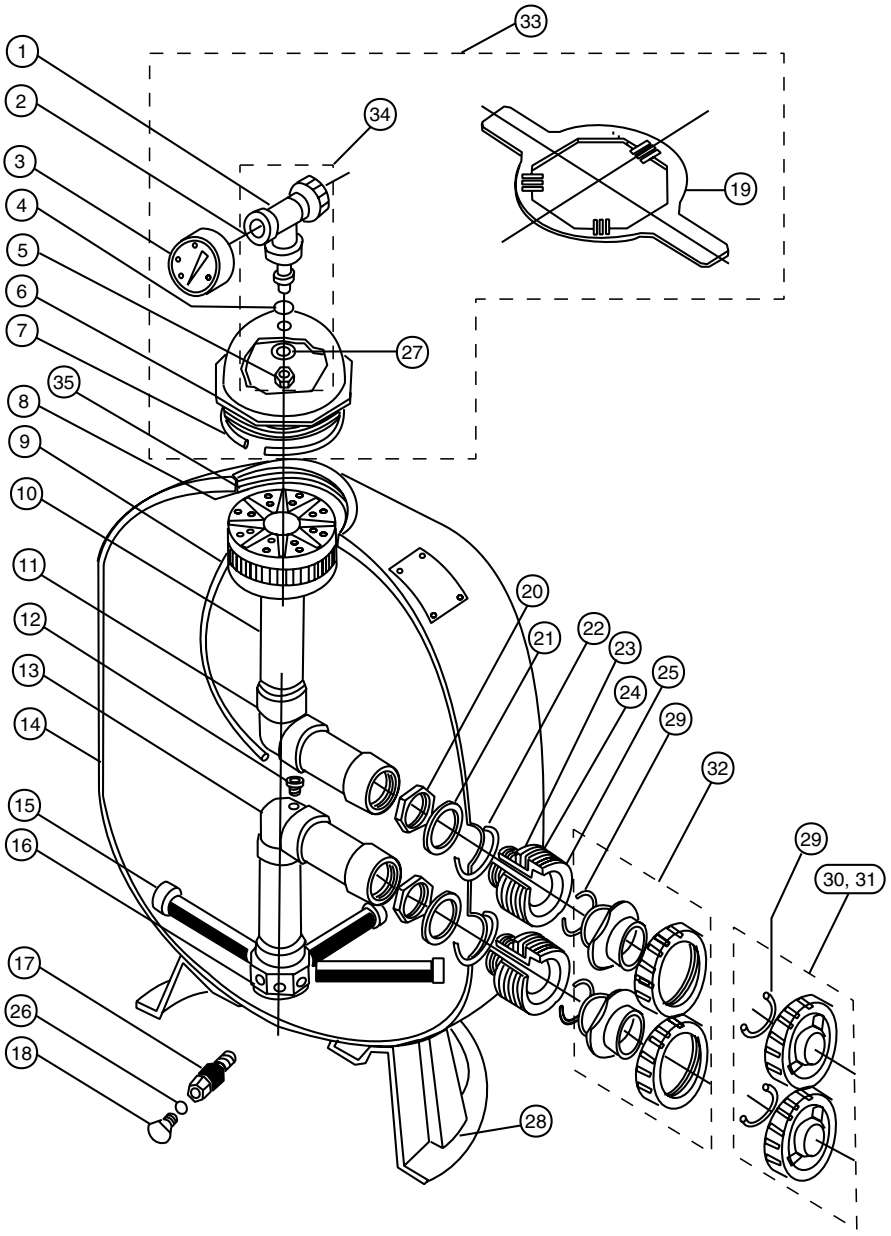
FIGURE A.

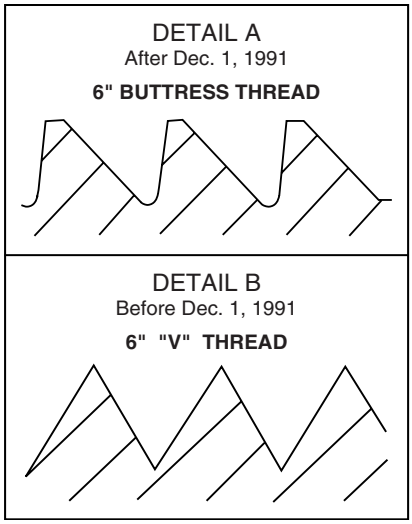
CAUTION: PENTAIR RECOMMENDS THE USE OF A TANDEM FILTER PLUMBING KIT(S) OR SOME SORT OF PLUMBING SUPPORT TO ASSURE PLUMBING INTEGRITY. FAILURE TO INCLUDE THESE SUPPORTS COULD VOID YOUR WARRANTY.

TRITON® II & TR60 CLEARPRO FIBERGLASS SAND FILTER

Replacement Parts

TR40
TR50
TR60
TR60 ClearPro
TR100
TR140

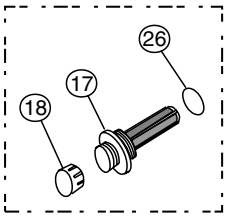




Filters manufactured after Dec 1, 1991 utilize a 6 in. buttress thread in the filter tank top opening and on the closure, see Detail A.

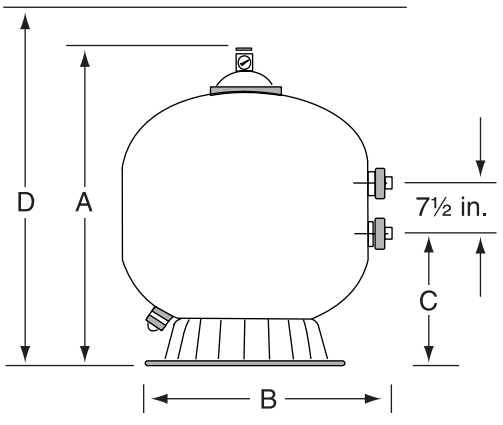
Filters manufactured before Dec 1, 1991 utilize a 6 in. "V" type thread, see Detail B.

6 in. closures in Detail A. and B. are NOT interchangeable.



★ Used on TR100 and TR140 filters.

Vertical Clearance Required



MODEL	A DIM.	B DIM.	C DIM.	D DIM.
TR40	30 ½ in.	19½ in.	10 ¾ in.	32 ½ in.
TR50	34 ¾ in.	21½ in.	11-7/8 in.	36 ¾ in.
TR60	35 ½ in.	24½ in.	13-5/8 in.	37 ½ in.
TR60 ClearPro	35 ½ in.	24½ in.	13-5/8 in.	37 ½ in.
TR100	39 ¾ in.	30½ in.	16 ¼ in.	41 ¾ in.
TR140	45 ¼ in.	36½ in.	18 ¾ in.	47 ¼ in.

ENGLISH

Item No.	Part No.	TRITON II & TR60 CLEARPRO SAND FILTERS Description
1	154689	Air bleeder/tee assy.
2	154700	Adapter - brass air bleeder
3	155050	Gauge - back mount pressure
4	154661	O-ring - air bleeder adapter
5	154664	Nut - 3/8 in. - 16 s/s
6	154570	Closure - 6 in. buttress thread, see Detail A
6	154559	Closure - 6 in. “V” thread Blk., see Detail B
7	154493	O-ring closure, white
8	150035	Strainer ECL/TR
9	150039	Tube air relief TR40
9	150040	Tube air relief TR50/60
9	150041	Tube air relief TR100
9	150042	Tube air relief TR140
10	154598	Diffuser assy. TR40/50
10	154599	Diffuser assy. TR60
10	154462	Diffuser assy. TR100
10	154906	Diffuser assy. TR140
11	154803	Piping assy. upper TR40
11	156814	Piping assy. upper TR50
11	154533	Piping assy. upper TR60
11	154426	Piping assy. upper TR100
11	154500	Piping assy. upper TR140
12	150036	Connector air relief tube
13	154801	Piping assy. lower TR40
13	156816	Piping assy. lower TR50
13	154805	Piping assy. lower TR60
13	155284	Piping assy. lower TR60 ClearPro -1/4 Turn Lateral
13	154807	Piping assy. lower TR100
13	154489	Piping assy. lower TR140
14	154636	Tank & ft. assy. TR40 - 6 in. btr. thd., Detail A
14	154637	Tank & ft. assy. TR50 - 6 in. btr. thd., Detail A
14	154638	Tank & ft. assy. TR60 - 6 in. btr. thd., Detail A
14	154639	Tank & ft. assy. TR100 - 6 in. btr. thd., Detail A
14	154640	Tank & ft. assy. TR140 - 6 in. btr. thd., Detail A

TRITON® II and TR60 CLEARPRO FIBERGLASS SAND FILTER

Replacement Parts

TR40
TR50
TR60
TR60 ClearPro
TR100
TR140

NOTES

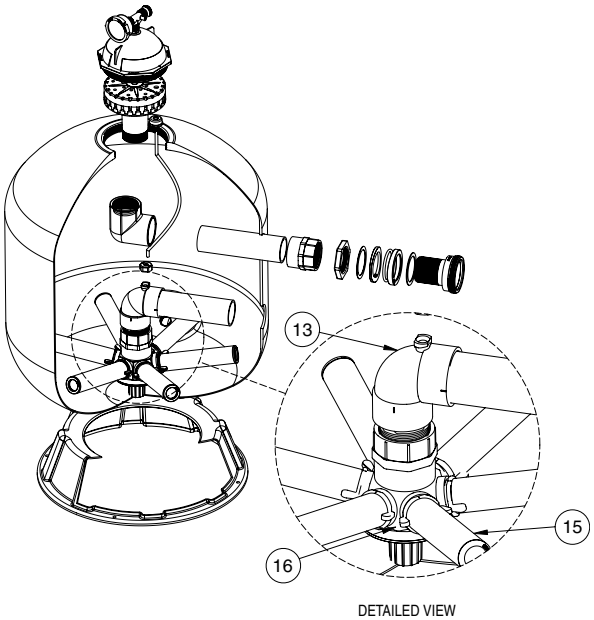
Filters manufactured after Dec 1, 1991 utilize a 6 in. buttress thread in the filter tank top opening and on the closure, see Detail A.

Filters manufactured before Dec 1, 1991 utilize a 6 in. “V” type thread, see Detail B.

6 in. closures in Detail A. and B. are NOT interchangeable.

To determine manufacture date, the first 4 digits of the serial number indicate the month and year product was manufactured.

TR60 ClearPro - 1/4 Turn Lateral for filters manufactured after May 15, 2007 utilize Lower Piping Assy. P/N 155284.



Detail for Triton® II - TR60 Filters with ClearPro Technology®

Item No.	Part No.	TRITON II & TR60 CLEARPRO SAND FILTERS Description
15	152290	Lateral - 6 11/16 in. L TR40/50/60, 8 req.
15	150085	Lateral Assy. - 1/4 turn TR60, 6 req.
15	150088	Lateral Assy. - TR60 ClearPro, 6 req.
15	152202	Lateral - 9 1/8 in. L TR100, 8 req. ❷
15	154543	Lateral - 6½ in. L TR100, 8 req. ❶
15	154540	Lateral - 12 in. L TR140, 8 req.
16	154763	Hub Lateral TR40/50/60
16	152222	Hub Assy. TR60 ClearPro
16	154453	Hub Lateral TR100/140
17	152220	Sand drain 2 in. ❻
17	154698	Spigot ¾ in. NPT sand drain ❹
17	154685	Spigot ½ in. NPT sand drain ❸
18	154871	Cap thd. 1½ in. ❻
18	357161	Plug ¼ in. NPT drain
19	154512	Wrench 6 in. closure
19	154510	Wrench closure aluminum
19	151608	Wrench 8½ in. closure aluminum
20	154412	Locknut 2 in. internal, 2 req.
21	154416	Spacer 2 in. internal, 2 req.
22	154492	O-ring 2 in. bulkhead, 2 req.
23	154408	Spacer 2 in. external, 2 req.
24	154538	Gasket 2 in. bulkhead, 2 req.
25	154405	Bulkhead 2 in., 2 req.
26	274494	O-ring 3/16 in. X 2 5/8 in. i.d. ❻
26	192115	O-ring #2-12 air adapter
27	154418	Washer 3/8 in. s/s
28	154926	Foot 16 in. dia., TR40/50 (see NOTE 1)
28	154520	Foot 19 in. dia., TR60 (see NOTE 1)
28	154596	Foot 24 in. dia., TR100/140 (see NOTE 1)
29	274494	O-ring valve adptr., 2 req.
30	271092	2 in. thd. adptr. kit ❺
31	271094	1½ in. thd. adptr. kit ❺
32	271096	1½ in. & 2 in. slip adptr. kit ❺
33	154641	Kit closure, 6 in. buttress thd., Blk., DETAIL A
33	154697	Kit closure, 6 in. "V" thd., Tan, DETAIL B
33	154856	Kit closure, 8½ in. buttress thd., Blk.
34	154687	Fitting package complete (see NOTE 2)
35	154611	Spacer air vent strainer 3¾ in. TR40
35	154612	Spacer air vent strainer 4½ in. TR50/60
35	154613	Spacer air vent strainer 5½ in. TR100
35	154614	Spacer air vent strainer 5 in. TR140
	154402	Tape ft. mounting TR40/50/60, 3 req.
	154407	Tape ft. mounting TR100/140, 3 req.
	151602	Bulkhead wrench 2 in.
	154714	Bulkhead kit, include items 20-25

TRITON® II and TR60 CLEARPRO FIBERGLASS SAND FILTER

Replacement Parts

TR40
TR50
TR60
TR60 ClearPro
TR100
TR140

NOTES

Filters manufactured after Dec 1, 1991 utilize a 6 in. buttress thread in the filter tank top opening and on the closure, see Detail A.

Filters manufactured before Dec 1, 1991 utilize a 6 in. "V" type thread, see Detail B.

6 in. closures in Detail A. and B. are NOT interchangeable.

To determine manufacture date, the first 4 digits of the serial number indicate the month and year product was manufactured.

❶ Used on Filters manufactured before 5-85.
❷ Used on Filters manufactured after 5-85.
❸ Used on Filters manufactured before 3-83.
❹ Used on Filters manufactured after 3-83 thru 3-96.
❺ For Installations w/out Valve (Pair).
❻ Used on TR100 & 140 Filters.

NOTE 1: Replacement of tank foot requires the use of foot mounting tape. See P/N's.

NOTE 2: Fitting package includes items 1, 2, 4, 5 and 27.

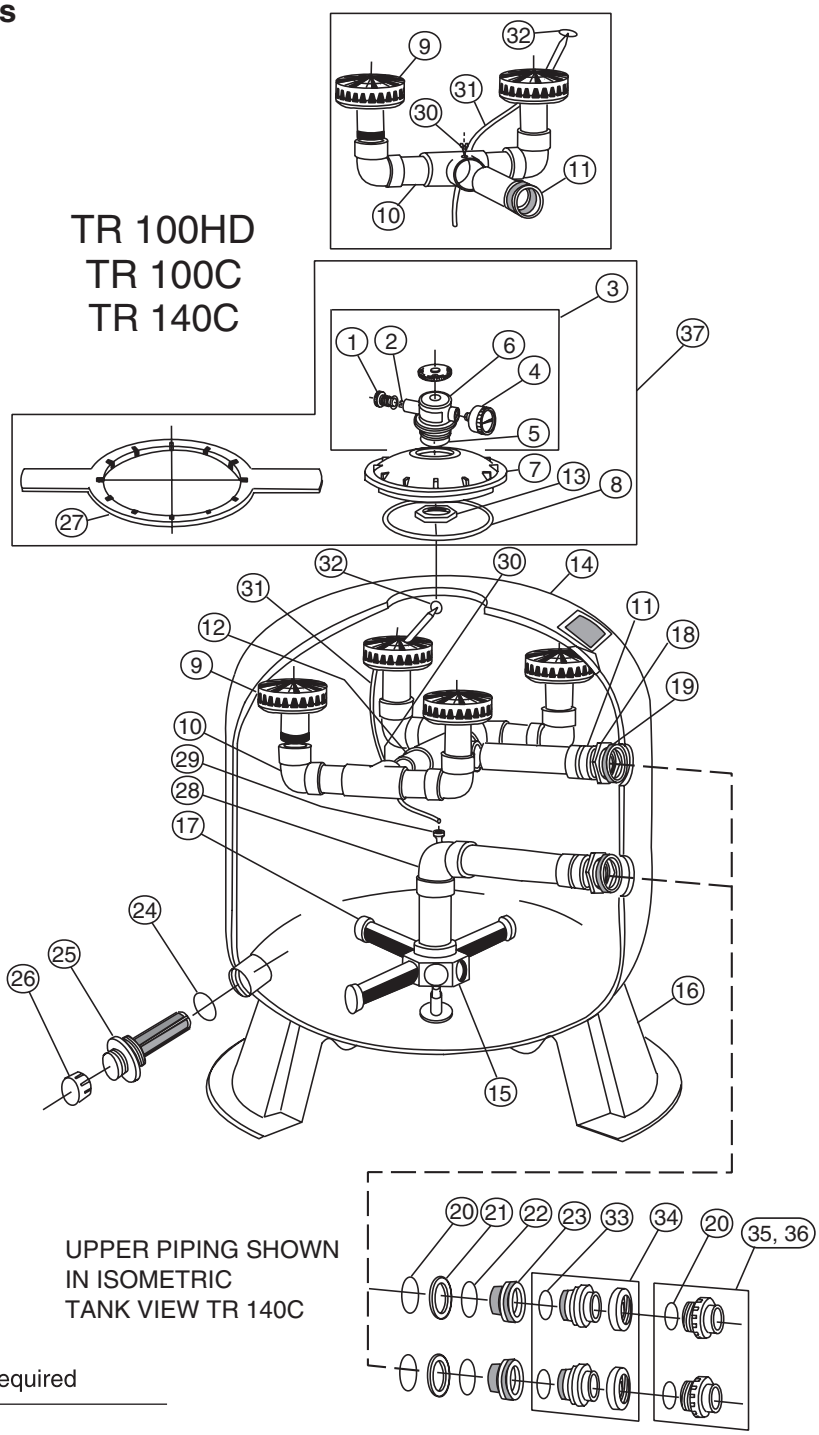
ENGLISH

TRITON® 100HD, 100C & 140C FIBERGLASS SAND FILTER

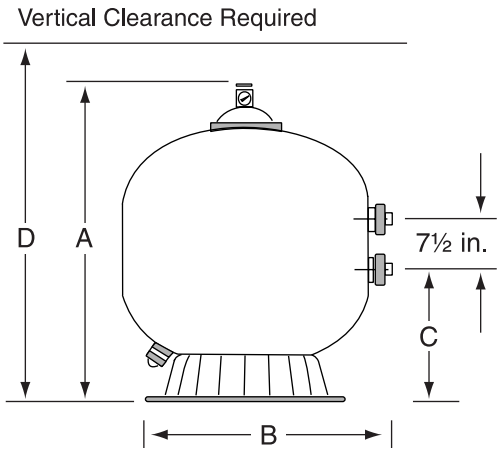
Replacement Parts

TR100HD
TR100C
TR140C

TR 100HD
TR 100C
TR 140C



UPPER PIPING SHOWN
IN ISOMETRIC
TANK VIEW TR 140C



MODEL	A DIM.	B DIM.	C DIM.	D DIM.
TR100HD	39¾ in.	30½ in.	16¼ in.	41¾ in.
TR100C	39¾ in.	30½ in.	16½ in.	43¾ in.
TR140C	45¼ in.	36½ in.	18¾ in.	49¼ in.

TRITON® 100HD, 100C & 140C FIBERGLASS SAND FILTER

Replacement Parts

TR100HD
TR100C
TR140C

Item No.	Part No.	TR100HD, TR100C & TR140C SAND FILTERS Description
1	273512	Air bleeder w/ o-ring
2	273513	O-ring air bleeder screw
3	273564	Manual air relief body assy.
4	155050	Pressure Gauge
4	991481	Pressure Gauge TR100C/TR100HD ❷
5	274494	O-ring 3/16 in. X 2-5/8 in. i.d..
6	273564	Valve body machined
7	154575	Closure 8½ in. buttress
8	152509	Square ring 8½ in.
9	154599	Diffuser TR100C/TR100HD ❶
9	154599	Diffuser TR140C ❶
10	156355	Piping assy. upper TR100C/TR100HD/ TR140C ❶
11	156344	Piping assy. upper inlet TR100C/TR100HD/ TR140C
12	156354	Piping connecting assy. upper TR140C
13	154412	Nut 2 in. internal
14	153430	Tank & ft. assy. TR100C/TR100HD - 8½ in. btr. THD. - Blk
14	153431	Tank & ft. assy. TR140C - 8½ in. btr. THD. - Blk
14	156224	Tank & ft. assy. TR100HD - btr. thd. - Blk ❷
15	154453	Hub lateral TR100C/TR100HD/TR140C
16	154596	Foot 24 in. dia. TR100C/TR100HD/TR140C
17	152202	Lateral 9 1/8 in. TR100C/TR100HD, 8 req.
17	154540	Lateral 12 in. TR140C, 8 req.
18	154412	Locknut 2 in. internal
19	154416	Spacer 2 in. internal
20	154492	O-ring 2 in. bulkhead
21	154408	Spacer 2 in. external
22	154538	Gasket 2 in. bulkhead
23	154405	Bulkhead 2 in.
24	274494	O-ring 3/16 in. X 2 5/8 in. i.d.
	154407	Tape ft. mounting
25	152220	2 in. sand drain
26	154871	Cap thd. 1½ in.
27	154527	Wrench 8½ in. closure
27	151608	Wrench 8½ in. aluminum
28	154807	Piping assy. lower TR100C/TR100HD
28	154489	Piping assy. lower TR140C
29	150036	Connector air relief tube
30	273071	Screw #14 18-8 TR100C/TR100HD ❶
31	150041	Tube air relief TR100C/TR100HD
31	150042	Tube air relief TR140C
32	150035	Strainer air relief
33	274494	O-ring valve adptr.
34	271096	1½ in. & 2 in. slip adptr. kit for inst. w/o valve (pair)
35	271092	2 in. thd. adptr. kit for inst. w/o valve (pair)
36	271094	1½ in. thd. adptr. kit for inst. w/o valve (pair)
37	154856	Kit closure 8½ in. btr. THD. - Blk.
37	155738	Kit closure 8½ ❷

NOTES

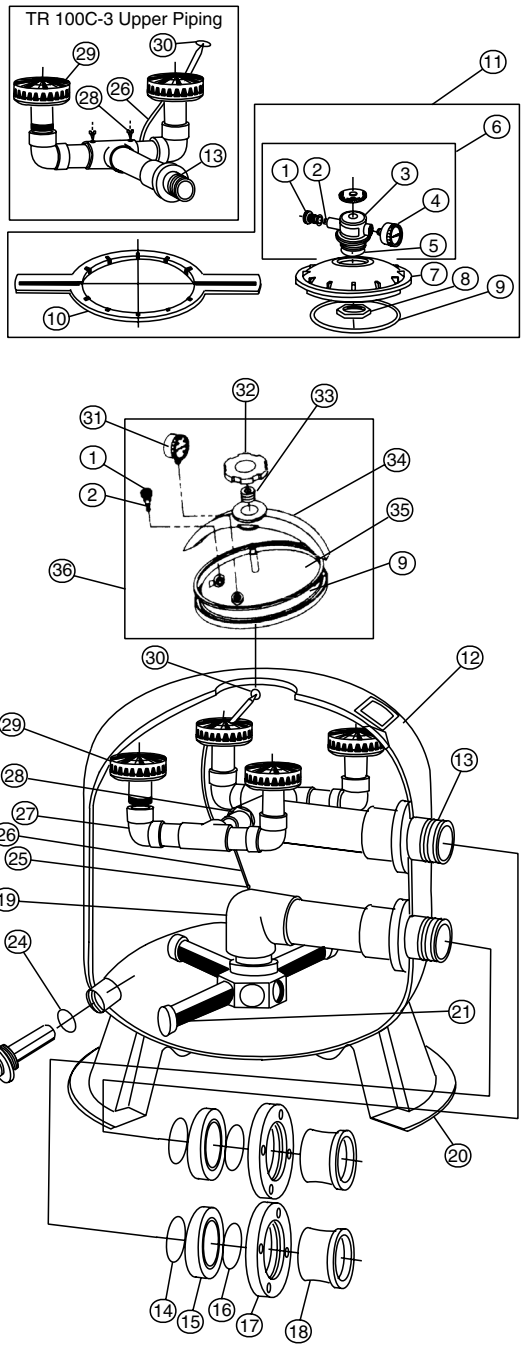
❶ Different quantities required for TR100C and TR140C Filters.
❷ Used on TR1000HD Filters

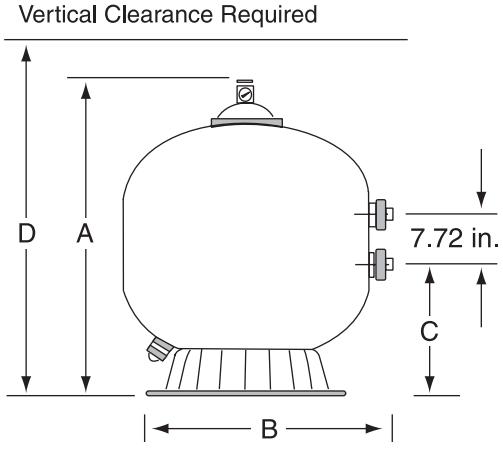
ENGLISH

TRITON® 100C-3 & 140C-3 FIBERGLASS SAND FILTER

Replacement Parts

TR100C-3
TR140C-3





MODEL	A DIM.	B DIM.	C DIM.	D DIM.
TR100C-3	39¾ in.	30½ in.	16-1/16 in.	43¾ in.
TR140C-3	45¼ in.	36½ in.	18½ in.	49¼ in.

TRITON® 100C-3 & 140C-3 FIBERGLASS SAND FILTER

Replacement Parts

TR100C-3
TR140C-3

Item No.	Part No.	TRITON 100C-3 &140C-3 SAND FILTERS Description
1	273512	Air bleed with o-ring ❷❸
2	273513	O-ring air bleeder screw ❷
3	273564	Valve body machined ❷
4	155050	Pressure gauge ❷
5	154494	O-ring adapter, 6 in. ❷
6	273564	Manual air relief assy. ❷
7	154575	Closure 8½ in. ❷
8	154412	Nut 2 in. internal ❷
9	152509	Square ring closure ❷❸
10	154527	Wrench 8½ in. closure ❷
11	154856	Kit 8½ in. closure buttress thd. ❷
11	156842	Kit 8½ in. closure w/gasket ❹
12	153430	Tank & ft. assy. TR100C-3 - buttress
12	153431	Tank & ft. assy. TR140C-3 - buttress
13	154007	Upper piping assy. TR100C-3
13	154008	Upper piping assy. TR140C-3
14	154005	O-ring Parker 2-343, 2 req.
15	154002	Spacer 3 in., 2 req.
16	154004	O-ring Parker 2-342, 2 req.
17	154003	Flange 3 in., 2 req.
18	154001	Adapter flange 3 in., 2 req.
19	154009	Lower piping assy. TR100C-3
19	154010	Lower piping assy. TR140C-3
20	154596	Foot 24 dia. TR100C-3/140C-3
21	152202	Lateral 9 in. TR100C-3, 8 req.
21	154540	Lateral 12 in. TR140C-3, 8 req.
22	154871	Cap thd. 1½ in.
23	152220	Sand drain 2 in.
24	274494	O-ring 3/16 in. X 2 5/8 in. i.d., 2 req.
25	154441	Connector air relief tube
26	150041	Tube air relief TR100C-3 (23 in.)
26	150042	Tube air relief TR140C-3 (27 in.)
27	154018	Diffuser piping assy. TR140C-3, 2 req.
28	552474	Screw - #10-1½ in. flathead phillips, 2 req.
29	154599	Diffuser - 2 req'd. for TR100C-3
29	154599	Diffuser - 4 req'd. for TR140C-3

Item No.	Part No.	TRITON 100C-3 &140C-3 SAND FILTERS Description
30	150035	Strainer ELC/TR
31	190058	Pressure Gauge, ¼ in. psi ❸
32	154581	Knob TR oval ❸
33	154582	Spring TR oval ❸
34	154579	Bridge TR oval ❸
35	154576	Closure-oval ❸
36	156841	Kit TR oval closure ❶❸

NOTES

❶ P/N 156841 includes items: 1, 9, 31 thru 35.
❷ Used on filters manufactured before 3-97.
❸ Used on filters manufactured after 3-97.
❹ Used on filters manufactured after 4-15.

ENGLISH

NOTES

SAVE THESE INSTRUCTIONS

PENTAIR

TRITON™

FILTROS DE ARENA DE FIBRA DE VIDRIO

MODELS: TR 40, TR 50, TR 60, TR 100, TR 140, TR 100HD, TR 100C, TR 140C, TR 100C-3, TR 140C-3 y TR 60 con CLEARPRO TECHNOLOGY™

ESPAÑOL

GUÍA DE USARIO E INSTALACIÓN

IMPORTANTES INSTRUCTIVOS DE SEGURIDAD

LEA Y SIGA TODOS LOS INSTRUCTIVOS

PROTEJA ESTOS INSTRUCTIVOS

ATENCIÓN AL CLIENTE / SOPORTE TÉCNICO

Si tiene alguna pregunta sobre cómo realizar pedidos de piezas de repuesto de Pentair Aquatic Systems, utilice la siguiente información de contacto:

Servicio del Cliente y Soporte Técnico, USA
(de 8 a.m. a 4:30 p.m., Horario del Este y del Pacífico)

Teléfono: (800) 831-7133

Fax: (800) 284-4151

Sitio web

Visite *www.pentairpool.com* o *www.staritepool.com* para encontrar información sobre los productos Pentair.

Sanford, Carolina del Norte
(de 8 a.m. a 4:30 p.m., Horario del Este)

Teléfono: (919) 566-8000

Fax: (919) 566-8920

Moorpark, California
(de 8 a.m. a 4:30 p.m., Horario del Pacífico)

Teléfono: (805) 553-5000 (Ext. 5591)

Fax: (805) 553-5515

ÍNDICE

1620 Hawkins Ave., Sanford, NC 27330 • (919) 566-8000
10951 West Los Angeles Ave., Moorpark, CA 93021 • (805) 553-5000

MEMBER NATIONAL SPA & POOL INSTITUTE

P/N 154901 Rev. H 3/18/15

PRECAUCIONES IMPORTANTES DE SEGURIDAD

Aviso importante:

La presente guía provee instrucciones de instalación y operación para los Filtros de Arena de Fibra de Vidrio Triton®. Consulte a Pentair Aquatic Systems si tiene alguna pregunta relacionada con este equipo.

Atención Instalador: La presente guía contiene información importante acerca de la instalación, operación y uso seguro de este producto. Esta información se la debe dar al propietario y/o operador de este equipo luego de la instalación o se la debe dejar en o cerca del filtro.

Atención Usuario: El presente manual contiene información importante que lo ayudará a operar y mantener este filtro. Por favor consérvelo como futura referencia.

⚠ ADVERTENCIA Antes de instalar este producto, lea y siga todos los avisos de advertencia que están incluidos. En caso de no seguir las advertencias e instrucciones de seguridad puede resultar en lesiones severas, muerte o daño de la propiedad. Llame al (800) 831-7133 para obtener copias adicionales gratuitas de estas instrucciones.

ESPAÑOL

Información y Seguridad del Consumidor

Los Filtros de Arena Series Triton® están diseñados y fabricados para proveer muchos años de servicio seguro y confiable cuando son instalados, operados y mantenidos de acuerdo con la información de este manual y en los códigos de instalación referidos en las secciones posteriores. A través de este manual, las advertencias y precauciones de seguridad están identificadas con el símbolo " ⚠ ". Asegúrese de leer y cumplir con todas las advertencias y precauciones.

ESTE FILTRO OPERA BAJO ALTA PRESIÓN

⚠ ADVERTENCIA Cuando cualquier parte del sistema de circulación es revisado (por ejemplo, tapa, bomba, filtro, válvula(s), etc.), el aire puede ingresar al sistema y volverse presurizado. El aire presurizado puede hacer que la tapa superior se separe lo cual puede resultar en lesiones severas, muerte o daño de la propiedad. Para evitar este peligro potencial, siga estas instrucciones:

1. Si no está familiarizado con su sistema de filtración y/o calentador de piscina:
   a. **NO** intente ajustar o hacer una revisión sin consultar con su distribuidor o con un técnico de piscina calificado.
   b. Lea completamente la Guía del Usuario e Instalación antes de intentar usar, hacer una revisión o ajustar el sistema o calentador de filtración de la piscina.
2. Antes de volver a colocar la(s) válvula(s) y antes de empezar el ensamblaje, desmontaje o cualquier otro servicio del sistema de circulación: (A) Apague la bomba (**TURN OFF)** y desconecte **(SHUT OFF)** cualquiera de los controles automáticos para asegurarse que el sistema NO se encienda repentinamente durante la revisión; (B) abra la válvula de purga de aire manual; (C) espere hasta que toda la presión se haya liberado.
3. Cuando instale la tapa del filtro **SIGA EXACTAMENTE LAS ADVERTENCIAS DE LA TAPA DEL FILTRO.**
4. Una vez que complete el servicio en el sistema de circulación **SIGA EXACTAMENTE LAS INSTRUCCIONES INICIALES.**
5. Mantener el sistema de circulación adecuadamente. Remplazar las partes deterioradas dañadas (Ej., tapa, indicador de presión, válvula(s), anillos "O", etc.).
6. Asegúrese que el filtro esté montado y colocado adecuadamente de acuerdo con las instrucciones provistas.

PRECAUCIONES IMPORTANTES DE SEGURIDAD

⚠ ADVERTENCIA

Este filtro debe ser instalado por un electricista autorizado o certificado o por un técnico de servicios de piscina calificado de acuerdo con el Código Eléctrico Nacional y todos los códigos y ordenanzas locales aplicables. Una instalación inadecuada podría resultar en lesiones serias o en la muerte de los usuarios, de los instaladores de la piscina u otros, también puede causar daño a la propiedad.

Siempre desconecte la energía del sistema de circulación de la piscina del cortocircuito antes de revisar el filtro. Asegúrese que el circuito desconectado esté cerrado o adecuadamente codificado para que no se conecte cuando esté trabajando en el filtro. De lo contrario podrían resultar en lesiones serias o la muerte del técnico de servicio, de los usuarios de piscinas u otros debido a una descarga eléctrica.

⚠ ADVERTENCIA

No opere el filtro hasta que haya leído y comprendido claramente todas las instrucciones de operación y mensajes de advertencia de todo el equipo que es parte del sistema de circulación de la piscina. El propósito de las siguientes instrucciones es guiarlo para iniciar la operación del filtro en una instalación general de la piscina. En caso de no seguir todas las instrucciones de operación y mensajes de advertencia podría resultar en daño a la propiedad, lesiones personales severas o la muerte.

⚠ ADVERTENCIA

Para reducir el riesgo de lesiones, no permita que los niños usen este producto a menos que sean supervisados cuidadosamente todo el tiempo.

⚠ ADVERTENCIA

Debido al riesgo potencial que puede suceder se recomienda que la prueba de presión se mantenga al tiempo mínimo requerido por el código local. No permita que haya personas trabajando alrededor del sistema cuando el sistema de circulación esté bajo prueba de presión. Coloque adecuados avisos de advertencia y establezca una barrera alrededor del equipo presurizado. Si el equipo está ubicado en el cuarto de equipo, cierre la puerta y coloque un aviso de advertencia.

Nunca intente arreglar ninguna tapa o intente remover o ajustar los tornillos cuando el sistema esté presurizado. Estas acciones pueden causar que la tapa se descargue y puede causar severas lesiones personales o la muerte si le golpeara a una persona.

⚠ ADVERTENCIA

Nunca exceda la presión de operación máxima en los componentes del sistema. Si excede estos límites puede resultar en una falla del componente bajo presión. Esta liberación instantánea de energía podría hacer que la tapa se descargue y podría causar severas lesiones personales o la muerte si le golpeara a una persona.

Sección 1
Introducción

Información General acerca de los Filtros de Arena de Fibra de Vidrio Triton™

Filtros de Arena de Fibra de Vidrio Triton™ II

El filtro de arena que es #1 en el mundo

Triton II es el resultado de más de 40 años de evolución y refinamiento de producto. Ha establecido el estándar de la industria en cuanto a efectividad, eficiencia, largos periodos de funcionamiento antes de necesitar servicio, y el proporcionar años de operación de confianza y de bajo mantenimiento.

Triton II ofrece un diseño interno especial que mantiene nivelado el lecho de arena, asegurándose de que el agua fluya con regularidad y resultando en la filtración más eficiente posible.

La mejor reputación de la industria por las mejores razones

Además de su superior rendimiento de filtración, Triton II proporciona un nivel de confianza y facilidad de operación y mantenimiento que resultan en un historial insuperable. Cada detalle del diseño se ha refinado para hacer que Triton II sea el estándar de la industria.

Filtros de Arena Comerciales Triton™ C y Triton™ C-3

Esta serie de filtros ofrece desviadores múltiples para obtener mayores velocidades de filtración en las aplicaciones comerciales de hasta 20 GPM/Pie Cuad.

Filtros de Arena de Montaje Lateral Triton™ HD

El mismo rendimiento y todas las mismas características del Triton original con una presión de operación máxima de 75 psi para las instalaciones especiales de alta presión, tales como los sistemas de limpieza de planta de una sola bomba.

Triton II - Residencial

Triton C - Comercial

Triton C-3 - Comercial

Triton HD - Comercial

ESPAÑOL

Características Generales

Triton™ II

- El diseño interno, cuya efectividad se ha comprobado con el paso del tiempo, asegura que toda el agua recibe filtración máxima para que se obtengan resultados de absoluta claridad
- El proceso GlasLok™ crea un tanque reforzado de fibra de vidrio de una sola pieza con recubrimiento resistente a los UV para que proporcione años de servicio de confianza y de resistencia a la corrosión
- El diseño del sistema de flujo controla la calidad de la filtración y asegura tiempos de operación máximos entre retrolavados para ahorrarle tiempo

Triton™ C y Triton™ C-3

- Presión de Operación Máxima 50 psi
- Desagüe de 2 pulg. amplias
- Apertura de 8 pulg. para fácil acceso al lecho de arena
- El Triton C-3 tiene conexiones de bridas estándar de 3 pulg.
- Los modelos TR 100C y TR 140C pueden obtenerse en negro o color almendra
- Los modelos TR 100C-3 y TR 140C-3 pueden obtenerse en negro solamente

Triton™ HD

- Presión de Operación Máxima 75 psi

Características Adicionales:

- El desagüe de arena y agua combinadas hace que el trabajo de reparación/mantenimiento y el de preparación para el invierno vayan más rápido
- Todas las piezas internas son de rosca para facilidad de mantenimiento
- El difusor de agua, que puede hacerse a un lado, permite acceso instantáneo a la arena y a todas las piezas internas
- Registrado con la NSF

Sección 2
Instalación

Nota*:* Antes de instalar este producto, lea y siga todos los avisos e instrucciones de advertencia que empiezan en la Pág. (sp) ii.

Instalación del Filtro de Arena de Fibra de Vidrio Triton™

Sólo una persona de servicio calificada puede instalar el Filtro de Arena de Fibra de Vidrio Triton. Este filtro está diseñado y destinado para usarlo con agua de filtro.

Introducción del Triton™

La siguiente información general describe cómo instalar el Filtro de Arena de Fibra de Vidrio Triton. Este filtro opera bajo presión y si se monta mal o si se opera con aire en el sistema de circulación de agua el cierre superior se puede abrir y producir accidentes que causen lesiones graves en el cuerpo y daño a la propiedad. Se ha adherido una etiqueta de advertencia en la parte superior del filtro y no se debe remover. Mantenga las etiquetas de sequridad en buenas condiciones y ponga una nueva si falta o si no se puede leer.

Como Funciona el Filtro

Su filtro de arena de alta capacidad ha sido diseñado para operar por años con un mantenimiento mínimo y si se instala, opera y se mantiene según estas instrucciones le entregará años de operación sin problemas.

La mugre se recauda en el filtro a medida que el flujo fluye a través de la válvula de control en la parte lateral del filtro y se dirige hacia el tapón superior. El agua sucia fluye al difusor en la parte superior del estanque y se dirige hacia abajo a la superficie superior de la capa de arena del filtro. La mugre se recauda en la capa de arena y el agua limpia fluye a través de los laterales y de la tubería inferior en la parte inferior del filtro y hacia arriba al tapón inferior. El flujo luego va a la válvula de control en la parte lateral del filtro. El agua limpia se devuelve a través del sistema de tuberías a la piscina.

La presión se elevará y el flujo de la piscina se bajará a medida que se recauda mugre en el filtro. Eventualmente, el filtro se tapará tanto con la mugre que será necesario el implementar el procedimicnto de lavado por corriente. Es importante saber cuándo es necesario lavar el filtro por corriente. El lavado por corriente se trata a continuación bajo las secciones siguientes de este manual.

Haga el favor de darse cuenta que el filtro remueve los materiales suspendidos y no higieniza la piscina. El agua de la piscina tiene que ser higienizada y balanceada químicamente para conseguir agua burbujeante y transparente. Su sistema de filtración tiene que ser diseñado de modo que satisfaga sus códigos de salud locales. Como un mínimo tiene que asegurarse que su sistema va a hacer rotar el volumen de agua total en su piscina por lo menos dos a cuatro veces en un período de 24 horas.

Refiérase a la **Tabla 1** para obtener la Información de Operación del Filtro.

NUMERO DEL MODELO DEL FILTRO	AREA DEL FILTRO (pies cuadrados)	VELOCIDAD DE FLUJO *(GPM) @ 20 GPM/ PIE²	CAPACIDAD DE ROTACION (Galones) (Basado en 20 GPM/pies cuadrados) *			
			4 VUELTAS AL DIA	3 VUELTAS AL DIA	2.4 VUELTAS AL DIA	2 VUELTAS AL DIA
TR40	1,92	38	13,680	18,240	22,800	27,360
TR50	2,46	49	17,640	23,520	29,400	35,280
TR60	3,14	63	22,680	30,240	37,800	45,360
TR60 ClearPro	3,14	63	22,680	30,240	37,800	45,360
TR100	4,91	74	26,640	35,520	44,400	53,280
TR100HD	4,91	74	26,640	35,520	44,400	53,280
TR100C/TR100C-3	4,91	98	35,280	47,040	58,800	70,560
TR140	7,06	106	38,160	50,880	63,600	76,320
TR140C/TR140C-3	7,06	141	50,760	67,680	84,600	101,520

Tabla 1.

ESPAÑOL

⚠ ADVERTENCIA Si no opera su sistema de filtro o si la filtración no es adecuada se puede afectar la transparencia del agua, impidiendo la visibilidad en su piscina y puede ser que se salte dentro o sobre objetos obscurecidos que pueden producir lesiones personales graves o que la persona se ahogue.

El agua transparente es el resultado de la filtración adecuada como también del balance químico adecuado del agua de la piscina. La química de la piscina requiere conocimiento especializado y tiene que consultar con su especialista de servicios de piscinas local para los detalles específicos. En general, la higienización adecuada de la piscina necesita un nivel de cloro libre de 1 a 3 PPM y una gama de PH de 7,2 a 7,6.

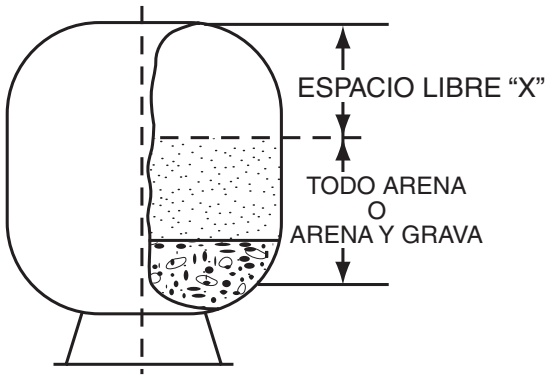
⚠ ADVERTENCIA Los filtros nunca deben ser probados o ser expuestos a aire o gas bajo presión. Todos los gases son comprimibles y bajo presión crean peligro. Se pueden producir lesiones corporales graves o daño a la propiedad si el filtro se expone a aire o gas bajo presión.

1. Revise la caja de cartón para verificar si hay evidencia de daño debido al manejo abrupto durante el envío. Si la caja de cartón o cualquier componente del filtro está dañado, avise a la compañia de transporte inmediatamente.
2. Cuidadosamente remueva el paquete del accesorio y el estanque del filtro de la caja de cartón.
3. Monte el filtro en una losa permanente, preferiblemente de concreto vaciado en un molde o en una plataforma construida de bloque de concreto o de ladrillo. NO USE arena para nivelar el filtro o para el montaje de la bomba pues se va a esparcir.
4. Proporcione espacio y luz para el acceso para el mantenimiento de rutina. No monte los controles eléctricos sobre el filtro. Es necesario el poder alejarse del filtro cuando se hace arrancar la bomba. Las necesidades mínimas de espacio se pueden encontrar en el filtro, en la placa grande del fabricante.
5. Ponga el filtro de modo que los agujeros estén en la posición final deseada. Siga el procedimiento de instalación de la válvula.
6. Si tiene una Válvula de Agujeros Múltiples, monte la válvula en el estanque, asegurándose que los anillos O en los accesorios de la válvula estén en su lugar y limpios. Use un lubricante aplicado en capas delgadas, tal como la grasa de silicona, Dow #33, #40 o GE 300 o 623, o un producto similar en los anillos O y en las ranuras de los anillos O, antes del montaje.
7. Si tiene una válvula de deslizamiento de dos posiciones, alinee la válvula con el estanque de modo que la manilla esté hacia la parte superior del estanque, empuje las válvulas en los agujeros y gire las tuercas de la válvula apretadamente en los accesorios del estanque. No es necesario asegurar las tuercas, de la válvula en el accesorio del estanque más que lo que se puede hacer manualmente.
8. Las correas del envío que se usaron para soportar el multidifusor TR100C-3, TR140C y TR140C-3 se deben remover, antes de cargar la arena y la grava en el filtro.
9. Las especificaciones de la arena - asegúrese que se use la arena adecuada tal como se ha descrito en la Tabla 2. Antes de vaciar la arena en el filtro, mire adentro y verifique el drenaje inferior para verificar si hay laterales sueltos o rotos (o dedos) los que se pueden haber dañado por accidente debido al manejo abrupto durante el manejo. Cambie las partes rotas si es necesario.

AVISO: La distancia del espacio libre es la variable de más importancia y se debe mantener. La densidad de la arena variará y por lo tanto la cantidad de arena se da como referencia.

Tabla 2.

MODELO	ESPACIO LIBRE "X"	TODO ARENA* (LIBRAS)	MATERIAL DE FILTRO † (LIBRAS)	
			GRAVILLA ‡	ARENA
TR40	8 1/4"	175	50	125
TR50	9 3/4"	225	50	175
TR60	10 1/2"	325	50	275
TR60 ClearPro	10 1/2"	325	50	275
TR100	11 1/4"	600	150	450
TR100HD	11 1/4"	600	150	450
TR100C-3	11 1/4"	600	150	450
TR140	13 1/2"	925	275	650
TR140C-3	13 1/2"	925	275	650



† Material necesario para cumplir con los requisitos de NSF.

‡ La gravilla tiene que ser de 1/4" a 1/8" dia.

* La arena tiene que ser silicea estandar #20 (el coeficiente de uniformidad no mayor que 1.75) .018-.020 en diametro tamaño de particula.

⚠ ADVERTENCIA Si no se coloca la Ventilación de Aire Automática dentro del Cierre se permitirá que se atrape aire en exceso y que se acumule en el filtro. El aire atrapado y el cierre que no está cerrado en forma adecuada pueden hacer que se produzcan fugas en el cierre y producir lesiones corporales graves y/o daño a la propiedad.

10. Pivotee el difusor fuera del centro del estanque en los TR40, 50, 60, TR60 ClearPro,100 y 140 rotando el conjunto del difusor en el sentido contrario en que giran las manillas del reloj. (***AVISO:*** El conjunto del multidifusor no se debe mover en los modelos TR100HD, TR100C, TR100C-3 y TR140C, TR140C-3. Después de instalar el material del filtro tal como se ha descrito a continuación revise para verificar que las partes superiores de los difusores estén paralelas con la parte superior de la capa do arena.) Llene el estanque con agua hasta alrededor de la mitad. Vacíe gravilla primero (si se va a usar) y luego arena en la parte superior del filtro lentamente de modo que el impacto del material del filtro no daño los laterales. Vea la información en la Tabla 2 en este manual para verificar la cantidad de arena y grava adecuada. Llene el filtro al nivel adecuado para mantener el espacio libre (vea la Tabla 2). Pivotee el conjunto del difusor de nuevo a su posición vertical si es que se movió. Asegúrese que la ventilación de aire automática está sobresaliéndose en la parte superior del cierre tal como se indica a continuación en la Figura 1. Asegúrese que la ventilación de aire automática está en el centro del cierre del filtro. Lave toda la arena alrededor de la abertura roscada en la parte superior del estanque.

⚠ ADVERTENCIA

Para Cierre Enroscado

Tenga cuidado al instalar el cierre. El cierre debe girar libremente en el filtro, si se siente resistencia a la insertión del cierre, remueva lentamente el cierre girándolo en el sentido contrario en que giran las manillas del reloj. La rosca del comienzo del estanque y el cierre tiene que engancharse en forma adecuada para poder asegurar el cierre. *No cruce las roscas del cierre.*

Si no se instala el cierre en forma adecuada se producirán fugas en el cierre y se pueden producir lesiones corporales graves y/o daño a la propiedad.

⚠ ADVERTENCIA

Del Cierre Ovalado

Tenga cuidado al instalar el cierre. El cierre se debe insertar en el estanque colocando el diámetro pequeño del cierre ovalado dentro del diámetro más grande de la abertura del estanque. Primero inserte el lado del cierre que no tiene la válvula de presión y el alivio de aire. El cierre se debe insertar en un ángulo de 30 grados. Una vez que el cierre esté dentro del estanque se puede rotar 90 grados y levantar para sellar el estanque. Ahora el puente de aluminio con resorte ya se puede colocar sobre el perno del cierre y se puede apretar la manija con la mano para colocar el cierre adecuadamente. La manija solamente se debe apretar con la mano. NO UTILICE UNA LLAVE INGLESA PARA APRETAR LA MANIJA. Si utiliza una llave inglesa puede dañar el estanque o el cierre y producir una falla. La incorrecta instalación del cierre puede ocasionar que el cierre se vuele y ésto puede producir lesiones personales graves o daño a la propiedad.

NUNCA TRATE DE APRETAR O SOLTAR EL CIERRE CON LA BOMBA FUNCIONANDO. Si no se siguen estás instrucciones se pueden producir fugas en el cierre y producir lesiones corporales graves o daño a la propiedad.

11. Monte el medidor de presión y la válvula del purgador en la tapa del cierre. Limpie el anillo O en la tapa y lubríquela con grasa de silicona tal como Dow #33, 40 o con lubricante GE 300, 623. Ponga la tapa del cierre en el filtro y apriétela, asegurándose que la ventilación de aire esté hacia arriba dentro de la cúpula del cierre.
12. Con la llave de plástico que viene incluida con el filtro, apriete el cierre lo más apretado posible usando las dos manos en los mangos de la llave. Como un mínimo, el cierre tiene que ser apretado con la mano + 1/4 de vuelta.
13. El cierre ovalado que se usa en los modelos TR140C-3 y TR100C-3 deberá instalarse según se describe en la nota de advertencia del cierre ovalado mencionada anteriorment.
14 . Monte las tuberías y los accesorios en la bomba y la válvula. Todas la tuberías tienen que cumplir con los códigos sanitarios y de plomería estatales y locales.
15. Use los compuestos de sellado en todas las conexiones de tuberías y accesorios machos. Use sólamente los compuestos de tuberías adecuados para las tuberías de plástico. Apoye las tuberías para evitar el esfuerzo en el filtro, la bomba y la válvula.
16. Las extensiones de tuberías largas y los codos restrigen el flujo. Para conseguir la mayor eficiencia, use el menor número posible de accesorios y una tubería de diámetro grande (por lo menos 2” para TR100 y TR140, por lo menos 3” para TR100C-3 y TR140C-3).

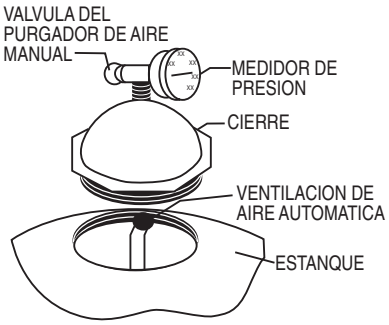


Figura 1.

ESPAÑOL

⚠ PRECAUCIÓN La operación a niveles de aspiración excesivos puede hacer que el estanque se rompa y se pueden producir daños a la propiedad.

17 . Al instalar las líneas de enjuague, se recomienda instalar un freno de vacío en las instalaciones en donde la longitud de la línea de enjuague excede los 40 pies o la línea de enjuague se vacía a más de 10 pies abajo de la superficie del depósito. Como alternativa se debe proporcionar un foso para el freno de vacío.

18. Se recomienda el uso de una válvula de retención entre el filtro y el calentador para evitar el retroceso del agua caliente que dañaría el filtro y la válvula.

19. La presión de operación máxima de la unidad es de 50 libras por pulgada cuadrada (psi) y 75 libras por pulgada cuadrada (psi) solamente para el modelo Triton HD. Nunca opere este filtro encima de éstas presiones o añada una bomba a este filtro que tiene más de 50 psi de presión de cierre o 75 psi de presión de cierre solamente para el modelo Triton HD.

20. Nunca instale el clorinador flujo arriba del filtro. Siempre ubíquelo flujo abajo y con una válvula de retención entremedio del clorinador y del filtro.

21. No se recomienda el uso de una válvula de cierre positivo en la salida del sistema de filtración. Si alguna vez el sistema se hace funcionar con tal válvula cerrada, el sistema de alivio de aire interno deja de funcionar y puede producirse una situación separación. Además, si se hace funcionar el sistema sin flujo se dañará el equipo gravemente.

22. Nunca guarde los productos químicos de la piscina dentro de 10 pies del filtro de la piscina. Los productos químicos de la piscina siempre se tienen que guardar en un área fresca, seca y bien ventilada.

23. El cierre ovalado que se usa en los modelos TR140C-3 y TR100C-3 est á diseñado para operar como un mecanismo de alivio de vacio, esto protege al estanque de condiciones al vacio. El cierre permitirá que el aire entre al estanque si el estanque se encuentra ubicado a 8 pies por encima del nivel del agua. En estos casos, cuando el filtro se arranca nuevamente después de haberlo apagado, es posible que usted observe cómo el aire regresa a la piscina por las tuberías de retorno. Esto es normal, ya que el alivio de aire automático en el filtro está sacando el aire del filtro.

Arranque Inicial

1. Limpie una piscina nueva antes de llenarla con agua. La mugre en exceso y las partículas grandes pueden hacer daño a su bomba y al sistema del filtro.
2. Asegúrese que la tubería de lavado por corriente esté abierta de modo que el agua quede libre de entrar desde la piscina y salir fuera de la tubería de lavado por corriente. Ajuste la válvula en la posición a continuación:
   a. Si se usa una válvula de Agujeros Múltiples, ajústela en la posición de lavado por corriente (BACKWASH).
   b. Si se usa una válvula de Deslizamiento de Dos Posiciones, empuje la manilla para abajo a la posición de lavado por corriente y enganche el seguro torciendo la manilla.
3. Asegúrese que el depósito del colador de la bomba esté lleno con agua.

⚠ ADVERTENCIA Si entra aire en el filtro y el cierre del estanque no está instalado en forma adecuada se pueden producir escapes en el cierre y daños corporales graves y/o daño a la propiedad.

4. Revise el cierre en el filtro para verificar si está apretado.
5. Abra el purgador de aire manual en el cierre del filtro. Aléjese del filtro y haga arrancar la bomba dejando tiempo para que se cebe.
6. Cierre el purgador de aire en el cierre cuando se haya removido todo el aire del filtro y salga un chorro de agua parejo.

AVISO: La arena de filtro de la piscina, típicamente, se prelava y no debe necesitar mucho lavado por corriente. Sin embargo, el proceso de envío puede producir una abrasión excesiva que puede exigir un ciclo de lavado por corriente largo en el arranque inicial; continúe lavando por corriente hasta que el agua observada en el tubo indicador esté tan transparente como la de la piscina.

⚠ PRECAUCIÓN Para evitar daño en el equipo y una posible lesión, siempre desconecte la bomba antes de cambiar la posición de la válvula.

7. Pare la bomba. Ajuste la posición de la válvula según to siguiente:
   a. Si se usa una válvula de Agujeros Múltiples, ajústela en la posición del filtro (FILTER).
   b. Si se usa una válvula de Deslizamiento de Dos Posiciones, levante la manilla a la posición del filtro y enganche el seguro de la válvula torciendo la manilla.
8. Asegúrese que todas las tuberías de succión y de retorno a la piscina estén abiertas de modo que el agua pueda salir y volver a la piscina libremente.
9. Abra el purgador de aire manual en el cierre del filtro. **Aléjese del filtro** y haga arrancar la bomba.
10. Cierre el purgador de aire en el cierre del filtro cuando todo el aire haya sido removido del filtro y salga un chorro de agua parejo.
11. El filtro ahora ha comenzado su ciclo de filtración. Tiene asegurarse que el agua está volviendo a la piscina y fijarse en la presión de operación cuando el filtro está limpio.

Sección 3
Mantenimiento

Esta sección describe cómo mantener su Filtro de Arena de Fibra de Vidrio Triton™.

Cuidado del Filtro

El filtro es una pane muy importante del equipo y de la instalación de su piscina. El cuidado y el mantenimiento adecuado van a agregar muchos años de servicio y de goce de su piscina. Siga estas sugerencias para contar con una operación duradera y sin problemas.

1. Para limpiar la mugre y el polvo del exterior del filtro, lávelo con un detergente suave y agua y luego mangueréelo. No use solventes.
2. Si se necesita mantenimiento interno, se tiene que remover la arena removiendo el drenaje de arena de la parte inferior del filtro y se debe lavar con una manguera de jardín. La parte Pentair Water Pool and Spa™ No. 542090 también se puede usar.
3. Si después de varios años, el estanque del filtro aparece descolorido y áspero en textura, la superficie del estanque tiene que pintarse. Recomendamos el uso de esmalte de rocío de secado rápido. **No Pinte la Válvula.**

⚠ ADVERTENCIA Siempre inspeccione visualmente los componentes del filtro durante el servicio normal para garantizar la seguridad estructural. Cambie cualquier artículo que esté partido, deformado o que en alguna otra forma se pueda percibir como defectuoso. Los componentes del filtro defectuosos pueden permitir las fugas en la parte superior del filtro o en los accesorios y producir lesiones corporales graves o daño a la propiedad.

4. El cierre del filtro en su filtro de arena Triton II se fabricó con materiales de alta calidad resistentes a la corrosión. Esta parte se debe inspeccionar cuidadosamente cuando se le da servicio a su filtro. Si ve que hay fugas excesivas que vienen de la interfase entre el cierre/estanque, el cierre y el Anillo O tienen que inspeccionarse cuidadosamente y cambiarse si hay alguna señal de deterioro.
5. Su filtro es un recipiente bajo presión y nunca debe recibir servicio cuando esté bajo presión. Siempre alivie la presión del estanque y abra el purgador de aire en el filtro antes de tratar de darle servicio.
6. Cuando vuelva a hacer arrancar el filtro siempre abra el purgador de aire manual en el cierre del filtro y aléjese del filtro.

Frecuencia de Limpieza

1. El filtro de una piscina nueva se tiene que lavar por corriente y limpiarse después de aproximadamente las primeras 48 horas de operación para limpiar el polvo de yeso y/o la basura de la construcción.
2. Hay tres maneras distintas de identificar cuándo el filtro necesita ser lavado por corriente.
   a. El indicador más preciso en los sistemas de piscina con un medidor de flujo es lavar por corriente cuando el flujo disminuye 30% comparado con el original (filtro limpio). Por ejemplo, si el flujo original era de 60 GPM, el filtro tiene que lavarse por corriente cuando el flujo se haya reducido en alrededor de 20 GPM (o 30%) a 40 GPM.
   b. Una indicación más subjetiva y menos precisa es observar la cantidad de agua que fluye de los dispositivos de dirección del flujo ubicados en la pared de la piscina. El filtro tiene que lavarse por corriente una vez que se haya detectado que el flujo se ha reducido en alrededor de 30%.
   c. La indicación que se usa más comúnmente pero es la menos precisa es lavar por corriente cuando la indicación del medidor del filtro aumenta 10 PSI sobre la inicial (filtro limpio).
3. Es importante no lavar por corriente el filtro sólamente en base a períodos de tiempo tal como cada tres días. También es importante fijarse que el lavado por corriente efectuado muy a menudo de hecho produce mala filtración. Los factores como las condiciones del tiempo, mucha lluvia, polvo y polen y las temperaturas del agua afectan la frecuencia del lavado por corriente. A medida que usa su piscina se va a dar cuenta de esas influencias.
4. Si en algún momento la presión de arranque después del lavado por corriente del filtro indica 4 a 6 PSI más alta que la presión de arranque normal, quiere decir que ha llegado el momento de lleva r a cabo el procedimiento de limpieza química.

Procedimiento de Lavado por Corriente del Filtro

⚠ ADVERTENCIA Para evitar el daño al eguipo y posibles lesiones, siempre desconecte la bomba antes decambiar las posiciones de la válvula.

1. Pare la bomba.
2. Asegúrese que la tubería de succión y la tubería de lavado por corriente estén abiertas de modo que el agua pueda entrar desde la piscina y salir pot la tubería del lavado por corriente. Ajuste la posición de la válvula según to siguiente:
   a. Si se usa una válvula de Agujeros Múltiples, ajústela en la posición de lavado por corriente (BACKWASH).
   b. Si se usa una válvula de Deslizamiento de Dos Posiciones, empuje la manilla para abajo a la posición de lavado por corriente y enganche el seguro torciendo la manilla.
3. **Aléjese del filtro** y haga arrancar la bomba.
4. Lave el filtro por corriente aproximadamente 3 a 5 minutos o hasta que el agua del lavado por corriente sale limpia.
5. Pare la bomba.
   a. Si está usando la válvula de Agujeros Múltiples, ajúste la válvula en la posición de enjuague y continúe con los pasos restantes.
   b. Si está usando la válvula de Deslizamiento de Dos Posiciones, vaya al paso 8.
6. **Aléjese del filtro** y haga arrancar la bomba.
7. Enjuague el filtro por aproximadamente 30 segundos.
8. Pare la bomba y ajuste la válvula según lo siguiente:
   a. Si está usando la válvula de Agujeros Múltiples, ajúste la válvula en la posición de filtro (FILTER).
   b. Si está usando la válvula de Deslizamiento de Dos Posiciones eleve la manilla a la posición de filtro y enganche el seguro de la válvula torciendo la manilla.
9. Asegúrese que la tubería de retorno de la piscina esté abierta de modo que el agua pueda fluir libremente de la piscina de vuelta a la piscina.
10. Abra el purgador de aire manual en el Cierre Triton II. Aléjese del filtro y haga arrancar la bomba.
11. Cierre el purgador de aire manual en el Cierre cuando se haya removido el aire y salga un chorro de agua parejo del purgador.
12. El filtro ahora ha empezado su ciclo de filtración. Tiene que asegurarse que el agua está volviendo a la piscina y tomar nota de la presión del filtro.
13. La presión del filtro en el paso 12 anterior no debe exceder la presión que se observó originalmente en el filtro cuando se hizo arrancar inicialmente. Si después de lavar por corriente, la presión está entre 4 a 6 PSI sobre la condición de arranque será necesario limpiar químicamente la capa de arena.

Procedimiento de Limpieza Química

1. Se recomienda utilizar un limpiador aprobado. Por favor comuníquese con un proveedor o un establecimiento de productos químicos para piscinas en su localidad para obtener el limpiador adecuado.

   Estos limpiadores van a remover aceites, escamas y óxido de la capa de arena en una operación de limpieza.
2. Mezcle una solución siguiendo las instrucciones del fabricante en la etiqueta.
3. Lave el filtro por corriente como se ha descrito anteriormente.
4. Si el filtro está por debajo del nivel de la piscina, desconecte la bomba y cierre la válvula apropiada para evitar que la piscina se vacíe.
5. Desconecte la bomba, abra el drenaje del filtro y permita que se vacíe el filtro. Ponga la válvula en la posición de lavado por corriente.
6. Después de que el filtro se haya drenado, cierre el drenaje del filtro y remueva la tapa del depósito del colador de la bomba.
7. Asegúrese que las tuberías de lavado por corriente estén abiertas.
8. Conecte la bomba y lentamente vacíe la solución de limpieza en el colador de la bomba con la bomba funcionando.
9. Continúe agregando solución hasta que la capa de arena esté saturada con la solución de limpieza. Vuelva a colocar la tapa en la bomba.
10. Apague la bomba y deje el filtro en la posición de lavado por corriente (BACKWASH). Permita que el filtro descanse de un día para el otro (12 horas).
11. Vuelva a colocar la tapa de la bomba y siga el procedimiento de lavado porcorriente que se ha descrito anteriormente.
12. No permita que la solución de limpieza caiga dentro de la piscina.

Preparacion del Filtro para el Invierno

1. En las áreas que tienen temperaturas de invierno que producen congelación, proteja el equipo de la piscina lavando el filtro por corriente.
2. Después de lavar el filtro por corriente,desconecte la bomba, abra el purgador de aire manual en el cierre y ajuste la válvula según lo siguiente:
   a. En las válvulas de Agujeros Múltiples, mueva la manilla a la posición de preparación para el invierno.*
   b. En la válvula de Deslizamiento de Dos Posiciones si es posible remueva el Conjunto del Pistón de la válvula, límpielo, lubríquelo y guárdelo en un lugar seco, por el invierno.
3. En los modelos TR40, 50, 60, y TR60 ClearPro, remueva el tapón tipo mariposa en la parte inferior del filtro. En el modelo TR100, TR100HD, TR100C, TR100C-3 y TR140, TR140C, TR140C-3 remueva la tapa del tapón de drenaje de 1-1/2”. El filtro se drenará muy lentamente y por lo tanto, se recomienda que el tapón de drenaje se deje afuera.

***AVISO:** La válvula de Agujeros Múltiples tiene que dejarse en la posición de preparación para el invierno durante la temporada en que la piscina no está en uso de modo que el desviador no tenga presión en el sello de caucho.

4. Drene todas las tuberías apropiadas del sistema.
5. Recomendamos que se cubra el equipo con una sábana de plástico o de lona impermeable para inhibir el deterioro debido al clima. No envuelva el motor de la bomba con el plástico.

Sección 4
Localización de Averías

Use la siguiente información de localización de averías para resolver posibles problemas con su Filtro Triton™.

ESTE FILTRO OPERA BAJO ALTA PRESIÓN

Cuando cualquier parte del sistema de circulación es revisado (por ejemplo, tapa, bomba, filtro, válvula(s), etc.), el aire puede ingresar al sistema y volverse presurizado. El aire presurizado puede hacer que la tapa superior se separe lo cual puede resultar en lesiones severas, muerte o daño de la propiedad. Para evitar este peligro potencial, siga estas instrucciones:

1. Si no está familiarizado con su sistema de filtración y/o calentador de piscina:
   a. **NO** intente ajustar o hacer una revisión sin consultar con su distribuidor o con un técnico de piscina calificado.
   b. Lea completamente la Guía del Usuario e Instalación antes de intentar usar, hacer una revisión o ajustar el sistema o calentador de filtración de la piscina.
2. Antes de volver a colocar la(s) válvula(s) y antes de empezar el ensamblaje, desmontaje o cualquier otro servicio del sistema de circulación: (A) Apague la bomba (**TURN OFF)** y desconecte **(SHUT OFF)** cualquiera de los controles automáticos para asegurarse que el sistema NO se encienda repentinamente durante la revisión; (B) abra la válvula de purga de aire manual; (C) espere hasta que toda la presión se haya liberado.
3. Cuando instale la tapa del filtro **SIGA EXACTAMENTE LAS ADVERTENCIAS DE LA TAPA DEL FILTRO.**
4. Una vez que complete el servicio en el sistema de circulación **SIGA EXACTAMENTE LAS INSTRUCCIONES INICIALES.**
5. Mantener el sistema de circulación adecuadamente. Remplazar las partes deterioradas dañadas (Ej., tapa, indicador de presión, válvula(s), anillos “O”, etc.).
6. Asegúrese que el filtro esté montado y colocado adecuadamente de acuerdo con las instrucciones provistas.

Nota: Desconecte la energía de la unidad antes de intentar hacer un servicio o reparación.

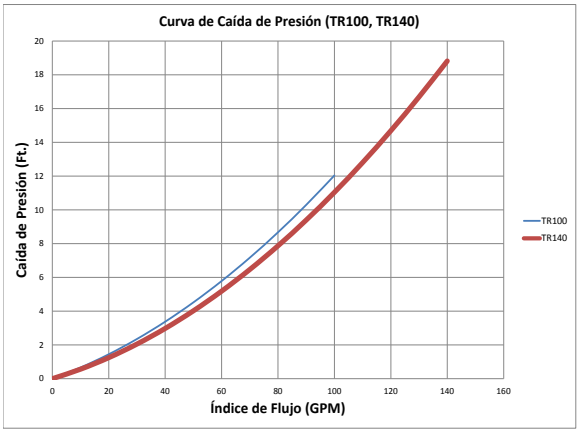
Problemas y Acciones Correctivas

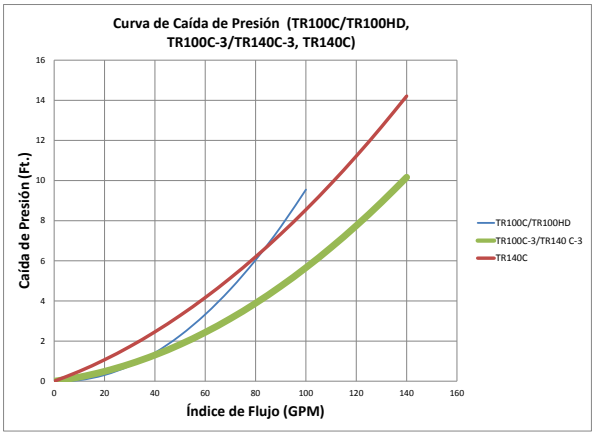
PROBLEMA	CAUSA	SOLUCIÓN
El agua de la piscina no está to suficientemente limpia.	1. La química de la piscina no es adecuada para inhibir el crecimiento de algas.	Mantenga la química de la piscina o consulte con el técnico de servicio de la piscina.
	2. Lavado por corriente muy frecuente.	Permita que la presión se acumule a 10 psi sobre la condición del filtro limpio antes de hacer el lavado por corriente.
	3. Cantidad inapropiada o tamaño de la arena equivocada.	Revise el espacio libre de la capa de arena y el tamaño de la arena o consulte con el técnico de servicio de la piscina.
	4. Velocidad de rotación inadecuada.	Haga funcionar el sistema por un tiempo más largo o consulte con el distribuidor o con el técnico de servicio de la piscina.
Alta presión del filtro.	1. Lavado por corriente insuficiente.	Lave por corriente hasta que el agua efluente salga transparente.
	2. La capa de arena tapada con depósitos minerales.	Limpie el filtro químicamente.
	3. La válvula está parcialmente cerrada.	Abra la válvula o remueva la obstrucción en la tubería de retorno.
Ciclos cortos.	1. Lavado por corriente inadecuado.	Lave por corriente hasta que el agua efluente salga transparente.
	2. La química de la piscina no es adecuada para inhibir el crecimiento de algas.	Mantenga la química de la piscina o consulte con el técnico de servicio de la piscina.
	3. La capa de arena está tapada.	Remueva manualmente 1” de la superficie superior de la capa de arena y cámbiela por arena nueva y limpie químicamente toda la arena según se ha descrito en la seccion Procedimiento de Limpieza Química.
	4. La velocidad del fiujo demasiado alta.	Restrinja el flujo a la capacidad del filtro.

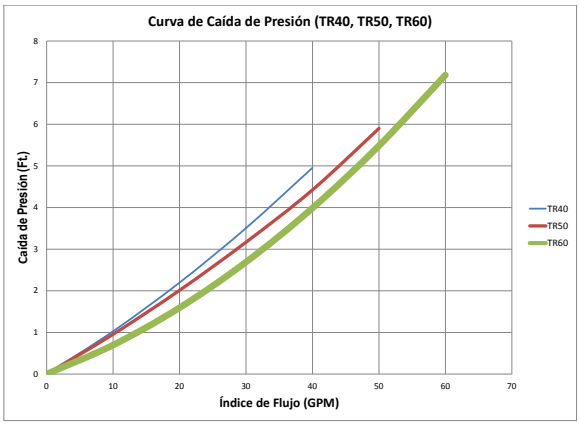
PROBLEMA	CAUSA	SOLUCIÓN
Flujo de retorno a la piscina disminuido. Presión del filtro baja.	1. Obstrucción en el colador de pelusa y cabello de la bomba. 2. Obstrucción en la bomba. 3. Obstrucción en la tubería de succión a la bomba.	Limpie el canasto en el colador. Desmonte y limpie la bomba. Limpie el canasto despumador. Remueva la obstrucción en las tuberías. Abra las válvulas en la tubería de succión.
La arena vuelve a la piscina.	1. Lateral debajo del drenaje quebrado.	Cambie el lateral dañado o roto.
La arena se pierde en el desecho.	1. Velocidad del lavado por corriente demasiado alta. 2. Tamaño de la arena inadecuado. 3. El colador de aire está dañado o falta.	Reduzca la velocidad del flujo del lavado por corriente. Cambie a la arena apropiada. Cambie los componentes dañados.
Fuga en el cierre.	1. Cierre mal apretado. 2. Mugre o contaminación en la superficie de sellado. 3. Parte dañada.	Desconecte la bomba, alivie la presión del estanque, abra el purgador de aire, apriete el cierre en forma adecuada. Desconecte la bomba, alivie la presión del estanque, abra el purgador de aire, remueva el cierre y limpie todas las superficies de sellado. Vuelva a montar el cierre en forma adecuada. Lo mismo que to anterior, excepto que cambie el anillo O dañado, el cierre, el estanque o cualquier combinación de las partes según sea necesario.
Tapón que gotea.	1. Conjunto de tapón apretado. 2. Tierra o contaminación en las superficies de sello. 3. Parte dañada.	Apague la bomba, alivie la presión del tanque, abra el purgador de aire, quite el cierre y quite la arena para accesar el tapón que gotea en el TR40, 50, 60,TR60 ClearPro, 100, 100C, 140 ó 140C. Sostenga el tapón de 2" y apriete la tuerca de seguridad interna de 2". En el TR100C-3 o TR140C-3 usando la llave especial 154020, sostenga el espaciador con brida de 3" y con la llave 154019, apriete el adaptador con brida de 3". Apriete 1/2 vuelta más manualmente. Apague la bomba, alivie la presión del tanque, abra el purgador de aire, quite el cierre y quite la arena para accesar el tapón que gotea. Quite las adherencias internas del tanque y quite el conjunto del tapón. Limpie todas las superficies de acoplamiento y los sellos. Reemplace el conjunto del tapón y tenga cuidado para instalar adecuadamente. Apriete el conjunto como se indica anteriormente. Igual que en el punto anterior, excepto que reemplace la parte o combinación de partes dañadas.

Sección 5
Partes de Repuesto

Curva de Caída de Presión para los Filtros de Arena Series Triton™



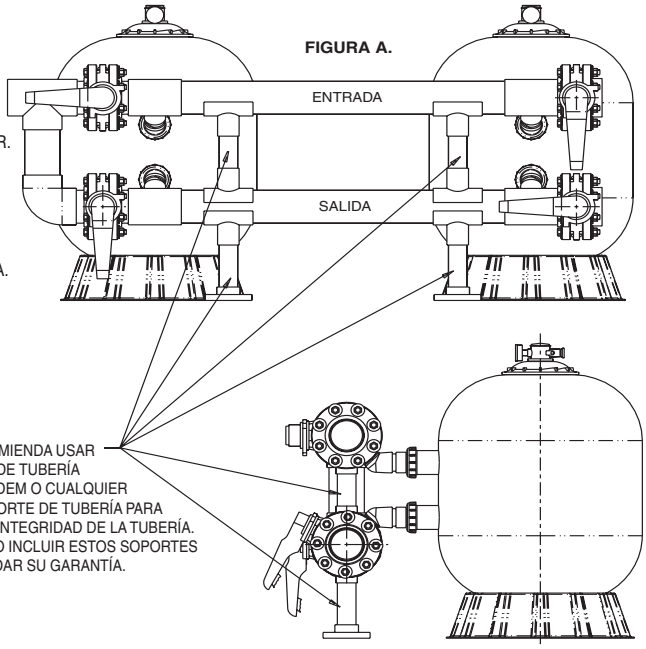




Instalación de Filtros Múltiples con Kits de Tuberías de Filtros Tandem

PRECAUCIÓN: CUANDO SE INSTALAN FILTROS MÚLTIPLES, RECOMENDAMOS AMPLIAMENTE USAR UN KIT DE TUBERÍA DE FILTRO TANDEM PENTAIR. ESTOS KITS INCLUYEN OPORTES DE CAÑERÍAS (ENTRE LA TUBERÍA DE ENTRADA Y SALIDA Y ENTRE LA TUBERÍA DE SALIDA Y EL SUELO) PARA ASEGURAR LA INTEGRIDAD DE LA INSTALACIÓN, VÉASE FIGURA A.

FIGURA A.

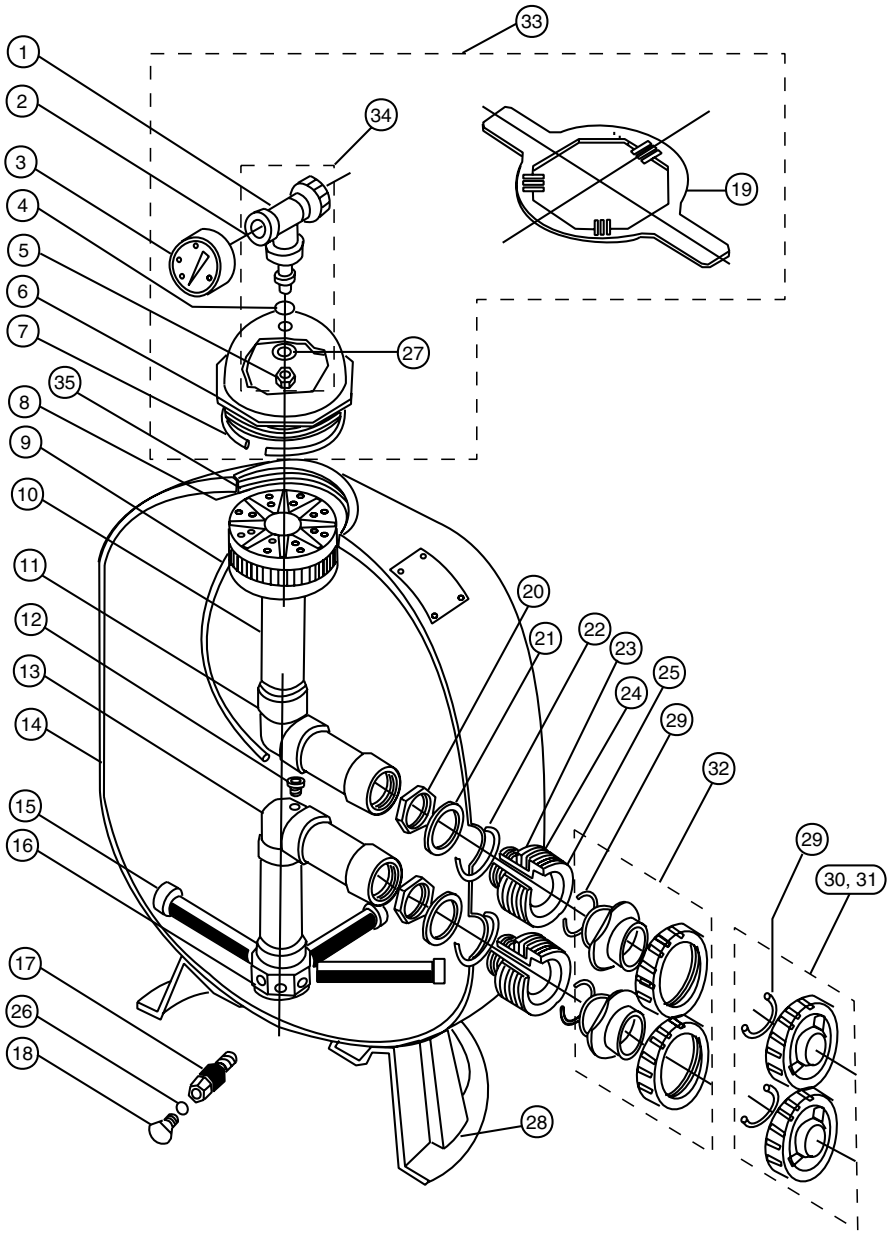


PRECAUCIÓN: PENTAIR RECOMIENDA USAR EL(LOS) KIT(S) DE TUBERÍA DE FILTRO TANDEM O CUALQUIER CLASE DE SOPORTE DE TUBERÍA PARA ASEGURAR LA INTEGRIDAD DE LA TUBERÍA. EN CASO DE NO INCLUIR ESTOS SOPORTES PODRÍA INVALIDAR SU GARANTÍA.

FILTROS DE ARENA DE FIBRA DE VIDRIO TRITON™ II Y TR60 CLEARPRO

TR40
TR50
TR60
TR60 ClearPro
TR100
TR140

Partes de Repuesto



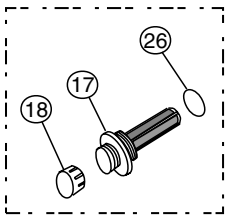
DETALLE A
Después de Dec. 1, 1991
ROSCA CONTRAFUERTE DE 6"

DETALLE B
Antes de Dec. 1, 1991
ROSCA "V" DE 6"

Los filtros fabricados después del 1 de diciembre de 1991 utilizan una rosca de contrafuerte de 6 pulg. en la apertura superior del tanque del filtro y la tapa, véase el Detalle A.

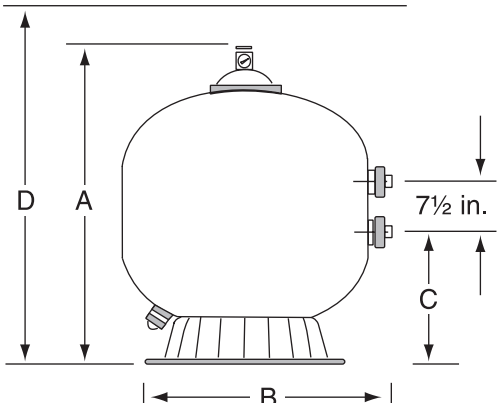
Los filtros fabricados antes del 1 de diciembre de 1991 utilizan una rosca de tipo. "V" de 6 pulg., véase el Detalle B.

Las tapas de 6 pulg. de los Detalles A. y B. NO se pueden intercambiar.



★ Usado en Filtros TR100 y TR140.

Espacio Vertical Necesario



MODELO	DIM. A.	DIM. B.	DIM. C.	DIM. D.
TR40	30½ in.	19½ in.	10¾ in.	32½ in.
TR50	34¾ in.	21½ in.	11-7/8 in.	36¾ in.
TR60	35½ in.	24½ in.	13-5/8 in.	37½ in.
TR60 ClearPro	35½ in.	24½ in.	13-5/8 in.	37½ in.
TR100	39¾ in.	30½ in.	16¼ in.	41¾ in.
TR140	45¼ in.	36½ in.	8¾ in.	47¼ in.

ESPAÑOL

ARTICULO	NO. DEL REPUESTO	TRITON II Y TR60 CLEARPRO DESCRIPCION
1	154689	CONJUNTO PURGADOR DE AIRE/T
2	154700	ADAPTADOR - PURGADOR DE AIRE DE LATON
3	155050	MEDIDOR - PRESION DE MONTAJE TRASERA
4	154661	ANILLO-O - ADAPTADOR DEL PURGADOR DE AIRE
5	154664	TUERCA - 3/8"- 16 ACERO INOXIDABLE
6	154570	CIERRE - ROSCA TRAPEZOIDAL 6" - (VEA DETALLE A)
6	154559	CIERRE - ROSCA "V" 6" - NEGRO (VEA DETALLE B)
7	154493	ANILLO-O - CIERRE
8	150035	COLADOR - ECL/TR
9	150039	TUBERIA - ALIVIO DE AIRE TR40
9	150040	TUBERIA - ALIVIO DE AIRE TR50/60
9	150041	TUBERIA - ALIVIO DE AIRE TR100
9	150042	TUBERIA - ALIVIO DE AIRE TR140
10	154598	CONJUNTO DIFUSOR TR40/50
10	154599	CONJUNTO DIFUSOR TR60
10	154462	CONJUNTO DIFUSOR TR100
10	154906	CONJUNTO DIFUSOR TR140
11	154803	CONJUNTO DE TUBERIA - SUPERIOR TR40
11	156814	CONJUNTO DE TUBERIA - SUPERIOR TR50
11	154533	CONJUNTO DE TUBERIA - SUPERIOR TR60
11	154426	CONJUNTO DE TUBERIA - SUPERIOR TR100
11	154500	CONJUNTO DE TUBERIA - SUPERIOR TR140
12	150036	CONECTOR TUBERIA DE ALIVIO DE AIRE
13	154801	CONJUNTO DE TUBERIA - INFERIOR TR40
13	156816	CONJUNTO DE TUBERIA - INFERIOR TR50
13	154805	CONJUNTO DE TUBERIA - INFERIOR TR60
13	155284	CONJUNTO DE TUBERIA - INFERIOR TR60 ClearPro-1/4 Vuelta Lateral
13	154807	CONJUNTO DE TUBERIA - INFERIOR TR100
13	154489	CONJUNTO DE TUBERIA - INFERIOR TR140
14	154636	CONJUNTO TANQUE Y PIE TR40 - ROSCA TRAPEZOIDAL 6"- (VEA DETALLE A)
14	154637	CONJUNTO TANQUE Y PIE TR50 - ROSCA TRAPEZOIDAL 6"- (VEA DETALLE A)
14	154638	CONJUNTO TANQUE Y PIE TR60 - ROSCA TRAPEZOIDAL 6"- (VEA DETALLE A)
14	154639	CONJUNTO TANQUE Y PIE TR100 - ROSCA TRAPEZOIDAL 6"- (VEA DETALLE A)
14	154640	CONJUNTO TANQUE Y PIE TR140 - ROSCA TRAPEZOIDAL 6"- (VEA DETALLE A)

FILTROS DE ARENA DE FIBRA DE VIDRIO TRITON™ II y TR60 CLEARPRO

Partes de Repuesto

TR40
TR50
TR60
TR60 ClearPro
TR100
TR140

NOTAS

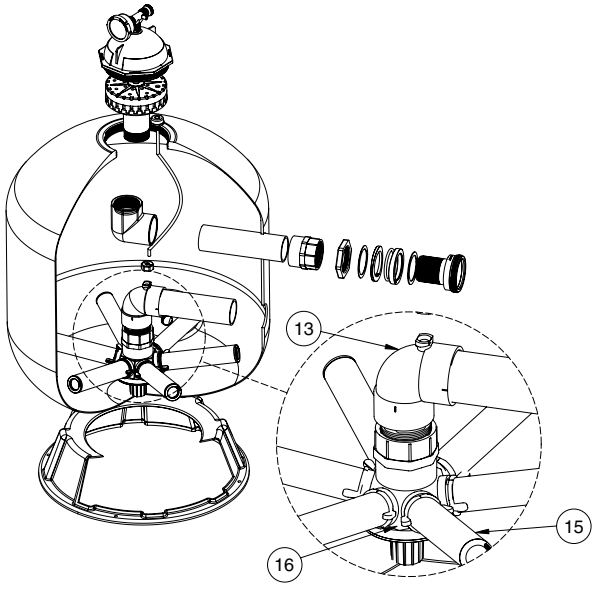
Los filtros fabricados después del 1 de diciembre de 1991 utilizan una rosca de contrafuerte de 6 pulg. en la apertura superior del tanque del filtro y la tapa, véase el Detalle A.

Los filtros fabricados antes del 1 de diciembre de 1991 utilizan una rosca de tipo. "V" de 6 pulg., véase el Detalle B.

Las tapas de 6 pulg. de los Detalles A. y B. NO se pueden intercambiar.

Para determinar la fecha de fabricación los 4 primeros dígitos del número de serie indican el mes y año en el que el producto fue fabricado.

TR60 ClearPro - 1/4 Vuelta Lateral para filtros fabricados después de que Mayo 15, 2007 utilice Conjunto de Tuberia - Inferior P/N 155284.



DETAILED VIEW

Detalle para Triton™ II - TR60 Filtros con ClearPro Technology™

ARTICULO	NO. DEL REPUESTO	TRITON II Y TR60 CLEARPRO DESCRIPCION
15	152290	LATERAL - 6-11/16" L TR/40/50/60, 8 requerir
15	150085	LATERAL - 1/4 Vuelta TR60, 6 requerir
15	150088	LATERAL - TR60 ClearPro, 6 requerir
15	152202	LATERAL - 9-1/8" L TR100, 8 requerir ❷
15	154543	LATERAL - 6-1/2" L TR100, 8 requerir ❶
15	154540	LATERAL 12" L TR140, 8 requerir
16	154763	CUBO LATERAL TR40/50/60
16	152222	CUBO LATERAL TR60 ClearPro
16	154453	CUBO LATERAL TR100/140
17	152220	DRENAJE DE ARENA 2" ❻
17	154698	GRIFO - 3/4" NPT DRENAJE DE ARENA ❹
17	154685	GRIFO - 1/2" NPT DRENAJE DE ARENA ❸
18	154871	TAPA ENROSCADA 1½" ❻
18	357161	TAPON 1/4" NPT DRENAJE
19	154512	LLAVE CIERRE 6"
19	154510	LLAVE CIERRE ALUMINIO
19	151608	LLAVE CIERRE 8½" ALUMINIO
20	154412	TUERCA DE SEGURIDAD - INTERNA 2", 2 requerir
21	154416	ESPACIADOR - INTERNO 2", 2 requerir
22	154492	ANILLO-O - TAPON 2", 2 requerir
23	154408	ESPACIADOR - EXTERNO 2", 2 requerir
24	154538	EMPAQUETADURA - TAPON 2", 2 requerir
25	154405	TAPON - 2", 2 requerir
26	274494	ANILLO-O - 3/16" X 2-5/8" i.d. ❻
26	192115	ANILLO-O - #2-12 ADAPTADOR DE AIRE
27	154418	ARANDELA 3/8" ACERO INOXIDABLE
28	154926	PIE - DIA.16", TR40/50 (NOTA 1)
28	154520	PIE - DIA.19", TR60
28	154596	PIE - DIA. 24", TR100/140 (NOTA 1)
29	274494	ANILLO-O - ADAPTADOR DE VALVULA, 2 requerir
30	271092	JUEGO - ADAPTADOR DE ROSCA 2" ROSCADO ❺
31	271094	JUEGO - ADAPTADOR DE ROSCA 1½" ROSCADO ❺
32	271096	JUEGO - ADAPTADOR DE ROSCA 2 & 1½" SLP ❺
33	154641	JUEGO CIERRE, ROSCA TRAPEZOIDAL 6" - NEGRO (VEA DETALLE A)
33	154697	JUEGO CIERRE, ROSCA "V" 6" - MARRÓN (VEA DETALLE B)
33	154856	JUEGO CIERRE, ROSCA TRAPEZOIDAL 8½" - NEGRO
34	154687	PAQUETE DE ACCESORIOS - COMPLETO (NOTA 2)
35	154611	ESPACIADOR - COLADOR VENTILACION AIRE 3-3/4" - TR40
35	154612	ESPACIADOR - COLADOR VENTILACION AIRE 4-1/2" - TR50/60
35	154613	ESPACIADOR - COLADOR VENTILACION AIRE 5-1/2" - TR100
35	154614	ESPACIADOR - COLADOR VENTILACION AIRE 5" - TR140
	154402	CINTA - MONTAJE PIE TR40/50/60, 3 requerir
	154407	CINTA - MONTAJE PIE TR100/140, 3 requerir
	151602	LLAVE TAPON 2"
	154714	JUEGO - TAPON, INCLUYE ARTICULOS 20 AL 25

FILTROS DE ARENA DE FIBRA DE VIDRIO TRITON™ II y TR60 CLEARPRO

Partes de Repuesto

TR40
TR50
TR60
TR60 ClearPro
TR100
TR140

NOTAS

Los filtros fabricados después del 1 de diciembre de 1991 utilizan una rosca de contrafuerte de 6 pulg. en la apertura superior del tanque del filtro y la tapa, véase el Detalle A.

Los filtros fabricados antes del 1 de diciembre de 1991 utilizan una rosca de tipo. "V" de 6 pulg., véase el Detalle B.

Las tapas de 6 pulg. de los Detalles A. y B. NO se pueden intercambiar.

Para determinar la fecha de fabricación los 4 primeros dígitos del número de serie indican el mes y año en el que el producto fue fabricado.

❶ Usado en Filtros fabricados antes del 5-85.
❷ Usado en Filtros fabricado después del 5-85.
❸ Usado en Filtros fabricados antes del 3-83.
❹ Usado en Filtros fabricados después del 3-83 hasta el 3-96
❺ Para Instalaciones sin Válvula (Par).
❻ Usado en Filtros TR100 y 140.

NOTA 1: Para reemplazar el pie del tanque se requiere el uso de una cinta para montaje de pie. Véase N/P.

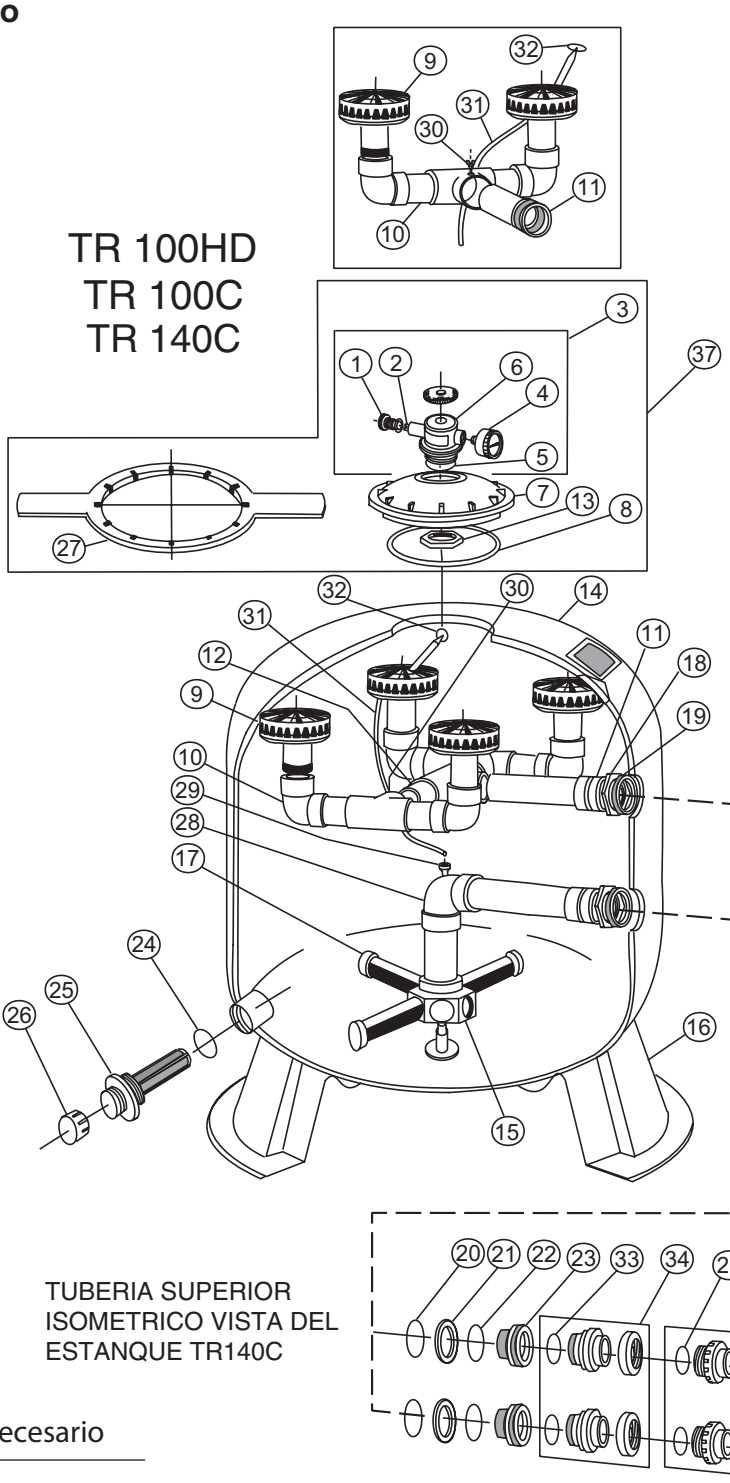
NOTA 2: El paquete de accesorios incluye artículos 1, 2, 4, 5 y 27.

FILTROS DE ARENA DE FIBRA DE VIDRIO TRITON™ 100HD, 100C y 140C

Partes de Repuesto

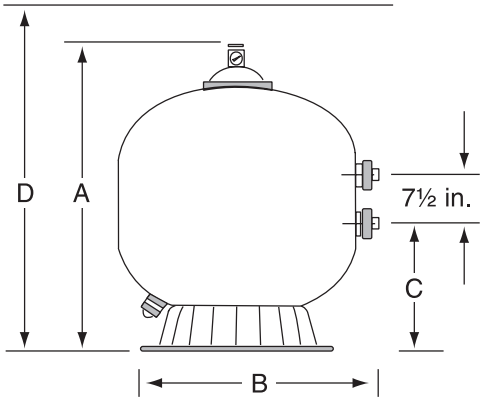
TR100HD
TR100C
TR140C

TR 100HD
TR 100C
TR 140C



TUBERIA SUPERIOR
ISOMETRICO VISTA DEL
ESTANQUE TR140C

Espacio Vertical Necesario



MODELO	DIM. A	DIM. B	DIM. C	DIM. D
TR100C	39¾ in.	30½ in.	16½ in.	43¾ in.
TR140C	45¼ in.	36½ in.	18¾ in.	49¼ in.
TR100HD	39¾ in.	30½ in.	16¼ in.	41¾ in.

ARTICULO	NO. DEL REPUESTO	TRITON 100HD, 100C Y 140C DESCRIPCION
1	273512	PURGADOR DE AIRE CON ANILLO-O
2	273513	ANILLO-O TORNILLO DEL PURGADOR DE AIRE
3	273564	CONJUNTO DE ALIVIO DE AIRE MANUAL
4	155050	MEDIDOR DE PRESION
4	991481	MEDIDOR DE PRESION TR100C/TR100HD ❷
5	274494	ANILLO-O - 3/16" X 2-5/8" i.d.
6	273564	VALVULA DE CUERPO MAQUINADO
7	154575	CIERRE ROSCA TRAPEZOIDAL 8½"
8	152509	ANILLO CUADRADO 8½"
9	154599	DIFUSOR (SE REQUIEREN 2 EN TR100C/ TR100HD) ❶
9	154599	DIFUSOR (SE REQUIEREN 4 EN TR140C) ❶
10	156355	CONJUNTO DE TUBERIA SUPERIOR TR100C/ TR100HD/TR140C ❶
11	156344	ENTRADA AL CONJUNTO DE TUBERIA SUPERIOR TR100C/TR100HD/TR140C
12	156354	CONJUNTO - CONEXION DE TUBERIA SUPERIOR TR140C
13	154412	TUERCA-2" INTERNA
14	153430	CONJUNTO TANQUE Y PIE TR100C/TR100HD ROSCA TRAPEZOIDAL 8½" NEGRO
14	153431	CONJUNTO TANQUE Y PIE TR140C ROSCA TRAPEZOIDAL 8½" NEGRO
14	156224	CONJUNTO TANQUE Y PIE TR100HD - ROSCA TRAPEZOIDAL 6"- NEGRO HD
15	154453	CUBO LATERAL TR100C/TR100HD/TR140C
16	154596	PIE - 24" DIAMETRO - TR100C/TR100HD/ TR140C
17	152202	LATERAL 9-1/8" L TR100C/TR100HD
17	154540	LATERAL 12" L TR140C
18	154412	TUERCA DE SEGURIDAD INTERNA 2"
19	154416	ESPACIADOR INTERNO 2"
20	154492	ANILLO-O TAPON 2"
21	154408	ESPACIADOR EXTERNO 2"
22	154538	EMPAQUETADURA
23	154405	TAPON - 2"
24	274494	ANILLO-O - 3/16" X 2-5/8" i.d.
	154407	CINTA MONTAJE PIE
25	152220	MONTAJE - DRENAJE DE ARENA DE 2"
26	154871	TAPA CON ROSCA
27	154527	LLAVE - CIERRE 8½"
27	151608	LLAVE - CIERRE 8½" ALUMINIO

FILTROS DE ARENA DE FIBRA DE VIDRIO TRITON™ 100HD, 100C y 140C

Partes de Repuesto

TR100C
TR140C
TR100HD

ARTICULO	NO. DEL REPUESTO	TRITON 100HD, 100C Y 140C DESCRIPCION
28	154807	CONJUNTO DE TUBERIA INFERIOR TR100C/TR100HD
28	154489	CONJUNTO DE TUBERIA INFERIOR TR140C
29	150036	TUBO CONECTOR DE ALIVIO DE AIRE
30	273071	TORNILLO #14 18-8 ❶
31	150041	TUBO ALIVIO DE AIRE TR100C/TR100HD
31	150042	TUBO ALIVIO DE AIRE TR140C
32	150035	COLADOR - ALIVIO DE AIRE
33	274494	ANILLO-O ADAPTADOR DE VALVULA
34	271096	JUEGO - ADAPTADOR SIN VALVULA 2" Y 1½" PAR SLP
35	271092	JUEGO - ADAPTADOR SIN VALVULA 2" PAR ROSCADO
36	271094	JUEGO - ADAPTADOR SIN VALVULA 1½" PAR ROSCADO
37	154856	JUEGO - CIERRE ROSCA TRAPEZOIDAL 8½" NEGRO

NOTAS

❶ Se requieren cantidades diferentes para los Filtros TR100C y TR140C.

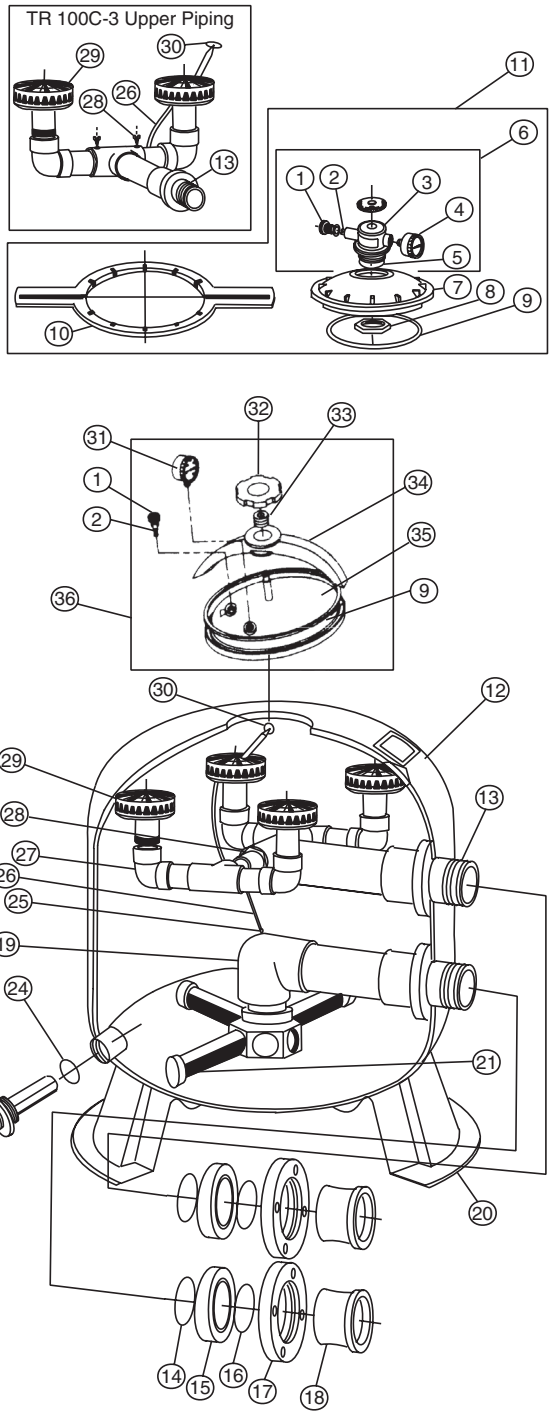
❷ Usado en Filtros TR100HD

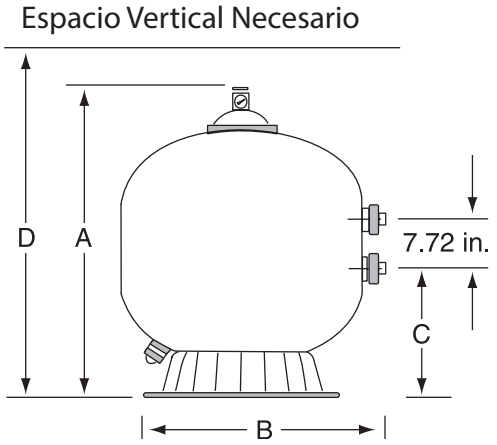
ESPAÑOL

FILTROS DE ARENA DE FIBRA DE VIDRIO TRITON™ 100C-3 y 140C

Partes de Repuesto

TR100C-3
TR140C-3





MODELO	DIM. A	DIM. B	DIM. C	DIM. D
TR100C-3	39¾ in.	30½ in.	16-1/16 in.	43¾ in.
TR140C-3	45¼ in.	36½ in.	18½ in.	49¼ in.

ARTICULO	NO. DEL REPUESTO	TRITON 100C-3 Y 140C-3 DESCRIPCION
1	273512	PURGADOR DE AIRE CON ANILLO-O ❷❸
2	273513	ANILLO-O TORNILLO DEL PURGADOR DE AIRE ❷
3	273564	VALVULA DE CUERPO MAQUINADO ❷
4	155050	MEDIDOR DE PRESION ❷
5	154494	ANILLO-O - ADAPTADOR 6" ❷
6	273564	CONJUNTO DE ALIVIO DE AIRE MANUAL ❷
7	154575	CIERRE 8½" ❷
8	154412	TUERCA-2" INTERNA ❷
9	152509	ANILLO CUADRADO - CIERRE ❷❸
10	154527	LLAVE - CIERRE 8½" ❷
11	154856	JUEGO - CIERRE ROSCA TRAPEZOIDAL 8½" ❷
11	156842	JUEGO - CIERRE CON JUNTA 8½" ❹
12	153430	CONJUNTO ESTANQUE Y PIE TR100C-3 TRAPEZOIDAL
12	153431	CONJUNTO ESTANQUE Y PIE TR140C-3 TRAPEZOIDAL
13	154007	CONJUNTO TUBERIAS SUPERIORES TR100C-3
13	154008	CONJUNTO TUBERIAS SUPERIORES TR140C-3
14	154005	ANILLO-O PARKER 2-343, 2 requerir
15	154002	ESPACIADOR DE 3", 2 requerir
16	154004	ANILLO-O PARKER 2-342, 2 requerir
17	154003	BRIDA DE 3", 2 requerir
18	154001	ADAPTADOR CON BRIDA DE 3", 2 requerir
19	154009	CONJUNTO TUBERIAS INFERIORES TR100C-3
19	154010	CONJUNTO TUBERIAS INFERIORES TR140C-3
20	154596	PIE- 24" DE DIAMETRO TR100C-3/140C-3
21	152202	LATERAL 9" TR100C-3, 8 requerir
21	154540	LATERAL 12" TR140C-3, 8 requerir
22	154871	TAPA CON ROSCA DE 1½"
23	152220	MONTAJE DRENAJE DE ARENA DE 2"
24	274494	ANILLO-O - 3/16" X 2-5/8" i.d., 2 requerir
25	154441	CONECTOR TUBO DE ALIVIO DE AIRE
26	150041	TUBO DE ALIVIO DE AIRE TR100C-3 (23")
26	150042	TUBO DE ALIVIO DE AIRE TR140C-3 (27")
27	154018	CONJUNTO TUBERIAS DEL DIFUSOR TR140C-3, 2 requerir
28	552474	TORNILLO #10-1½", 2 requerir

FILTROS DE ARENA DE FIBRA DE VIDRIO TRITON™ 100C-3 y 140C
Partes de Repuesto

TR100C-3
TR140C-3

ARTICULO	NO. DEL REPUESTO	TRITON 100C-3 Y 140C-3 DESCRIPCION
29	154599	CONJUNTO DIFUSOR (SE REQUIEREN 2 PARA TR100C-3)
29	154599	CONJUNTO DIFUSOR (SE REQUIEREN 4 PARA TR140C-3)
30	150035	COLADOR - ECL/TR
31	190058	MEDIDOR DE PRESION 1/4" psi ❸
32	154581	MANIJA - OVALADO TRITON ❸
33	154582	RESORTE - OVALADO TRITON ❸
34	154579	PUENTE - OVALADO TRITON ❸
35	154576	CIERRE - OVALADO ❸
36	156841	JUEGO DE CIERRE OVALADO TRITON ❶❸

NOTAS

❶ P/N 156841 incluye artículos: 1, 9, y 31al 35.
❷ Usado en Filtros fabricados antes del 3-97.
❸ Usado en Filtros fabricado después del 3-97.
❹ Usado en Filtros fabricado después del 4-15.

ESPAÑOL

NOTAS

CONSERVE ESTAS INSTRUCCIONES.

PENTAIR

TRITON™

FILTRES À SABLE EN FIBRE DE VERRE

MODELS: TR 40, TR 50, TR 60, TR 100, TR 140, TR 100HD, TR 100C, TR 140C, TR 100C-3, TR 140C-3 et TR 60 avec CLEARPRO TECHNOLOGY™

FRANÇAIS

MANUEL D'INSTALLATION ET D'UTILISATION

CONSIGNES DE SÉCURITÉ IMPORTANTES

PRIÈRE DE LIRE ET D'OBSERVER TOUTES LES CONSIGNES

CONSERVER CETTE NOTICE

SERVICE CLIENTS / SUPPORT TECHNIQUE

Si vous avez des questions liées aux pièces de rechange, et aux produits de piscine de Pentair Aquatic Systems, veuillez utiliser les coordonnées suivantes:

Service Clients

(8 A.M. to 4:30 P.M. — 8h00 à 17h00 heure normale du Pacifique)

Téléphone: (800) 831-7133

Télécopie: (800) 284-4151

Site web
visitez www.pentairpool.com ou www.sta-ritepool.com pour trouver des renseignements concernant Pentair.

Support Technique

Sanford, Caroline du Nord (8h00 à 17h00 heure normale de l'Est)

Téléphone: (919) 566-8000

Télécopie: (919) 566-8920

Moorpark, Californie (8h00 à 17h00 heure normale du Pacifique)

Téléphone: (805) 553-5000 (Ext. 5591)

Télécopie: (805) 553-5515

TABLE DES MATIÈRES

1620 Hawkins Ave., Sanford, NC 27330 • 919 566-8000
10951 West Los Angeles Ave., Moorpark, CA 93021 • 805 553-5000

MEMBER NATIONAL SPA & POOL INSTITUTE

P/N 154901 Rev. H 3/18/15

IMPORTANTES CONSIGNES DE SÉCURITÉ

Mise en Garde Importante:

Ce manuel fournit les instructions de mise en service et d'utilisation des Filtres à Sable en Fibre de Verre de la Série Triton™. Consulter Pentair Water Pool and Spa™ pour toute question relative à cet équipement.

l'Attention de l'Installateur: Ce manuel contient d'importantes informations concernant l'installation, l'exploitation et l'utilisation de ce produit de manière sûre. Cette information doit être fournie au propriétaire et/ou à l'exploitant de cet équipement après l'installation, ou doit-être laissé sur ou bien à proximité de cet équipement.

l'Attention de l'Utilisateur: Ce manuel contient d'importantes informations qui vous aideront à utiliser et entretenir ce filtre. Conservez-le pour pouvoir le consulter ultérieurement.

⚠ AVERTISSEMENT Avant l'installation de ce produit, lire et respecter la totalité des avertissements et instructions inclus. Ne pas respecter les notices de sécurité peut entrainer des blessures graves, la mort ou l'endommagement du bien. Appeler le (800) 831-7133 pour obtenir des copies supplémentaires gratuites de ces instructions.

Information et Sécurité du Consommateur

Les Filtres à Sable en Fibre de Verre de la Série Triton™ sont conçus et fabriqué pour donner de nombreuses années de fonctionnement sûr et fiable dès l'instant où sont installés, exploités et entretenus en accord avec les informations fournies dans le présent manuel et les normes d'installation référencés dans les sections suivantes. Les mises en garde concernant la sécurité et les précautions sont identifiés par le symbole " ⚠ " tout au long du manuel. Assurez-vous de lire et de respecter la totalité des avertissements et précautions.

⚠ AVERTISSEMENT

CE FILTRE EST SOUMIS À HAUTE PRESSION

Lorsque l'on intervient sur l'un ou l'autre des composants du circuit de circulation (ex : bouchon, couvercle, pompe, filtre, robinet(s) etc.), l'air peut pénétrer n'importe où dans le circuit et devenir pressurisé. L'air sous pression peut occasionner une séparation du couvercle supérieur pouvant entrainer des blessures sérieuses, la mort ou l'endommagement du bien. Pour éviter ce danger potentiel, respectez ces instructions:

1. Si vous ne connaissez pas bien votre système de filtration de piscine et/ou de réchauffage:
   a. **N'essayez Pas** de procéder à des réglages ou effectuer l'entretien sans consulter votre revendeur, ou un technicien de piscine qualifié.
   b. Lisez la totalité du Manuel d'Installation et d'Utilisation avant de tenter d'utiliser, entretenir ou régler le système de filtration ou de réchauffage.
2. Avant de remettre la (les) vanne(s) en position et avant de commencer le montage, démontage, ou toute autre intervention sur le circuit : (A) Mettre la pompe sur **ARRÊT** et mettre **HORS SERVICE** tout automatisme pour garantir que le système ne soit PAS démarré par inadvertance pendant l'opération d'entretien ; (B) ouvrir le robinet manuel de purge d'air ; (C) attendre jusqu'à ce que toute pression soit évacuée.
3. Lors du montage du couvercle de filtre **RESPECTER EXACTEMENT LES INSTRUCTIONS RELATIVES AU COUVERCLE DE FILTRE.**
4. Une fois l'intervention sur le circuit terminée, **RESPECTER EXACTEMENT LES INSTRUCTIONS DE MISE EN SERVICE.**
5. Maintenir le circuit de circulation correctement. Remplacer les pièces usées ou endommagées immédiatement (par exemple : couvercle, manomètre, vanne(s), joints toriques, etc..)
6. S'assurer que le filtre est correctement monté et positionné suivant les instructions fournies.

IMPORTANTES CONSIGNES DE SÉCURITÉ

⚠ AVERTISSEMENT

Ce filtre doit être installé par un électricien agréé ou certifié ou une personne d'entretien de piscine qualifiée en accord avec le Code Electrique National (National Electrical Code) et toute normes ou ordonnances locales applicables. Une installation incorrecte peut entrainer la mort ou des blessures graves aux utilisateurs de piscine, installateurs ou autres personnes, et peut également occasionner des dommages aux biens.

Toujours couper l'alimentation électrique du circuit de circulation de la piscine au niveau du disjoncteur électrique avant de procéder à l'entretien du filtre. S'assurer que le circuit déconnecté est verrouillé ou correctement identifié de façon à ce qu'il ne puisse être enclenché pendant que vous travaillez sur le filtre. Ne pas respecter cela peut entrainer la mort ou des blessures sérieuses aux installateurs, utilisateurs de piscine, ou autres personnes par électrocution.

⚠ AVERTISSEMENT

Ne pas mettre en fonctionnement le filtre avant que vous ayez clairement lu et compris les instructions de fonctionnement et les messages d'avertissement concernant la totalité des équipements constituant le circuit de circulation de la piscine. Les instructions suivantes sont conçues pour guider la mise en service initiale du filtre lors d'une installation générale de piscine. Un manquement au bon suivi des instructions de fonctionnement et aux messages d'avertissement peut occasionner un endommagement des biens, de sérieuses blessures aux personnes, ou la mort.

⚠ AVERTISSEMENT

Pour réduire le risque de blessure, ne pas permettre aux enfants d'utiliser ce produit, à moins qu'ils ne soient surveillés de près à tout moment.

⚠ AVERTISSEMENT

Du fait du risque potentiel pouvant exister, il est recommandé que la pression d'épreuve soit maintenue le temps minimum requis par le code local. N'autoriser quiconque à travailler autours du système quand le circuit de circulation est sous épreuve de pression. Mettre en place des signaux appropriés d'avertissement et établir une barrière autour des équipements sous pression. Si les équipements sont situés dans un local, verrouiller la porte et mettre un signal d'avertissement.

Ne jamais essayer de procéder au réglage de bouchons ou couvercles, ou tenter de retirer ou de serrer des boulons lorsque le circuit est sous pression. Ces actions peuvent occasionner l'éclatement du couvercle et pourraient occasionner de sérieuses blessures individuelles ou bien la mort s'ils venaient à heurter une personne.

⚠ AVERTISSEMENT

Ne jamais dépasser la pression d'utilisation maximum des composants du circuit. Excéder ces limites pourrait causer la détérioration d'un composant par la pression. Cette libération instantanée d'énergie peut causer l'éclatement du couvercle et pourrait occasionner de graves blessures individuelles ou bien la mort s'ils venaient à heurter une personne.

Section 1
Introduction

Filtres à sable en fibre de verre Triton™ - Généralités

Filtres à sable Triton™ II

Le numéro 1 du filtre à sable dans le monde

Triton II est le résultat de plus de 40 ans d'évolution et d'améliorations. Ce filtre est devenu la référence de l'industrie en matière de performance, d'efficacité, de durée de service entre chaque maintenance, et des années de fiabilité requérant un entretien minimal.

Le Triton II possède une conception interne qui maintient le lit de sable plat et le débit d'eau constant, assurant ainsi une filtration optimale.

La meilleure réputation de l'industrie, et à juste titre

En plus de résultats de filtration supérieurs, le Triton II s'est taillé une réputation encore inégalée pour sa fiabilité et sa facilité de fonctionnement et d'entretien. De nombreux détails dans sa conception ont été améliorés pour faire du Triton II le filtre de référence de l'industrie.

Filtres à sable commerciaux Triton™ C et Triton™ C-3

Ces filtres sont équipés de plusieurs déviateurs pour une meilleure vitesse de filtration dans des applications commerciales, jusqu'à 20 GPM/pied carré.

Filtres à sable à montage latéral Triton™ HD

Ces filtres possèdent les mêmes performances et caractéristiques exceptionnelles du premier Triton, avec une pression de service de 75 psi pour les installations sous pression, comme les systèmes de nettoyage de niveau à pompe unique.

Triton II - Résidentiel

Triton C - Commercial

Triton C-3 - Commercial

Triton HD - Commercial

FRANÇAIS

Caractéristiques générales

Triton™ II

- Sa conception interne, qui a déjà fait ses preuves avec le temps, permet de filtrer l'eau au maximum pour donner des résultats clair comme de l'eau de roche
- Le processus GlasLok® crée une cuve monocoque, renforcée de fibre de verre, avec un revêtement anti-UV qui garantit des années de service fiable et sans corrosion
- Le système de débit contrôle la qualité de la filtration et assure des durées de service maximales entre le lavage à contre courant, ce qui fait gagner du temps

Triton™ C et Triton™ C-3

- Pression de service maximum 50 psi
- Purgeur complet de 2 pouces
- Ouverture de 8 pouces pour accéder facilement au lit de sable
- Le Triton C-3 possède des joints à bride standard de 3 pouces
- Les modèles TR 100C et TR 140C sont disponibles en noir ou amande
- Les modèles TR 100C-3 et TR 140C-3 sont disponibles uniquement en noir

Triton™ HD

- Pression de service maximum 75 psi

Autres caractéristiques

- Un système combiné de drainage du sable et de l'eau facilite l'entretien et l'hivernage
- Toutes les pièces internes sont filetées pour en faciliter l'entretien
- Une tête de distribution pivotante permet un accès direct au sable et à toutes les pièces internes
- Homologué NSF

Section 2
Installation

Remarque: Avant d'installer ce produit, lire et respecter tous les avis de mise en garde et les instructions d ébutant en page (fr) ii.

Installation du Filtre à Sable en Fibre de Verre Triton™

Le Filtre à Sable en fibre de Verre Triton ne doit être installé que part un technicien d'entretien qualifié. Ce filtre est conçu et prévu pour filtrer l'eau.

Triton™ Introduction

L'information générale qui suit décrit comment installer le Filtre à Sable en fibre de Verre Triton. Ce filtre fonctionne sous pression et, s'il est mal monté ou utilisé alors que de l'air est présent dans le circuit d'eau, son couvercle risque de se désolidariser, ce qui peut avoir pour résultat un accident occasionnant des dégâts matériels importants ou blessures graves. Une étiquette d'avertissement a été collée sur le dessus du filtre et doit y rester. Maintenez les étiquettes de sécurité en bon état et remplacez-les si elles manquent ou sont illisibles.

Fonctionnement du Filtre

Ce filtre à sable à grand débit est conçu pour fonctionner pendant de nombreuses années avec un minimum d'entretien et, lorsqu'il est installé, utilisé et entretenu conformément aux présentes instructions, fonctionnera pendant de nombreuses années sans problème.

Les impuretés sont recueillies dans le filtre lorsque l'eau traverse la vanne de régulation qui se trouve sur le côté de celui-ci et sont dirigées dans la traversée de paroi étanche supérieure. L'eau sale coule dans le diffuseur qui se trouve en haut du réservoir, puis est dirigée vers le bas, jusque sur la surface supérieure du lit de sable. Les impuretés sont recueillies dans le lit de sable et l'eau propre traverse les éléments latéraux et le tuyau inférieur qui se trouve au bas du filtre, puis remonte pour pénétrer dans la traversée de paroi étanche inférieure. L'eau s'écoule ensuite dans la vanne de régulation située sur le côté du filtre. L'eau propre retourne ensuite à la piscine par la tuyauterie.

La pression s'èlévera et le débit vers la piscine s'abaissera au fur et à mesure que les impuretés s'accumulent dans le filtre. Celui-ci finira par être tellement obstrué par ces impuretés qu'il sera nécessaire de procéder à un lavage à contre-courant du filtre. Il est important de savoir quand effectuer cette opération. Celle-ci est décrite plus en détails dans les sections suivantes du présent livret.

Veuillez noter qu'un filtre élimine les particules en suspension et n'épure pas la piscine. L'eau de celle-ci doit être épurée et sa composition chimique doit être équilibrée pour qu'elle soit très claire. Votre système de filtrage doit être conçu pour respecter la réglementation sanitaire locale applicable. Vous devez au minimum veiller à ce que votre système renouvelle la totalité de l'eau de votre piscine au moins deux à quatre fois par période de vingt-quatre heures.

Reportez-vous au **Tableau 1** pour des données sur les spécifications des filtres.

Tableau 1.

NUMERO DE MODELE DE FILTRE	SURFACE DE FILTRAGE (M^2, pi^2)	DEBIT *(L/MN, GAL/MN) à 20 GAL/MN/pi^2	CAPACITE DE RENOUVELLEMENT (Litres/Gallons) (Basé sur 20 gal/mn/pi^2)*			
			4 RENOUVELLEMENTS PAR JOUR	3 RENOUVELLEMENTS PAR JOUR	2,4 RENOUVELLEMENTS PAR JOUR	2 RENOUVELLEMENTS PAR JOUR
TR40	0,18 (1,92)	144 (38)	51784 (13680)	69046 (18240)	86307 (22800)	103568 (27360)
T50	0,23 (2,46)	185 (49)	66774 (17640)	89033 (23520)	111291 (29400)	133549 (35280)
TR60	0,29 (3,14)	238 (63)	85853 (22680)	114470 (30240)	143088 (37800)	171706 (45360)
TR60 ClearPro	0,29 (3,14)	238 (63)	85853 (22680)	114470 (30240)	143088 (37800)	171706 (45360)
TR100	0,47 (4,91)	280 (74)	100843 (26640)	134457 (35520)	168072 (44400)	201686 (53280)
TR100HD	0,47 (4,91)	280 (74)	100843 (26640)	134457 (35520)	168072 (44400)	201686 (53280)
TR100C/TR100C-3	0,47 (4,91)	371 (98)	133549 (35280)	178065 (47040)	222582 (58800)	267098 (70560)
TR140	0,65 (7,06)	401 (106)	144451 (38160)	192601 (50880)	240752 (63600)	288902 (76320)
TR140C/TR140C-3	0,65 (7,06)	534 (141)	192147 (50760)	256196 (67680)	320245 (84600)	384295 (101520)

*LES CHIFFRES APPLICABLES AUX TR100 ET TR140 SONT BASES SUR 15 GAL/MN/PI²

⚠ AVERTISSEMENT Une non-utilisation de votre système de filtrage ou un filtrage insuffisant peut provoquer un manque de clarté de l'eau gênant la visibilité dans votre piscine. Quelqu'un peut ainsi plonger dans ou sur des objets qu'il ne peut voir, risquant de se blesser gravement, voire de se noyer.

L'eau claire est produite par un filtrage approprié et une composition chimique correcte de l'eau. Le traitement chimique d'une piscine est l'affaire de spécialistes et il convient que vous consultiez votre spécialiste local de l'entretien des piscines à propos de points particuliers. En règle générale, pour que l'eau d'une piscine soit correctement épurée, elle doit présenter un niveau de chloration de 1 à 3 ppm et un pH compris entre 7,2 et 7,6.

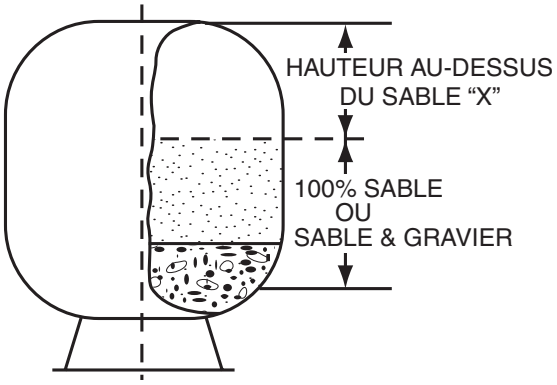
⚠ AVERTISSEMENT Les filtres ne doivent jamais subir des essais à l'air ou au gaz comprimé ni être exposés a ceux-ci. Tous les gaz sont compressibles et, lorsqu'ils sont comprimés, sont dangereux. Des blessures graves ou des dégâts matériels importants peuvent resulter de l'exposition d'un filtre à de l'air ou à du gaz sous pression.

1. Examinez le carton pour rechercher toute trace de dégâts dûs à une manutention brutale en cours de transport. Si le carton ou tout élément du filtre est endommagé, avisez-en le transporteur immédiatement.
2. Retirez avec précaution du carton les accessoires et le réservoir du filtre.
3. Montez le filtre sur une dalle fixe, consistant de préférence en béton coulé dans un coffrage, ou sur une plateforme construite en parpaings ou en briques. **N'UTILISEZ PAS** de sable pour mettre le filtre à niveau ni pour monter la pompe, car il sera emporté par l'eau.
4. Prévoyez un accés suffisamment spacieux et bien éclairé pour l'entretien. Ne montez pas de commandes électriques au-dessus du filtre. Vous devez pouvoir vous écarter de celui-ci lorsque vous mettez la pompe en marche. L'espace minimum nécessaire est indiqué sur la grande plaque signalétique du filtre.
5. Positionnez le filtre de façon à ce que les orifices soient dans la position finale désirée. Suivez les instructions de pose de la vanne.
6. Si vous disposez d'une vanne multivoie, montez-la sur le réservoir en veillant à ce que tous les joints toriques des raccords de la vanne soient propres et bien en place. Appliquez une mince couche de lubrifiant, tel que de la graisse silicone Dow no. 33 ou 40, GE 300 ou 623, ou un produit semblable, sur les joints toriques et leurs gorges avant le montage.
7. Si vous disposez d'un robinet-vanne à deux positions, alignez la vanne sur le réservoir de façon à ce que la poignée soit tournée vers le dessus du réservoir, enfoncez la vanne dans les orifices et serrez ses écrous à frottement doux sur les raccords du réservoir. Il n'est pas nécessaire de les serrer au-delà du serrage à la main.
8. Les sangles de transport utilisées pour soutenir le multidiffuseur du TR100C-3, TR140C et TR140C-3 doivent être retirées avant de charger le filtre de sable et de gravier.
9. Spécifications du sable - veillez à utiliser le sable correct, tel que le décrit le **Tableau 2**. Avant de verser le sable dans le filtre, regardez à l'intérieur de celui-ci et vérifiez le ponceau inférieur pour rechercher tout élément latéral (ou doigt) cassé ou desserré, susceptible d'avoir été endommagé accidentellement par une manutention brutale lors du transport. Remplacez toute pièce cassée si nécessaire.

REMARQUE : La hauteur au-dessus du sable est la variable la plus importante et doit rester constante. La densité du sable varie et la quantité de sable donnée l'est à titre indicatif.

Tableau 2.

MODELE	HAUTEUR AU-DESSUS DU SABLE "X"	100% SABLE* (KG)	MATERIAU DE FILTRAGE † (KG)	
			GRAVIER PISIFORME ‡	SABLE
TR40	20,9 CM	79,5	22,7	56,8
TR50	24,7 CM	102,3	22,7	79,5
TR60	26,7 CM	147,7	22,7	125
TR60 ClearPro	26,7 CM	147,7	22,7	125
TR100	28,6 CM	272,7	68,2	204,5
TR100HD	28,6 CM	272,7	68,2	204,5
TR100C-3	28,6 CM	272,7	68,2	204,5
TR140	34,3 CM	420,4	125	295,4
TR140C-3	34,3 CM	420,4	125	295,4



† MATERIAU EXIGE POUR SATISFAIRE LES SPECIFICATIONS NSF.
‡ GRAVIER PISIFORME DE 3 A 6,35 MM (1/8 A 1/4 PO.) DE CALIBRE.
* SABLE DOIT ETRE DE TYPE SILICIEUX NO.20 STANDARD (COEFFICIENT D'UNIFORMITE NE DEPASSANT PAS 1,75) DE 0,45 A 0,50 MM DE CALIBRE.

⚠ AVERTISSEMENT Le positionnement incorrect de l'évent automatique à l'intérieur du couvercle permettra la pénétration de l'excédent d'air prisonnier dans le filtre. La présence d'air prisonnier et la mauvaise fermeture du couvercle peuvent provoquer l'éclatement de celui-ci et occasionner ainsi des blessures graves et/ou des dégâts matériels importants.

10. Faites pivoter le diffuseur pour le décentrer dans le réservoir des TR40, 50, 60, TR60 ClearPro, 100 & 140 en le tournant dans le sens inverse des aiguilles d'une montre. (**REMARQUE:** Le multidiffuseur ne doit pas être déplacé sur les modèles TR100HD, TR100C, TR100C-3 et TR140C, TR140C-3. Après avoir mis en place le matériau de filtrage comme indiqué plus loin, vérifiez que le haut des diffuseurs est parallèle au lit de sable.) Remplissez à moitié le réservoir d'eau. Versez d'abord le gravier pisiforme (le cas échéant), puis le sable lentement dans le haut du filtre, pour éviter que l'impact créé par le matériau de filtrage endommagé les éléments latéraux. Voir les données figurant dans le Tableau B du présent livret pour les quantités correctes de sable et de gravier. Remplacez le filtre jusqu'au niveau permettant de maintenir une hauteur au-dessus du sable constante (voir Tableau B). Faites pivoter le diffuser pour le ramener dans sa position verticale si vous l'avez déplacé. Veillez à ce que l'évent automatique dépasse dans le haut du couvercle, comme indiqué sur la Figure 1 ci-dessous. Vérifiez que l'évent est centré dans le couvercle. Enlevez tout sable entourant l'ouverture filetée en haut du réservoir.

⚠ AVERTISSEMENT

Concernant les Couvercles Filetés

Faites attention lorsque vous mettez le couvercle en place. Celui-ci doit tourner librement dans le filtre. Si une résistance se fait sentir lors de l'insertion du couvercle, retirez celui-ci doucement en le tournant dans le sens inverse des aiguilles d'une montre. Le filet d'entrée du réservoir et du couvercle doit s'engager correctement pour assurer l'étanchéité de la fermeture. *Ne faussez pas le filetage du couvercle.*

La mise en place incorrecte du couvercle peut provoquer l'éclatement de celui-ci et occasionner ainsi des blessures graves et/ou des dégâts matériels importants.

⚠ AVERTISSEMENT

Concernant le Couvercle Ovale

Faites attention lorsque vous mettez le couvercle en place. Le couvercle doit être inséré dans le réservoir en plaçant le plus petit diamètre du couvercle ovale dans le diamètre le plus large de l'ouverture du réservoir. Insérez d'abord le côte du couvercle qui n'a pas de manomètre et de purgeur d'air. Le couvercle doit être inséré à un angle de 30°. Une fois le couvercle dans le réservoir, on peut le faire pivoter de 90° et le soulever pour assurer l'étanchéité du réservoir. Le pont en aluminium avec un ressort de charge peut ensuite être placé sur le boulon de fermeture et le bouton manuel resserré pour monter correctement le couvercle. Le bouton doit être resserré uniquement avec la main. NE PAS UTILISER UNE CLEF POUR SERRER LE BOUTON. Vous pourriez endommager le réservoir ou le couvercle et causer une défaillance en utilisant une clef. La mise en place incorrecte du couvercle peut provoquer l'éclatement de celui-ci et occasionner ainsi des blessures graves et/ou des dégâts matériels importants.

N'ESSAYEZ JAMAIS DE SERRER OU DESSERRER LE COUVERCLE ALORS QUE LA POMPE EST EN MARCHE. Le non respect de cette instruction peut entrainer l'éclatement du couvercle et occasionner ainsi des blessures graves ou dégâts matériels importants.

11. Montez le manométre et le purgeur sur le couvercle de fermeture. Nettoyez le joint torique de celui-ci et graissez-le avec du lubrifiant silicone tel que le Dow no. 33 ou 40, ou le GE 300 ou 623. Placez le couvercle de fermeture sur le filtre et serrez-le, en veillant à ce que l'évent soit vertical à l'intérieur du dôme du couvercle.
12. Serrez le couvercle autant que vous le pouvez en tenant des deux mains la clé en plastique fournie avec le filtre. Le couvercle doit être au moins serré à fond à la main, plus 1/4 de tour.
13. Le couvercle ovale qui est utilisé sur le TR140C-3 et TR 100C-3, doit être installé comme décrit ci-dessus dans le paragraphe : Avertissement concernant le couvercle oval.

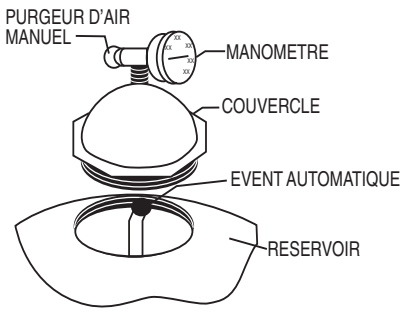


Figure 1.

14 . Branchez la tuyauterie et ses raccords à la pompe et à la vanne. L'ensemble de la tuyauterie doit être conforme à la réglementation locale et nationale concernant la plomberie et l'hygiène.
15. Utilisez du mastic d'étanchéité sur tous les accouplements mâles de la tuyauterie et des raccords. N'utilisez que des mastics d'étanchéité adaptés à la tuyauterie en plastique. Soutenez la tuyauterie pour éviter toute contrainte exercée sur le filtre, la pompe ou la vanne.
16. Les sections de tuyauterie de grande longueur et les coudes réduisent le débit. Pour obtenir le meilleur rendement, utilisez le moins possible de raccords et une tuyauterie de grand diamètre (au moins 5 cm [2 po.] pour les Modèle TR100 et TR140, au moins 3 po. pour les Modèle TR100C-3 et TR140C-3).

⚠ ATTENTION Un fonctionnement à des niveaux de dépression excessifs peut provoquer des fissures dans le réservoir et des dégâts materiéls.

17. Lors de l'installation de conduites de lavage à contre-courant, it est recommandé de poser une cassevide dans les cas ou la longueur de la conduite de lavage à contre-courant dépasse 12 m (40 pi) ou si l'évacuation de cette conduite se trouve à plus de 3 m (10 pi) en-dessous de la surface de l'eau dans la piscine. Une autre solution est de prévoir un puits pour cassevide.
18. Il est recommandé de poser une soupape de retenue entre le filtre et 1'élément chauffant pour empêcher l'eau chaude d'êrte "refoulée", ce qui endommagerait le filtre et la vanne.
19. La pression de service maximum de l'appareil est de 345 kPa (50 livres par pied carré [psi]) et 517 kPa (75 livres par pied carré [psi]) pour le modèle Triton HD (seulement). Ne jamais faire fonctionner ce filtre au-dessus de ces pressions ou raccorder à ce filtre une pompe ayant une pression de plus de 345 kPa (50 psi) à débit nul ou 517 kPa (75 psi) à débit nul pour le modèle Triton HD (seulement).
20. N'installez jamais un appareil de chloration en amont du filtre. Positionncz-le toujours en aval on posant une soupape de retenue entre lui et le filtre.
21. Il n'est pas recommandé de poser une vanne d'arret contrôlée à la sortie du système de filtrage. Si celui-ci fonctionne avec une telle vanne fermèe, le système interne de purge d'air s'arrête de fonctionner, ce qui peut présenter un risque d'séparation. D'autre part le fonctionnement du système à sec endommagera gravemcnt l'equipement.
22. N'entreposez jamais les produits chimiques destinés à la piscine à moins de 3 mètres (10 pieds) du filtre, de la pompe ou de la vanne. Ces produits doivent toujours être entreposés dans un endroit frais, sec et bien aéré.
23. Le couvercle ovale utilisé sur le TR140C-3 et le TR100C-3 est conçu avec une soupape de décharge qui protège le réservoir des dépressions. Le couvercle va permettre à l'air d'entrer dans le réservoir si celui-ci se trouve à 8 pieds au-dessus du niveau d'eau. Dans ce cas, lorsque le filtre redémarre après un arrêt vous pouvez observer l'air qui revient dans la piscine par l'installation de retour. Ce n'est pas inhabituel, c'est simplement la soupape automatique du filtre qui enlève l'air de celui-ci.

Mise en Service Initiale

1. Nettoyez une piscine neuve avant de la remplir d'eau. La présence d'un excès d'impuretés et de grosses particules peut endommager la pompe et le filtre.
2. Vérifiez que le tuyau de lavage à contre-courant n'est pas obstrué, de façon à ce que l'eau puisse librement venir de la piscine et s'écouler par ce tuyau. Placez la vanne de régulation dans la position suivante :
   a. Si vous utilisez une vanne multivoie, réglez-la en position de lavage à contre-courant.
   b. Si vous utilisez un robinet-vanne à deux positions, appuyez sur la poignée pour le mettre en position de lavage à contre-courant et verrouillez le robinet en toumant la poignée.
3. Vérifiez que la cuve de la crépine de la pompe est pleine d'eau.

⚠ AVERTISSEMENT La pénétration d'air dans le filtre et un mise en place incorrecte du couvercle du réservoir peuvent provoquer un éclatement du couvercle et occasionner des blessures graves et/ou des dégâts matériels.

4. Vérifiez le serrage du couvercle du filtre.
5. Ouvrez le purgeur d'air manuel qui se trouve sur le couvercle du filtre. Ecartez-vous de ce dernier et mettez la pompe en marche en lui laissant le temps de s'amorcer.
6. Refermez le purgeur d'air qui se trouve sur le couvercle lorsqu'il ne reste plus d'air dans le filtre et que l'eau s'écoule cn un jet continu.

AVIS: Le sable de filtrage pour piscine est généralement prélavé et ne devrait pas demander un lavage à fond à contre-courant. Il se peut toutefois que le transport provoque une abrasion excessive, ce qui pourrait imposer un cycle prolongé de lavage à contre-courant lors de la mise en marche initiale ; continuez ce lavage jusqu'à ce que l'eau observée dans le regard en verre soit aussi claire que cello de la piscine.

⚠ ATTENTION Pour éviter d'endommager l'equipement et de causer de possibles blessures, arrêtez touiours la pompe avant de changer la position de la vanne.

7. Arrêtez la pompe. Placez la vanne dans la position suivante :
   a. Si vous utilisez une vanne multivoie, réglez-la en position de filtrage.
   b. Si vous utilisez un robinet-vanne à deux positions, soulevez la poignée en position de filtrage et verrouillez le robinet en toumant la poignée.
8. Vérifiez que tous les tuyaux d'aspiration et de retour à la piscine ne sont pas obstrués, pour que l'eau puisse librement venir de la piscine et y retoumer.
9. Ouvrez le purgeur d'air manuel qui se trouve sur le couvercle du filtre. Ecartez-vous de ce dernier et mettez la pompe en marche.
10. Refermez le purgeur d'air qui se trouve sur le couvercle du filtre lorsque qu'il ne reste plus d'air dans le filtre et que l'eau s'écoule en un jet continu.
11. Le filtre a alors entamé son cycle de filtrage. Vous devez vérifier que l'eau retoume à la piscine et relever la pression de service lorsque le filtre est propre.

Section 3
Entretien

Cette section décrit la manière d'entretenir votre Filtre à Sable en Fibre de Verre Triton™.

Entretien du Filtre

Le filtre joue un rôle très important dans l'equipement et l'installation de votre piscine. Si vous lui apportez le soin et l'entretien qui conviennent, sa durée de service sera prolongée de nombreuses années pendant lesquelles vous pourrez profiter de votre piscine. Respectez les suggestions qui suivent pour que le système fonctionne pendant longtemps sans problème :

1. Pour débarrasser l'extérieur du filtre des impuretés et de la poussiére, lavez-le avec une solution de détergent doux et d'eau et rincez-le au jet. N'utilisez pas de solvants.
2. Si un entretien de l'intérieur du filtre s'avère nécessaire, vous pouvez vider le sable en enlevant l'ensemble du robinet de vidange du bas du filtre et en rinçant celui-ci au jet. Vous pouvez également vous servir d'un aspirateur à sable Pentair Water Pool and Spa, Inc. (piece no. 542090).
3. Si, au bout d'un certain nombre d'années, la couleur du réservoir du filtre semble se voiler ou sa surface devenir rugueuse, vous pouvez peindre celle-ci. Nous recommandons pour cela d'appliquer au pistolet une peinture émaillée à séchage rapide. **Ne peignez pas la vanne.**

⚠ AVERTISSEMENT Examinez toujours visuellement les éléments du filtre pendant l'entretien courant pour vérifier leur intégrité. Remplacez tout élément fêlé, déformé ou apparemment défectueux. Des éléments de filtre défectueux peuvent entraîner un éclatement du dessus ou des accessoires du filtre susceptible de provoquer des blessures graves ou dégâts matériels importants.

4. Le couvercle de votre filtre à sable Triton à été fabriqué en utilisant des matériaux anti-corrosion de haute qualité. Vous devez l'examiner soigneusement chaque fois que vous procédez à l'entretien de votre filtre. Si vous observez des fuites excessives à la jointure du couvercle et du réservoir, vous devez examiner soigneusement le couvercle et joint torque et les remplacer si un signe quelconque de détérioration apparaît.
5. Votre filtre est un réservoir sous pression et vous ne devez jamais en effectuer l'entretien lorsqu'il est pressurisé. Vous devez toujours délester la pression dans le réservoir et ouvrir le purgeur d'air qui se trouve sur le couvercle du filtre avant de procéder à l'entretien du filtre.
6. Lorsque vous remettez le filtre en marche, ouvrez toujours le purgeur d'air qui se trouve sur le couvercle du filtre et écartez-vous de celui-ci.

Frequence de Nettoyage

1. Le filtre d'une piscine neuve doit être lavé à contre-courant et nettoyé au bout des 48 premières heures de fonctionnement pour en éliminer la poudre de plâtre et/ou les débris résultant de la construction.
2. Il y trois façons de savoir quand le filtrage doit être lavé à contre-courant :
   a. L'indication la plus précise qu'un lavage à contre-courant est nécessaire est, sur les systèmes équipés d'un débitmètre, que le débit diminue de 30% par rapport au débit initial (filtre propre). Si, par exemple, le débit initial était de 227 l/mn (60 gal/mn), il convient de laver le filtre à contre-courant lorsque le débit diminue de 75,7 l/mn (20 gal/mn) pour atteindre 151,3 l/mn (40 gal/mn).
   b. Une indication plus subjective et moins précise est donnée par l'observation du débit des sorties d'eau directionnelles qui se trouvent dans la paroi de la piscine. Le filtre doit être lavé à contre-courant lorsque vous constatez que ce débit s'est réduit par 30% environ.
   c. L'indication la plus communément utilisée et la moins précise de devoir laver à contre-courant est l'augmentation de 68,9 kPa (10 psi) par rapport à la valeur initiale (filtre propre) de la pression indiquée par le manomètre du filtre.
3. Il est important de ne pas laver le filtre à contre-courant uniquement à des intervalles de temps, comme par exemple tous les trois jours. Il est également important de noter qu'un lavage à contre-courant trop fréquent provoque en fait un mauvais filtrage. Des facteurs tels que les conditions atmosphériques, de fortes pluies, de fortes concentrations de poussière ou de pollen et les températures de l'eau affectent tous la fréquence du lavage à contre-courant. Vous deviendrez conscient de ces influences lorsque vous serez familiarisé avec l'utilisation de votre piscine.
4. Si à un moment quelconque la pression de démarrage après un lavage à contre-courant du filtre dépasse de 27,6 à 41,4 kPa (4 à 6 psi) la pression de démarrage normale, it est temps de procéder à un nettoyage chimique.

Lavage a Contre-courant du Filtre

AVERTISSEMENT Pour éviter d'endommager l'équipementet de causer de possibles blessures, arrêtez toujours la pompe avant de changer la position de la vanne.

1. Arrêtez la pompe.
2. Vérifiez que les tuyaux d'aspiration et de lavage à contre-courant ne sont pas obstrués, de façon à ce que l'eau puisse librement venir de la piscine et s'écouler par le tuyau de lavage à contre-courant. Placez la vanne de régulation dans la position suivante :
   a. Si vous utilisez une vanne multivoie, réglez-la en position de lavage à contre-courant.
   b. Si vous utilisez un robinet-vanne à deux positions, appuyez sur sa poignée pour le mettre en position de lavage à contre-courant et verrouillez le robinet en toumant la poignée.
3. **Ecartez-vous du filtre** et mettez la pompe en marche.
4. Lavez le filtre à contre-courant pendant 3 à 5 minutes environ ou jusqu'à ce que l'eau de lavage à contre-courant soit propre.
5. Arrêtez la pompe.
   a. Si vous utiliscz une vanne multivoie, réglez-la en position de rinçage et passez aux opérations suivantes.
   b. Si vous utilisez un robinet-vanne à deux positions, passez à l'étape 8.
6. **Ecartez-vous du filtre** et mettez la pompe en marche.
7. Rincez le filtre pendant 30 secondes environ.
8. Arrêtez la pompe et placez la vanne dans la position suivante :
   a. Si vous utilisez une vanne multivoie, réglez-la en position de filtrage.
   b. Si vous utilisez un robinet-vanne à deux positions, soulevez sa poignée en position de filtrage et verrouillez le robinet en toumant la poignée.
9. Vérifiez que le tuyau de retour à la piscine n'est pas obstrué, pour que l'eau puisse librement venir de la piscine et y retourner.
10. Ouvrez le purgeur d'air manuel qui se trouve sur le couvercle du Triton. **Ecartez-vous du filtre et mettez la pompe en marche.**
11. Refermez le purgeur d'air qui se trouve sur le couvercle lorsqu'il ne reste plus d'air et que l'eau s'écoule en un jet continu.
12. Le filtre a alors entamé son cycle de filtrage. Vous devez vérifier que l'eau retourne à la piscine et noter la pression du filtre.
13. La pression du filtre relevée à l'étape 12 ci-dessus ne doit pas dépasser celle qui a été observée à l'origine lors de la mise en route initiale du filtre. Si, à l'issue du lavage à contre-courant, la pression est supérieure de 27,5 à 41,4 kPa (4 à 6 psi) à la pression relevée lors de la mise en route, it sera nécessaire de nettoyer chimiquement le lit de sable.

Nettoyage Chimique

1. Il est recommandé d'utiliser un produit de nettoyage agréé. Contacter votre fournisseur local de produits chimiques pour piscine ou un détaillant pour obtenir le nettoyant adéquat.

   Ces produits nettoyants élimineront l'huile, le tartre et la rouille du lit de sable en une seule opération de nettoyage.
2. Préparez une solution en suivant les instructions données par le fabricant sur l'étiquette.
3. Nettoyez le filtre à contre-courant comme indiqué plus haut.
4. Si le filtre est au-dessous du niveau de la piscine, arrêtez la pompe et fermez les vannes appropriées pour éviter de vider la piscine.
5. Arrêtez la pompe, ouvrez le robinet de vidange du filtre et laissez celui-ci se vider. Placez la vanne en position de lavage à contre-courant.
6. Une fois que le filtre s'est vidé, refermez son robinet de vidange et enlevez le couvercle de la crépine de la pompe.
7. Vérifiez que les tuyaux de lavage i contre-courant ne sont pas obstrués.
8. Mettez la pompe en marche et videz lentement la solution de nettoyage dans la crépine de la pompe alors que celle-ci tourne.
9. Continuez à ajouter de la solution de nettoyage jusqu'à ce que le lit de sable en soft saturé. Remettez le couvercle sur la pompe.
10. Arrêtez la pompe et laissez le filtre en position de lavage à contre-courant. Laissez le filtre reposer pendant la nuit (12 heures).
11. Remettez le couvercle de la pompe en place et procédez à un lavage à contre-courant comme indiqué plus haut.
12. Empêchez la solution de nettoyage de pénétrer dans la piscine.

Hivernisation du Filtre

1. Dans les régions dans lesquelles les températures hivemales descendent en-dessous de zéro, protégez l'equipement de la piscine en lavant le filtre à contre-courant.
2. Après le lavage à contre-courant, arrêtez, la pompe, ouvrez le purgeur d'air manuel qui se trouve sur le couvercle et réglez la vanne comme suit :

   a. Sur les vannes multivoies, placez la poignée de celles-ci en position d'hivernisation.*
   b. Sur le robinet-vanne à deux positions, retirez, si c'est possible, le piston aspirant ; nettoyez, graissez et rangez le robinet dans un endroit sec pendant l'hiver.
3. Sur les TR40, 50, 60 et TR60 ClearPro, retirez le bouchon du type à oreilles du bas du filtre. Sur les TR100, TR100HD, TR100C, TR100C-3 et TR140, TR140C, TR140C-3, retirez le bouchon de vidange de 38 mm (1½ po.). Le filtre se videra très lentement et il est donc recommandé de laisser le bouchon de vidange retiré pendant l'inter-saison.

***REMARQUE:** La vanne multivoie doit être laissée en position d'hivernisation pendant l'intersaison de façon à ce que son partiteur n'exerce aucune pression sur le joint en caoutchouc.

4. Vidangez toute la tuyauterie appropriée.
5. Nous recommandons de recouvrir l'équipement avec une toîle goudronnée ou une feuille plastique pour éviter toute déterioration due aux intempéries. N'enveloppez pas le moteur de la pompe avec du plastique.

Section 4
Dépannage

Utiliser les informations de dépannage suivantes pour résoudre des problèmes éventuels avec votre Filtre Triton™.

AVERTISSEMENT

CE FILTRE EST SOUMIS À HAUTE PRESSION

Lorsque l'on intervient sur l'un ou l'autre des composants du circuit de circulation (ex : bouchon, couvercle, pompe, filtre, robinet(s) etc..), l'air peut pénétrer n'importe où dans le circuit et devenir pressurisé. L'air sous pression peut occasionner une séparation du couvercle supérieur pouvant entrainer des blessures sérieuses, la mort ou l'endommagement du bien. Pour éviter ce danger potentiel, respectez ces instructions:

1. Si vous ne connaissez pas bien votre système de filtration de piscine et/ou de réchauffage:
   a. **N'essayez Pas** de procéder à des réglages ou effectuer l'entretien sans consulter votre revendeur, ou un technicien de piscine qualifié.
   b. Lisez la totalité du Manuel d'Installation et d'Utilisation avant de tenter d'utiliser, entretenir ou régler le système de filtration ou de réchauffage.
2. Avant de remettre la (les) vanne(s) en position et avant de commencer le montage, démontage, ou toute autre intervention sur le circuit : (A) Mettre la pompe sur **ARRÊT** et mettre **HORS SERVICE** tout automatisme pour garantir que le système ne soit PAS démarré par inadvertance pendant l'opération d'entretien ; (B) ouvrir le robinet manuel de purge d'air ; (C) attendre jusqu'à ce que toute pression soit évacuée.
3. Lors du montage du couvercle de filtre **RESPECTER EXACTEMENT LES INSTRUCTIONS RELATIVES AU COUVERCLE DE FILTRE.**
4. Une fois l'intervention sur le circuit terminée, **RESPECTER EXACTEMENT LES INSTRUCTIONS DE MISE EN SERVICE.**
5. Maintenir le circuit de circulation correctement. Remplacer les pièces usées ou endommagées immédiatement (par exemple : couvercle, manomètre, vanne(s), joints toriques, etc..)
6. S'assurer que le filtre est correctement monté et positionné suivant les instructions fournies.

Remarque: Préalablement isoler l'alimentation électrique de l'équipement avant de tenter une intervention ou une réparation.

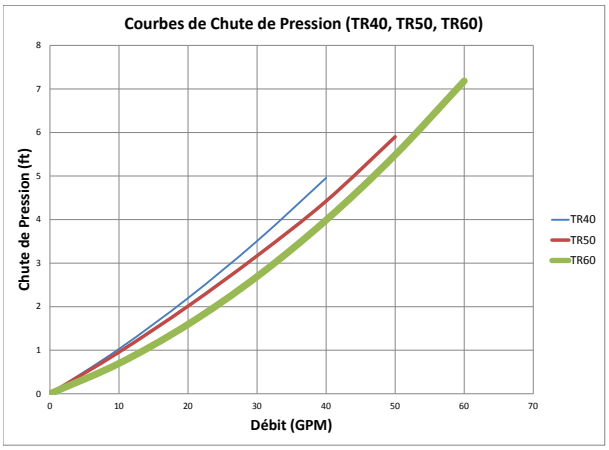
Problèmes et Actions Correctives

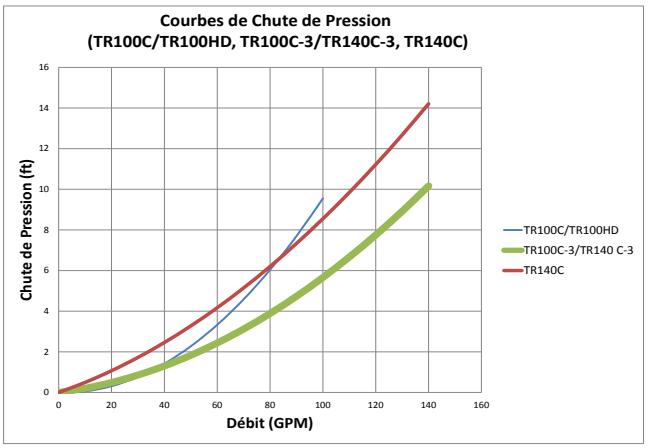
PROBLÈME	CAUSE	REMÈDE
Eau de la piscine insuffisamment propre	1. Composition chimique de l'eau de la piscine inadéquate pour empêcher la croissance des algues.	Maintenez la composition chimique correcte de l'eau de la piscine ou consultez un technicien d'entretien spécialisé.
	2. Lavage à contre-courant trop fréquent.	Laissez la pression augmenter jusqu'à 68,9 kPa (10 psi) au-dessus de la pression avec filtre propre avant de laver à contrecourant.
	3. Quantité ou calibre incorrect de sable.	Vérifiez l'épaisseur du lit de sable et le calibre de ce dernier ou consultez un technicien d'entretien spécialisé.
	4. Cadence de renouvellement inadéquate.	Faites fonctionner le système pendant plus longtemps ou consultez votre revendeur ou un technicien d'entretien spécialisé.
Pression trop élevée dans le filtre	1. Lavage à contre-courant insuffisant.	Lavez à contre-courant jusqu'à ce que l'eau de lavage soit claire.
	2. Lit de sable encombré de dépôts minéraux.	Nettoyez chimiquement le filtre.
	3. Vanne partiellement fermée.	Ouvrez la vanne ou débouchez le tuyau de retour.
Cycles trop courts	1. Lavage à contre-courant incorrect.	Lavez à contre-courant jusqu'à ce que l'eau de lavage soit claire.
	2. Composition chimique de l'eau de la piscine inadéquate pour empêcher la croissance des algues.	Maintenez la composition chimique correcte e l'eau de la piscine ou consultez un technicien d'entretien spécialisé.
	3. Lit de sable sale.	Retirez à la main une épaisseur de 25 mm (1 po.) sur le dessus du lit de sable et nettoyez chimiquement l'ensemble du lit de sable comme indiqué dans la Section G.
	4. Débit trop élevé.	Ramenez le débit à la capacité du filtre.

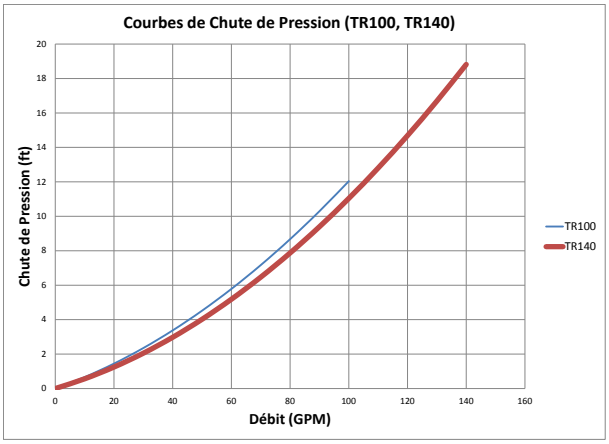
PROBLÈME	CAUSE	REMÈDE
Réduction du débit de retour de l'eau vers la piscine. Pression trop basse dans le filtre.	1. Colmatage du filtre à cheveux et peluches de la pompe.	Nettoyez le filtre.
	2. Obstruction dans la pompe.	Démontez et nettoyez la pompe.
	3. Tuyau d'aspiration de la pompe obstrué	Nettoyez le panier du collecteur. Débouchez les tuyaux. Ouvrez les vannes du tuyau d'aspiration.
Retour du sable dans la piscine.	1. Élément latéral de vidange par le bas cassé.	Remplacez les éléments latéraux cassés ou endommagés.
Perte de sable vers l'évacuation des déchets.	1. Débit de lavage à contre-courant trop élevé.	Réduisez le débit du lavage à contre-courant.
	2. Calibre de sable incorrect.	Utilisez le sable approprié.
	3. Le filtre à air est endommagé ou absent.	Remplacez les pièces endommagées.
Fuites au niveau du couvercle.	1. Couvercle mal serré.	Arrêtez la pompe, délestez la pression dans le réservoir, ouvrez le purgeur d'air, serrez bien le couvercle.
	2. Présence de saletés ou d'impuretés sur la surface d'etanchéité.	Arrêtez la pompe, délestez la pression dans le réservoir, ouvrez le purgeur d'air, retirez le couvercle & nettoyez toutes les surfaces d'étanchéité. Remettez le couvercle bien en place.
	3. Pièce endommagée.	Mêmes mesures que ci-dessus, si ce n'est que vous devez remplacer le joint torique, le couvercle, le réservoir ou toute combinaison de pièces, le cas échéant.
Fuite au niveau de la traversée de paroi étanche.	1. Ensemble de la traversée de paroi étanche mal serré.	Pour les modèles TR 40, 50, 60, TR60 ClearPro, 100, 100C, 140 ou 140C, arrêtez la pompe, délestez la pression dans le réservoir, ouvrez le purgeur d'air, retirez le couvercle, puis enlevez le sable afin d'atteindre la traversée de paroi étanche à l'origine de la fuite. En maintenant la traversée de paroi étanche de 2 po., resserrez le contre-écrou interne dont le diamètre est de 2 po. Pour les modèles TR 100C-3" et TR 140C-3", saisissez, à l'aide d'une clé spéciale no. 154020, la bague d'é-cartement de la bride de 3 po. et r esser-rez avec une clé no. 154019 l'adaptateur de la bride de 3 po. Serrez à la main d'un demi-tour supplémentaire.
	2. Saleté ou impuretés sur les surfaces d'étanchéité.	Arrêtez la pompe, délestez la pression dans le réservoir, ouvrez le purgeur d'air, retirez le couvercle, puis enlevez le sable afin d'atteindre la traversée de paroi étanche à l'origine de la fuite. Enlevez les éléments internes du réservoir et l'ensemble de la traversée de paroi étanche. Nettoyez toutes les surfaces de jointement ainsi que les surfaces d'étanchéité. Remettez en place l'ensemble de la traversée de paroi étanche, en vous assurant de bien le monter. Serrez l'ensemble en procédant de la façon indiquée ci-dessus.
	3. Pièce endommagée.	Procédez de la façon indiquée ci-dessus, en remplaçant la pièce (ou le groupe de pièces) endommagée.

Section 5
Pièces de Rechange

Courbes de Chute de Pression pour les Filtres à Sable de la Série Triton™



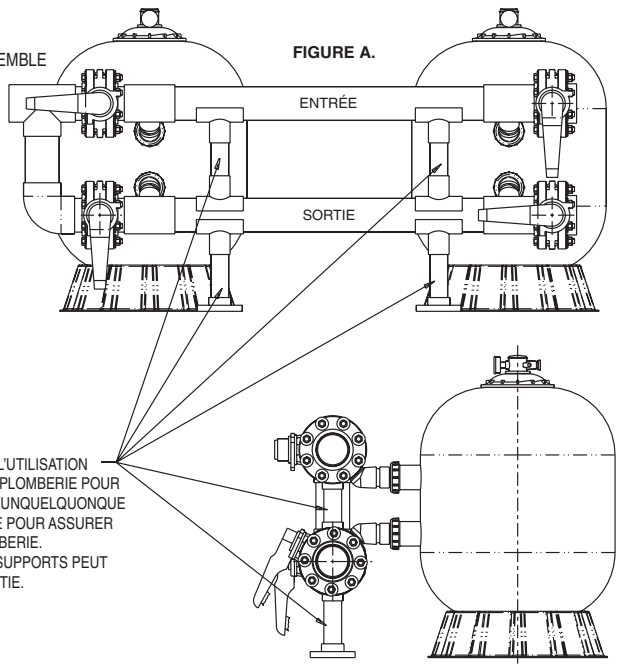




Installation des Filtres Multiples avec l'ensemble de Tuyauterie pour Filtres en Tandem

MISE EN GARDE: QUAND DE MULTIPLES FILTRES SONT INSTALLÉS, NOUS RECOMMENDONS FORTEMENT L'UTILISATION D'UN ENSEMBLE DE TUYAUTERIE POUR FILTRE EN TANDEM PENTAIR. CES ENSEMBLES COMPRENNENT DES SUPPORTS DE PLOMBERIE (ENTRE LES TUYAUTERIES D'ENTRÉE ET DE SORTIE ET ENTRE LA TUYAUTERIE DE SORTIE ET LE SOL) POUR ASSURER L'INTÉGRITÉ DE L'INSTALLATION. VOIR LA FIGURE A.

FIGURE A.

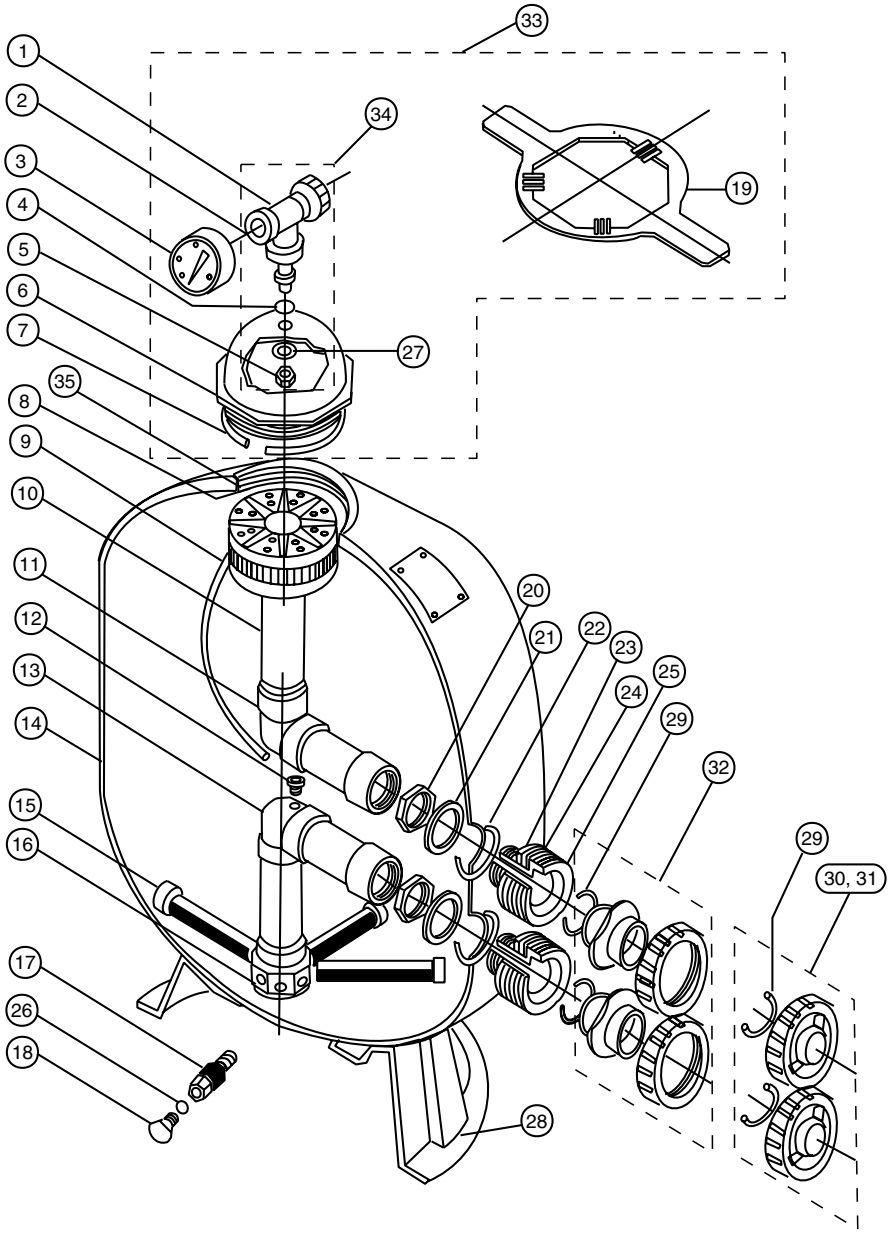


MISE EN GARDE: PENTAIR RECOMMENDE L'UTILISATION D' (UN) ENSEMBLE(S) DE PLOMBERIE POUR FILTRE EN TANDEM OU D'UNQUELQUONQUE SUPPORT DE PLOMBERIE POUR ASSURER L'INTÉGRITÉ DE LA PLOMBERIE. LA NON UTILISATION DE SUPPORTS PEUT ANNULER VOTRE GARANTIE.

FILTRE A SABLE EN FIBRE DE VERRE TRITON™ II ET TR60 CLEARPRO

Pièces de Rechange

TR40
TR50
TR60
TR60 ClearPro
TR100
TR140



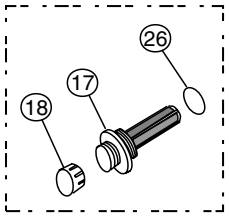
DÉTAIL A
Après 1er Déc. 1991
RACCORD FILETE 15 CM (6 PO.)

DÉTAIL B
Avant 1er Déc. 1991
FILETAGE TRIANGULAIRE 15 CM (6 PO.)

Filtres fabriqués après le 1er décembre 1991 : utiliser un filetage trapèze rectangulaire de 6 pouces pour l'ouverture supérieure du corps du filtre ainsi que pour le couvercle. Voir Détail A.

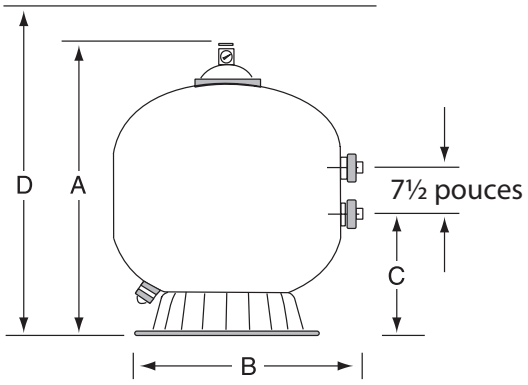
Filtres fabriqués avant le 1er décembre 1991 : utiliser un filetage en « V » de 6 pouces. Voir Détail B.

Les couvercles de 6 pouces des Détails A et B ne sont PAS interchangeables.



★ Utilisé sur les Filtres TR100 et TR140.

Jeu Vertical Requis



MODELE	DIM. A.	DIM. B.	DIM. C.	DIM. D.
TR40	77,5 cm	49,5 cm	27,3 cm	82,6 cm
TR50	88,3 cm	54,6 cm	30,2 cm	93,3 cm
TR60	90,2 cm	62,2 cm	34,6 cm	95,3 cm
TR60 ClearPro	90,2 cm	62,2 cm	34,6 cm	95,3 cm
TR100	101 cm	77,5 cm	41,3 cm	106 cm
TR140	115 cm	92,7 cm	47,6 cm	120 cm

UNITÉ	PIECE NO.	DESCRIPTION TRITON II ET TR60 CLEARPRO
1	154689	ENSEMBLE PURGEUR D'AIR/TE
2	154700	ADAPTATEUR-PURGEUR D'AIR EN LAITON
3	155050	MANOMETRE-MONTE PAR L'ARRIERE
4	154661	JOINT TORIQUE-ADAPTATEUR DE PURGEUR D'AIR
5	154664	ECROU 9,4 MM (3/8 PO.) - 16 INOX
6	154570	COUVERCLE-RACCORD FILETE 15 CM (6 PO.) (VOIR DETAIL A)
6	154559	COUVERCLE-FILETAGE TRIANGULAIRE 15 CM (6 PO.) NOIR - (VOIR DETAIL B)
7	154493	JOINT TORIQUE-COUVERCLE
8	150035	FILTRE-ECL/TR
9	150039	TUBE-PURGE D'AIR TR40
9	150040	TUBE-PURGE D'AIR TR50/60
9	150041	TUBE-PURGE D'AIR TR100
9	150042	TUBE-PURGE D'AIR TR140
10	154598	DIFFUSEUR TR40/50
10	154599	DIFFUSEUR TR60
10	154462	DIFFUSEUR TR100
10	154906	DIFFUSEUR TR140
11	154803	TUYAUTERIE-SUPERIEURE TR40
11	156814	TUYAUTERIE-SUPERIEURE TR50
11	154533	TUYAUTERIE-SUPERIEURE TR60
11	154426	TUYAUTERIE-SUPERIEURE TR100
11	154500	TUYAUTERIE-SUPERIEURE TR140
12	150036	RACCORD-TUBE DE PURGE D'AIR
13	154801	TUYAUTERIE-INFERIEURE TR40
13	156816	TUYAUTERIE-INFERIEURE TR50
13	154805	TUYAUTERIE-INFERIEURE TR60
13	155284	TUYAUTERIE-INFERIEURE TR60 ClearPro - 1/4 VIRAGE LATÉRAL
13	154807	TUYAUTERIE-INFERIEURE TR100
13	154489	TUYAUTERIE-INFERIEURE TR140
14	154636	ENSEMBLE RESERVOIR & PIED TR40-RACCORD FILETE 15 CM (6 PO.)-(VOIR DETAIL A)
14	154637	ENSEMBLE RESERVOIR & PIED TR50-RACCORD FILETE 15 CM (6 PO.)-(VOIR DETAIL A)
14	154638	ENSEMBLE RESERVOIR & PIED TR60-RACCORD FILETE 15 CM (6 PO.)-(VOIR DETAIL A)
14	154639	ENSEMBLE RESERVOIR & PIED TR100-RACCORD FILETE 15 CM (6 PO.)-(VOIR DETAIL A)
14	154640	ENSEMBLE RESERVOIR & PIED TR140-RACCORD FILETE 15 CM (6 PO.)-(VOIR DETAIL A)

FILTRE A SABLE EN FIBRE DE VERRE TRITON™ II ET TR60 CLEARPRO

Pièces de Rechange

TR40
TR50
TR60
TR60 ClearPro
TR100
TR140

REMARQUES

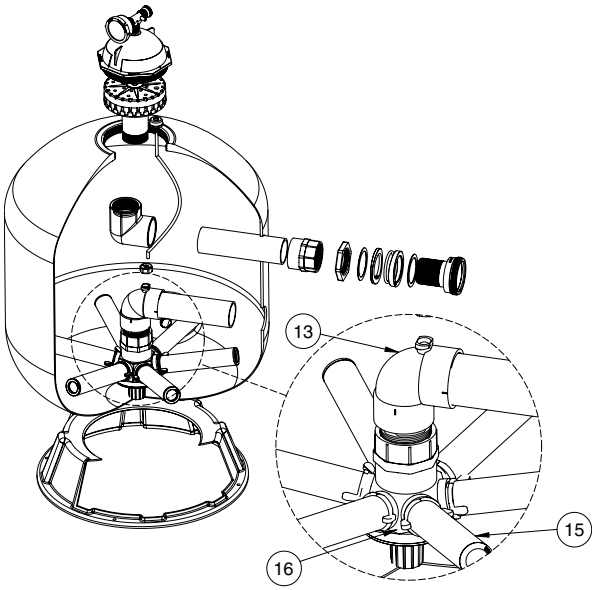
Filtres fabriqués après le 1er décembre 1991 : utiliser un filetage trapèze rectangulaire de 6 pouces pour l'ouverture supérieure du corps du filtre ainsi que pour le couvercle. Voir Détail A.

Filtres fabriqués avant le 1er décembre 1991 : utiliser un filetage en « V » de 6 pouces. Voir Détail B.

Les couvercles de 6 pouces des Détails A et B ne sont PAS interchangeables.

Pour déterminer la date de fabrication : les quatre premiers chiffres du numéro de série indiquent le mois et l'année où le produit fut fabriqué.

TR60 ClearPro - 1/4 Virage Latéral pour les filtres fabriqués après 15 Mai 2007 utilise Tuyauterie-Inferieure P/N 155284.



DETAILED VIEW

Détailler pour Triton™ II - TR60 Filtres avec ClearPro Technology™

UNITÉ	PIECE NO.	DESCRIPTION - TRITON II ET TR60 CLEARPRO
15	152290	ELEMENT LATERAL 17 CM (6 11/16 PO.) L TR40/50/60 (8 Requis)
15	150085	ELEMENT LATERAL - 1/4 VIRAGE TR60 (6 Requis)
15	150088	ELEMENT LATERAL TR60 ClearPro (6 Requis)
15	152202	ELEMENT LATERAL-23,2 CM (9 1/8 PO.) L TR100 (8 Requis) ❷
15	154543	ELEMENT LATERAL-16,5 CM (6 1/2 PO.) L TR100 (8 Requis) ❶
15	154540	ELEMENT LATERAL-30 CM (12 PO.) L TR140 (8 Requis)
16	154763	MOYEU-ELEMENT LATERAL TR40/50/60
16	152222	MOYEU-ELEMENT LATERAL TR60 ClearPro
16	154453	MOYEU-ELEMENT LATERAL TR100/140
17	152220	VIDANGE DE SABLE -5 CM (2 PO.) ❻
17	154698	ROBINET-19 MM (3/4 PO.) NPT, VIDANGE DE SABLE ❹
17	154685	ROBINET-12,7 MM (1/2 PO.) NPT, VIDANGE DE SABLE ❸
18	154871	CHAPEAU - FILETE - 3.8CM (1.1/2 PO.) ❻
18	357161	BOUCHON-6,3 MM (1/4 PO.) NPT, VIDANGE
19	154512	CLE-15 CM (6 PO.), COUVERCLE
20	154412	CONTRE-ECROU-5 CM (2 PO.) INTERNE (2 Requis)
21	154416	BAGUE D'ECARTEMENT-5 CM (2 PO.) INTERNE (2 Requis)
22	154492	JOINT TORIQUE-5 CM (2 PO.) TRAVERSEE DE PAROI ETANCHE (2 Requis)
23	154408	BAGUE D'ECARTEMENT-5 CM (2 PO.) EXTERNE (2 Requis)
24	154538	JOINT D'ETANCHEITE-5 CM (2 PO.) TRAVERSEE DE PAROI-ETANCHE (2 Requis)
25	154405	TRAVERSEE DE PAROI ETANCHE-5 CM (2 PO.) (2 Requis)
26	274494	JOINT TORIQUE-(3/16 PO. X 2-5/8 PO. - i.d.) ❻
26	192115	JOINT TORIQUE #2-12 - ADAPTATEUR DE AIR
27	154418	RONDELLE-9,4 MM (3/8 PO.) INOX
28	154926	PIED-40 CM (16 PO.) DE DIAMETRE, TR40/50 (Remarque 1)
28	154520	PIED-48.3 CM (19 PO.) DE DIAMETRE, TR 60
28	154596	PIED-60 CM (24 PO.) DE DIAMETRE, TR100/140 (Remarque 1)
29	274494	JOINT TORIQUE-ADAPTATEUR DE VANINE (2 Requis)
30	271092	KIT-ADAPTATEUR DE VANINE A FILETAGE 5CM (2 PO.) ❺
31	271094	KIT-ADAPTATEURS DE VANINE A FILETAGE 3.8CM (1.1/2 PO.) ❺
32	271096	KIT-ADAPTATEURS DE VANNE A EMBOITEMENT 5 & 3.8CM (2 & 1-1/2 PO.) ❺
33	154641	KIT-COUVERCLE, RACCORD FILETE 15CM (6 PO.)-NOIR (VOIR DETAIL A)
33	154697	KIT-COUVERCLE, FILETAGE TRIANGULAIRE 15CM (6 PO.) TAN - (VOIR DETAIL B)
33	154856	KIT-COUVERCLE, RACCORD FILETE 21,6CM (8½ PO.)-NOIR
34	154687	JEU DE RACCORDS - COMPLET (Remarque 2)
35	154611	BAGUE D'ECARTEMENT - FILTRE D'EVENT 9.4 CM (3-3/4 PO.) - TR40
35	154612	BAGUE D'ECARTEMENT - FILTRE D'EVENT 11.4 CM (4-1/2 PO.) - TR50/60
35	154613	BAGUE D'ECARTEMENT - FILTRE D'EVENT 14 CM (5-1/2 PO.) - TR100
35	154614	BAGUE D'ECARTEMENT - FILTRE D'EVENT 12.7 CM (5 PO.) - TR140
39	154492	JOINT TORQUE
–	154002	RUBAN ADHESIF-FIXATION DU PIED TR40/50/60 (3 Requis)
–	154007	RUBAN ADHESIF-FIXATION DU PIED TR100/140 (3 Requis)
–	151602	CLE POUR TRAVERSEE DE PAROI ETANCHE - 5CM (2 PO.)
–	154714	KIT-TRAVERSEE DE PAROI ETANCHE (COMPREND LES PIECES Nº 20 A 25)

FILTRE A SABLE EN FIBRE DE VERRE TRITON™ II ET TR60 CLEARPRO

Pièces de Rechange

TR40
TR50
TR60
TR60 ClearPro
TR100
TR140

REMARQUES

Filtres fabriqués après le 1er décembre 1991 : utiliser un filetage trapèze rectangulaire de 6 pouces pour l'ouverture supérieure du corps du filtre ainsi que pour le couvercle. Voir Détail A.

Filtres fabriqués avant le 1er décembre 1991 : utiliser un filetage en « V » de 6 pouces. Voir Détail B.

Les couvercles de 6 pouces des Détails A et B ne sont PAS interchangeables.

Pour déterminer la date de fabrication : les quatre premiers chiffres du numéro de série indiquent le mois et l'année où le produit fut fabriqué.

❶ Utilisé sur les Filtres fabriqués avant 5-85.
❷ Utilisé sur les Filtres fabriqués après 5-85.
❸ Utilisé sur les Filtres fabriqués avant 3-83.
❹ Utilisé sur les Filtres fabriqués après 3-83 et jusqu'en 3-96.
❺ Pour les Installations sans Vanne (Paire).
❻ Utilisé sur les Filtres TR100 et 140.

REMARQUE 1: Le remplacement du pied du réservoir exige l'utilisation d'une bande de montage de pied. Se référer aux numéros de pièces détachées.

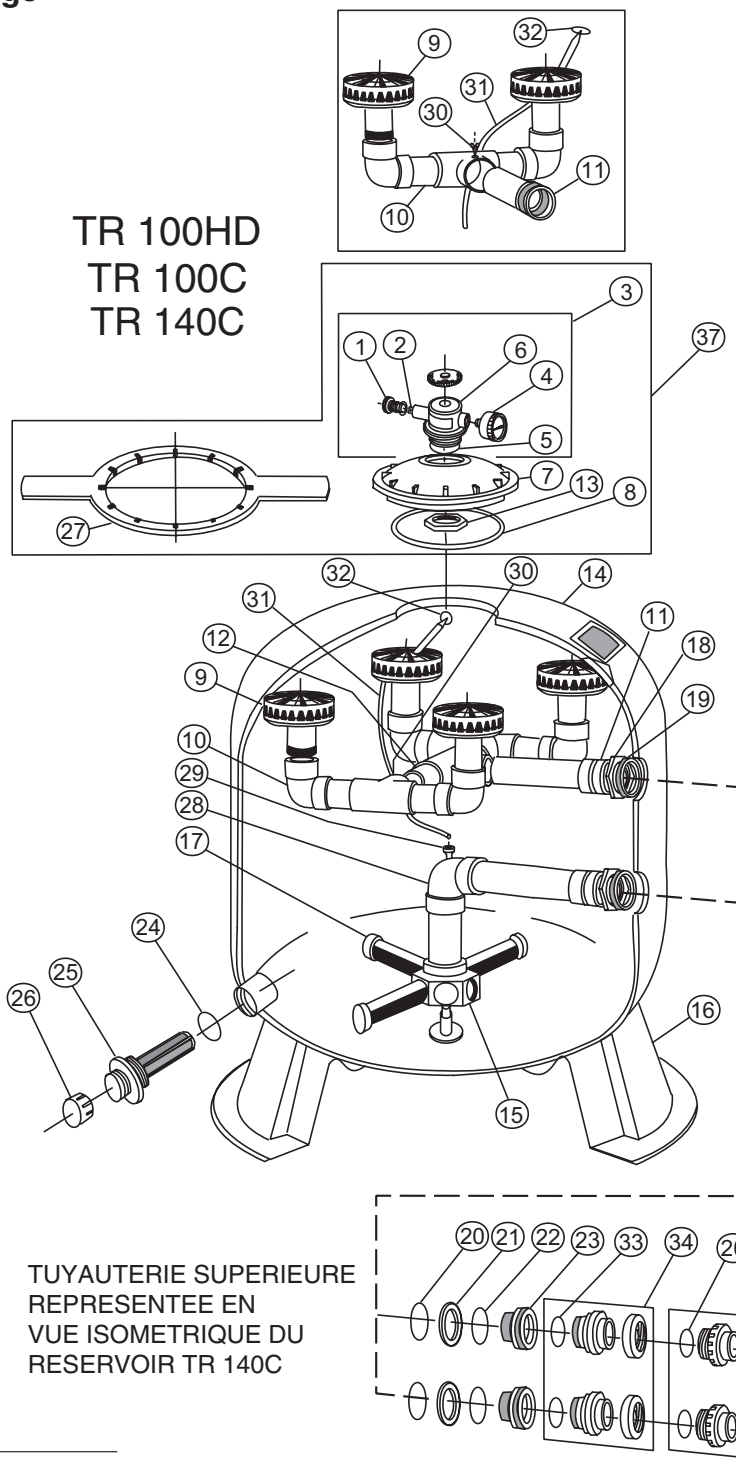
REMARQUE 2: L'ensemble des pièces de fixation inclue les articles 1, 2, 4, 5 et 27.

FILTRE A SABLE EN FIBRE DE VERRE TRITON™ 100HD, 100C ET 140C

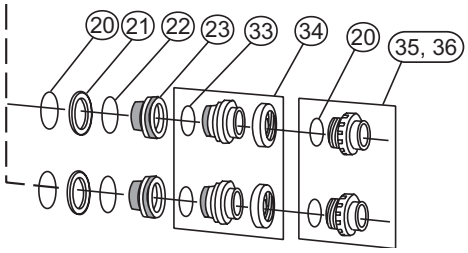
Pièces de Rechange

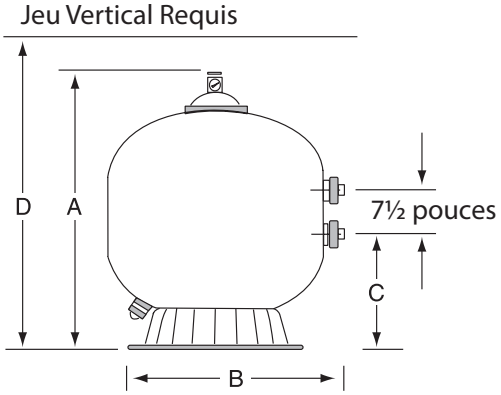
TR100HD
TR100C
TR140C

TR 100HD
TR 100C
TR 140C



TUYAUTERIE SUPERIEURE REPRESENTEE EN VUE ISOMETRIQUE DU RESERVOIR TR 140C





MODELE	DIM. A	DIM. B	DIM. C	DIM. D
TR100C	100,9 cm	77,5 cm	41,9 cm	111,1 cm
TR140C	114,9 cm	92,7 cm	47,6 cm	125,1 cm
TR100HD	100,9 cm	77,5 cm	41,3 cm	106 cm

UNITÉ	PIECE NO.	TRITON 100HD, 100C ET 140C DESCRIPTION
1	273512	PURGEUR D'AIR AVEC JOINT TORIQUE
2	273513	JOINT TORIQUE - VIS DE PURGEUR D'AIR
3	273564	CORPS DE PURGEUR D'AIR MANUEL
4	155050	MANOMÉTRE
4	991481	MANOMÉTRE TR100C/TR100HD ❷
5	154494	JOINT TORIQUE-(3/16 PO. X 2-5/8 PO. -i.d.)
6	273564	CORPS DE VANNE - USINÉ
7	154575	COUVERCLE - RACCORD 8-1/2 PO.
8	152509	ANNEAU CARRÉ 8-1/2 PO.
9	154599	DIFFUSEUR (2 REQUIS SUR TR100C/ TR100HD) ❶
9	154599	DIFFUSEUR (4 REQUIS SUR TR140C) ❶
10	156355	ENSEMBLE DE TUYAUTERIE SUPÉRIEURE-TR100C/TR100HD/TR140C ❶
11	156344	ENTRÉE D'EAU - TUYAUTERIE SUPÉRIEURE - TR100C/TR100HD
12	156354	ENSEMBLE RACCORD DE TUYAUTERIE SUPÉRIEURE - TR140C
13	154412	ÉCROU - 2 PO. INTERNE
14	153430	ENSEMBLE DE RÉSERVOIR ET PIED TR100C/ TR100HD RACCORD FILETÉ 8-1/2 PO. - NOIR
14	153431	ENSEMBLE DE RÉSERVOIR ET PIED TR140C RACCORD FILETÉ 8-1/2 PO. - NOIR
14	156224	ENSEMBLE DE RÉSERVOIR ET PIED TR100HD RACCORD FILETÉ 15 CM (6 PO.) - NOIR ❷
15	154453	MOYEU - ÉLÉMENT LATÉRAL TR100C/TR100HD/ TR140C
16	154596	PIED - DIAMÈTRE 24 PO. TR100C/TR100HD/ TR140C
17	152202	ÉLÉMENT LATÉRAL - LONGUEUR: 9-1/8 PO. TR100C (8 REQUIS)
17	154540	ÉLÉMENT LATÉRAL - LONGUEUR: 12 PO. TR140C (8 REQUIS)
18	154412	CONTRE-ÉCROU - 2 PO. INTERNE
19	154416	BAGUE D'ÉCARTEMENT - 2 PO. INTERNE
20	154492	JOINT TORIQUE - TRAVERSÉE DE PAROI ÉTANCHE - 2 PO.
21	154408	BAGUE D'ÉCARTEMENT - 2 PO. EXTERNE
22	154538	JOINT D'ETANCHEITE - TRAVERSÉE DE PAROI ETANCHE - 2 PO.
23	154405	TRAVERSÉE DE PAROI ETANCHE - 2 PO.
24	274494	JOINT TORIQUE-(3/16 PO. X 2-5/8 PO. -i.d.)
–	154407	RUBAN ADHÉSIF FIXATION DU PIED
25	152220	ENSEMBLE VIDANGE DE SABLE 2 PO.
26	154871	CHAPEAU - FILETÉ 1½ PO.
27	154527	CLÉ - COUVERCLE 8-1/2 PO.
27	151608	CLÉ - COUVERCLE 8-1/2 PO. ALUMINIUM
28	154807	ENSEMBLE DE TUYAUTERIE INFÉRIEURE TR100C/TR100HD
28	154489	ENSEMBLE DE TUYAUTERIE INFERIEURE TR140C
29	150036	RACCORD - TUBE DE PURGEUR D'AIR
30	273071	VIS #14 18-8 ❶

FILTRE A SABLE EN FIBRE DE VERRE TRITON™ 100HD, 100C ET 140C

Pièces de Rechange

TR100HD
TR100C
TR140C

UNITÉ	PIECE NO.	TRITON 100HD, 100C ET 140C DESCRIPTION
31	150041	TUBE - PURGEUR D'AIR TR100C/TR100HD
31	150042	TUBE - PURGEUR D'AIR TR140C
32	150035	PURGEUR D'AIR DU FILTRE
33	274494	JOINT TORQUE - ADAPTATEUR DE VANNE
34	271096	KIT - PAIRE D'ADAPTATEUR SANS VANNE À EMBOÎTEMENT 2 PO. & 1-1/2 PO.
35	271092	KIT - PAIRE D'ADAPTATEURS SANS VANNE À FILETAGE 2 PO.
36	271094	KIT - PAIRE D'ADAPTATEURS SANS VANNE À FILETAGE 1-1/2 PO
37	154856	KIT - COUVERCLE, RACCORD FILETÉ 8-1/2 PO. NOIR
37	155738	KIT - COUVERCLE, RACCORD FILETÉ 8-1/2 ❷

REMARQUE

❶ Différentes quantités sont requises pour les Filtres TR100C etTR140C.

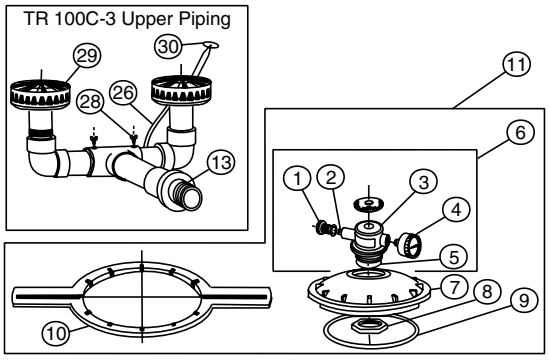
❷ Utilisé sur les Filtres TR100 HD.

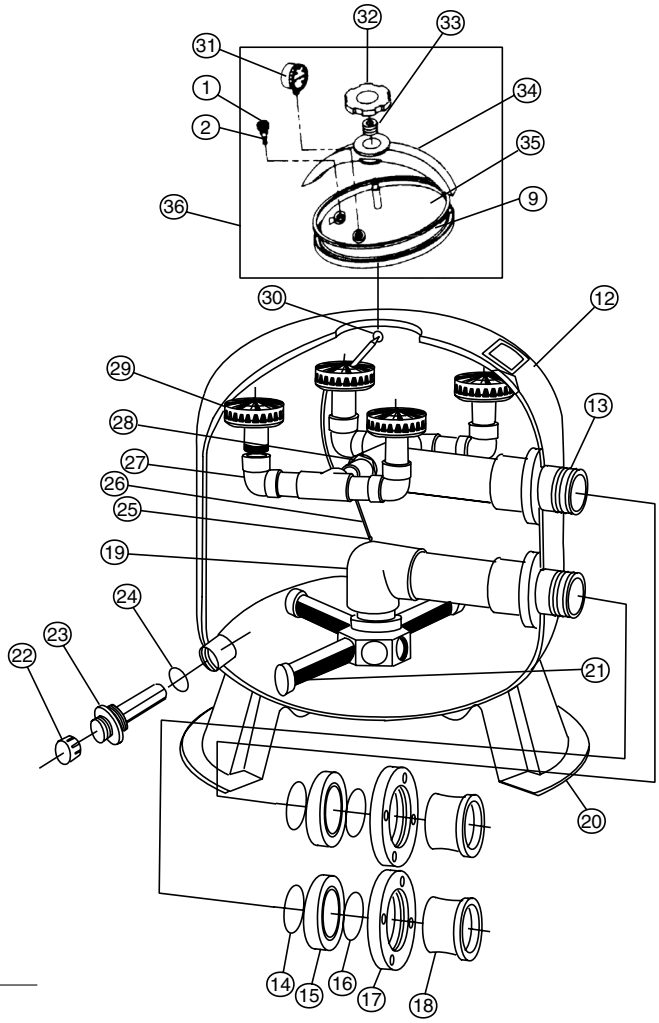
FRANÇAIS

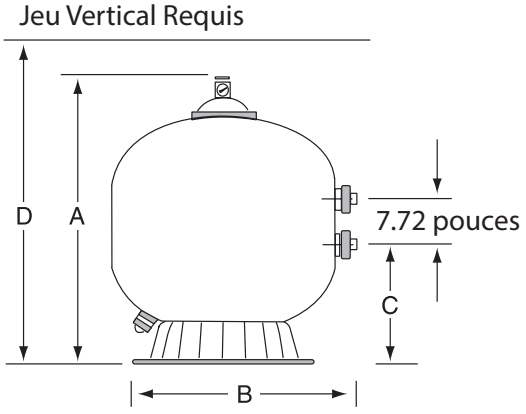
FILTRE A SABLE EN FIBRE DE VERRE TRITON™ 100C-3 ET 140C-3

Pièces de Rechange

TR100C-3
TR140C-3







MODELE	DIM. A	DIM. B	DIM. C	DIM. D
TR100C-3	100,9 cm	77,5 cm	40,8 cm	111,1 cm
TR140C-3	114,9 cm	92,7 cm	47 cm	125,1cm

FILTRE A SABLE EN FIBRE DE VERRE TRITON™ 100C-3 ET 140C-3

Pièces de Rechange

TR100C-3
TR140C-3

UNITÉ	PIECE NO.	TRITON 100C-3 ET 140C-3 DESCRIPTION
1	273512	PURGEUR D'AIR AVEC JOINT TORIQUE ❷❸
2	273513	JOINT TORIQUE -VIS DE PURGEUR D'AIR ❷
3	273564	CORPS DE PURGEUR D'AIR MANUEL ❷
4	155050	MANOMETRE ❷
5	154494	JOINT TORIQUE - (3/16 PO. X 2-5/8 PO. - i.d.) ❷
6	273564	CORPS DE VANNE - USINÉ ❷
7	154575	COUVERCLE - RACCORD 8-1/2 PO. ❷
8	154412	ÉCROU - 2 PO. INTERNE ❷
9	152509	ANNEAU CARRE - COUVERCLE ❷❸
10	154527	CLÉ - COUVERCLE 8-1/2 PO. ❷
11	154856	KIT - COUVERCLE, RACCORD FILETÉ 8-1/2 PO.❷
11	156842	KIT - COUVERCLE, AVEC LE JOINT 8-1/2 PO.❹
12	153430	ENSEMBLE DE RESERVOIR ET PIED TR 100C-3 RACCORD FILETE
12	153431	ENSEMBLE DE RESERVOIR ET PIED TR 140C-3 RACCORD FILETE
13	154007	ENSEMBLE DE TUYAUTERIE SUPERIEURE TR 100C-3
13	154008	ENSEMBLE DE TUYAUTERIE SUPERIEURE TR 140C-3
14	154005	JOINT TORIQUE - PARKER 2-343 (2 Requis)
15	154002	BAGUE D'ECARTEMENT 3 PO. (2 Requis)
16	154004	JOINT TORIQUE - PARKER 2-342 (2 Requis)
17	154003	BRIDE 3 PO. (2 Requis)
18	154001	ADAPTATEUR - BRIDE 3 PO. (2 Requis)
19	154009	ENSEMBLE DE TUYAUTERIE INFERIEURE TR100C-3
19	154010	ENSEMBLE DE TUYAUTERIE INFERIEURE TR140C-3
20	154596	PIED - 24 PO. DE DIAMETRE TR100C-3/140C-3
21	152202	ELEMENT LATERAL 9 PO. TR100C-3 (8 Requis)
21	154540	ELEMENT LATERAL 12 PO. TR140C-3 (8 Requis)
22	154871	CHAPEAU - FILETE 1-1/2 PO.
23	152220	ENSEMBLE VIDANGE DE SABLE 2 PO.
24	274494	JOINT TORIQUE-(3/16 PO. X 2-5/8 PO. -i.d.) (2 Requis)
25	154441	RACCORD - TUBE DE PURGE D'AIR
26	150041	TUBE - PURGE D'AIR TR100C-3 (23 PO.)
26	150042	TUBE - PURGE D'AIR TR140C-3 (27 PO.)
27	154018	ENSEMBLE DE TUYAUTERIE DU DIFFUSEUR TR140C-3 (2 Requis)
28	552474	VIS- #10 - 1-1/2 PO. A SIX PANS (2 Requis)
29	154599	DIFFUSEUR (2 Requis pour TR100-C3)
29	154599	DIFFUSEUR (4 REQUIS POUR TR140-C3)

UNITÉ	PIECE NO.	TRITON 100C-3 ET 140C-3 DESCRIPTION
30	150035	FILTRE - ELC/TR
31	190058	MANOMETRE, ¼ PO. PSI ❸
32	154581	BOUTON TR OVALE ❸
33	154582	RESSORT TR OVALE ❸
34	154579	PONT TR OVALE ❸
35	154576	COUVERCLE OVALE ❸
36	156841	KIT - COUVERCLE OVALE TRITON ❶❸

REMARQUE

❶ P/N 156841 inclue les articles: 1, 9, et 31 – 35.
❷ Utilisé sur les Filtres fabriqués avant 3-97.
❸ Utilisé sur les Filtres fabriqués après 3-97.
❹ Utilisé sur les Filtres fabriqués après 4-15.

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