

LAKEWOOD MANOR APARTMENTS **POOL AREA RENOVATION**

Closeout Documents

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Monthly Maintenance Guidelines

January:

1. Prune trees and shrubs that have become too large or are unshapely.
2. Inspect plants, shrubs, and trees removing any damaged or dead wood.
3. Inspect planting areas and remove any debris or litter.
4. Water twice a week under eaves of roof if necessary.
5. Check staking and weather protection of first-year plants.
6. Remove leaves, debris, and litter on all lawn areas weekly.
7. Mulch bed areas as needed to replenish mulch levels.
8. Spray herbicides on winter weeds on or about January 15th.
9. Transplant trees and shrubs at this time.
10. Replace any damaged or dead trees and shrubs.
11. Fertilize pansies every two weeks if used for annual color.
12. Check drainage of planted areas; correct if excessive water persists.
13. Protect plants susceptible to winter damage during extreme cold periods.

February:

1. Prune trees and shrubs that have become too large or are unshapely.
2. Inspect plants, shrubs, and trees removing any damaged or dead wood.
3. Inspect planting areas and remove any debris or litter.
4. Water twice a week under eaves of roof if necessary.
5. Check staking and weather protection of first-year plants.
6. Remove leaves, debris, and litter on all lawn areas weekly.
7. Mulch bed areas as needed to replenish mulch levels.
8. Apply pre-emergent herbicides to lawn to prevent crabgrass.
9. Apply pre-emergent herbicides to beds to prevent weeds.
10. Replace any damaged or dead trees or shrubs.
11. Check moisture level in all planted areas and water if necessary (weekly).
12. Protect plants susceptible to winter damage during extreme cold periods.
13. Remove staking on one-year old plantings.
14. Spot spray existing weeds with Round-Up.
15. Establish a good edge on all bed areas.
16. Completely replace mulch in all planting areas.

March:

1. Dethatch all lawn areas that have thatch build-up.
2. Mow and trim all lawn areas as required.
3. Reseed where necessary.
4. Clean up litter and debris on all lawn areas and hard surfaces weekly.
5. Prepare planters and beds for spring annuals.
6. Inspect plants, trees, and shrubs removing any damaged or dead wood.
7. Water weekly under eaves of roofs as necessary.
8. Check moisture levels in all planted areas and water if necessary (weekly).
9. Start pruning where necessary to maintain shape and form (do not shear).
10. All liriope should be cut back to remove winter damage on old growth and to allow new growth to emerge.
11. Weed by hand all bed areas as needed.
12. Deep root fertilize all trees, except pines, with Peter's 20-20-20 or equivalent 20-20-20 fertilizer.

April:

1. Aerate all sod areas using approved means.
2. Fertilize all lawn areas with a "weed and feed" lawn fertilizer.
3. Mow and edge lawn areas as needed.
4. Spot spray weed problem areas.
5. Inspect all areas for insect and disease damage and treat as necessary weekly.
6. Clean up litter and debris on all lawn areas and hard surfaces weekly.
7. Water lawns and planted areas as needed.
8. Fertilize shrubs, trees, and groundcover with "Nursery Special" by Sta-Green or an equivalent product.
9. Inspect all planted areas removing any dead or seriously damaged plants; cultivate and weed all planted areas.
10. Replace removed plants.
11. Remove any winter and early spring annuals after blooming is done.
12. Prepare beds for annual color.
13. Weed by hand all bed areas as needed.
14. Inspect all trees and shrubs; prune any dead or severely damaged limbs.
15. Prune shrubs after they have bloomed.
16. Inspect all plants and trees for insects or diseases and treat as necessary.
17. Cut natural areas with weed-eaters to keep undergrowth down.
18. Prune hedges as necessary to keep shape and form.

May:

1. Inspect all lawn and planted areas for insects and diseases; treat as necessary.
2. Inspect lawn for weeds and apply selective herbicides specific to the variety of lawn grass.
3. Seed bermuda or centipede areas, or overseed with bermuda or centipede, on all weak or damaged areas. Protect seeded areas until acceptable coverage of grass is present.
4. Mow and edge all lawn areas as needed.
5. Irrigate all planted and lawn areas during dry periods.
6. Clean up litter and debris on all lawn areas and hard surfaces weekly.
7. Spot spray for weeds in planted and natural areas with Round-Up.
8. Weed all groundcover areas as necessary.
9. Inspect trees and shrubs; prune damaged plants.
10. Prune shrubs and hedges as necessary to maintain shape and form.
11. Prune and fertilize azaleas that have completed blooming.
12. Weed by hand all bed areas as needed.
13. Plant annual color beds for summer blooming.

June:

1. Inspect all lawn and planted areas for insects and diseases; treat as necessary.
2. Apply selective herbicides for weed control specific to the variety of lawn grass.
3. Irrigate all planted and lawn areas as needed.
4. Fertilize lawns; do not fertilize centipede grass.
5. Mow and edge all lawn areas weekly or as needed.
6. Trim all lawn areas as needed.
7. Clean up litter and debris on all lawn areas and hard surfaces weekly.
8. Spot spray for weeds in all planted areas with Round-Up.
9. Weed all groundcover areas as necessary.
10. Prune shrubs and hedges as necessary to maintain shape and form.
11. Prune and apply a pruning sealer to all damaged woody stemmed plants.
12. Prune and fertilize azalea that have completed blooming.
13. Weed by hand all bed areas as needed.
14. Fertilize all bed areas.

July:

1. Mow and edge all lawn areas weekly.
2. Trim all lawn areas as needed.
3. Inspect all lawn and plant areas for insects and diseases; treat as necessary.
4. Clean up litter and debris on all lawn areas and hard surfaces weekly.
5. Spot spray with Round-Up on all weeds in all planted areas where necessary.
6. Irrigate all planted and lawn areas as needed.
7. Prune shrubs and hedges as necessary to maintain shape and form.
8. Prune damaged plants; apply pruning sealer to all woody stemmed plants and trees.
9. Weed by hand all bed areas as needed.
10. Check all bed areas for mulch replacement as needed.

August:

1. Mow and edge all lawn areas weekly.
2. Trim all lawn areas as needed weekly.
3. Inspect lawn and plant areas for insects and diseases; treat as necessary with appropriate remedies.
4. Fertilize all lawn areas using low nitrogen fertilizer.
5. Irrigate all planted and lawn areas as needed.
6. Clean up litter and debris on all lawn areas and hard surfaces weekly.
7. Spot spray with Round-Up all weeds in all planted areas where necessary.
8. Weed by hand all bed areas as needed.
9. Fertilize all groundcover and bed areas.
10. Check all bed areas for mulch replacement or replenishment as needed.
11. Prune shrubs and hedges as necessary to maintain shape and form.
12. Prune damaged plants; apply pruning sealer to all woody stemmed plants and trees.

September:

1. Inspect all lawn and plant areas for insects and diseases; treat as necessary.
2. Mow and edge all lawn areas weekly.
3. Trim all lawn areas as needed.
4. Irrigate all planted and lawn areas as needed.
5. Aerate all sod areas using approved means.
6. Clean up litter and debris on all lawn areas and hard surfaces weekly.
7. Prune shrubs and hedges as necessary to maintain shape and form.
8. Prune damaged plants; apply pruning sealer to all woody stemmed plants and trees.
9. Weed by hand all bed areas as needed.
10. Remove summer color beds.
11. Apply pre-emergent herbicide, such as Treflan, to all bed areas.
12. Do soil test as needed to check lime and fertilizer requirements; add amendments as necessary to correct ph and fertilizer levels.
13. Replace summer annuals with fall annuals (mums, etc.) in prepared beds.
14. Fertilize fall annuals with appropriate fertilizer.

October:

1. Mow and edge all lawn areas weekly.
2. Dethatch lawn areas that have a thatch buildup.
3. Inspect all lawn and plant areas for insects and diseases; treat as necessary.
4. Fertilize all cool season grasses.
5. Clean up litter and debris on all lawn areas and hard surfaces weekly.
6. Monitor water needs of lawn and bed areas; irrigate as needed.
7. Replace dead or severely damaged trees and shrubs.
8. Plant new trees and shrubs.
9. Prune damaged plants; apply running sealer to all woody stems.
10. Check annual color beds and remove all spent blooms.
11. Replenish mulch to maintain adequate coverage.

November:

1. Mow, edge, and trim all lawn areas where necessary.
2. Clean up litter, leaves, and debris on all lawn areas and hard surfaces weekly.
3. Check all lawn and planted areas for water requirements; irrigate as necessary.
4. Weed and cultivate beds for winter.
5. Plant spring bulbs and pansies for winter and spring color; fertilize at planting with appropriate fertilizer.
6. Check mulch in beds and replace where necessary.
7. Apply approved anti-desiccant to all evergreen trees, except pines, during the first two weeks in November.

December:

1. Mow, edge, and trim all lawn areas where applicable.
2. Clean up all litter, leaves, and debris on lawns.
3. Check all planted areas for water requirements and water as needed.
4. Fertilize winter color beds with a spray "foliage feed" two times in December.
5. Protect plants susceptible to winter damage during extreme cold periods.

GROUNDS MAINTENANCE SPECIFICATIONS

1.0 SCOPE OF WORK

- 1.1** The maintenance contractor shall furnish all labor, equipment, materials and supervision required to properly maintain the landscaped areas, lawn areas and trees in an attractive condition throughout the term of the contract

2.0 WORKFORCE AND PERFORMANCE

- 2.1 All workmen shall be under the supervision of an experienced maintenance supervisor.
- 2.2 All work is to be performed in accordance with standard horticultural practices, using modern technology accepted by the industry. The appearance and health of the landscape shall be considered over methods and procedures.
- 2.3 All work is to be performed with the utmost concern for the safety of both the workers and the public.
- 2.4 All work shall be scheduled to assure that horticultural tasks are completed at the proper times. Schedules may vary throughout the year as weather conditions dictate.
- 2.5 The maintenance contractor shall replace or repair any damage caused by his agents.

3.0 LAWNS

3.1 MOWING

- 3.1.1 All lawn areas will be mowed a total of forty-one (41) times per year.
- | | | |
|-------------------------------|---|-----------------|
| March 1 though October 31 | - | Weekly |
| November1 through February 28 | - | Twice per month |
- 3.1.2 Bermuda lawn areas are to be cut to 1.25". Centipede and St. Augustine lawn areas are to be cut to 1.75". At no time shall more than 1/3rd of the grasses be mowed.
- 3.1.3 Grass clippings shall be removed if they are unsightly.
- 3.1.4 Mower blades shall be sharp at the time of mowing to prevent tearing of the grass blades.

3.2 EDGING AND TRIMMING

- 3.2.1 Mechanical edging along sidewalks, curbs and lawns bordering landscaped bed edges shall be performed every other service visit
- 3.2.2 Grasses shall be kept out of the tree's mulch ring and not allowed to encroach.
- 3.2.3 Grasses shall be prevented from encroaching into landscaped bed areas.

3.3 TURF FERTILIZATION & WEED CONTROL

3.3.1 All lawn areas are to be fertilized two (2) times per year.

March: 32-03-08 w/ 2% Iron and 30% SCU at a rate of 4 lbs. per 1000 square feet or approved equal so that at least 1.25 lbs. of **Actual Nitrogen** is applied.

July: 32-03-08 w/ 2% Iron and 30% SCU at a rate of 4 lbs. per 1000 square feet or approved equal so that at least 1.25 lbs. of **Actual Nitrogen** is applied.

3.3.2 All lawn areas are to be kept free of weeds and undesirable vegetation by use of pre-emergent and/or post-emergent herbicides at the maintenance contractor's option.

3.3.3 Material Safety Data Sheets (MSDS) and Specimen Labels for all herbicides used must be kept on file with the owner prior to their use.

3.4 TURF INSECT & DISEASE CONTROL

3.4.1 Owner shall be notified of any insect or disease infestations that need to be treated in the opinion of the maintenance contractor. A proposal for the cost of the applications is to be submitted prior to any applications being approved for execution and payment.

3.5 TURF AERIFICATION

3.5.1 All lawn areas are to be mechanically aerified two (2) times per year prior to turf fertilization.

3.5.2 The cost of each aerification is to be priced separately in the proposal form.

3.6 TURF RYE GRASS OVERSEEDING

3.6.1 All lawn areas are to be overseeded between November 1st and November 15th with Perennial Rye Grass seed at a rate of eight (8) lbs. per 1,000 square feet.

3.6.2 The cost of the overseeding is to be priced separately in the proposal form.

3.6.3 Should the owner request overseeding, a separate price for eight (8) additional turf mowing shall be included in the proposal form.

4.0 TREES & SHRUBS

4.1 PRUNING

4.1.1 All trees under fifteen feet (15') shall be pruned to promote structural strength and flowering and accentuate the tree's natural forms and features within the limitations of space.

4.1.2 All trees shall be pruned annually if necessary following standard horticultural standards during the winter months.

- 4.1.3** Debris from tree pruning shall be disposed of off-site.
- 4.1.4** All shrubs shall be pruned to maintain the design intent of the landscape. Hedge row plant material shall have no more than six inches (6") of new growth.
- 4.1.5** Spring flowering shrubs shall be pruned immediately following flowering and no pruning shall be done after June 15th.
- 4.1.6** All Asian Jasmine and Liriope beds are to be pruned in the winter to promote dense growth in the spring.

4.2 TREE & SHRUB FERTILIZATION

- 4.2.1** All trees under six inches (6") are to be fertilized in January using 13-03-13 with Micronutrients 50% Poly Plus SCU and 13% Sulfur as manufactured by LESCO at a rate of two (2) lbs. per caliper inch measured at six inches (6") above grade and evenly distributed under the drip-line of the tree.
- 4.2.2** All shrub plantings shall be fertilized in March using 13-03-13 with Micronutrients 50% Poly Plus SCU and 13% Sulfur as manufactured by LESCO at a rate of fifteen (15) lbs. per 1,000 square feet.
- 4.2.3** All shrub plantings shall be fertilized in early September using 13-03-13 with Micronutrients 50% Poly Plus SCU and 13% Sulfur as manufactured by LESCO at a rate of eight (8) lbs. per 1,000 square feet.

4.3 TREE & SHRUB INSECT & DISEASE CONTROL

- 4.3.1** All trees & shrubs shall be kept free of injurious pests at all times. Maintenance contractor shall take whatever measures are necessary to maintain the overall health of the landscape and is responsible for the replacement of any plant(s) that die due to insects or diseases.

4.4 TREE & SHRUB WEED CONTROL

- 4.4.1** All landscaped beds and tree wells are to be kept free of weeds and undesirable vegetation by either pre-emergent or post-emergent herbicides and hand weeding as necessary.
- 4.4.2** Maintenance contractor to replace any plant material which is damaged or killed due to any herbicide use.
- 4.4.3** Material Safety Data Sheets (MSDS) and Specimen Labels for all herbicides used must be kept on file with the owner prior to their use.

4.5 TREE & SHRUB MULCH

- 4.5.1** All landscaped planting beds and tree wells shall be mulched with Hardwood Mulch as originally installed.
- 4.5.2** All areas will be remulched in February adding 1.50" of mulch.

4.5 STAKING

- 4.5.1** All tree staking and ties shall be adjusted to prevent girdling and chafing and shall be removed at the owners directions.

5.0 IRRIGATION SYSTEMS

5.1 MONITORING

- 5.1.1** Irrigation system components shall be monitored on a weekly basis to insure adequate moisture is maintained per seasonal requirements of the landscape and lawn areas.
- 5.1.2** Monitoring shall include the adjustment of irrigation cycles include days of operations and length of watering for each irrigation zone.
- 5.1.3** Spray and rotor nozzles shall be inspected and adjusted and cleaned as needed to provide even distribution and coverage.

5.2 REPAIRS

- 5.2.1** Maintenance contractor is to notify the owner of any repairs need to be made to the system.
- 5.2.2** Any damage to the irrigation system components by the maintenance contractor or his agents will be repaired at the maintenance contractor's expense.

6.0 MISCELLANEOUS

6.1 DEBRIS & LITTER

- 6.1.1** All plant debris accumulated as a result of normal maintenance operations shall be removed from the site.
- 6.1.2** Debris and litter shall be removed with each service visit from all landscaped areas. All trash shall be removed from lawn areas prior to mowing.
- 6.1.3** Storm related debris removal is at the owner's expense.

6.2 LICENSES

- 6.2.1** Maintenance contractor shall hold licenses for Ornamental & Turf Pest & Weed Control per State Horticulture Laws and Regulations.
- 6.2.2** Maintenance contractor shall hold licenses for Horticultural Services and Landscape Contracting from the State of Louisiana.



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™



ENGLISH 1

ESPAÑOL 21

FRANÇAIS 45

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)

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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.

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.



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/FT ²	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.

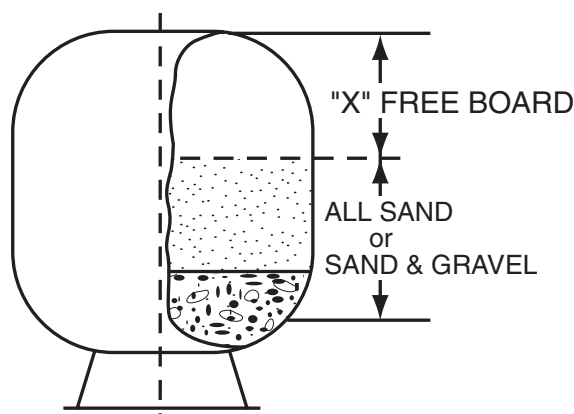
Table 2.

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 separate 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 separate 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 separate 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 separating 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).

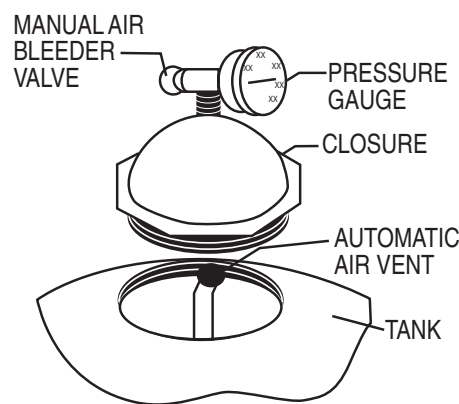


Figure 1.



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 than 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.



Air entering a filter and tank closure not installed properly can cause the closure to separate 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.



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.**



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 separate 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.



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

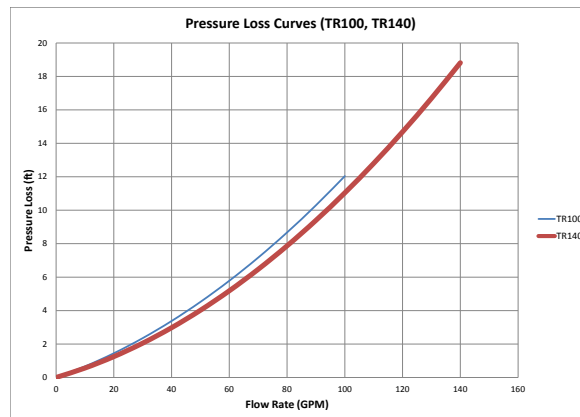
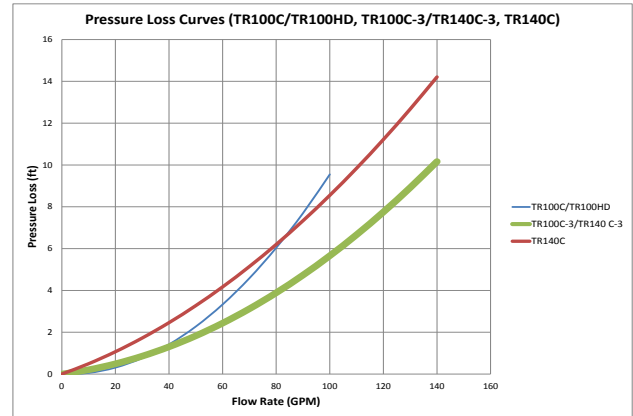
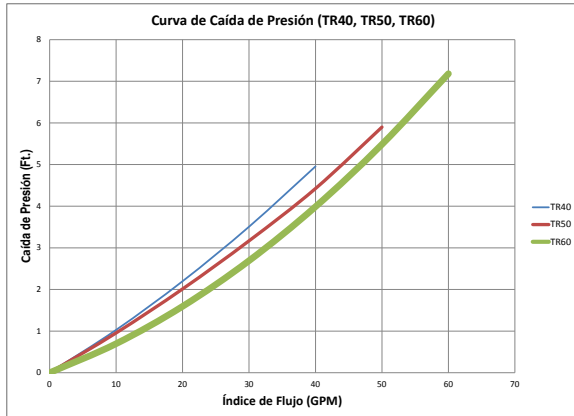
PROBLEM	CAUSE	REMEDY
Pool water not sufficiently clean	<ol style="list-style-type: none"> 1. Pool chemistry not adequate to inhibit algae growth. 2. Too frequent a backwash cycle. 3. Improper amount or wrong sand size. 4. Inadequate turnover rate. 	<p>Maintain pool chemistry or consult pool service technician.</p> <p>Allow pressure to build to 10 psi above clean filter condition before backwashing.</p> <p>Check sand bed Freeboard and sand size or consult a pool service technician.</p> <p>Run system for longer time or consult dealer or pool service technician.</p>
High filter pressure	<ol style="list-style-type: none"> 1. Insufficient backwashing. 2. Sand bed plugged with mineral deposits. 3. Partially closed valve. 	<p>Backwash until effluent runs clear.</p> <p>Chemically clean filter.</p> <p>Open valve or remove obstruction in return line.</p>
Short cycles	<ol style="list-style-type: none"> 1. Improper backwash. 2. Pool chemistry not adequate to inhibit algae growth. 3. Plugged sand bed. 4. Flow rate too high. 	<p>Backwash until effluent runs clear.</p> <p>Maintain pool chemistry or consult pool service technician.</p> <p>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.</p> <p>Restrict flow to capacity of filter.</p>

PROBLEM	CAUSE	REMEDY
Return flow to pool diminished, low filter pressure	<ol style="list-style-type: none"> 1. Obstruction in pump hair and lint strainer. 2. Obstruction in pump. 3. Obstruction in suction line to pump. 	<p>Clean basket in pump strainer.</p> <p>Disassemble and clean pump.</p> <p>Clean skimmer basket. Remove obstruction in lines.</p> <p>Open valves in suction line.</p>
Sand returning to pool	<ol style="list-style-type: none"> 1. Broken under drain lateral. 	<p>Replace broken or damaged laterals.</p>
Sand loss to waste	<ol style="list-style-type: none"> 1. Backwash rate too high. 2. Improper sand size. 3. Air strainer is damaged or missing. 	<p>Reduce backwash flow rate.</p> <p>Change to proper sand.</p> <p>Replace damage components.</p>
Leak at closure	<ol style="list-style-type: none"> 1. Improperly tightened closure. 2. Dirt or contamination on sealing surface. 3. Damaged part. 	<p>Shut off pump, relieve tank pressure, open air bleeder, tighten closure properly.</p> <p>Shut off pump, relieve tank pressure, open air bleeder, remove closure and clean all sealing surfaces. Reassemble closure properly.</p> <p>Same as above except replace damaged o-ring, closure, tank or any combination of parts as required.</p>
Leak at bulkhead	<ol style="list-style-type: none"> 1. Improper tightened bulkhead assembly. 2. Dirt or contamination on sealing surfaces. 3. Damaged part. 	<p>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.</p> <p>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. Tighten assembly as indicated above.</p> <p>Same as above except replace damaged part or combination of parts.</p>

Section 5

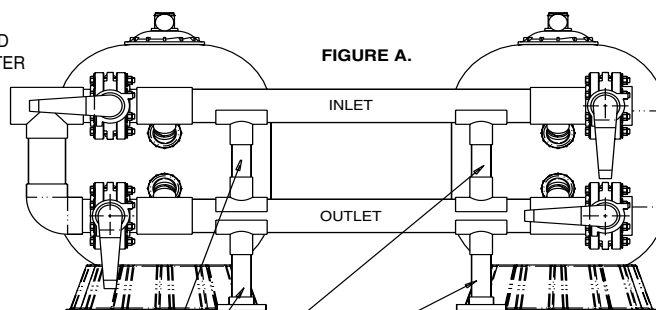
Replacement Parts

Pressure Drop Curve for the Triton® Series Fiberglass Sand Filters

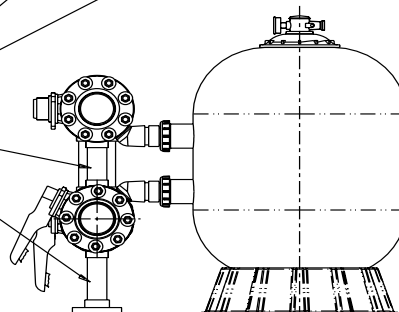


Installing Multiple Filters with Tandem Filter Piping Kits

CAUTION: WHEN MULTIPLE 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.



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

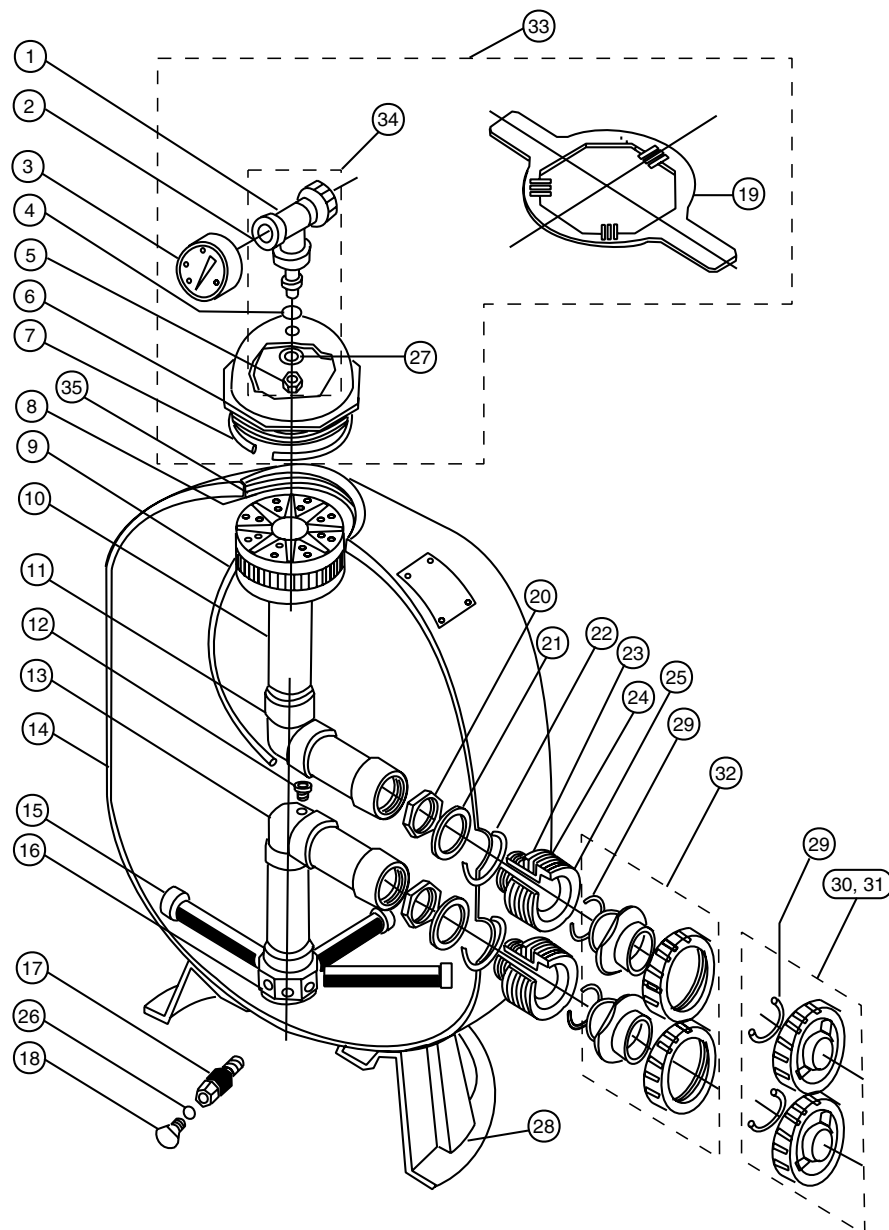
TR50

TR60

TR60 ClearPro

TR100

TR140



DETAIL A

After Dec. 1, 1991

6" BUTTRESS THREAD



DETAIL B

Before Dec. 1, 1991

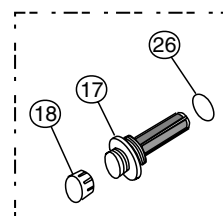
6" "V" THREAD



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.

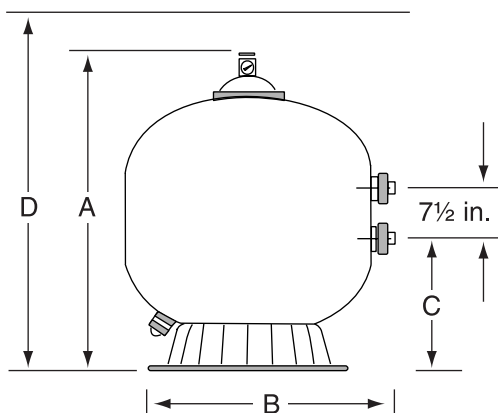
Filters manufactured before Dec 1, 1991 utilize a 6 in. "V" type thread, see Detail B.

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.

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

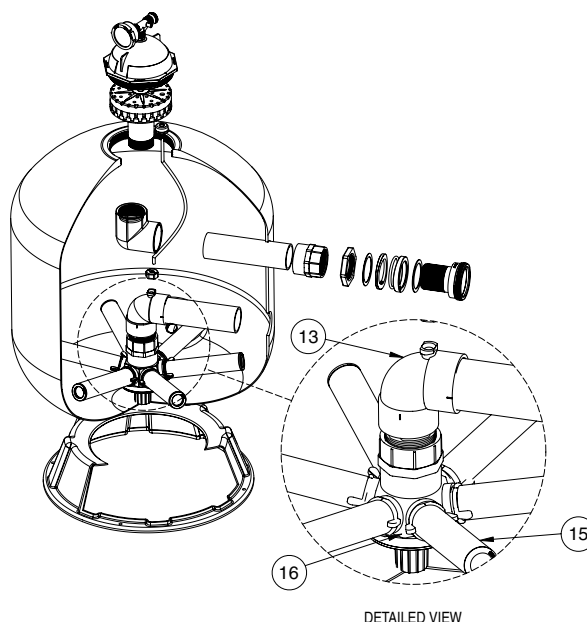
Filters manufactured after Dec 1, 1991 utilize a 6 in. buttress thread in the filter tank top opening and on the closure, see Detail A.

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. ❸
17	154698	Spigot ¾ in. NPT sand drain ❹
17	154685	Spigot ½ in. NPT sand drain ❸
18	154871	Cap thd. 1½ in. ❸
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. ❸
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 ❸
31	271094	1½ in. thd. adptr. kit ❸
32	271096	1½ in. & 2 in. slip adptr. kit ❸
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.

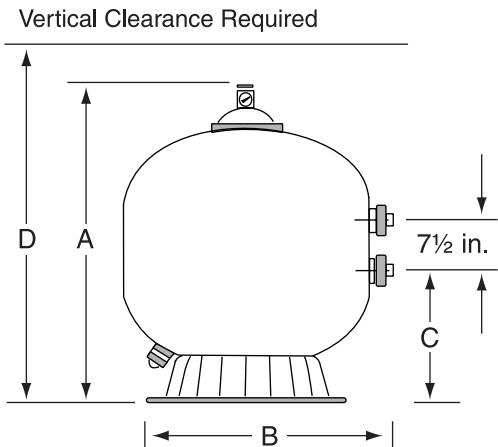
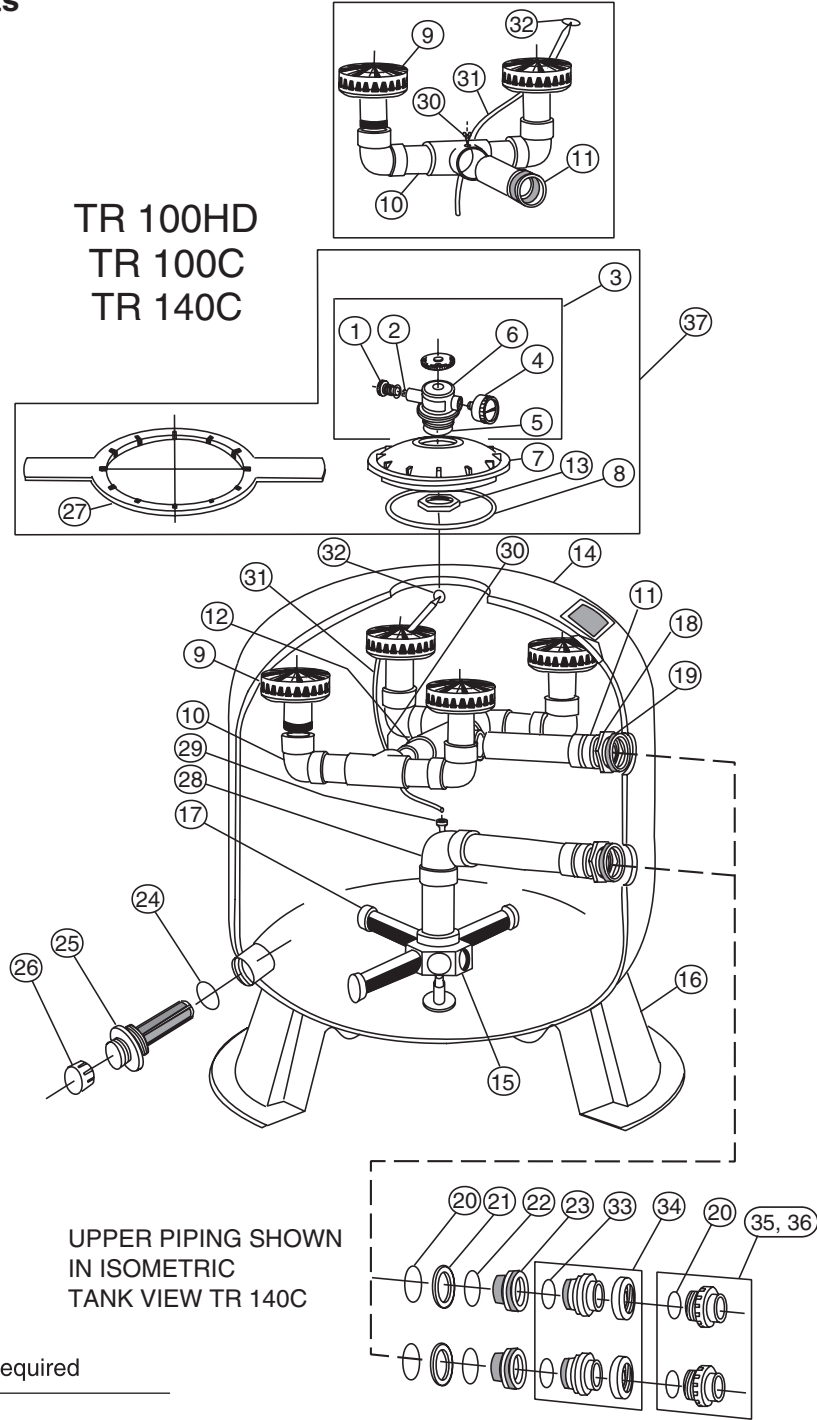
NOTE 1: Replacement of tank foot requires the use of foot mounting tape. See P/N's.

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

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

Replacement Parts

TR100HD
TR100C
TR140C



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 ②
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 ①
9	154599	Diffuser TR140C ①
10	156355	Piping assy. upper TR100C/TR100HD/ TR140C ①
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 ②
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

Item No.	Part No.	TR100HD, TR100C & TR140C SAND FILTERS Description
30	273071	Screw #14 18-8 TR100C/TR100HD ①
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 ②

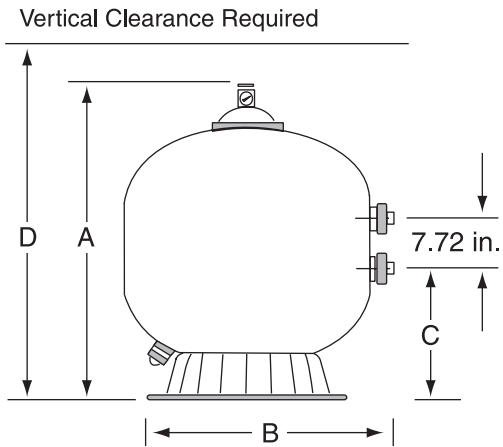
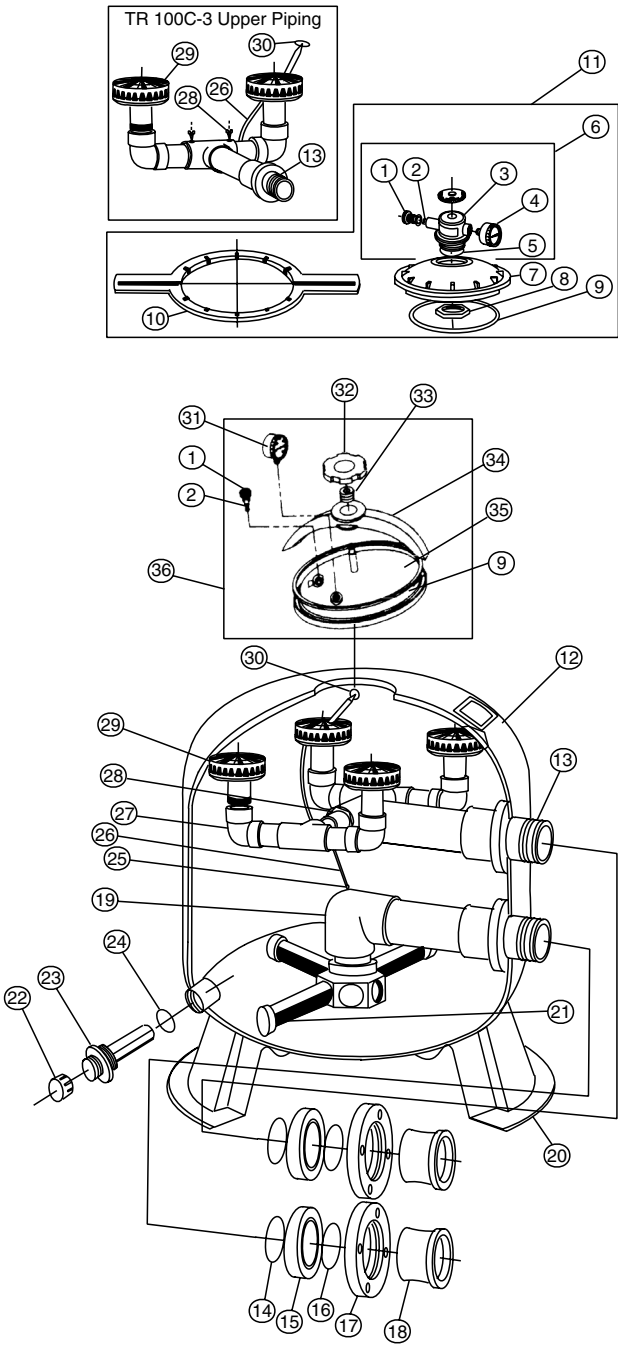
NOTES

- ① Different quantities required for TR100C and TR140C Filters.
- ② Used on TR100HD Filters

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.

Item No.	Part No.	TRITON 100C-3 & 140C-3 SAND FILTERS Description
1	273512	Air bleed with o-ring ②③
2	273513	O-ring air bleeder screw ②
3	273564	Valve body machined ②
4	155050	Pressure gauge ②
5	154494	O-ring adapter, 6 in. ②
6	273564	Manual air relief assy. ②
7	154575	Closure 8½ in. ②
8	154412	Nut 2 in. internal ②
9	152509	Square ring closure ②③
10	154527	Wrench 8½ in. closure ②
11	154856	Kit 8½ in. closure buttress thd. ②
11	156842	Kit 8½ in. closure w/gasket ④
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

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
30	150035	Strainer ELC/TR
31	190058	Pressure Gauge, ¼ in. psi ③
32	154581	Knob TR oval ③
33	154582	Spring TR oval ③
34	154579	Bridge TR oval ③
35	154576	Closure-oval ③
36	156841	Kit TR oval closure ①③

NOTES

- ① P/N 156841 includes items: 1, 9, 31 thru 35.
- ② Used on filters manufactured before 3-97.
- ③ Used on filters manufactured after 3-97.
- ④ Used on filters manufactured after 4-15.

ENGLISH

NOTES

SAVE THESE INSTRUCTIONS



through state of the art processes. Pentair warrants its products as follows:

prepay all shipping charges to Pentair.

All products used in commercial applications receive a one (1) year warranty.

Exceptions that may result in denial of a warranty claim:

- ### Extended Warranty for Specific Products (Offered from Date of Installation)

PRODUCT FAMILY	WARRANTY LENGTH Qualified Installer NOT Required	EXCEPTIONS
Maintenance Equipment/ Replacement Parts	60 days	
Automatic Pool Cleaners	1 year	Brushes, Climbing Rings, Cartridge Filters – 60 days Suction Seal, Foot Pad, Wings, Bumper Strap, Seal Flaps – 1 year
Aboveground Systems	1 year	

****NOTE:** For warranty purposes, a commercial facility is defined as any facility other than a single family dwelling.

PENTAIR WATER POOL AND SPA, INC.

Phone: 800-831-7133

P/N 151629 Rev. U 8/14

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Please Detach Along Dotted Line and Mail This Section. Keep the Warranty for Your Records

To register your product online, please visit www.pentairpool.com/support/product-registration.html

Please promptly complete and return this postage paid card. In the unlikely event we must notify you of safety modifications to your product, under the Consumer Product Safety Act, this will allow us to communicate with you quickly. Incomplete or missing information such as your serial number will not be registered. ***Your Limited Warranty is attached to this reply card.*** Please detach it, review it thoroughly so you are familiar with the terms of your warranty coverage and keep in a safe place.

ALL INFORMATION REQUESTED BELOW IS REQUIRED IN ORDER TO RECEIVE AN EXTENDED WARRANTY.

4. Who installed your product?

Name of Installer:

Location of Installer:

Installer Tel. No.:

☐ Inground Pool ☐ Inground Pool/Spa Combination

My Serial Number is: _____

1. Name: _____

Street Address: _____

City: _____

Tel. No.: () _____ E-1

☐ I do not wish to receive promotional emails from Pentair Aquatic Systems. We will not rent or sell your personal information under any circumstance.

2. Date of Purchase/Installation: _____

Signature: _____

3. Where did you purchase your Pentair Product?

☐ Pool Builder ☐ Pool Store ☐ Pool Service ☐

Company Name: _____

Location: _____

Please attach original qualified installer's invoice and original sales receipt here as proof of qualified installation and purchase.

***Note:** Automatic Cleaners purchased in the USA from entities outside the USA do not qualify for any USA programs including warranty, trade-in or rebate programs.

LIMITED WARRANTY



TO OBTAIN AN EXTENDED WARRANTY, PLEASE SEE THE THREE (3) OPTIONS BELOW.

- a) **One (1) Year Warranty:** Pentair warrants certain products listed in the extended warranty section to be free from defects in material and/or workmanship for a period of one (1) year from the original date of installation on a single product if installed by a qualified installer. Products must be registered within sixty (60) days of installation at www.pentairpool.com/pool-owner/warranty.
- b) **Two (2) Year Warranty (Heaters Only):** Pentair warrants heaters to be free from defects in material and/or workmanship for a period of two (2) years from the original date of installation on a single product if installed by a qualified installer. Products must be registered within sixty (60) days of installation at www.pentairpool.com/pool-owner/warranty.
- c) **Three (3) Year Warranty IntelliFlo® or IntelliPro® Variable Speed Pumps & Select Bundled Products Only*]:** Pentair warrants the IntelliFlo or IntelliPro Variable Speed Pumps and selected bundled products to be free from defects in material and/or workmanship for a period of three (3) years from the original date of installation if installed by a qualified installer. Products must be registered within sixty (60) days of installation at www.pentairpool.com/pool-owner/warranty.

- This extended three (3) year coverage on bundled products applies to purchases and qualified installations of three (3) or more of the following products: inground pump, filter, heater, heat pump, control system, automatic cleaner, lighting or salt chlorine generator. ***Note: Bundled products must be from three (3) different product groups, purchased on the same invoice and installed at the same time.**
- The above extended warranty is applicable to the original owner only, beginning on the date of installation and is not enforceable by any third party. Proof of purchase and/or date of installation by a qualified installer will be required to register a warranty claim.
 - **Warranties by others:** Some Pentair products incorporate components manufactured by other manufacturers. Some of these manufacturers provide warranties in addition to the warranty provided by Pentair herein. In all such cases, a copy of the third party manufacturer's warranty will be provided with the product. To the extent protection provided under any such third party warranty exceeds the Limited Warranty provided herein, the Customer will have to contact the specific manufacturer for the additional protection.

Pentair Warranty Obligations

Should a defect in workmanship and/or material in any item covered by this warranty become evident during the term of the warranty, then upon the customer following the procedures set forth below, Pentair will, at its sole option, repair or replace such product or part of equal value, in lieu of repair. Pentair is not, however, responsible under this warranty for any cost of shipping or transportation of the product or parts thereof to or from the technical Service Department. Also, Pentair is not liable for any loss of time, inconvenience, incidental expenses such as telephone calls, labor or material charges incurred in connection with the removal or replacement of the equipment, or any other incidental or consequential damages.

The above mentioned warranties are void if the product is repaired or altered in any way by any persons, agents or representatives other than those authorized by Pentair. Expendables including, but not limited to refrigerant, recovery of refrigerant, or transportation for components are not covered under this limited warranty. Reasonable vehicle trip and evaluation charges may be assessed by a Pentair service representative.

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

No Other Warranties

To the maximum extent permitted by applicable law, Pentair disclaims all other warranties, either expressed or implied, including, but not limited to, implied warranties of merchantability and fitness for a particular purpose, with regard to the product(s), part(s) and/or any accompanying written materials.

Procedure for Obtaining Performance

In order to obtain the benefits of this warranty, the consumer who made the original retail purchase must contact the Pentair Technical Service Department as soon as possible after discovery of the product related issue, but in no event later than the expiration date of the respective warranty periods provided herein. Upon receipt of this communication, Pentair will promptly notify the customer of the address to which the product may be shipped. The customer shall then ship the product, freight prepaid, to the address indicated, together with a "RETURN GOODS AUTHORIZATION" form obtained from Technical Service and a brief description of the problems encountered. Unauthorized returns will not be accepted. Freight must be prepaid by customer.

Warranties or Representations by Others

No third party has any authority to make any warranties or representation concerning Pentair or its products. Accordingly, Pentair is not responsible for any such warranties or representations.

Other Rights

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

Sole Warranty

Supersedes all previous publications.



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES



BUSINESS REPLY MAIL
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POSTAGE WILL BE PAID BY ADDRESSEE

PENTAIR WATER POOL AND SPA, INC.
PO BOX 1228
FARMINGTON MO 63640-9852



FOLD IN HALF AND SEAL FOR MAILING





HI-FLOW™

SIDE MOUNTED BACKWASH VALVE

IMPORTANT SAFETY INSTRUCTIONS

READ AND FOLLOW ALL INSTRUCTIONS

SAVE THESE INSTRUCTIONS

TABLE OF CONTENTS

Valve Positions Overview	2
Valve Installation	3
Winterizing	3
Replacement of Valve Top and Diverter Assembly	3
Complete Disassembly	3
Technical Data	4



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



IMPORTANT NOTICE!

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



DANGER The valve must be installed by a qualified serviceman in accordance with the National Electrical Code and all applicable local codes and ordinances.



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

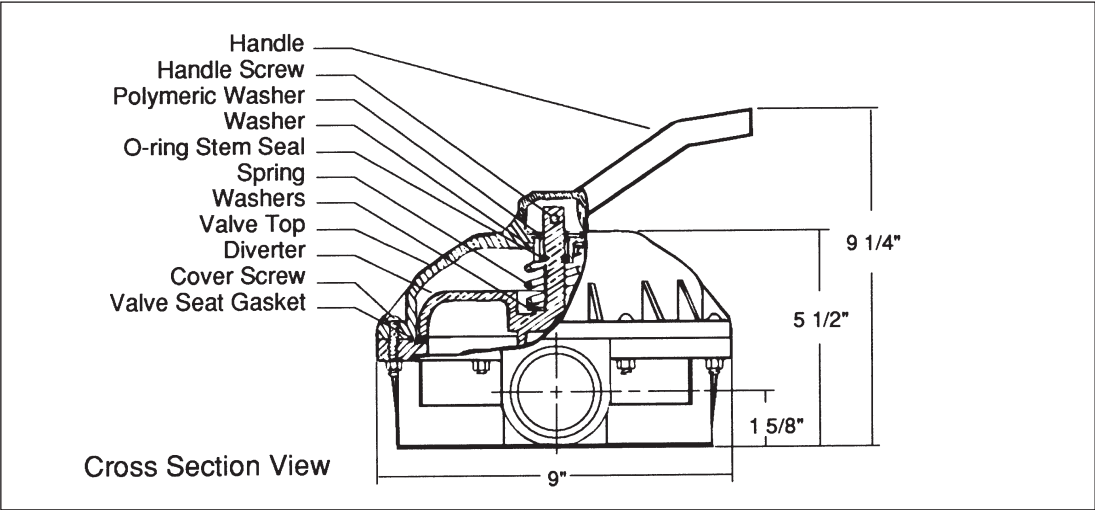
Position the filter and the air relief valve to safely direct water drainage and purged air or water. Water discharged from an improperly positioned filter or valve can create an electrical hazard that can cause severe personal injury as well as damage property.



For Installation of Electrical Controls at Equipment Pad (ON/OFF Switches, Timers and Automation Load Center)



Install all electrical controls at equipment pad, such as on/off switches, timers, and control systems, etc. to allow the operation (startup, shut-down, or servicing) of any pump or filter so the user does not place any portion of his/her body over or near the pump strainer lid, filter lid or valve closures. This installation should allow the user enough space to stand clear of the filter and pump during system start-up, shut down or servicing of the system filter.



⚠ WARNING



FILTER OPERATES UNDER HIGH PRESSURE.

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

- 1. Before repositioning valve(s) and before beginning the assembly, disassembly, or adjustment of the clamp or any other service of the circulating system: (A) Turn the pump **OFF** and **shut OFF** any automatic controls to ensure the system is NOT inadvertently started during the servicing; (B) open the manual air relief valve; (C) wait until all pressure is relieved.
- 2. Whenever installing the filter clamp **FOLLOW THE FILTER CLAMP INSTALLATION INSTRUCTIONS EXACTLY.**
- 3. Once service on the circulating system is complete **FOLLOW SYSTEM RESTART INSTRUCTIONS EXACTLY.**
- 4. Maintain circulation system properly. Replace worn or damaged parts immediately, [e.g., clamp, pressure gauge, valve(s), o-rings, etc].
- 5. Be sure that the filter is properly mounted and positioned according to instructions provided.

Valve Positions Overview

SETTING	FLOW PATH Function
Filter	Pump > Sand Top / DE Bottom > Through Filter > DE Top / Sand Bottom > Return For normal filter action and vacuuming pool thru filter.
Backwash	Pump > DE Top / Sand Bottom > Through Filter > Sand Top / DE Bottom > Waste For cleaning filter by reversing flow
Rinse	Pump > DE Top / Sand Bottom > Through Filter > DE Top / Sand Bottom > Waste For start-up cleaning and resetting filter bed after backwashing
Waste	Pump > Waste For vacuuming directly to waste, lowering pool level or draining pool
Closed	No Circulation - DO NOT USE THIS SETTING WITH PUMP OPERATING!
Recirculate	Pump > Return For circulating water without going through filter

Valve Installation

⚠ CAUTION This valve is available in two models for use with sand type or diatomaceous earth (DE) type pool filters. Be sure that you have the correct model for your filter. Installing the incorrect model may cause your pump to dead head, or drain the pool when in backwash position.

1. Confirm correct valve is being used; DE valves for DE filters and Sand valves for Sand filters.
2. Install valve to filter by securing bulkhead nuts on valve to fittings on the filter.

⚠ CAUTION Tighten the nuts by hand only! No additional tightness is required.

3. Plumb pump piping to center pipe in valve.
4. Plumb return and waste lines.

Winterizing

1. Drain and winterize pump and filter per manufacturer's instructions.
2. Depress valve handle and rotate so pointer on handle is between any two settings.

Replacement of Valve Top and Diverter Assembly

1. Set valve handle in any setting.
2. Remove cover screws.
3. Lift off valve top and diverter assembly.
4. Install new valve top and diverter assembly. Be sure arrows on valve top and bottom are aligned.
5. Tighten cover screws evenly and alternately. Do not over tighten.

Complete Disassembly

1. Remove Handle to diverter screw. Note arrow on top of diverter stem as handle is removed.
2. Evenly and alternately loosen cover screws.

⚠ CAUTION Top is under spring load. Loosen all screws before removing any of them.

3. Remove cover screws and valve top.
4. Note location of O-ring and spring, and number of washers on diverter stem. Remove O-Ring, spring and washers.
5. Re-assemble in reverse order.

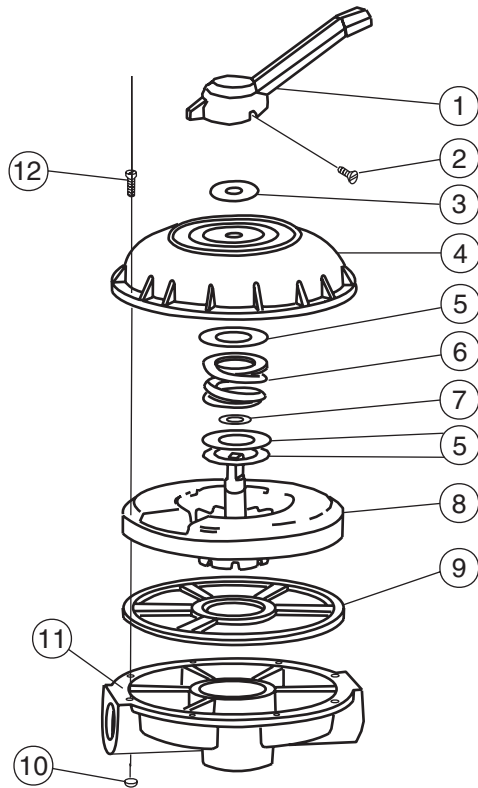
Note: Prior to assembly, be sure bottom gasket and diverter sealing surface are clean and free from nicks to insure positive sealing.

6. When replacing valve handle, be sure arrow on diverter stem and pointer on handle are pointed in the same direction.

⚠ CAUTION DO NOT over tighten the screws or use motorized screwdrivers; as this can cause damage to the threads.

Technical Data

Replacement Parts



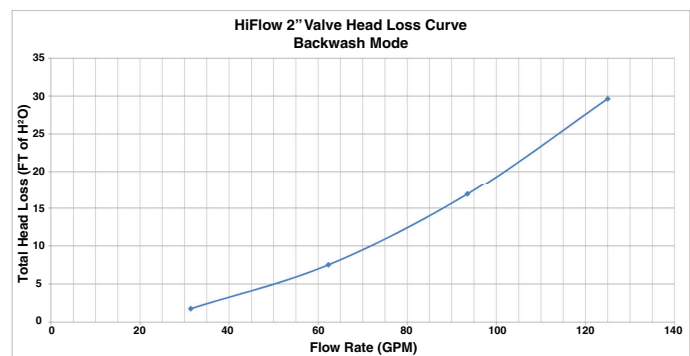
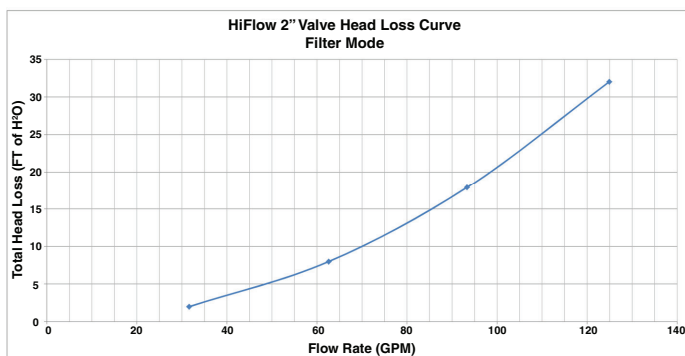
Covers Assemblies P/Ns 261049, 261050 and 261142

Item	P/N	Description	Qty.
1	272411	Handle	1
2	272405	Screw - Handle	1
3	272402	Washer, Plastic	1
4	272412	Valve Top	1
5	272401	Washer - 1/32"	3
6	272400	Spring - Compression	1
7	272406	O-ring - Diverter	1
8	272413	Diverter	1
9	272409	Seal -Diverter	1
10	98211400	Nut - 1/4" - 20 Hex	8
11	272415	Plat - 2" Valve Bottom	1
12	272403	Screw - 1/4" - 20	8
*	272422	Valve Top Assembly	1

*This part number includes items 1 thru 9

Note: When replacing gasket P/N 272409, secure it to valve bottom with an instant cyanocrylate adhesive suitable for bonding rubber to plastic.

Head Loss Curves



1620 HAWKINS AVE., SANFORD, NC 27330 • (919) 566-8000
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WWW.PENTAIRPOOL.COM

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P/N 272133 REV. F 1/27/15



MEMBER
NATIONAL
SPA & POOL
INSTITUTE

Pentair Water Pool and Spa, Inc. ("Pentair") manufactures its products with the highest standards of workmanship, using the best materials available through state of the art processes. Pentair warrants its products as follows:

Limited Warranty: Pentair warrants its products to be free from defects in material and/or workmanship for a period of sixty (60) days (parts only) from the original date of purchase and/or installation. Customer agrees to prepay all shipping charges to Pentair.

All products used in commercial applications receive a one (1) year warranty.

Exceptions that may result in denial of a warranty claim:

1. Damage caused by careless handling, improper repackaging, or shipping.
2. Damage due to misapplication, misuse, abuse or failure to operate equipment as specified in the owner's manual.
3. Damage caused by failure to install products as specified in the owner's manual.
4. Damage due to unauthorized product modifications or failure to use Pentair original replacement parts.
5. Damage caused by negligence, or failure to properly maintain products as specified in the owner's manual.
6. Damage caused by failure to maintain water chemistry in conformity with the standards of the swimming pool industry for any length of time.
7. Damage caused by water freezing inside the product.
8. Accidental damage, fire, acts of God, or other circumstances outside the control of Pentair.

Extended Warranty for Specific Products (Offered from Date of Installation)

PRODUCT FAMILY	WARRANTY LENGTH											
	If Installed by a Qualified Installer & Registered Within 60 Days*											
60 days Only	Filters and Valves	1 year	1 year	1 year	2 years	2 years	Parts & Labor	1 year	Parts & Labor	1 year	Lights	Automation Equipment
	Heaters	1 year	1 year	1 year	5 years	5 years	ACU-TROL Electronic Modules	ACU-TROL AK Color and Accessories	ACU-TROL Commercial pH or ORP Probe**	2 years	1 year	1 year
	Heat Pumps – Residential	2 years	2 years	Parts & Labor	5 years	5 years	ACU-TROL Equipment Repairs – 60 days	ACU-TROL Equipment Repairs – 60 days (for Non-Warranty Repairs)	INTELLICHLOR (SCG) w/o Power Center/Supply – 1 year	1 year	1 year	1 year
	Heat Pumps – Commercial**	2 years	2 years	Parts & Labor	5 years	5 years	Bulbs – 60 days	SUNTOUCH Solar & SOLARTOUCH Solar System – 3 years	INTELLICHLOR (SCG) w/o Power Center/Supply (Self Installed)	1 year	1 year	1 year
	Heaters	1 year	1 year	1 year	5 years	5 years	ACU-TROL Equipment Repairs – 60 days	ACU-TROL Equipment Repairs – 60 days (for Non-Warranty Repairs)	INTELLICHLOR (SCG) w/o Power Center/Supply – 1 year	1 year	1 year	1 year
	Pumps	1 year	1 year	1 year	5 years	5 years	Bulbs – 60 days	SUNTOUCH Solar & SOLARTOUCH Solar System – 3 years	INTELLICHLOR (SCG) w/o Power Center/Supply – 1 year	1 year	1 year	1 year
	Filters and Valves	1 year	1 year	1 year	5 years	5 years	Bulbs – 60 days	SUNTOUCH Solar & SOLARTOUCH Solar System – 3 years	INTELLICHLOR (SCG) w/o Power Center/Supply – 1 year	1 year	1 year	1 year
	Heaters	1 year	1 year	1 year	5 years	5 years	Bulbs – 60 days	SUNTOUCH Solar & SOLARTOUCH Solar System – 3 years	INTELLICHLOR (SCG) w/o Power Center/Supply – 1 year	1 year	1 year	1 year
	Heat Pumps – Residential	2 years	2 years	Parts & Labor	5 years	5 years	Bulbs – 60 days	SUNTOUCH Solar & SOLARTOUCH Solar System – 3 years	INTELLICHLOR (SCG) w/o Power Center/Supply – 1 year	1 year	1 year	1 year
	Heat Pumps – Commercial**	2 years	2 years	Parts & Labor	5 years	5 years	Bulbs – 60 days	SUNTOUCH Solar & SOLARTOUCH Solar System – 3 years	INTELLICHLOR (SCG) w/o Power Center/Supply – 1 year	1 year	1 year	1 year
	Lights	1 year	1 year	1 year	5 years	5 years	Bulbs – 60 days	SUNTOUCH Solar & SOLARTOUCH Solar System – 3 years	INTELLICHLOR (SCG) w/o Power Center/Supply – 1 year	1 year	1 year	1 year
	Automation Equipment	1 year	1 year	1 year	5 years	5 years	Bulbs – 60 days	SUNTOUCH Solar & SOLARTOUCH Solar System – 3 years	INTELLICHLOR (SCG) w/o Power Center/Supply – 1 year	1 year	1 year	1 year

EXCEPTIONS

(If Installed by a Qualified Installer & Registered Within 60 Days*)

Out of Box

WARRANTY LENGTH

60 days Only

1 year

2 years

5 years

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LIMITED WARRANTY



TO OBTAIN AN EXTENDED WARRANTY, PLEASE SEE THE THREE (3) OPTIONS BELOW.

a) **One (1) Year Warranty:** Pentair warrants certain products listed in the extended warranty section to be free from defects in material and/or workmanship for a period of one (1) year from the original date of installation on a single product if installed by a qualified installer. Products must be registered within sixty (60) days of installation at www.pentairpool.com/pool-owner/warranty.

b) **Two (2) Year Warranty (Heaters Only):** Pentair warrants heaters to be free from defects in material and/or workmanship for a period of two (2) years from the original date of installation on a single product if installed by a qualified installer. Products must be registered within sixty (60) days of installation at www.pentairpool.com/pool-owner/warranty.

c) **Three (3) Year Warranty IntelliFlo® or IntelliPro® Variable Speed Pumps & Select Bundled Products Only*):** Pentair warrants the IntelliFlo or IntelliPro Variable Speed Pumps and selected bundled products to be free from defects in material and/or workmanship for a period of three (3) years from the original date of installation if installed by a qualified installer. Products must be registered within sixty (60) days of installation at www.pentairpool.com/pool-owner/warranty.

→ This extended three (3) year coverage on bundled products applies to purchases and qualified installations of three (3) or more of the following products: inground pump, filter, heater, heat pump, control system, automatic cleaner, lighting or salt chlorine generator. ***Note: Bundled products must be from three (3) different product groups, purchased on the same invoice and installed at the same time.**

- The above extended warranty is applicable to the original owner only, beginning on the date of installation and is not enforceable by any third party. Proof of purchase and/or date of installation by a qualified installer will be required to register a warranty claim.
- **Warranties by others:** Some Pentair products incorporate components manufactured by other manufacturers. Some of these manufacturers provide warranties in addition to the warranty provided by Pentair herein. In all such cases, a copy of the third party manufacturer's warranty will be provided with the product. To the extent protection provided under any such third party warranty exceeds the Limited Warranty provided herein, the Customer will have to contact the specific manufacturer for the additional protection.

Pentair Warranty Obligations

Should a defect in workmanship and/or material in any item covered by this warranty become evident during the term of the warranty, then upon the customer following the procedures set forth below, Pentair will, at its sole option, repair or replace such product or part of equal value, in lieu of repair. Pentair is not, however, responsible under this warranty for any cost of shipping or transportation of the product or parts thereof to or from the technical Service Department. Also, Pentair is not liable for any loss of time, inconvenience, incidental expenses such as telephone calls, labor or material charges incurred in connection with the removal or replacement of the equipment, or any other incidental or consequential damages. The above mentioned warranties are void if the product is repaired or altered in any way by any persons, agents or representatives other than those authorized by Pentair. Expendables including, but not limited to refrigerant, recovery of refrigerant, or transportation for components are not covered under this limited warranty. Reasonable vehicle trip and evaluation charges may be assessed by a Pentair service representative.

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

No Other Warranties

To the maximum extent permitted by applicable law, Pentair disclaims all other warranties, either expressed or implied, including, but not limited to, implied warranties of merchantability and fitness for a particular purpose, with regard to the product(s), part(s) and/or any accompanying written materials.

Procedure for Obtaining Performance

In order to obtain the benefits of this warranty, the consumer who made the original retail purchase must contact the Pentair Technical Service Department as soon as possible after discovery of the product related issue, but in no event later than the expiration date of the respective warranty periods provided herein. Upon receipt of this communication, Pentair will promptly notify the customer of the address to which the product may be shipped. The customer shall then ship the product, freight prepaid, to the address indicated, together with a "RETURN GOODS AUTHORIZATION" form obtained from Technical Service and a brief description of the problems encountered. Unauthorized returns will not be accepted. Freight must be prepaid by customer.

Warranties or Representations by Others

No third party has any authority to make any warranties or representation concerning Pentair or its products. Accordingly, Pentair is not responsible for any such warranties or representations.

Other Rights

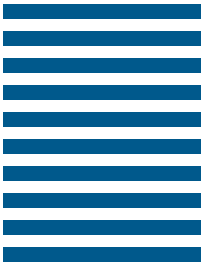
This warranty gives you specific legal rights and you may also have other rights, which vary from state to state.

Sole Warranty

Supersedes all previous publications.



NO POSTAGE
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IN THE
UNITED STATES



BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT 8 FARMINGTON MO

POSTAGE WILL BE PAID BY ADDRESSEE

PENTAIR WATER POOL AND SPA, INC.
PO BOX 1228
FARMINGTON MO 63640-9852

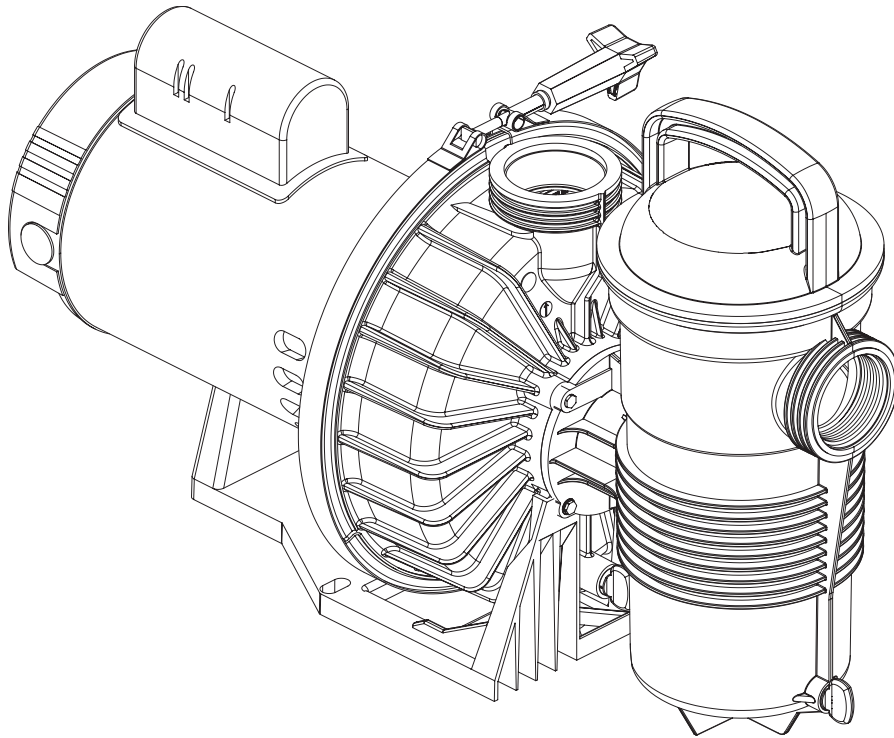


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CHALLENGER® CENTRIFUGAL PUMP



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 7:30 P.M. — Eastern Time)

Phone: (800) 831-7133

Fax: (800) 284-4151

Web site

Visit www.pentairpool.com or www.staritepool.com*

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* Translated versions of this manual are available online at / La versión en español de este manual del producto, se puede encontrar en línea a / Versiones en francés de este manual está disponible en línea en: <http://www.pentairpool.com/products/pumps-inground-challenger-high-pressure-pumps-24.html>.

IMPORTANT PUMP WARNING AND SAFETY INSTRUCTIONS



IMPORTANT NOTICE

This guide provides installation and operation instructions for this product. Consult Pentair with any questions regarding this equipment.

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

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

READ AND FOLLOW ALL INSTRUCTIONS SAVE THESE INSTRUCTIONS



This is the safety alert symbol. When you see this symbol on your system or in this manual, look for one of the following signal words and be alert to the potential for personal injury.

⚠ DANGER

Warns about hazards that can cause death, serious personal injury, or major property damage if ignored.

⚠ WARNING

Warns about hazards that may cause death, serious personal injury, or major property damage if ignored.

⚠ CAUTION

Warns about hazards that may or can cause minor personal injury or property damage if ignored.

NOTE

Indicates special instructions not related to hazards.

Carefully read and follow all safety instructions in this manual and on equipment. Keep safety labels in good condition; replace if missing or damaged.

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

⚠ WARNING

Do not permit children to use this product.

⚠ WARNING

(For all permanently installed units intended for use on 15 or 20 ampere, 125 through 240 volt, single phase branch circuits) This unit must be connected only to a supply circuit that is protected by a ground-fault circuit-interrupter (GFCI). Such a GFCI should be provided by the installer and should be tested on a routine basis. To test the GFCI, push the test button. The GFCI should interrupt power. Push the reset button. Power should be restored. If the GFCI fails to operate in this manner, the GFCI is defective. If the GFCI interrupts power to the pump without the test button being pushed, a ground current is flowing, indicating the possibility of an electric shock. Do not use this pump. Disconnect the pump and have the problem corrected by a qualified service representative before using.

⚠ CAUTION

This pump is for use with permanent swimming pools and may also be used with hot tubs and spas if so marked. Do not use with storable pools. A permanently-installed pool is constructed in or on the ground or in a building such that it cannot be readily disassembled for storage. A storable pool is constructed so that it is capable of being readily disassembled for storage and reassembled to its original integrity.

⚠ WARNING

(For all permanently installed units intended for use on 15 or 20 ampere, 125 through 240 volt, single phase branch circuits) **RISK OF ELECTRICAL SHOCK.** Connect only to a branch circuit protected by a ground-fault circuit-interrupter (GFCI). Contact a qualified electrician if you cannot verify that the circuit is protected by a GFCI.

General Warnings

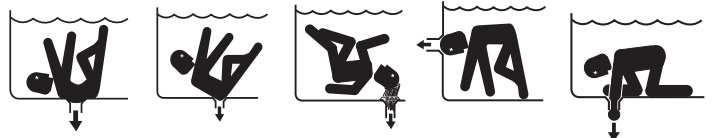
- Never open the inside of the drive motor enclosure. There is a capacitor bank that holds a 230 VAC charge even when there is no power to the unit.
- The pump is not submersible.
- The pump is capable of high flow rates; use caution when installing and programming to limit pumps performance potential with old or questionable equipment.
- Code requirements for the electrical connection differ from state to state. Install equipment in accordance with the National Electrical Code and all applicable local codes and ordinances.
- Before servicing the pump; switch OFF power to the pump by disconnecting the main circuit to the pump.
- This appliance is not intended for use by persons (including children) of reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning the use of the appliance by a person responsible for their safety.

⚠ DANGER

FAILURE TO FOLLOW ALL INSTRUCTIONS AND WARNINGS CAN RESULT IN SERIOUS BODILY INJURY OR DEATH. **THIS PUMP SHOULD BE INSTALLED AND SERVICED ONLY BY A QUALIFIED POOL SERVICE PROFESSIONAL. INSTALLERS, POOL OPERATORS AND OWNERS MUST READ THESE WARNINGS AND ALL INSTRUCTIONS IN THE OWNER'S MANUAL BEFORE USING THIS PUMP. THESE WARNINGS AND THE OWNER'S MANUAL MUST BE LEFT WITH THE POOL OWNER.**

⚠ DANGER

SUCTION ENTRAPMENT HAZARD: STAY OFF THE MAIN DRAIN AND AWAY FROM ALL SUCTION OUTLETS!



THIS PUMP PRODUCES HIGH LEVELS OF SUCTION AND CREATES A STRONG VACUUM AT THE MAIN DRAIN AT THE BOTTOM OF THE BODY OF WATER. THIS SUCTION IS SO STRONG THAT IT CAN TRAP ADULTS OR CHILDREN UNDER WATER IF THEY COME IN CLOSE PROXIMITY TO A DRAIN OR A LOOSE OR BROKEN DRAIN COVER OR GRATE.

THE USE OF UNAPPROVED COVERS OR ALLOWING USE OF THE POOL OR SPA WHEN COVERS ARE MISSING, CRACKED OR BROKEN CAN RESULT IN BODY OR LIMB ENTRAPMENT, HAIR ENTANGLEMENT, BODY ENTRAPMENT, EVISCERATION AND/OR DEATH.

The suction at a drain or outlet can cause:

Limb Entrapment: When a limb is sucked or inserted into an opening resulting in a mechanical bind or swelling. This hazard is present when a drain cover is missing, broken, loose, cracked or not properly secured.

Hair Entanglement: When the hair tangles or knots in the drain cover, trapping the swimmer underwater. This hazard is present when the flow rating of the cover is too small for the pump or pumps.

Body Entrapment: When a portion of the body is held against the drain cover trapping the swimmer underwater. This hazard is present when the drain cover is missing, broken or the cover flow rating is not high enough for the pump or pumps.

IMPORTANT PUMP WARNING AND SAFETY INSTRUCTIONS

Evisceration/Disembowelment: When a person sits on an open pool (particularly a child wading pool) or spa outlet and suction is applied directly to the intestines, causing severe intestinal damage. This hazard is present when the drain cover is missing, loose, cracked, or not properly secured.

Mechanical Entrapment: When jewelry, swimsuit, hair decorations, finger, toe or knuckle is caught in an opening of an outlet or drain cover. This hazard is present when the drain cover is missing, broken, loose, cracked, or not properly secured.

NOTE: ALL SUCTION PLUMBING MUST BE INSTALLED IN ACCORDANCE WITH THE LATEST NATIONAL AND LOCAL CODES, STANDARDS AND GUIDELINES.

WARNING TO MINIMIZE THE RISK OF INJURY DUE TO SUCTION ENTRAPMENT HAZARD:

- A properly installed and secured ANSI/ASME A112.19.8 approved anti-entrapment suction cover must be used for each drain.
- Each suction cover must be installed at least three (3') feet apart, as measured from the nearest point to nearest point.
- Regularly inspect all covers for cracks, damage and advanced weathering.
- If a cover becomes loose, cracked, damaged, broken or is missing, replace with an appropriate certified cover.
- Replace drain covers as necessary. Drain covers deteriorate over time due to exposure to sunlight and weather.
- Avoid getting hair, limbs or body in close proximity to any suction cover, pool drain or outlet.
- Disable suction outlets or reconfigure into return inlets.

The Virginia Graeme Baker (VGB) Pool and Spa Safety Act creates new requirements for owners and operators of commercial swimming pools and spas.

Commercial pools or spas constructed on or after December 19, 2008, shall utilize:

(A) A multiple main drain system without isolation capability with suction outlet covers that meet ASME/ANSI A112.19.8a Suction Fittings for Use in Swimming Pools, Wading Pools, Spas, and Hot Tubs and either:

(i) A safety vacuum release system (SVRS) meeting ASME/ANSI A112.19.17 Manufactured Safety Vacuum Release systems (SVRS) for Residential and Commercial Swimming Pool, Spa, Hot Tub, and Wading Pool Suction Systems and/or ASTM F2387 Standard Specification for Manufactured Safety Vacuum Release Systems (SVRS) for Swimming pools, Spas and Hot Tubs or

(ii) A properly designed and tested suction-limiting vent system or

(iii) An automatic pump shut-off system.

Commercial pools and spas constructed prior to December 19, 2008, with a single submerged suction outlet shall use a suction outlet cover that meets ASME/ANSI A112.19.8a and either:

(A) A SVRS meeting ASME/ANSI A112.19.17 and/or ASTM F2387, or

(B) A properly designed and tested suction-limiting vent system, or

(C) An automatic pump shut-off system, or

(D) Disabled submerged outlets, or

(E) Suction outlets shall be reconfigured into return inlets.

For Installation of Electrical Controls at Equipment Pad (ON/OFF Switches, Timers and Automation Load Center)

CAUTION

Install all electrical controls at equipment pad, such as on/off switches, timers, and control systems, etc. to allow the operation (startup, shut-down, or servicing) of any pump or filter so the user does not place any portion of his/her body over or near the pump strainer lid, filter lid or valve closures. This installation should allow the user enough space to stand clear of the filter and pump during system start-up, shut down or servicing of the system filter.



WARNING

A clearly labeled emergency shut-off switch for the pump must be in an easily accessible, obvious place. Make sure users know where it is and how to use it in case of emergency.

DANGER

HAZARDOUS PRESSURE: STAND CLEAR OF PUMP AND FILTER DURING START UP



Circulation systems operate under high pressure. When any part of the circulating system (i.e. locking ring, pump, filter, valves, etc.) is serviced, air can enter the system and become pressurized.

Pressurized air can cause the pump housing cover filter lid and valves to violently separate which can result in severe personal injury or death. Filter tank lid and strainer cover must be properly secured to prevent violent separation. Stand clear of all circulation system equipment when turning on or starting up pump.

Before servicing equipment, make note of the filter pressure. Be sure that all controls are set to ensure the system cannot inadvertently start during service. Turn off all power to the pump. **IMPORTANT: Place filter manual air relief valve in the open position and wait for all pressure in the system to be relieved.**

Before starting the system, fully open the manual air relief valve and place all system valves in the "open" position to allow water to flow freely from the tank and back to the tank. Stand clear of all equipment and start the pump.

IMPORTANT: Do not close filter manual air relief valve until all pressure has been discharged from the valve and a steady stream of water appears. Observe filter pressure gauge and be sure it is not higher than the pre-service condition.

General Installation Information

- All work must be performed by a qualified service professional, and must conform to all national, state, and local codes.
- Install to provide drainage of compartment for electrical components.
- These instructions contain information for a variety of pump models and therefore some instructions may not apply to a specific model. All models are intended for use in swimming pool applications. The pump will function correctly only if it is properly sized to the specific application and properly installed.

WARNING

Pumps improperly sized or installed or used in applications other than for which the pump was intended can result in severe personal injury or death. These risks may include but not be limited to electric shock, fire, flooding, suction entrapment or severe injury or property damage caused by a structural failure of the pump or other system component.

WARNING

The pump can produce high levels of suction within the suction side of the plumbing system. These high levels of suction can pose a risk if a person comes within the close proximity of the suction openings. A person can be seriously injured by this high level of vacuum or may become trapped and drown. It is absolutely critical that the suction plumbing be installed in accordance with the latest national and local codes for swimming pools.

Warnings and safety instructions for Pentair Water Pool and Spa, Inc. pumps and other related products are available at:

<http://www.pentairpool.com/pool-owner/safety-warnings/> or call (800) 831-7133 for additional free copies of these instructions.

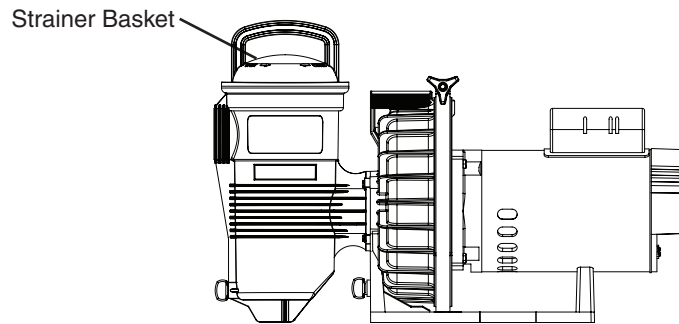
Please refer to <http://www.pentairpool.com/pool-owner/safetywarnings/> for warning and safety instructions related to this product.

SAVE THESE INSTRUCTIONS

INTRODUCTION

Pump Overview

The Challenger® Centrifugal Pump is designed to operate for years with proper maintenance. The pump housing, seal plate, diffuser, hair and lint pot and impeller are made from high quality thermoplastic materials. These materials have been selected for their corrosion-resistant nature. When installed, operated and maintained in accordance with these instructions, your pump will provide years of service.



Challenger Centrifugal Pump

Your centrifugal pump is driven by an electric motor. The motor is directly attached to the pump impeller. As the electric motor turns, it causes the impeller to turn and this causes the water to flow. The water flows into the hair and lint pot inlet and through the basket assembly to pre-strain large particles. The flow then enters the center of the pump housing. If the pump does not contain the hair and lint pot assembly, the flow simply enters the center of the pump housing. The flow goes through the impeller and out the pump discharge port.

Two Speed Pump Models

The performance of this pump will be the same at high speed as the same model single speed pump, both hydraulically and prime wise. At low speed, the pump will produce one half the flow and 1/4 the pressure of high speed. However, the pressure required by the filter and pool plumbing at half flow will also be greatly reduced due to much lower system friction. These lower friction losses result in great energy savings. At one half flow (low speed) the electrical energy savings are 60% for equal amounts of circulated water.

Turn motor to low speed for quiet operation and electrical cost savings. Since the pump should be operated mostly at low speed for cost saving, minor adjustments may be required in the automatic chlorine dispenser, the skimmers and the heater due to the lower flow. (See the equipment manufacturer's operation manuals.)

Pool owners should use high speed for vacuuming the pool, quick filtering action, priming the system, and to keep up with heavy bathing loads.

Spa and Tub owners will want to use high speed for good jet action.

Pump Strainer Basket

The strainer basket, sometimes referred to as the 'Hair and Lint Pot', is located in front of the pump housing. Inside the chamber is the basket which must be kept clean of leaves and debris at all times.

Regardless of the length of time between filter cleaning, it is important to visually inspect the hair and lint pot basket at least once a week. A dirty basket will reduce the efficiency of the filter and heater and also put an abnormal stress on the pump motor.

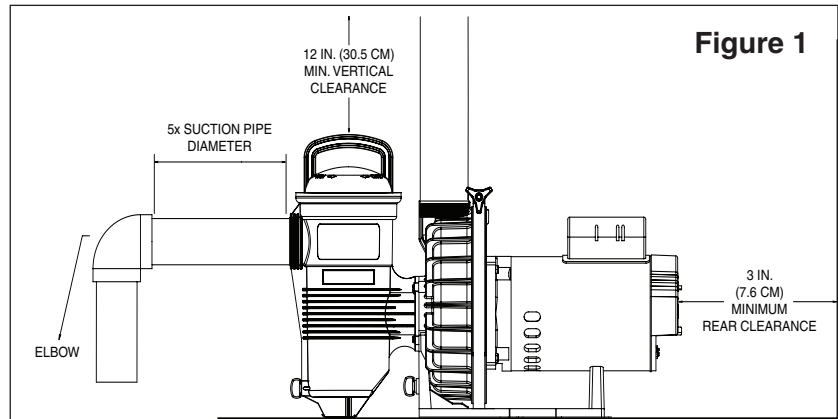
INSTALLATION

Location

Be sure the Challenger® Centrifugal Pump location meets the following requirements:

Note: Do not install this pump within an outer enclosure or beneath the skirt of a hot tub or spa unless marked accordingly.

1. Install the pump as close to the pool or spa as possible. To reduce friction loss and improve efficiency use short, direct suction piping returns.
2. Install a minimum of 5 feet (1.5 meters) from the inside wall of the pool or spa. Canadian installations require a minimum of 9.8 feet (3 meters) from pool water.
3. Install the pump a minimum of 3 feet (0.9 meters) from the heater outlet.
4. Do not install the pump more than 10 feet (3 meters) above the water level.
5. Install the pump in a well ventilated location protected from excessive moisture (i.e., rain gutter downspouts, sprinklers, etc.).
6. Install the pump with a rear clearance of at least 3 inches (7.6 cm) so that the motor can be removed easily for maintenance and repair. A vertical clearance of 12 inches (30.5 cm) is required for strainer basket removal. See **Figure 1**.



Piping, Fittings and Valves

1. Use thread seal tape or pipe sealants on all male connections of pipes and fittings. Use only pipe sealant compounds suited for plastic pipe. **DO NOT USE PETROLEUM BASED PRODUCTS.**
2. Support pipe to prevent strains on the systems filter, pump and valves.
3. When connecting fitting to the pump, apply a pipe sealant to the threads and then hand tighten plus 1½ turns. **DO NOT OVERTIGHTEN.**
4. Long piping runs and elbows restrict flow. For best efficiency, use the fewest possible fittings, large diameter pipe (at least 1.5 inches) and locate equipment as close to the pool as possible. The pump suction line should not be smaller than the pipe size on the inlet of the pump.
5. Suction fittings must conform to ASME/ANSI A 112.19.8 M Standards. Use double suction fittings.

Wiring Installation

⚠ WARNING



RISK OF ELECTRICAL SHOCK OR ELECTROCUTION.

This pool pump must be installed by a licensed or certified electrician or a qualified pool serviceman in accordance with the all National Electrical Code and all applicable local codes and ordinances. Improper installation will create an electrical hazard which could result in death or serious injury to pool users, installers, or others due to electrical shock, and may also cause damage to property.

Always disconnect power to the pool pump at the circuit breaker before servicing the pump. Failure to do so could result in death or serious injury to serviceman, pool users or others due to electric shock.

1. Make sure all electrical breakers and switches are turned off before wiring motor.
2. Make sure that the wiring voltage matches the motor voltage. If they do not match permanent damage to the motor will occur.

Wiring Installation, (continued)

3. For wiring sizes and general guidelines for proper electrical installation, please follow the specifications defined in the National Electric Code and any local codes as required.
4. Make sure all electrical connections are clean and tight.
5. Cut wires to the appropriate length so they don't overlap or touch when connected to the terminal board.

WARNING

Never work on pump while it is running or power is still connected; hazardous voltage can cause severe or fatal injury. A suitable ground fault interrupter should always be installed at the power supply source of the unit.

WARNING

Ground motor before connecting to electrical power supply. Failure to ground motor can cause severe or fatal electrical shock hazard. Do not ground to a gas supply line.

6. The Challenger® Centrifugal Pump motor must be wired for the proper voltage in accordance with the wiring diagram supplied with the motor.

CAUTION

Wiring the motor with the incorrect supply voltage will cause damage to the motor and void the warranty.

7. The wiring to the motor should be kept as short as possible and large enough NOT to cause an excessive voltage drop.
8. Install, ground and bond wire according to local or National Electrical Code requirements.
9. Bond the motor to the pool structure in accordance with the National Electrical Code. Use a solid No. 8 AWG or larger copper conductor (No. 6 AWG for Canadian installations). Run a wire from the external bonding screw on the motor to the pool bonding structure.

Grounding

Permanently ground motor. Use green terminal provided under motor canopy or access plate; use size and type wire required by code. Connect motor ground terminal to electrical service ground. On cord connected circuits, check for proper grounding.

Bonding

The National Electrical Code Article 680-22 requires that the motor be electrically bonded to appropriate permanently installed pool or spa/hot tub structure by a solid copper conductor no smaller than No. 8 AWG (no smaller than No. 6 AWG for Canadian installations). Bonding wire should be connected from the accessible wire connector on the motor shell to all metal parts of the swimming pool spa or hot tub structure and to all electrical equipment, metal conduit and metal piping within five (5) feet of the inside walls of a swimming pool spa or hot tub. A grounding lug is provided on the exterior of the motor shell for this purpose.

FOR CORD AND PLUG-CONNECTED UNITS

WARNING

Do not bury cord. Locate cord to minimize abuse from lawn mowers, hedge trimmers, and other equipment.

WARNING

To reduce the risk of electric shock, replace damaged cord immediately.

WARNING

To reduce the risk of electric shock, do not use extension cord to connect unit to electric supply; provide a properly located outlet.

WARNING

RISK OF ELECTRIC SHOCK. Connect only to a grounding type receptacle protected by a ground-fault circuit-interrupter (GFCI). Contact a qualified electrician if you cannot verify that the receptacle is protected by a GFCI.

CAUTION

This pump is for use with permanently installed pools and may also be used with hot tubs and spas. Do not use with storable pools unless pump is protected by a factory installed double insulated enclosure. A permanently installed pool is constructed in or on the ground or in a building such that it cannot be readily disassembled for storage. A storable pool is constructed so that it may be readily disassembled for storage and reassembled to its original integrity and has a maximum dimension of 18 feet and a maximum wall height of 42 inches. Do not install within an outer enclosure or beneath the skirt of a hot tub or spa unless so marked.

OPERATING THE PUMP

Initial Start-Up

1. Relieve all system pressure and open all air bleeders on entire hydraulic system prior to starting the Challenger® Centrifugal Pump. See filter owner's manual.
2. Ensure that all fittings, clamps, closures and couplings are tight and in accordance with equipment manufacturer's recommendations.
3. Open suction and discharge valve to allow free flow of water. On flooded suction pumps with strainer pot, the water source is higher than the pump. The water will flow into the pump strainer pot and the pot will fill with water. On pumps without strainer pot, the water will fill the pump housing.
4. On non-flooded suction systems, the pump lid will have to be removed by rotating the lid counter-clockwise and lifting.
5. The pump strainer pot should be filled with water up to suction/inlet port on the pump.
6. It is good practice to lubricate the lid o-ring with silicone lubricant each time the lid is removed. The o-ring should be cleaned and inspected every time the strainer pot is opened.
7. The lid should be replaced by pressing the lid down and twisting the lid clockwise.
8. The pump is now ready to prime. Energize the motor and the pump will prime. The time to prime will depend on the suction lift and the distance and size of suction piping. Turn off power if the pump does not prime within thirty (30) minutes and refer to "Troubleshooting" on page 11.



DO NOT run the pump dry. If the pump is run dry, the mechanical seal will be damaged and the pump will start leaking. If this occurs, the damaged seal must be replaced. ALWAYS maintain proper water level in your pool (half way up skimmer opening). If the water level falls below the skimmer opening, the pump will draw air through the skimmer, losing the prime and causing the pump to run dry, resulting in a damaged seal. Continued operation in this matter could cause a loss of pressure, resulting in damage to the pump case, impeller, and seal and may cause property damage and personal injury.

This section describes how to maintain the Challenger® Centrifugal Pump.

Cleaning the Pump Strainer Basket

The strainer basket in the pump should be visually inspected at least once a week. Remove the clear lid and the basket and clean debris from basket. Inspect the lid o-ring; if damaged replace. The pump seal requires no lubrication.

⚠ WARNING

DO NOT open the strainer pot if pump fails to prime or if pump has been operating without water in the strainer pot. Pumps operated in these circumstances may experience a build up of vapor pressure and may contain scalding hot water. Opening the pump may cause serious personal injury. In order to avoid the possibility of personal injury, make sure the suction and discharge valves are open and strainer pot temperature is cool to touch, then open with extreme caution.

⚠ CAUTION

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

1. Turn off the pump at the breaker.
2. Close the inlet and discharge valves.
3. Relieve pressure in the system.
4. Turn the strainer lid in a counter-clockwise direction to remove the lid and remove the basket from the pump.
5. Remove the debris from the strainer basket and rinse out the basket. Replace the basket if it is cracked.
6. Replace the basket.
7. Fill the pump strainer pot and volute up to the suction/inlet port with water.
8. Clean the lid, O-ring, and sealing surface of the strainer pot.

Note: It is important that the O-Ring be kept clean and well lubricated.
9. Reinstall the lid by placing the lid back onto the strainer pot and turning the lid clockwise.

Note: Be sure the lid O-ring is properly placed around the entire sealing surface of the strainer pot.
10. Open the inlet and discharge valves.
11. Turn the power "ON" at the circuit breaker.

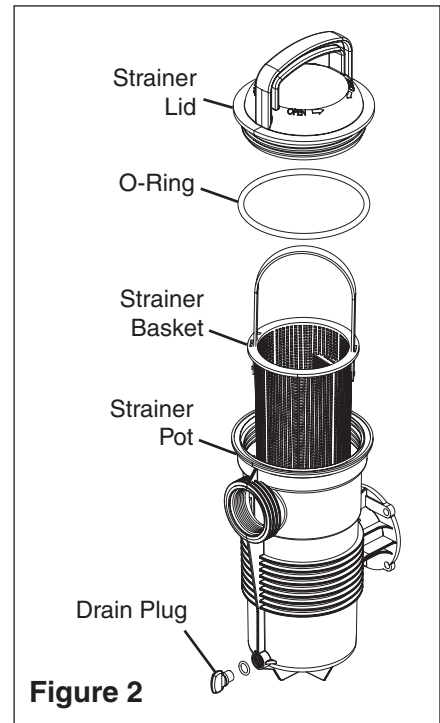
⚠ WARNING



THIS SYSTEM OPERATES UNDER HIGH PRESSURE.

When any part of the circulating system (e.g., Lock Ring, Pump, Filter, Valves, etc.) is serviced, air can enter the system and become pressurized. Pressurized air can cause the lid to separate off which can result in serious injury, death, or property damage. To avoid this potential hazard, follow these instructions.

12. Open the manual air relief valve on top of the filter.
13. Stand clear of the filter. Start the pump.
14. Bleed air from the filter until a steady stream of water comes out. Close the manual air relief valve.



Winterizing

You are responsible for determining when freezing conditions may occur. If freezing conditions are expected, take the following steps to reduce the risk of freeze damage. ***Freeze damage is not covered under warranty.***

In mild climates, when temporary freezing conditions may occur, run your filtering equipment all night to prevent freezing.

To prevent freeze damage, follow the procedures below:

1. Shut off electrical power for the pump at the circuit breaker.
2. Drain the water out of the pump housing by removing the two thumb-twist drain plugs from the housing. Store the plugs in the pump basket.
3. Cover the motor to protect it from severe rain, snow and ice.

Note: DO NOT wrap the motor with plastic or other air tight materials during winter storage. The motor may be covered during a storm, winter storage, etc., but never when operating or expecting operation.

Electric Motor Care

Protect from heat

1. Shade the motor from the sun.
2. Any enclosure must be well ventilated to prevent overheating.
3. Provide ample cross ventilation.

Protect against dirt

1. Protect from any foreign matter.
2. Do not store (or spill) chemicals on or near the motor.
3. Avoid sweeping or stirring up dust near the motor while it is operating.
4. If a motor has been damaged by dirt it may void the motor warranty.
5. Clean the lid and clamp, O-ring, and sealing surface of the pump pot.

Protect against moisture

1. Protect from continuous splashing or continuous sprayed water.
2. Protect from extreme weather such as flooding.
3. If motor internals have become wet - let it dry before operating. Do not allow the pump to operate if it has been flooded.
4. If a motor has been damaged by water it may void the motor warranty.

Note:

- DO NOT wrap motor with plastic or other air tight materials. The motor may be covered during a storm, for winter storage, etc., but never when operating, or expecting operation.
- When replacing the motor, be certain that the motor support is correctly positioned to support the size of motor being installed.

SERVICING

This section describes how to service the Challenger® Centrifugal Pump.

RISK OF ELECTRICAL AND ELECTROCUTION

WARNING



This pool pump 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 will create an electrical hazard which could result in death or serious injury to pool users, installers, or others due to electrical shock, and may also cause damage to property.

Always disconnect power to the pool pump at the circuit breaker before servicing the pump. Failure to do so could result in death or serious injury to serviceman, pool users or others due to electric shock.

Read all servicing instructions before working on the pump.

WARNING



DO NOT open the strainer pot if pump fails to prime or if pump has been operating without water in the strainer pot. Pumps operated in these circumstances may experience a build up of vapor pressure and may contain scalding hot water. Opening the pump may cause serious personal injury. In order to avoid the possibility of personal injury, make sure the suction and discharge valves are open and strainer pot temperature is cool to touch, then open with extreme caution.

CAUTION

Be sure not to scratch or mar the polished shaft seal faces; seal will leak if faces are damaged.

Pump Disassembly

All moving parts are located in the rear sub-assembly of this pump. Refer to **Figure 4** on page 9 for an illustrated parts view.

Tools required:

- Adjustable wrench.
- 1/4 inch flat-blade screwdriver.
- 9/16 inch open end wrench.
- Rubber Mallet

To remove and repair the motor sub-assembly perform the following procedures:

1. Turn off the pump circuit breaker at the main panel. Close suction and discharge valves to relieve system pressure.
2. Drain the pump by removing the drain plugs. The drain plugs can be removed by hand. No tools are needed.
3. Loosen the band clamp by turning the band clamp knob counter-clockwise. The band clamp holds the rear-subassembly to the housing (strainer pot/volute).
4. Remove the rear sub-assembly from the housing (strainer pot/volute) and place the band clamp to the side.
Note: If the band clamp does not separate from the pump housing and seal plate when loose, lightly tap the top of the band clamp with a rubber mallet. This will free the clamp from the housing.
5. Place the rear sub-assembly upright and on a flat surface. Use a 1/4 inch flat blade screwdriver to remove the three (3) holding screws located on the diffuser.
6. Remove the diffuser and diffuser spacer from the rear sub-assembly.
7. Use the 1/4 inch flat blade screwdriver to remove the impeller screw located in the center of the pump's impeller.
Note: The impeller screw is a left-handed thread and loosens in a clockwise direction.

Pump Disassembly (continued)

8. Use the 1/4 inch flat blade screwdriver to hold the motor shaft in place. The motor shaft is accessible through the back of the motor.

Note: If the torque is too high to hold the screwdriver by hand then an adjustable wrench may be used to hold the screwdriver shaft in place. Use locking pliers instead if your screwdriver has a round shaft.

9. Unscrew the impeller from the motor shaft by twisting the impeller counter-clockwise.

10. Remove the rotating portion of the spring seal by hand.

Note: When placing the rotating seal to the side, ALWAYS place flat side down. The portion of the rotating spring seal that contacts the white ceramic seal must be kept as free from contaminants (dust, dirt, debris, etc.) as possible.

11. Use the 9/16 inch wrench to remove the four (4) bolts that hold the motor to the seal plate.

The Shaft Seal

The mechanical seal can be changed without disconnecting piping by removing the band clamp and pulling the motor with pump bracket diffuser and impeller assembly away from front pump housing body.

The Shaft Seal consists primarily of two parts, a rotating spring seal and a ceramic seal. See **Figure 3**.

The Challenger® Centrifugal Pump requires little or no service other than reasonable care, however, a Shaft Seal may occasionally become damaged and must be replaced.



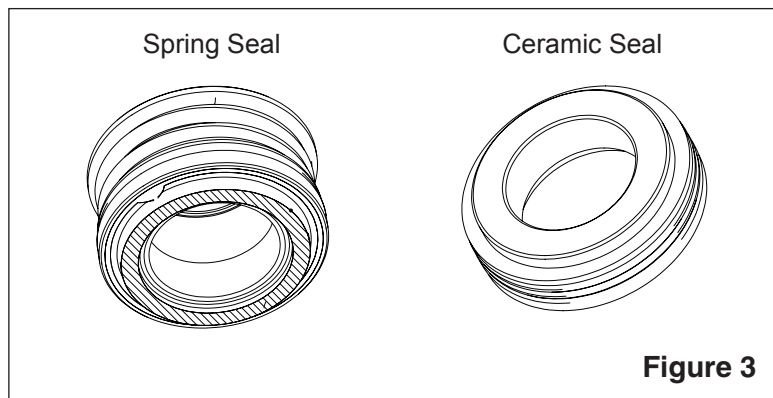
CAUTION The polished and lapped faces of the seal could be easily damaged if not handled with care.



CAUTION In mild climate area, when temporary freezing conditions may occur, run your filtering equipment all night to prevent freezing.

To replace the pump seal:

12. Follow steps 1-11 in the “Pump Disassembly” section.
13. Place the seal plate face down on a flat surface and tap out the old ceramic seal.
14. Press the new ceramic seal into the seal plate with your thumbs and wipe off the white ceramic with a clean cloth.
15. Using a 9/16 inch wrench, remount the seal plate to the motor via the four (4) bolts that hold the motor to the seal plate.
16. Grease the motor shaft thread and continue with steps 2-10 from the “Pump Reassembly” section to reassemble the pump.



Pump Reassembly

1. Use the 9/16 inch wrench to remount the seal plate to the motor via the four (4) bolts that hold the motor to the seal plate.
2. Reseat the spring seal on the white ceramic seal. Ensure that the carbon face of the spring seal contacts the ceramic face of the stationary seat.
3. Grease the motor shaft thread and screw the impeller onto the motor shaft.
Note: Use the 1/4 inch flat blade screwdriver to hold the motor shaft in place when screwing down the impeller. The motor shaft is accessible through the back of the motor.
4. Using a 1/4 inch flat blade screwdriver, screw in the impeller lock screw.
Note: The impeller screw is a left-handed thread and tightens in a counter-clockwise direction.
5. Remount the diffuser spacer and diffuser using a 1/4 inch flat blade screwdriver and the three (3) diffuser screws.
6. Reseat the pump housing (strainer pot/volute) onto the rear sub-assembly.
7. Place the band clamp around the pump housing and rear sub-assembly. Tighten with the band clamp knob.
Note: The band clamp knob should be parallel to the floor of the equipment pad when the clamp is installed properly.
8. Reinstall the drain plugs. Hand tighten only!
9. Fill the pump strainer pot with water.
10. Refer to page 4 “Initial Start-Up” procedures to restart the pump.

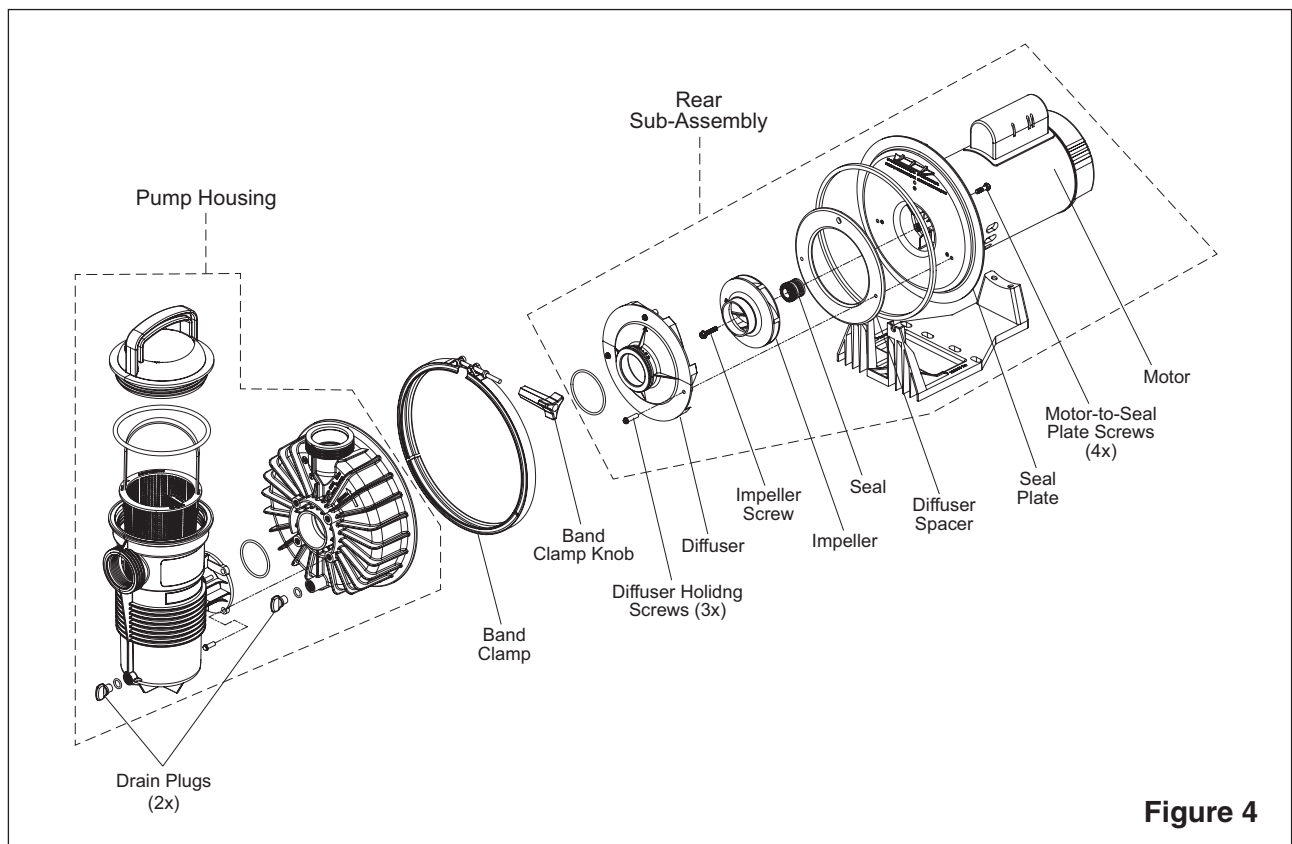


Figure 4

RESTART INSTRUCTIONS

If the Challenger® Centrifugal Pump is installed below the water level of the pool, close return and suction lines prior to opening hair and lint pot on pump. Make sure to reopen valves prior to operating.



DO NOT run the pump dry. If the pump is run dry, the mechanical seal will be damaged and the pump will start leaking. If this occurs, the damaged seal must be replaced. **ALWAYS** maintain proper water level in your pool (half way up skimmer opening). If the water level falls below the skimmer opening, the pump will draw air through the skimmer, losing the prime and causing the pump to run dry, resulting in a damaged seal. Continued operation in this matter could cause a loss of pressure, resulting in damage to the pump case, impeller, and seal and may cause property damage and personal injury.

Priming the Pump

The pump strainer pot must be filled with water before the pump is initially started. Follow these steps to prime the pump:

1. Remove the pump lid.
2. Fill the pump strainer pot with water.
3. Reassemble the pump lid onto the strainer pot. The pump is now ready to prime.
4. Open the air release valve on the filter, and stand clear of the filter.
5. Turn on the switch or time clock.
6. When water comes out of the air release valve, close the valve. The system should now be free of air and recirculating water to and from the pool.
7. This pump will prime within thirty (30) minutes. Do not allow your pump to run longer than this time without developing full flow. If the pump does not prime, see “Troubleshooting” on page 11.
8. Two speed pumps should run on high speed for priming.

TROUBLESHOOTING

Use the following troubleshooting information to resolve possible Challenger® Centrifugal Pump problems.



RISK OF ELECTRICAL SHOCK OR ELECTROCUTION.

Improper installation will create an electrical hazard which could result in death or serious injury to pool users, installers, or others due to electrical shock, and may also cause damage to property.

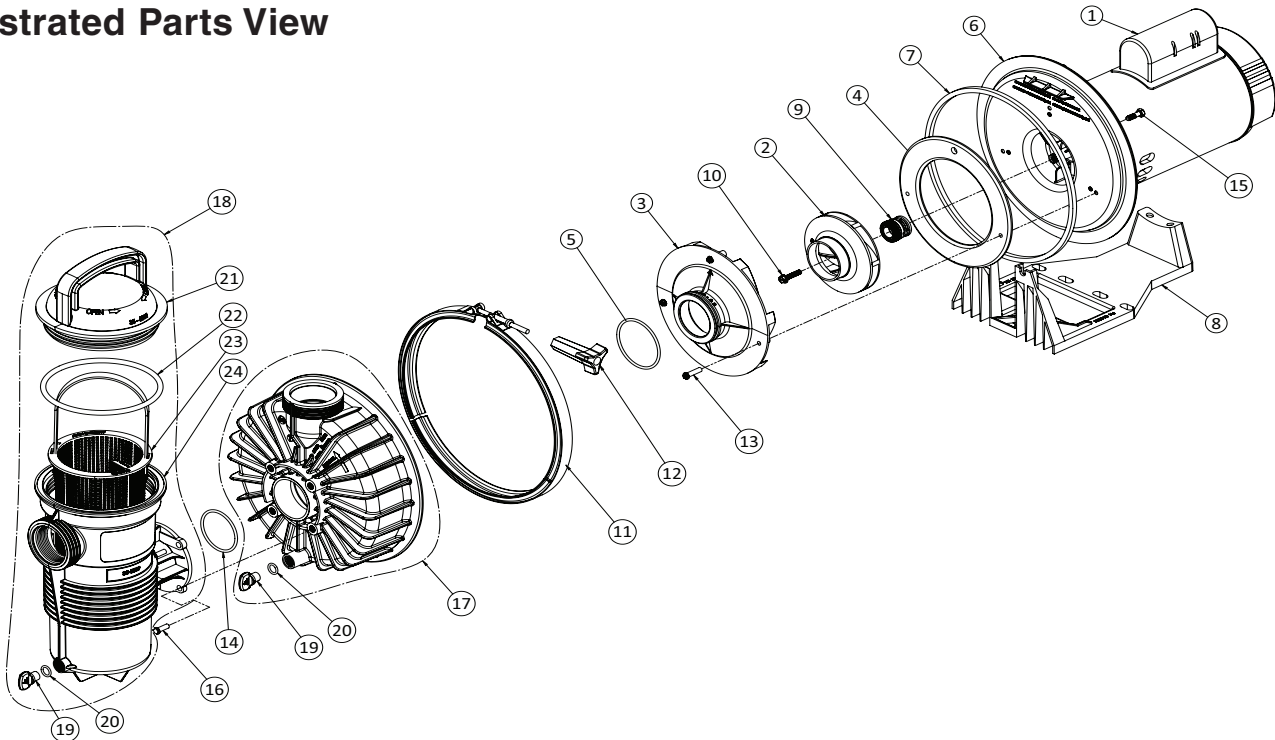
1. If you are not familiar with your pool filtering system and/or heater:
 - a. **DO NOT** attempt to adjust or service without consulting your dealer, or a qualified pool professional.
 - b. Read the entire Installation & User's Guide before attempting to use, service or adjust the pool filtering system or heater.
2. **SWITCH OFF power to the pump at the breaker before attempting service or repair.**

Problems and Corrective Actions

Problem	Cause	Remedy
Pump will not prime	1. No water in strainer pot. 2. Strainer pot lid is not tight. 3. Damaged lid o-ring. 4. Water level is below skimmer. 5. Strainer basket or skimmer basket is clogged. 6. Closed valve in piping system. 7. Pump is on low speed (two speed units only). 8. Air leak in suction line.	Add water to pot. Tighten lid. Replace o-ring. Adjust pool water level. Clear basket. Check all valves and open all necessary valves. Adjust to high speed. Find & fix leak.
Low Flow-High Filter Pressure	1. Filter is dirty. 2. Restriction in return line.	Clean filter. Open return line restriction.
Low Flow-Low Filter Pressure	1. Strainer basket or skimmer basket is clogged. 2. Clogged impeller. 3. Air leak in suction line. 4. Restriction in suction line.	Clean basket. Clean obstruction. Find & fix leak. Find and open restriction.
Motor does not turn	1. Power switch is off. 2. Circuit breaker has tripped. 3. Pump is in "Off-mode" on a timer controlled circuit. 4. Motor terminal connections are incorrect. 5. Motor shaft is locked by bad bearing. 6. Impeller is locked by debris.	Check power switch & reset. Check circuit breaker & reset, if re-trips, contact electrician. Check timer mode. Have terminal connections checked by electrician. Have motor bearings replaced or replace pump. Clean impeller.
Motor Over-Heating	1. Electrical supply connections are incorrect. 2. Wiring to pump is undersized. 3. Power Company supply voltage is low. 4. Ventilation is inadequate for motor.	Have terminal connections checked by electrician. Consult electrician to rewire pump. Notify Power Company. Remove any restrictions to air flow.

REPLACEMENT PARTS

Illustrated Parts View



High Pressure Pump Parts List

Item #	P/N	Description
1	See Motor Table	Motor
2	See Impeller/Diffuser Table	Impeller
3	See Impeller/Diffuser Table	Diffuser
4	See Impeller/Diffuser Table	Diffuser Spacer
5	355331	Diffuser O-Ring
6	355004	Seal Plate
7	355329	Seal Plate Square Ring
8	355305	Base
9	354545S	Seal
10	355389	Impeller Screw
11	354629	Band Clamp
12	175025	Band Clamp Knob
13	355334	Diffuser Screw (3x)
14	355330	Front Housing O-Ring
15	354290	Motor Bolt (4x)
16	354265	Strainer Pot Bolt (4x)
17	355468	Housing
18	359507 / 357391 (3HP)	Pot Assembly
19	357161	Drain Plug (2x)
20	192115	Drain Plug O-Ring (2x)
21	355301	Lid
22	350013	Lid O-Ring
23	355318 / 355441 (3HP)	Strainer Basket
24	355300	Strainer Pot

Motor Table

Motor	Model		
	Single Speed	Two Speed	3-Phase TEFC
1/2F, 3/4A	355019	—	—
3/4F, 1A	355021	355375	—
1F, 1-1/2A	355023	355376	—
1-1/2F, 2A	355025	355377	—
2F, 2-1/2A	355027	355378	—
3F	355034	—	—
1/2FE, 3/4FE	355009	—	—
1FE	355011	—	354806
1-1/2FE	355013	—	354808
2FE, 2-1/2AE	355015	—	354810
3FE	355017	—	354812

Impeller/Diffuser Table

Motor	Impeller P/N	Diffuser P/N	Diffuser Spacer P/N
HIGH PRESSURE MODELS			
1/2F, 3/4A, 1/2FE	355147	355148	355384
3/4F, 1A, 3/4FE	355187	355188	355317
1F, 1-1/2A, 1FE	355369	355188	355317
1-1/2F, 2A, 1-1/2FE	355315	355270	355317
2F, 2-1/2A, 2FE, 2-1/2AE	355604	355545	355317
3F, 3FE	355544	355545	355317

High Flow Pump Parts List

Item #	P/N	Description
1	See Motor Table	Motor
2	See Impeller/Diffuser Table	Impeller
3	See Impeller/Diffuser Table	Diffuser
4	See Impeller/Diffuser Table	Diffuser Spacer
5	355030	Diffuser O-Ring
6	355004	Seal Plate
7	355329	Seal Plate Square Ring
8	355305	Base
9	354545S	Seal
10	355389	Impeller Screw
11	354629	Band Clamp
12	175025	Band Clamp Knob
13	355334	Diffuser Screw (3x)
14	355330	Front Housing O-Ring
15	354290	Motor Bolt (4x)
16	354265	Strainer Pot Bolt (4x)
17	355468	Housing
18	359507	Pot Assembly
19	357161	Drain Plug (2x)
20	192115	Drain Plug O-Ring (2x)
21	355301	Lid
22	350013	Lid O-Ring
23	355318	Strainer Basket
24	355300	Strainer Pot

Motor Table

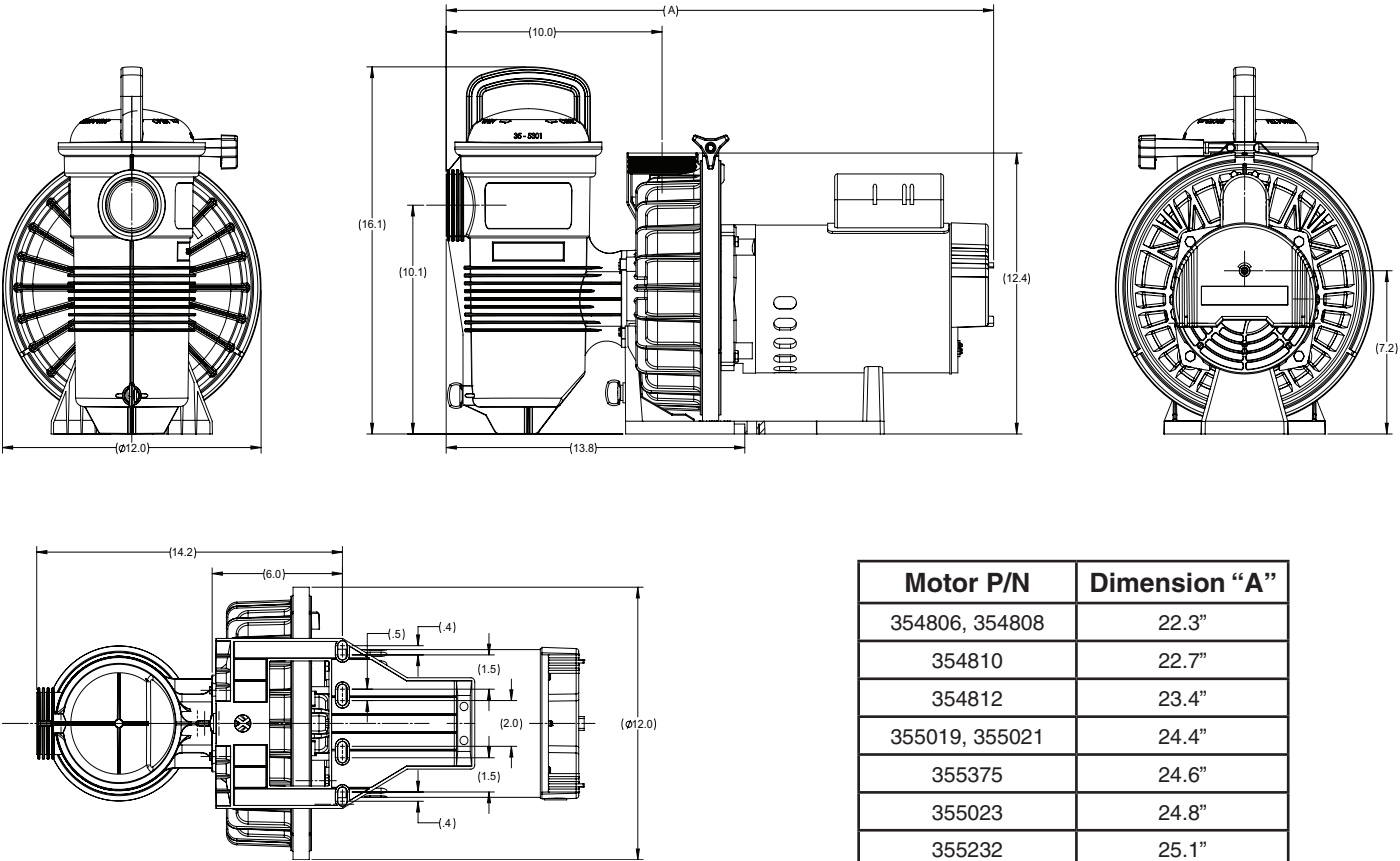
Motor	Motor P/N
1/2F, 3/4A	355019
3/4F, 1A	355021
1F, 1-1/2A	355023
1-1/2F, 2A	355025
2F, 2-1/2A	355027
1FE	355011
1-1/2FE	355013
2FE, 2-1/2AE	355015

Impeller/Diffuser Table

Motor	Impeller P/N	Diffuser P/N	Diffuser Spacer P/N
HIGH FLOW MODELS			
1/2F, 3/4A	355043	355029	355028
3/4F, 1A	355067	355029	355028
1F, 1-1/2A, 1FE	355074	355077	355078
1-1/2F, 2A, 1-1/2FE	355086	355077	355078
2F, 2-1/2A, 2FE	355093	355094	355095

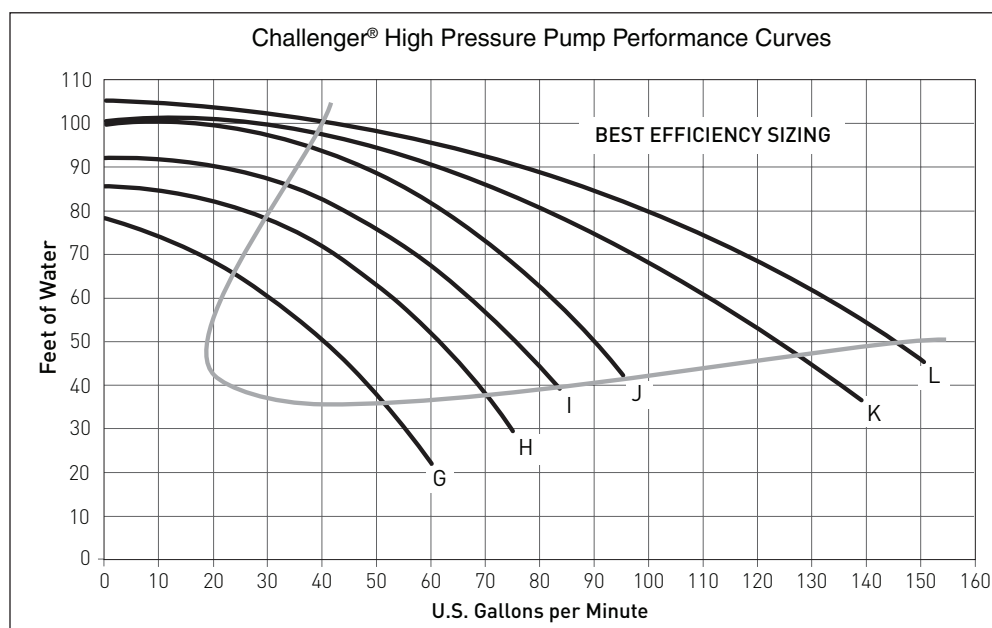
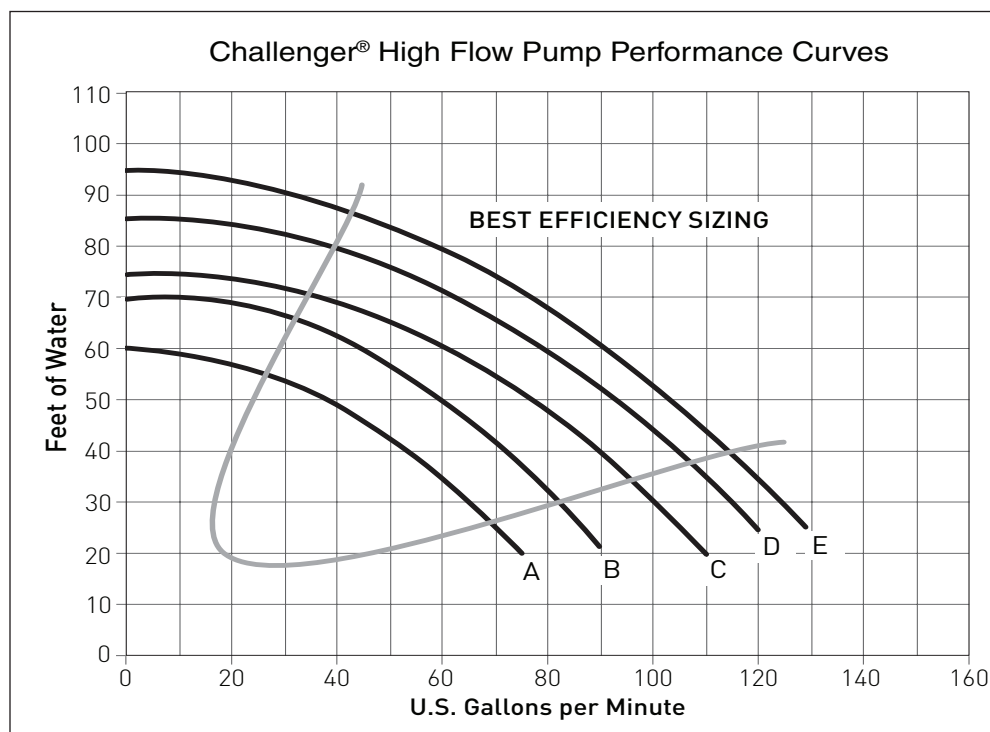
TECHNICAL DATA

Dimensional Drawings



Motor P/N	Dimension “A”
354806, 354808	22.3”
354810	22.7”
354812	23.4”
355019, 355021	24.4”
355375	24.6”
355023	24.8”
355232	25.1”
355009	25.2”
355376	25.3”
355011, 355027	25.4”
355377	25.8”
355013	25.9”
355378	26.3”
355025, 355034, 355015, 355017	26.4”

Pump Performance Curves





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WWW.PENTAIRPOOL.COM

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P/N 355031 REV. E 4/13/15

Pentair Water Pool and Spa®

PUMP WARNINGS AND SAFETY INSTRUCTIONS

For Pool and Spa Pumps (Non SVRS Pumps)
(Pentair Water Pool and Spa®, Sta-Rite®, and Pentair Pool Products®)

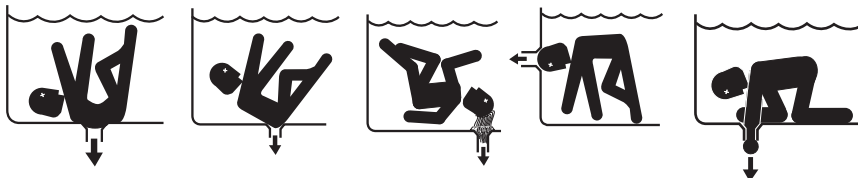


FAILURE TO FOLLOW ALL INSTRUCTIONS AND WARNINGS CAN RESULT IN SERIOUS BODILY INJURY OR DEATH. THIS PUMP SHOULD BE INSTALLED AND SERVICED ONLY BY A QUALIFIED POOL SERVICE PROFESSIONAL. INSTALLERS, POOL OPERATORS AND OWNERS MUST READ THESE WARNINGS AND ALL INSTRUCTIONS IN THE OWNER'S MANUAL BEFORE USING THIS PUMP. THESE WARNINGS AND THE OWNER'S MANUAL MUST BE LEFT WITH THE POOL OWNER.

Warnings and safety instructions for Pentair Water Pool and Spa® pumps and other related products are available at: <http://www.pentairpool.com/pool-owner/safety-warnings/> Call (800) 831-7133 for additional free copies of these instructions. Please refer to www.pentairpool.com for more information related to Pentair Water Pool and Spa® pumps.



SUCTION ENTRAPMENT HAZARD: STAY OFF THE MAIN DRAIN AND AWAY FROM ALL SUCTION OUTLETS!



THIS PUMP PRODUCES HIGH LEVELS OF SUCTION AND CREATES A STRONG VACUUM AT THE MAIN DRAIN AT THE BOTTOM OF YOUR POOL AND SPA. THIS SUCTION IS SO STRONG THAT IT CAN TRAP ADULTS OR CHILDREN UNDER WATER IF THEY COME IN CLOSE PROXIMITY TO A POOL OR SPA DRAIN OR A LOOSE OR BROKEN DRAIN COVER OR GRATE.

THE USE OF UNAPPROVED COVERS OR ALLOWING USE OF THE POOL OR SPA WHEN COVERS ARE MISSING, CRACKED OR BROKEN CAN RESULT IN BODY OR LIMB ENTRAPMENT, HAIR ENTANGLEMENT, BODY ENTRAPMENT, EVISCERATION AND/OR DEATH.

The suction at a pool or spa drain or outlet can cause:

Limb Entrapment: When a limb is sucked or inserted into an opening resulting in a mechanical bind or swelling. This hazard is present when a drain cover is missing, broken, loose, cracked or not properly secured.

Hair Entanglement: When the hair tangles or knots in the drain cover, trapping the swimmer underwater. This hazard is present when the flow rating of the cover is too small for the pump or pumps.

Body Entrapment: When a portion of the body is held against the drain cover trapping the swimmer underwater. This hazard is present when the drain cover is missing, broken or the cover flow rating is not high enough for the pump or pumps.

Evisceration/Disembowelment: When a person sits on an open pool (particularly a child wading pool) or spa outlet and suction is applied directly to the intestines, causing severe intestinal damage. This hazard is present when the drain cover is missing, loose, cracked, or not properly secured.

Mechanical Entrapment: When jewelry, swimsuit, hair decorations, finger, toe or knuckle is caught in an opening of an outlet or drain cover. This hazard is present when the drain cover is missing, broken, loose, cracked, or not properly secured.

NOTE: ALL SUCTION PLUMBING MUST BE INSTALLED IN ACCORDANCE WITH THE LATEST NATIONAL AND LOCAL CODES FOR SWIMMING POOLS, SPAS AND HOT TUBS, INCLUDING NSPI STANDARDS AND CPSC GUIDELINES.

READ AND KEEP THESE INSTRUCTIONS FOR FUTURE REFERENCE



PUMP (Non SVRS) WARNINGS AND SAFETY INSTRUCTIONS



TO MINIMIZE THE RISK OF INJURY DUE TO SUCTION ENTRAPMENT HAZARD:

- Pools and spas should utilize a minimum of two drains per pump.
- A properly installed and secured ANSI/ASME A112.19.8 approved anti-entrapment suction cover must be used for each drain.
- Each suction cover must be installed at least three (3') feet apart, as measured from the nearest point to nearest point.
- Regularly inspect all covers for cracks, damage and advanced weathering.
- If a cover becomes loose, cracked, damaged, broken or is missing, close the pool or spa immediately, shut off the pump, post a notice and keep the pool or spa closed until an appropriate certified cover is properly installed.
- Replace drain covers as necessary. Drain covers deteriorate over time due to exposure to sunlight, pool chemicals and weather.
- Avoid getting hair, limbs or body in close proximity to any suction cover, pool drain or outlet.
- Use a safety vacuum release system ("SVRS"), suction limiting system or automatic pump shut-off system.
- Disable suction outlets or reconfigure into return inlets.



A clearly labeled emergency shut-off switch for the pool pump and spa jet pump must be in an easily accessible, obvious place near the pool or spa. Make sure bathers know where it is and how to use it in case of emergency.

The Virginia Graeme Baker (VGB) Pool and Spa Safety Act creates new requirements for owners and operators of commercial swimming pools and spas.

Commercial pools or spas constructed on or after December 19, 2008, shall utilize:

- (A) A multiple main drain system without isolation capability with suction outlet covers that meet ASME/ANSI A112.19.8a Suction Fittings for Use in Swimming Pools, Wading Pools, Spas, and Hot Tubs and either:
 - (i) A safety vacuum release system (SVRS) meeting ASME/ANSI A112.19.17 Manufactured Safety Vacuum Release systems (SVRS) for Residential and Commercial Swimming Pool, Spa, Hot Tub, and Wading Pool Suction Systems and/or ASTM F2387 Standard Specification for Manufactured Safety Vacuum Release Systems (SVRS) for Swimming pools, Spas and Hot Tubs or
 - (ii) A properly designed and tested suction-limiting vent system or
 - (iii) An automatic pump shut-off system.

Commercial pools and spas constructed prior to December 19, 2008, with a single submerged suction outlet shall use a suction outlet cover that meets ASME/ANSI A112.19.8a and either:

- (A) A SVRS meeting ASME/ANSI A112.19.17 and/or ASTM F2387, or
- (B) A properly designed and tested suction-limiting vent system, or
- (C) An automatic pump shut-off system, or
- (D) Disabled submerged outlets, or
- (E) Suction outlets shall be reconfigured into return inlets.



HAZARDOUS PRESSURE: STAND CLEAR OF PUMP AND FILTER DURING START-UP

Pool and spa circulation systems operate under high pressure. When any part of the circulating system (i.e. lock ring, pump, filter, valves, etc.) is serviced, air can enter the system and become pressurized.

Pressurized air can cause the pump housing cover filter lid and valves to violently separate which can result in severe personal injury or death. Filter tank lid and strainer cover must be properly secured to prevent violent separation. Stand clear of all circulation system equipment when turning on or starting up pump.

CAUTION!: Electrical controls such as on/off switches, timers, and control systems, etc. should be properly installed to allow the operation (start-up, shut-down, or servicing) of any pump or filter without requiring the user to place any portion of his/her body over or near the pump strainer lid or filter lid. Such installation should allow the user to stand clear of the filter and pump during system start-up, shut down or servicing of the system.

Before servicing pool and spa equipment, make note of the filter pressure. Be sure that all controls are set to ensure the system cannot inadvertently start during service. Turn off all power to the pump. **IMPORTANT: Place filter manual air relief valve in the open position and wait for all pressure in the system to be relieved.**

Before starting the system, fully open the manual air relief valve and place all system valves in the "open" position to allow water to flow freely from the pool and spa back to the pool or spa. Stand clear of all pool and spa equipment and start the pump. **IMPORTANT: Do not close filter manual air relief valve until all pressure has been discharged from the valve and a steady stream of water appears.** Observe filter pressure gauge and be sure it is not higher than the pre-service condition.

Pentair Water Pool and Spa, Inc. ("Pentair") manufactures its products with the highest standards of workmanship, using the best materials available through state of the art processes. Pentair warrants its products as follows:

Limited Warranty: Pentair warrants its products to be free from defects in material and/or workmanship for a period of sixty (60) days (parts only) from the original date of purchase and/or installation. Customer agrees to prepay all shipping charges to Pentair.

All products used in commercial applications receive a one (1) year warranty.

Exceptions that may result in denial of a warranty claim:

- Damage caused by careless handling, improper repackaging, or shipping.
- Damage due to misapplication, misuse, abuse or failure to operate equipment as specified in the owner's manual.
- Damage caused by failure to install products as specified in the owner's manual.
- Damage due to unauthorized product modifications or failure to use Pentair original replacement parts.
- Damage caused by negligence, or failure to properly maintain products as specified in the owner's manual.
- Damage caused by failure to maintain water chemistry in conformity with the standards of the swimming pool industry for any length of time.
- Damage caused by water freezing inside the product.
- Accidental damage, fire, acts of God, or other circumstances outside the control of Pentair.

PRODUCT FAMILY	WARRANTY LENGTH		Out of Box	EXCEPTIONS (If Installed by a Qualified Installer & Registered Within 60 Days*)
	1 year	2 years		
Filters and Valves	1 year	2 years	Parts Only	INTELLIFLO & INTELLIPRO Variable Speed Pumps – 3 years
	1 year	2 years		MINIMAX 75/100 & Commercial Applications** – 1 year
	1 year	2 years		Compressor Parts and Labor – 10 years
	1 year	2 years		Titanium Heat Exchanger – Lifetime
	1 year	2 years		Bulbs – 60 days
	1 year	2 years		SUNTOUCH solar & SOLARTOUCH Solar System – 3 years
	1 year	2 years		ACU-TROL Equipment Repairs – 60 days (for Non-Warranty Repairs)
	1 year	2 years		INTELLICHLOR (SCG) w/o Power Center/Supply – 1 year (Self Installed)
	1 year	2 years		
	1 year	2 years		
	1 year	2 years		
	1 year	2 years		
Pumps	1 year	2 years	Parts Only	ACU-TROL Commercial pH or ORP Probe**
	1 year	2 years		ACU-TROL Commercial Controllers**
	1 year	2 years		ACU-TROL Electronic Modules
	1 year	2 years		ACU-TROL AK Color and Accessories
	1 year	2 years		INTELLICHLOR (SCG) w/Power Center/Supply
	1 year	2 years		White Goods and Water Features
	1 year	2 years		Chlorine Bromine Feeders
	1 year	2 years		
	1 year	2 years		
	1 year	2 years		
	1 year	2 years		
	Heaters	1 year		2 years
1 year		2 years	ACU-TROL Commercial Controllers**	
1 year		2 years	ACU-TROL Electronic Modules	
1 year		2 years	ACU-TROL AK Color and Accessories	
1 year		2 years	INTELLICHLOR (SCG) w/Power Center/Supply	
1 year		2 years	White Goods and Water Features	
1 year		2 years	Chlorine Bromine Feeders	
1 year		2 years		
1 year		2 years		
1 year		2 years		
1 year		2 years		
Heat Pumps – Residential		1 year	2 years	Parts Only
	1 year	2 years	ACU-TROL Commercial Controllers**	
	1 year	2 years	ACU-TROL Electronic Modules	
	1 year	2 years	ACU-TROL AK Color and Accessories	
	1 year	2 years	INTELLICHLOR (SCG) w/Power Center/Supply	
	1 year	2 years	White Goods and Water Features	
	1 year	2 years	Chlorine Bromine Feeders	
	1 year	2 years		
	1 year	2 years		
	1 year	2 years		
	1 year	2 years		
	Heat Pumps – Commercial**	1 year	2 years	
1 year		2 years	ACU-TROL Commercial Controllers**	
1 year		2 years	ACU-TROL Electronic Modules	
1 year		2 years	ACU-TROL AK Color and Accessories	
1 year		2 years	INTELLICHLOR (SCG) w/Power Center/Supply	
1 year		2 years	White Goods and Water Features	
1 year		2 years	Chlorine Bromine Feeders	
1 year		2 years		
1 year		2 years		
1 year		2 years		
1 year		2 years		

****NOTE:** Please keep the original sales receipt as proof of purchase and save the qualified installer's invoice and date of installation when you register your product(s).

****NOTE:** For warranty purposes, a commercial facility is defined as any facility other than a single family dwelling.

PENTAIR WATER POOL AND SPA, INC.

1620 Hawkins Ave. Sanford, NC 27330 / 10951 W. Los Angeles Ave. Moorpark, CA 93021
Phone: 800-831-7133



PRODUCT WARRANTY REGISTRATION CARD

To register your product online, please visit www.pentairpool.com/support/product-registration.html

Please Detach Along Dotted Line and Mail This Section. Keep the Warranty for Your Records

Please promptly complete and return this postage paid card. In the unlikely event we must notify you of safety modifications to your product, under the Consumer Product Safety Act, this will allow us to communicate with you quickly. Incomplete or missing information such as your serial number will not be registered. **Your Limited Warranty is attached to this reply card.** Please detach it, review it thoroughly so you are familiar with the terms of your warranty coverage and keep in a safe place.

ALL INFORMATION REQUESTED BELOW IS REQUIRED IN ORDER TO RECEIVE AN EXTENDED WARRANTY.

Product:

- ☐ FILTER ☐ PUMP ☐ HEATER ☐ HEAT PUMP ☐ LIGHT ☐ AUTOMATION
☐ AUTO CLEANER* ☐ AUTO FEEDER ☐ MAINT. EQUIPMENT ☐ WHITE GOODS

Brand/Model Name: _____

I purchased the Pentair product for use in: _____

- ☐ Inground Pool ☐ Inground Pool/Spa Combination ☐ Aboveground Pool ☐ Spa Only

My Serial Number is: _____

1. Name: _____

(If applicable)

Street Address: _____

City: _____ State: _____ Zip: _____

Tel. No.: (_____) _____ E-mail: _____

☐ I do not wish to receive promotional emails from Pentair Aquatic Systems. We will not rent or sell your personal information under any circumstance.

2. Date of Purchase/Installation: _____ ☐ New ☐ Replacement

Signature: _____ Date: _____

3. Where did you purchase your Pentair Product?

- ☐ Pool Builder ☐ Pool Store ☐ Pool Service ☐ Mail Order ☐ Internet ☐ Other

Company Name: _____

Location: _____

4. Who installed your product?

Name of Installer: _____

Location of Installer: _____

Installer Tel. No.: _____

Please attach original qualified installer's invoice and original sales receipt here as proof of qualified installation and purchase.

***Note:** Automatic Cleaners purchased in the USA from entities outside the USA do not qualify for any USA programs including warranty, trade-in or rebate programs.

LIMITED WARRANTY



TO OBTAIN AN EXTENDED WARRANTY, PLEASE SEE THE THREE (3) OPTIONS BELOW.

a) **One (1) Year Warranty:** Pentair warrants certain products listed in the extended warranty section to be free from defects in material and/or workmanship for a period of one (1) year from the original date of installation on a single product if installed by a qualified installer. Products must be registered within sixty (60) days of installation at www.pentairpool.com/pool-owner/warranty.

b) **Two (2) Year Warranty (Heaters Only):** Pentair warrants heaters to be free from defects in material and/or workmanship for a period of two (2) years from the original date of installation on a single product if installed by a qualified installer. Products must be registered within sixty (60) days of installation at www.pentairpool.com/pool-owner/warranty.

c) **Three (3) Year Warranty IntelliFlo® or IntelliPro® Variable Speed Pumps & Select Bundled Products Only*):** Pentair warrants the IntelliFlo or IntelliPro Variable Speed Pumps and selected bundled products to be free from defects in material and/or workmanship for a period of three (3) years from the original date of installation if installed by a qualified installer. Products must be registered within sixty (60) days of installation at www.pentairpool.com/pool-owner/warranty.

→ This extended three (3) year coverage on bundled products applies to purchases and qualified installations of three (3) or more of the following products: inground pump, filter, heater, heat pump, control system, automatic cleaner, lighting or salt chlorine generator. ***Note: Bundled products must be from three (3) different product groups, purchased on the same invoice and installed at the same time.**

- The above extended warranty is applicable to the original owner only, beginning on the date of installation and is not enforceable by any third party. Proof of purchase and/or date of installation by a qualified installer will be required to register a warranty claim.
- **Warranties by others:** Some Pentair products incorporate components manufactured by other manufacturers. Some of these manufacturers provide warranties in addition to the warranty provided by Pentair herein. In all such cases, a copy of the third party manufacturer's warranty will be provided with the product. To the extent protection provided under any such third party warranty exceeds the Limited Warranty provided herein, the Customer will have to contact the specific manufacturer for the additional protection.

Pentair Warranty Obligations

Should a defect in workmanship and/or material in any item covered by this warranty become evident during the term of the warranty, then upon the customer following the procedures set forth below, Pentair will, at its sole option, repair or replace such product or part of equal value, in lieu of repair. Pentair is not, however, responsible under this warranty for any cost of shipping or transportation of the product or parts thereof to or from the technical Service Department. Also, Pentair is not liable for any loss of time, inconvenience, incidental expenses such as telephone calls, labor or material charges incurred in connection with the removal or replacement of the equipment, or any other incidental or consequential damages. The above mentioned warranties are void if the product is repaired or altered in any way by any persons, agents or representatives other than those authorized by Pentair. Expendables including, but not limited to refrigerant, recovery of refrigerant, or transportation for components are not covered under this limited warranty. Reasonable vehicle trip and evaluation charges may be assessed by a Pentair service representative.

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

No Other Warranties

To the maximum extent permitted by applicable law, Pentair disclaims all other warranties, either expressed or implied, including, but not limited to, implied warranties of merchantability and fitness for a particular purpose, with regard to the product(s), part(s) and/or any accompanying written materials.

Procedure for Obtaining Performance

In order to obtain the benefits of this warranty, the consumer who made the original retail purchase must contact the Pentair Technical Service Department as soon as possible after discovery of the product related issue, but in no event later than the expiration date of the respective warranty periods provided herein. Upon receipt of this communication, Pentair will promptly notify the customer of the address to which the product may be shipped. The customer shall then ship the product, freight prepaid, to the address indicated, together with a "RETURN GOODS AUTHORIZATION" form obtained from Technical Service and a brief description of the problems encountered. Unauthorized returns will not be accepted. Freight must be prepaid by customer.

Warranties or Representations by Others

No third party has any authority to make any warranties or representation concerning Pentair or its products. Accordingly, Pentair is not responsible for any such warranties or representations.

Other Rights

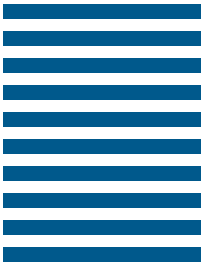
This warranty gives you specific legal rights and you may also have other rights, which vary from state to state.

Sole Warranty

Supersedes all previous publications.



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NECESSARY
IF MAILED
IN THE
UNITED STATES



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POSTAGE WILL BE PAID BY ADDRESSEE

PENTAIR WATER POOL AND SPA, INC.
PO BOX 1228
FARMINGTON MO 63640-9852



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IntelliChlor®

Power Center

(For use with IntelliChlor
model IC60, IC40 and IC20)



Certified to NSF/ANSI 50

Installation and User's Guide

IMPORTANT SAFETY INSTRUCTIONS
READ AND FOLLOW ALL INSTRUCTIONS
SAVE THESE INSTRUCTIONS

Technical Support

Sanford, North Carolina (8 A.M. to 5 P.M. ET)

Moorpark, California (8 A.M. to 5 P.M. PT)

Phone: (800) 831-7133

Fax (800) 284-4151

Web sites: visit www.pentairpool.com and staritepool.com

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P/N 520590 Rev E - 6/4/10

IntelliChlor Power Center Installation Guide

WARNINGS AND IMPORTANT SAFETY PRECAUTIONS



DANGER

SERIOUS BODILY INJURY OR DEATH CAN RESULT IF THIS PRODUCT IS NOT INSTALLED AND USED CORRECTLY.



DANGER

INSTALLERS AND POOL OPERATORS MUST READ THESE WARNINGS AND ALL INSTRUCTIONS BEFORE USING THIS PUMP AND SAND FILTER. To reduce the risk of injury, service should only be done by a qualified pool service professional.



WARNING

Most states and local codes regulate the construction, installation, and operation of public pools and spas, and the construction of residential pools and spas. It is important to comply with these codes, many of which directly regulate the installation and use of this product. Consult your local building and health codes for more information. **Before attempting installation of service, ensure that all power to the circuit supplying power to the IntelliChlor Power Center(s) is disconnected/switched off at the circuit breaker.**



WARNING

IMPORTANT SAFETY INSTRUCTIONS PERTAINING TO A RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS. READ AND FOLLOW ALL INSTRUCTIONS.



IMPORTANT NOTICE - Attention Installer: This Installation and User's Guide ("Guide") contains important information about the installation, operation and safe use of this product. This Guide should be given to the owner and/or operator of this equipment.



WARNING

Before installing this product, read and follow all warning notices and instructions in this Guide. Failure to follow warnings and instructions can result in severe injury, death, or property damage. Call (800) 831-7133 for additional free copies of these instructions. Please refer to www.pentaircommercial.com for more information related to these products.



WARNING

CHLORINE GAS BUILDUP CAN OCCUR WITH IMPROPER WIRING:

To reduce the risk of personal injury the IntelliChlor® Electronic Chlorine Generator (IECG) Power Center must be installed on and wired to the load side of the time clock, electronically controlled switch, or relay load side, so that it will receive power only when the pool pump is on. Otherwise, dangerous chlorine gas buildup can occur. **The IECG should never be energized when the pool pump is OFF and water is not flowing through the unit.**



WARNING

To reduce the risk of injury, do not permit children to use or operate this pump and sand filter.



WARNING

When setting up pool water turnovers or flow rates the operator must consider local codes governing turnover as well as disinfectant feed ratios.



WARNING


DO NOT increase pump size; this may increase the flow rate through the system and exceed the maximum flow rate stated on the drain cover. Never operate the IntelliChlor Electronic Chlorine Generator (IECG) without proper flow or water circulation. A build-up of flammable gases will result in hazardous conditions.

Operate unit with minimum flow of 25 gpm. For high flow applications, use a bypass loop.

WARNINGS AND IMPORTANT SAFETY PRECAUTIONS

⚠ WARNING Never operate the IntelliChlor Electronic Chlorine Generator (IECG) without proper flow or water circulation. A build-up of flammable gases will result in hazardous conditions. Operate unit with minimum flow of 25 gpm. For high flow applications, use a bypass loop.

⚠ WARNING Only use pipe couplings that meet Schedule 80, maximum pressure 150 psi at 70° F.

⚠ DANGER **RISK OF ELECTRICAL SHOCK OR ELECTROCUTION:**
 Always disconnect power to the IntelliChlor salt chlorine generator at the circuit breaker before servicing. Failure to do so could result in death or serious injury to service person, pool users or others due to electric shock.

⚠ WARNING IntelliChlor Electronic Chlorine Generator (IECG) is for use with permanently-installed pools and may also be used with hot tubs and spas if so marked. **Do not use with storable pools.** A permanently installed pool is constructed in or on the ground or in a building such that it cannot be readily disassembled for storage. A storable pool is constructed so that it is capable of being readily dissembled for storage and reassembled to its original integrity.

⚠ WARNING The IECG Power Centers must be interconnected with the pool pump motor power source. This ensures the IECG and pool pump will **switch on and off together**.

⚠ WARNING When mixing acid with water, ALWAYS ADD ACID TO WATER. NEVER ADD WATER TO ACID.

⚠ WARNING Use of chemicals other than those recommended may be hazardous. Follow the Chemical Manufacturer's Instructions.

⚠ WARNING To reduce the risk of electric shock, install IntelliChlor Electronic Chlorine Generator (IECG) a minimum of five (5) feet away from the inside wall of the pool.

⚠ WARNING Install the IECG a minimum of three (3) feet away from the heater outlet. Allow ample access to the IntelliChlor control panel buttons and the IntelliChlor Power Center.

⚠ WARNING A solid copper, bonding conductor not smaller than No. 8 AWG (8.4 mm) should be connected to all metal parts of the swimming pool, spa, or hot tub structure and to all electrical equipment, metal conduit, and metal piping.

WARNINGS AND IMPORTANT SAFETY PRECAUTIONS

For information about the Virginia Graeme Baker Pool and Spa Safety Act, contact the Consumer Product Safety Commission at (301) 504-7908 or visit www.cpsc.gov.

NOTE: Always turn off all power to the pool pump before installing the cover or working on any suction outlet.

WARNING

When mixing acid with water, **ALWAYS ADD ACID TO WATER. NEVER ADD WATER TO ACID.**

Do not operate electrolytic cell without proper flow or water circulation. A build-up of flammable gases will result in hazardous conditions.

WARNING

When using IntelliChlor with an IntelliTouch system, it is recommended to wire the IntelliChlor Power Center to the pump side of the relay located in the IntelliTouch Load Center. This wiring method does not require a ground fault circuit-interrupter (GFCI) to protect the circuit. A green colored terminal (or a wire connector marked "G", "GR", "Ground" or "Grounding") is provided within the terminal compartment in the Power Center transformer enclosure. To reduce risk of electric shock, connect this terminal or connector to the grounding terminal of your electric service or supply panel with a conductor equivalent in size to the circuit conductors supplying this equipment. The power supply must be interconnected with pool pump motor power source. This insures the IntelliChlor chlorinator and pool pump will switch on and off together.

CAUTION

Use of chemicals other than those recommended may be hazardous. Follow the Chemical Manufacturer's Instructions.

CAUTION

Install the IntelliChlor unit a minimum of two (2) feet from the heater outlet.

WARNING

It is recommended to install a Pentair Water Pool and Spa® two (2) inch CHECK VALVE (P/N 263042) between the input side of the IntelliChlor cell and the main heater output pipe.

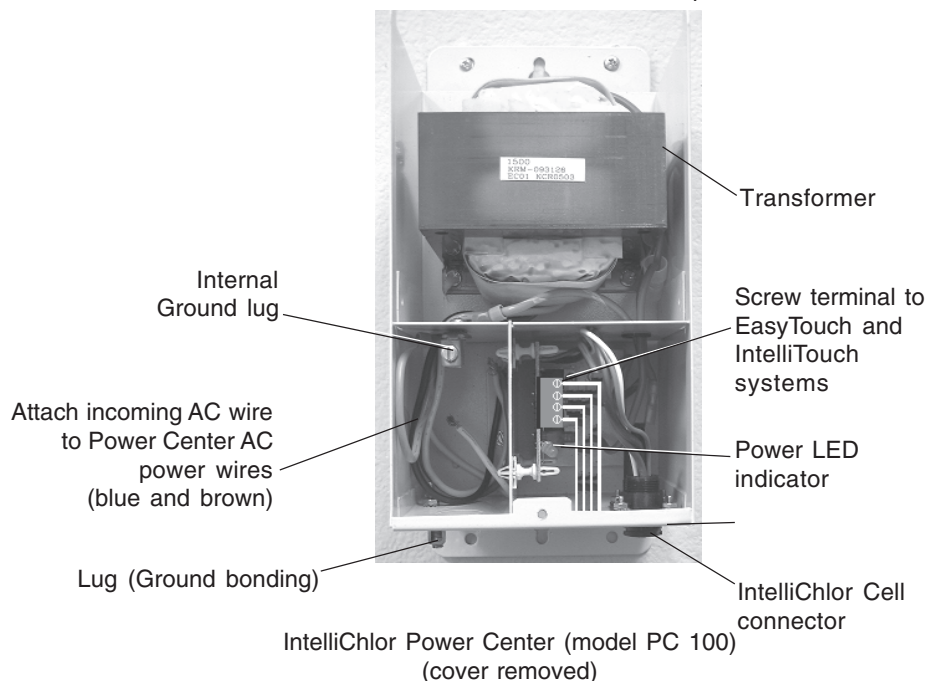


Water temperature in excess of 100° F (37.7° C) may be hazardous to your health. Prolonged immersion in hot water may induce hyperthermia. Hyperthermia occurs when the internal temperature of the body reaches a level several degrees above normal body temperature of 98.6° F (37° C.). Effects of hyperthermia include: (1) Unawareness of impending danger. (2) Failure to perceive heat. (3) Failure to recognize the need to leave the spa. (4) Physical inability to exit the spa. (5) Fetal damage in pregnant women. (6) Unconsciousness resulting in danger of drowning. The use of alcohol, drugs, or medication can greatly increase the risk of fatal hyperthermia in hot tubs and spas.

IntelliChlor® Power Center Overview

The IntelliChlor electronic chlorine generator system comprises of a Power Center and electrolytic Cell. The Power Center converts AC electrical current to a low voltage DC current required by the IntelliChlor electrolytic cell to operate and create chlorine for the swimming pool and spa. The Power Center is connected with the pool circulation pump electrical source so that the electrolytic cell only operates when the pool pump is on. It is recommended that a pool pump timer be used to save on energy and prolong the service life of your pool pump and IntelliChlor. A timer is not included as part of the Power Center kit. The IntelliChlor Power Center can be connected to an IntelliTouch, EasyTouch or SunTouch system for automation control.

The Power Center enclosure can be mounted vertically on a flat surface such as a wall or post no more than 15 feet away from the cell controller. The Power Center houses the transformer, fuse, and connector to the cell. 110 VAC and 220 VAC wiring is connected at this box, with 35 VDC output to the cell controller. A 10 AMP slo-blo fuse is mounted on the bottom of the enclosure for additional protection. There are no other controls or lights on the outside of the Power Center. A green power LED indicator is mounted on the inside main board. When the Power Center is switched on, the power LED is lit.



IMPORTANT: When using an IntelliChlor salt chlorine generator and an IntelliFlo pump (or 2-speed pump) with a Pentair Water Pool and Spa® IntelliTouch®, EasyTouch® or SunTouch® automation control system, the IntelliChlor AC power center wires must be connected to the PUMP SIDE OF THE MAIN FILTER PUMP RELAY located in the load/power center. This ensures that the IntelliChlor cell produces chlorine only when the main filter pump is on. See page 5 for details.

IntelliChlor System Components

An IntelliChlor Electronic Chlorine Generator IntelliChlor system consists of one or more of the following:

- **PC100 (P/N 520556):** Power Center Kit. Provides power and control communication to and from the IntelliChlor cell.
- **IC20 Cell (P/N 520554):** Designed for pools up to 20,000 U.S. gallons (75,000 liters). The cell will produce the equivalent of 0.70 lbs. of pure chlorine per 24 hours of continuous pool pump run time.
- **IC40 Cell (P/N 520555):** Designed for pools up to 40,000 U.S. gallons (150,000 liters). The cell will produce the equivalent of 1.40 lbs. of pure chlorine per 24 hours of continuous pool pump run time.
- **IC60 Cell (P/N 521105):** Designed for pools up to 60,000 U.S. gallons (227,124 liters). The cell will produce the equivalent of 2 lbs. of pure chlorine per 24 hours of continuous pool pump run time.
- **IntelliChlor “dummy” bypass cell (P/N 520588):** For new pool start-up.

Operating Instructions

When using a pool pump timer: The Association of Pool and Spa Professionals (APSP) recommends that all water in a residential pool pass through the filtration system at least once every 12 hours (referred to as pool water turnover). However, many factors have an effect on actual pump and filter system run times. Pool size, source of water, direct sun light, indoor/outdoor, screened and unscreened, filtration system, cold or hot weather, swimmer load, rain, organic debris, algae, etc., are all factors which contribute to either more or less pool pump and filter system run times. Because of these differences, it is extremely difficult to set an initial run time (starting point) for the pool pump and chlorinating system. Try initially setting the pool pump timer to 12 hours. It will take a few days to get just the right amount pool pump operating time. When the Chlorinator is wired with a pool pump timer (see page 6) results will vary greatly from one pool installation to the next, so this should be discussed with either the pool builder or your pool professional.

Installation

The following information describes how to install the IntelliChlor Power Center. Before installing, review the IntelliChlor kit contents and required tools. For IntelliChlor cell installation instructions and automation control setup information, see the “IntelliChlor User’s Guide” (P/N 520584).

Kit Contents

One Power Center and Installation Guide (this manual)

Required Tools

Phillips and flathead screwdrivers, voltmeter (to determine AC line voltage to power center) and electric drill and 1/4" masonry drill bit (to mount power center).

Installing the IntelliChlor Power Center



WARNING **IMPORTANT SAFETY PRECAUTIONS. PLEASE READ THE FOLLOWING:** Read all the safety precautions in this manual before attempting any electrical wiring. Be sure to read and follow all safety Instructions on page ii. Wiring should only be performed by a qualified professional. When using electrical products, basic precautions should always be followed, including the following:



DANGER **RISK OF ELECTRIC SHOCK, WHICH CAN RESULT IN SERIOUS PERSONAL INJURY OR DEATH.**



Before attempting installation of service, ensure that all power to the circuit supplying power to the system is disconnected/switched off at the circuit breaker. When using IntelliChlor with an IntelliTouch system, it is recommended to wire the IntelliChlor Power Center to the pump side of the relay located in the IntelliTouch Load Center. This wiring method does not require a ground fault circuit-interrupter (GFCI) to protect the circuit. A green colored terminal (or a wire connector marked "G", "GR", "Ground" or "Grounding") is provided within the terminal compartment in the Power Center transformer enclosure. To reduce risk of electric shock, connect this terminal or connector to the grounding terminal of your electric service or supply panel with a conductor equivalent in size to the circuit conductors supplying this equipment. **IMPORTANT: The power supply must be interconnected with pool pump motor power source. This ensures the IntelliChlor chlorinator and pool pump will switch on and off together.**

- Grounding (earth bonding) is required. The unit should be installed by a qualified service person and grounded.



CAUTION Install the IntelliChlor unit a minimum of two (2) feet from the heater outlet.

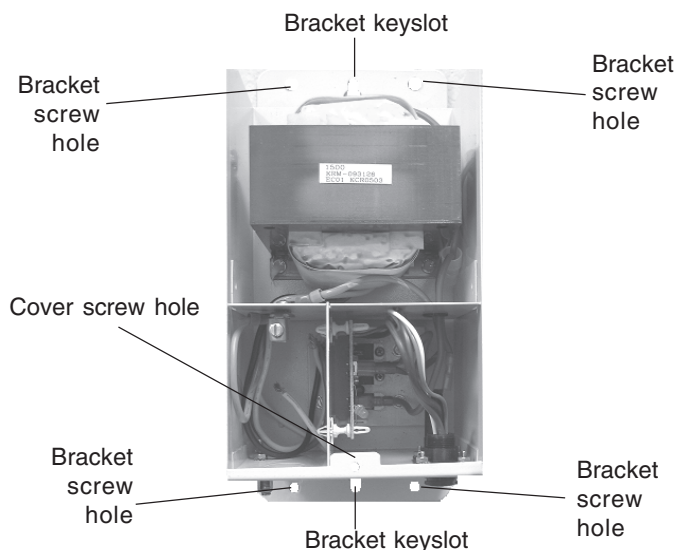
- Allow ample access to the IntelliChlor control panel buttons and the IntelliChlor Power Center.
- Pipe couplings: Schedule 80, maximum pressure 150 psi at 70° F.
- Operate unit with minimum flow of 20 gpm. For high flow applications, use a bypass loop.



CAUTION Install the Power Center at eye level as close to the IntelliChlor pump and filtration as possible. The Power Center must be installed more than 8 ft. (2.44 m) from the pool edges. Leave sufficient clearance on all sides of the Power Center. Ensure that the 15 ft. (4.61 m) DC power cord from the Cell assembly pipe location can reach the Power Center location. The Power Center enclosure can be mounted on the wall up to 15 feet away from the cell controller. *Note: For installation instructions about connecting the cell to Power Center, see the "IntelliChlor User's Guide" (P/N 520589).*

Mounting the Power Center Enclosure

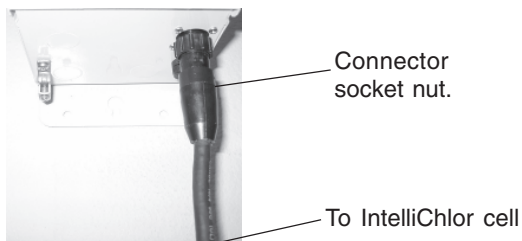
1. Remove the screw securing the Power Center cover and remove the cover.
2. Mount the Power Center on a flat surface such as a wall or post and mark each mounting bracket screw hole location. There are two (2) screw holes and a keyslot for the top and lower bracket.
3. Drill six ¼ inch (6.35 mm) holes. Install anchors if necessary and one screw for each bracket keyslot location.
4. Position each Power Center keyslot (top and lower) slot over the two mounting screws just installed. Tighten the two screws to secure the enclosure.
5. Install and tighten four mounting screws (two in the top and two in the lower bracket).



Connecting the IntelliChlor Cell Communication Cable to the Power Center

Connect the IntelliChlor cell power cable to the power center as follows:

1. **IMPORTANT WARNING: Be sure that the Power Center AC power is switched OFF before connecting the power cord connector to the Power Center.**
2. Align the four (4) pins of the IntelliChlor cell power cord connector with the socket on the bottom of the Power Center and insert the connector. Rotate the round socket nut until it locks the connector in place.



Connecting AC Power to the Power Center using an Automatic Timer

Connect AC power using an automatic timer to the power center as follows:

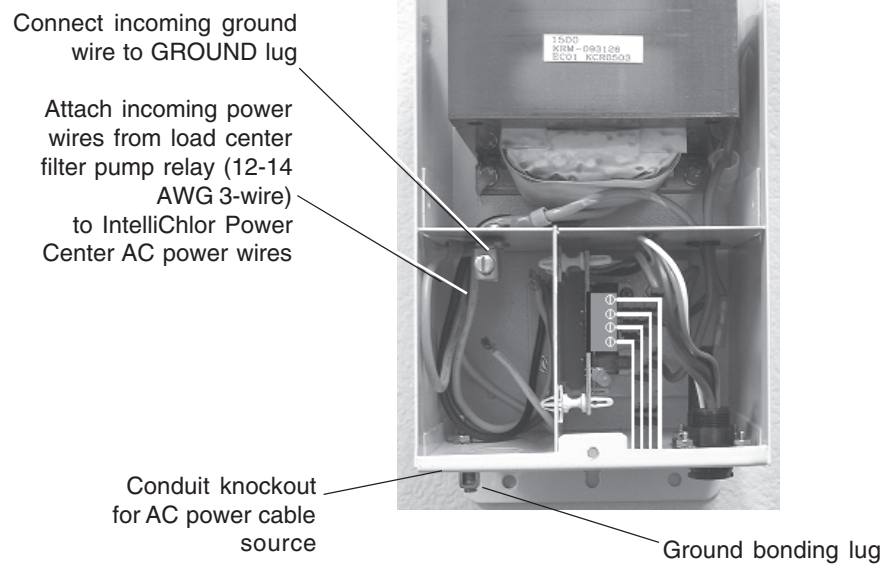
1. **IMPORTANT WARNING: Be sure that the Power Center AC power is switched OFF before connecting AC power cord to the Power Center.**
2. Use 12-14 AWG three conductor insulated wire for the main AC power connection. Connect the Power Center to pool pump AC power source. **The Power Center should be connected to the pump motor switch or automatic timer. For system wiring information, see page 9.**
3. Attach incoming GROUND wire to the ground lug inside the Power Center.
4. Earth Bonding (Grounding): Connect the earth wire to the GROUND BONDING LUG located on the bottom of the Power Center enclosure. Earth bonding is necessary to ensure personal safety and safety of equipment.
IMPORTANT: A number 8-gauge (8.4 mm) wire is recommended when connecting the power supply to a Permanent Earth Ground connection that is acceptable to the local inspection authority. Attach the bonding point located on bottom of the Power Center to a Common Earth Bonding Point. Do not use the IntelliChlor as the Common Bonding Point. Each piece of non-chlorinator pool equipment requiring a ground should be bonded to the Common Approved Earth Bonding Point. Never ground pool pump to Power Center.
5. Reinstall the Power Center cover and secure with the cover screw.
6. The Power Center installation is complete. For IntelliChlor operating information, refer to the IntelliChlor User's Guide (P/N 520589).

Connecting AC power to the IntelliChlor (SCG) power center using an EasyTouch, IntelliTouch and SunTouch automation control system

IntelliChlor (SCG) AC Wiring Instructions: When using the IntelliChlor salt chlorine generator and an IntelliFlo pump (or 2-speed pump) with a Pentair Water Pool and Spa® IntelliTouch®, EasyTouch® or SunTouch® automation control system, the IntelliChlor AC power center wires must be connected to the PUMP SIDE OF THE MAIN FILTER PUMP RELAY located in the load/power center (see page 8 for diagram). This ensures that the IntelliChlor cell produces chlorine only when the main filter pump is on. This method does not require a ground fault circuit-interrupter (GFCI) to protect the circuit.

Note: See the following manuals for IntelliChlor operating instructions:

- IntelliTouch User's Guide (P/N 520102)
- EasyTouch User's Guide" (P/N 520584)
- SunTouch User's Guide" (P/N 520785)



IntelliChlor Power Center (cover removed)

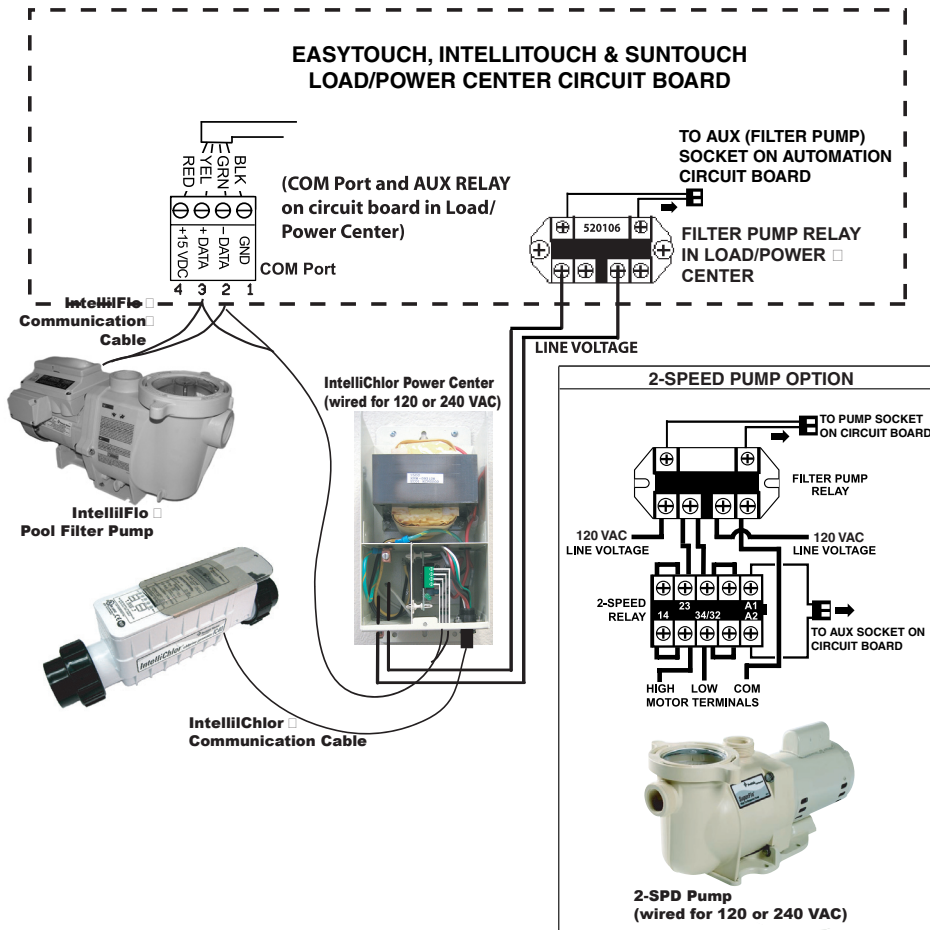
Wiring AC Power from IntelliChlor (SCG) and IntelliFlo pump to IntelliTouch, EasyTouch and SunTouch Automation Control System

IntelliChlor (SCG) AC Wiring Instructions: When using the IntelliChlor salt chlorine generator and an IntelliFlo pump (or 2-speed pump) with a Pentair Water Pool and Spa® IntelliTouch®, EasyTouch® or SunTouch® automation control system, the IntelliChlor AC power center wires must be connected to the PUMP SIDE OF THE MAIN FILTER PUMP RELAY located in the load/power center (see page 8 for diagram). This ensures that the IntelliChlor cell produces chlorine only when the main filter pump is on. This method does not require a ground fault circuit-interrupter (GFCI) to protect the circuit. **Note:** For non-automation systems using a time clock, see page 9 for wiring information.

To connect AC power to the IntelliChlor Power Center:

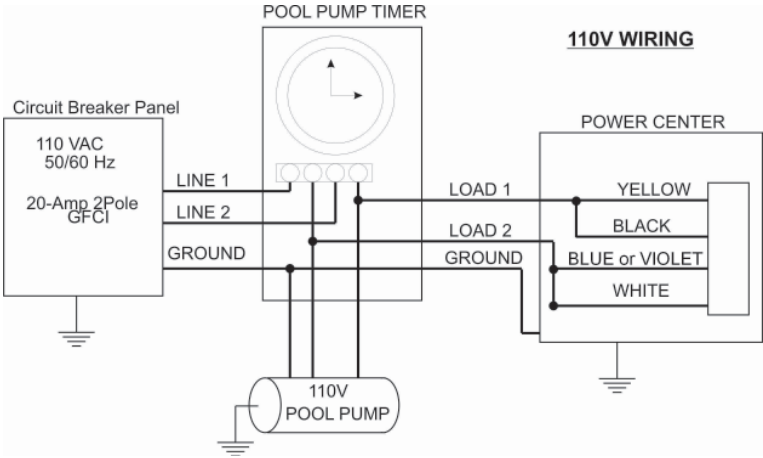
1. Unlatch the load center/power center enclosure door spring latch(es), and open the door.
2. **EasyTouch/IntelliTouch:** Loosen the two (2) retaining screws from the control panel.
 - (a) Lower down the control panel on its hinges to access the motherboard located behind the control panel.
 - (b) Route the four conductor cable up through the low voltage raceway in the load center to the motherboard.

SunTouch: Route the four conductor cable up through the lower grommet opening up to the main filter pump relay.
3. Strip back the cable conductors ¼ in. Insert the wires into the connector screw terminals (provided in the kit). Secure the wires with the screws. Make sure to match the color coding of the wires; Red = +15, Yellow = +DT, Green = -DT, and GND = Black.
4. Insert the connector screw terminal onto the **COM Port** pins on the circuit board: (**EasyTouch J20, IntelliTouch J7/8, SunTouch J11**).
7. When the connection is completed: **EasyTouch/IntelliTouch:** Close the control panel and secure it with the two (2) retaining screws. **SunTouch:** Close the front control panel and secure with the retaining screw.
8. Close the load center front door. Fasten the spring latch(es).

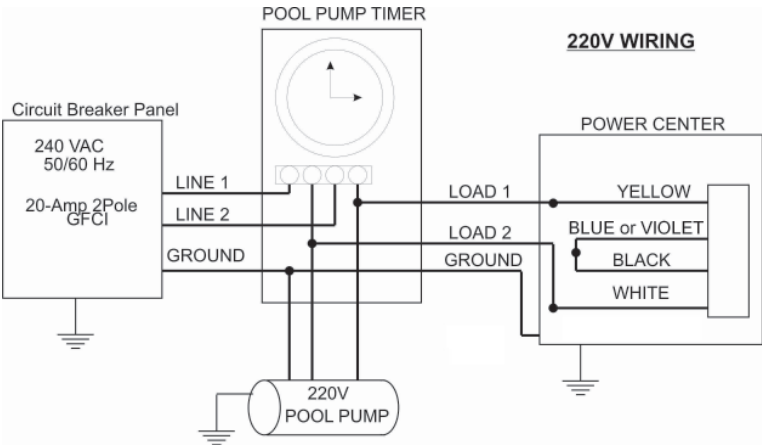


Wiring IntelliChlor AC Power to Filter Pump Relay

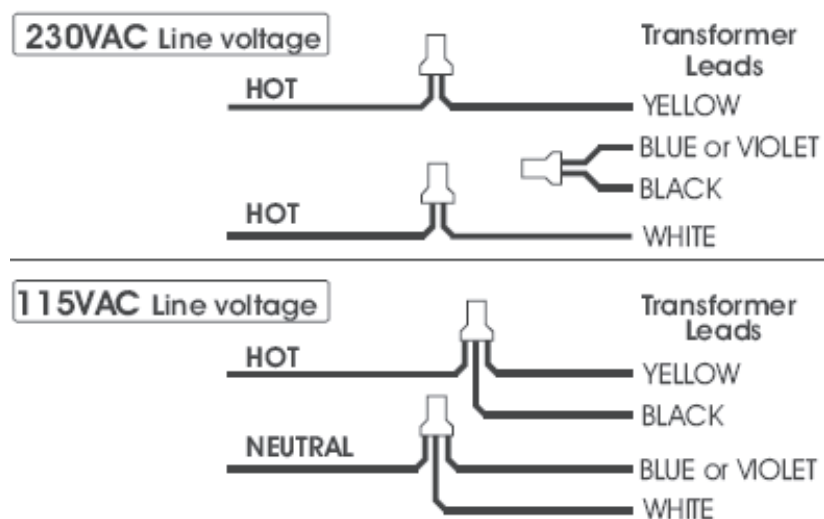
IntelliChlor Power Center 110 VAC and 220 VAC Transformer Wiring



115 VAC Basic System Wiring



230 VAC Basic System Wiring



IntelliChlor Power Center 230 VAC and 115 VAC Transformer Wiring

Troubleshooting

Note: Turn off power to unit before attempting to service or repair.

Problem	Possible Cause	Corrective Action
The IntelliChlor green power light on the control panel is not on.	Fuse in Power Center is open.	Replace 10 AMP slo-blo fuse, located at bottom of Power Center.
	No AC power to Power Center.	Verify time clock is providing 110 VAC or 220 VAC to Power Center when active.
	Transformer leads not wired correctly in Power Center.	Verify transformer leads wired to AC source by referring to wiring diagram decal on inside of Power Center cover.

Electrical Specifications

Circuit Protection: Two-pole 20 AMP device at the electrical panel.

IntelliChlor Model IC20

Input: 90-130 VAC, 50/60 Hz, 220 Watts (2 AMP) or 220-240 VAC, 50/60 Hz, 220 Watts (1 AMP).

Output: 22-39 VDC @ 6 AMPS maximum from the Power Center.

Chlorine: 0.70 lb. / 24 hour. (317 gm / 24 Hour).

IntelliChlor Model IC40

Input: 90-130 VAC, 50/60 Hz, 220 Watts (2 AMP) or 220-240 VAC, 50/60 Hz, 220 Watts (1 AMP).

Output: 22-39 VDC @ 6 AMPS maximum from the Power Center.

Chlorine: 1.40 lb. / 24 Hour (635 gm / 24 Hour).



P/N 520590 Rev E

Pentair Water Pool and Spa, Inc. ("Pentair") manufactures its products with the highest standards of workmanship, using the best materials available through state of the art processes. Pentair warrants its products as follows:

Limited Warranty: Pentair warrants its products to be free from defects in material and/or workmanship for a period of sixty (60) days (parts only) from the original date of purchase and/or installation. Customer agrees to prepay all shipping charges to Pentair.

All products used in commercial applications receive a one (1) year warranty.

Exceptions that may result in denial of a warranty claim:

1. Damage caused by careless handling, improper repackaging, or shipping.
2. Damage due to misapplication, misuse, abuse or failure to operate equipment as specified in the owner's manual.
3. Damage caused by failure to install products as specified in the owner's manual.
4. Damage due to unauthorized product modifications or failure to use Pentair original replacement parts.
5. Damage caused by negligence, or failure to properly maintain products as specified in the owner's manual.
6. Damage caused by failure to maintain water chemistry in conformity with the standards of the swimming pool industry for any length of time.
7. Damage caused by water freezing inside the product.
8. Accidental damage, fire, acts of God, or other circumstances outside the control of Pentair.

Extended Warranty for Specific Products (Offered from Date of Installation)

PRODUCT FAMILY	WARRANTY LENGTH											
	If Installed by a Qualified Installer & Registered Within 60 Days*											
60 days Only	Filters and Valves	1 year	1 year	1 year	2 years	2 years	Parts & Labor	1 year	Parts & Labor	1 year	Lights	Automation Equipment
	Heaters	1 year	1 year	1 year	5 years	5 years	ACU-TROL Electronic Modules	5 years	ACU-TROL AK Color and Accessories	1 year	ACU-TROL Commercial pH or ORP Probe**	2 years
	Heat Pumps – Residential	2 years	2 years	Parts & Labor	5 years	5 years	ACU-TROL Electronic Modules	5 years	ACU-TROL AK Color and Accessories	1 year	ACU-TROL Commercial pH or ORP Probe**	2 years
	Heat Pumps – Commercial**	1 year	1 year	Parts & Labor	5 years	5 years	ACU-TROL Electronic Modules	5 years	ACU-TROL AK Color and Accessories	1 year	ACU-TROL Commercial pH or ORP Probe**	2 years
	Heaters	1 year	1 year	1 year	5 years	5 years	ACU-TROL Electronic Modules	5 years	ACU-TROL AK Color and Accessories	1 year	ACU-TROL Commercial pH or ORP Probe**	2 years
	Pumps	1 year	1 year	1 year	5 years	5 years	ACU-TROL Electronic Modules	5 years	ACU-TROL AK Color and Accessories	1 year	ACU-TROL Commercial pH or ORP Probe**	2 years
	Filters and Valves	1 year	1 year	1 year	5 years	5 years	ACU-TROL Electronic Modules	5 years	ACU-TROL AK Color and Accessories	1 year	ACU-TROL Commercial pH or ORP Probe**	2 years
	Heat Pumps – Residential	2 years	2 years	Parts & Labor	5 years	5 years	ACU-TROL Electronic Modules	5 years	ACU-TROL AK Color and Accessories	1 year	ACU-TROL Commercial pH or ORP Probe**	2 years
	Heat Pumps – Commercial**	1 year	1 year	Parts & Labor	5 years	5 years	ACU-TROL Electronic Modules	5 years	ACU-TROL AK Color and Accessories	1 year	ACU-TROL Commercial pH or ORP Probe**	2 years
	Lights	1 year	1 year	1 year	5 years	5 years	ACU-TROL Electronic Modules	5 years	ACU-TROL AK Color and Accessories	1 year	ACU-TROL Commercial pH or ORP Probe**	2 years
	Automation Equipment	1 year	1 year	1 year	5 years	5 years	ACU-TROL Electronic Modules	5 years	ACU-TROL AK Color and Accessories	1 year	ACU-TROL Commercial pH or ORP Probe**	2 years
	ACU-TROL Commercial Controllers**	1 year	1 year	1 year	5 years	5 years	ACU-TROL Electronic Modules	5 years	ACU-TROL AK Color and Accessories	1 year	ACU-TROL Commercial pH or ORP Probe**	2 years

PRODUCT FAMILY	WARRANTY LENGTH	Qualified Installer NOT Required	EXCEPTIONS
Maintenance Equipment/Replacement Parts	60 days		
Automatic Pool Cleaners	1 year		Robotic, KREEPY KRAULY, KREEPY KRUISER, GREAT WHITE and SANDSHARK – 2 years
Aboveground Systems	1 year		Brushes, Climbing Rings, Cartridge Filters – 60 days Suction Seal, Foot Pad, Wings, Bumper Strap, Seal Flaps – 1 year

****NOTE:** Please keep the original sales receipt as proof of purchase and save the qualified installer's invoice and date of installation when you register your product(s).

****NOTE:** For warranty purposes, a commercial facility is defined as any facility other than a single family dwelling.

PENTAIR WATER POOL AND SPA, INC.

1620 Hawkins Ave. Sanford, NC 27330 / 10951 W. Los Angeles Ave. Moorpark, CA 93021
Phone: 800-831-7133



Please Detach Along Dotted Line and Mail This Section. Keep the Warranty for Your Records
PRODUCT WARRANTY REGISTRATION CARD

To register your product online, please visit www.pentairpool.com/support/product-registration.html

Please promptly complete and return this postage paid card. In the unlikely event we must notify you of safety modifications to your product, under the Consumer Product Safety Act, this will allow us to communicate with you quickly. Incomplete or missing information such as your serial number will not be registered. **Your Limited Warranty is attached to this reply card.** Please detach it, review it thoroughly so you are familiar with the terms of your warranty coverage and keep in a safe place.

ALL INFORMATION REQUESTED BELOW IS REQUIRED IN ORDER TO RECEIVE AN EXTENDED WARRANTY.

Product:

- ☐ FILTER ☐ PUMP ☐ HEATER ☐ HEAT PUMP ☐ LIGHT ☐ AUTOMATION
☐ AUTO CLEANER* ☐ AUTO FEEDER ☐ MAINT. EQUIPMENT ☐ WHITE GOODS

Brand/Model Name: _____

I purchased the Pentair product for use in: _____

- ☐ Inground Pool ☐ Inground Pool/Spa Combination ☐ Aboveground Pool ☐ Spa Only

My Serial Number is: _____

1. Name: _____

Street Address: _____

City: _____ State: _____ Zip: _____

Tel. No.: (_____) _____ E-mail: _____

☐ I do not wish to receive promotional emails from Pentair Aquatic Systems. We will not rent or sell your personal information under any circumstance.

2. Date of Purchase/Installation: _____ ☐ New ☐ Replacement

Signature: _____

3. Where did you purchase your Pentair Product?

- ☐ Pool Builder ☐ Pool Store ☐ Pool Service ☐ Mail Order ☐ Internet ☐ Other

Company Name: _____

Location: _____

4. Who installed your product?

Name of Installer: _____

Location of Installer: _____

Installer Tel. No.: _____

Please attach original qualified installer's invoice and original sales receipt here as proof of qualified installation and purchase.

***Note:** Automatic Cleaners purchased in the USA from entities outside the USA do not qualify for any USA programs including warranty, trade-in or rebate programs.

LIMITED WARRANTY



TO OBTAIN AN EXTENDED WARRANTY, PLEASE SEE THE THREE (3) OPTIONS BELOW.

- a) **One (1) Year Warranty:** Pentair warrants certain products listed in the extended warranty section to be free from defects in material and/or workmanship for a period of one (1) year from the original date of installation on a single product if installed by a qualified installer. Products must be registered within sixty (60) days of installation at www.pentairpool.com/pool-owner/warranty.
- b) **Two (2) Year Warranty (Heaters Only):** Pentair warrants heaters to be free from defects in material and/or workmanship for a period of two (2) years from the original date of installation on a single product if installed by a qualified installer. Products must be registered within sixty (60) days of installation at www.pentairpool.com/pool-owner/warranty.
- c) **Three (3) Year Warranty IntelliFlo® or IntelliPro® Variable Speed Pumps & Select Bundled Products Only*]:** Pentair warrants the IntelliFlo or IntelliPro Variable Speed Pumps and selected bundled products to be free from defects in material and/or workmanship for a period of three (3) years from the original date of installation if installed by a qualified installer. Products must be registered within sixty (60) days of installation at www.pentairpool.com/pool-owner/warranty.

→ This extended three (3) year coverage on bundled products applies to purchases and qualified installations of three (3) or more of the following products: inground pump, filter, heater, heat pump, control system, automatic cleaner, lighting or salt chlorine generator. ***Note: Bundled products must be from three (3) different product groups, purchased on the same invoice and installed at the same time.**

- The above extended warranty is applicable to the original owner only, beginning on the date of installation and is not enforceable by any third party. Proof of purchase and/or date of installation by a qualified installer will be required to register a warranty claim.
- **Warranties by others:** Some Pentair products incorporate components manufactured by other manufacturers. Some of these manufacturers provide warranties in addition to the warranty provided by Pentair herein. In all such cases, a copy of the third party manufacturer's warranty will be provided with the product. To the extent protection provided under any such third party warranty exceeds the Limited Warranty provided herein, the Customer will have to contact the specific manufacturer for the additional protection.

Pentair Warranty Obligations

Should a defect in workmanship and/or material in any item covered by this warranty become evident during the term of the warranty, then upon the customer following the procedures set forth below, Pentair will, at its sole option, repair or replace such product or part of equal value, in lieu of repair. Pentair is not, however, responsible under this warranty for any cost of shipping or transportation of the product or parts thereof to or from the technical Service Department. Also, Pentair is not liable for any loss of time, inconvenience, incidental expenses such as telephone calls, labor or material charges incurred in connection with the removal or replacement of the equipment, or any other incidental or consequential damages.

The above mentioned warranties are void if the product is repaired or altered in any way by any persons, agents or representatives other than those authorized by Pentair. Expendables including, but not limited to refrigerant, recovery of refrigerant, or transportation for components are not covered under this limited warranty. Reasonable vehicle trip and evaluation charges may be assessed by a Pentair service representative.

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

No Other Warranties

To the maximum extent permitted by applicable law, Pentair disclaims all other warranties, either expressed or implied, including, but not limited to, implied warranties of merchantability and fitness for a particular purpose, with regard to the product(s), part(s) and/or any accompanying written materials.

Procedure for Obtaining Performance

In order to obtain the benefits of this warranty, the consumer who made the original retail purchase must contact the Pentair Technical Service Department as soon as possible after discovery of the product related issue, but in no event later than the expiration date of the respective warranty periods provided herein. Upon receipt of this communication, Pentair will promptly notify the customer of the address to which the product may be shipped. The customer shall then ship the product, freight prepaid, to the address indicated, together with a "RETURN GOODS AUTHORIZATION" form obtained from Technical Service and a brief description of the problems encountered. Unauthorized returns will not be accepted. Freight must be prepaid by customer.

Warranties or Representations by Others

No third party has any authority to make any warranties or representation concerning Pentair or its products. Accordingly, Pentair is not responsible for any such warranties or representations.

Other Rights

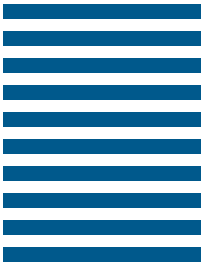
This warranty gives you specific legal rights and you may also have other rights, which vary from state to state.

Sole Warranty

Supersedes all previous publications.



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES



BUSINESS REPLY MAIL
FIRST-CLASS MAIL PERMIT 8 FARMINGTON MO

POSTAGE WILL BE PAID BY ADDRESSEE

PENTAIR WATER POOL AND SPA, INC.
PO BOX 1228
FARMINGTON MO 63640-9852



FOLD IN HALF AND SEAL FOR MAILING



READ THIS FIRST

Important IntelliChlor® Installation Information

IntelliChlor Quick Start Guide and Tips

Follow these guidelines when installing and using an IntelliChlor Salt Chlorine Generator.

Before Installing the IntelliChlor

- **POWER CENTER:** Ensure the line voltage matches the power center wiring. If the line voltage is 200-263 VAC, set the power center to 220 VAC wiring (factory default). If the line voltage is 85-130VAC, remove the lid on the power center and re-wire to 110 VAC, referring to the wiring diagram on the lid.
- Set salt level in pool to 3200-3400 ppm
- For a newly plastered pool use a spacer cell (P/N 520588) for 30 days to ensure all pool debris has been filtered out, avoiding damage to the IntelliChlor.
- Super chlorinate the pool. Set stabilizer to 75-100 ppm.
- Balance the pool water.
- Ph: 7.2 - 7.8 Calcium hardness: 200 - 400ppm Alkalinity: 80 - 120ppm
- Ensure no phosphates or nitrates are in the pool water. These chemicals will consume chlorine as fast as it is produced, causing a low-chlorine condition in the water.
- Ensure the water temperature is above 52° F. The IntelliChlor will not produce chlorine below 52° F.
- Install the IntelliChlor according to the water flow arrow, displayed on the top of the cell. The IntelliChlor will only detect water flow operation one way. **DO NOT ALTER OR ADJUST THIS FLOW SWITCH PADDLE**, it is a safety device.

After a Few Days

- Use a pool test kit and measure the free chlorine. Adjust the IntelliChlor Control Panel output setting accordingly by pressing the MORE or LESS button. If connected to an IntelliTouch®, EasyTouch® or SunTouch® control system, adjust the chlorine output level using the menu system. Refer to the control system product User's Guide for instructions.
- Verify the salt display LED is green. If the LED is yellow or red LED, add more salt to the water.

After Powering up IntelliChlor

After powering up the IntelliChlor, the light sequence at power up will be:

- Salt lights will scroll back and forth, showing salt has not been checked yet
- PWR light will be green.
- CELL light will be off
- LIFE light will be green steady or flashing if over warranty
- FLOW light will reflect the water flow, either red or green
- LIFE light will be green steady or flashing if over warranty
- SANITIZER OUTPUT will be the output setting, as set by the MORE or LESS buttons or from the IntelliTouch, EasyTouch, or SunTouch control system

Note: If the IntelliChlor is connected to an IntelliTouch, EasyTouch, or SunTouch control system, the SANITIZER OUTPUT lights may slowly flash when the output is set to a value not exactly 20%, 40%, 60%, 80% or 100%.

Reverse Cycle (Self Cleaning Hours)

The Reverse cycle is set to two (2) hours for the first 192 hours of operation (approximately 30 days), then automatically switches to three (3) hours. To extend blade life, you may lengthen this cycle up to five (5) hours. See page 8 in the IntelliChlor User's Guide for more information.

- Press and hold the LESS button for three (3) seconds. The SANITIZER OUTPUT will display the number of hours of reversal:
 - Two (2) lights on is two (2) hours
 - Three (3) lights on is three (3) hours, etc.

Super Chlorinate Mode

- Press MORE and LESS buttons simultaneously to active BOOST mode, which sets the sanitizer output to 100% for 24 hours.
- Press both buttons again to cancel this mode.
- If connected to an IntelliTouch, EasyTouch, or SunTouch control system, the MORE and LESS buttons are disabled. Super Chlorination must be activated from automation control panel.

Operating IntelliChlor in Water Temperatures below 52° F

When the IntelliChlor is operated in water temperatures 52° F and below, the CELL light will remain off. This feature extends the blade life. To verify the cell is in this cold water cutoff, press and hold the MORE button for three (3) seconds until the lights scroll across the display. The CELL light will be red to show it is in cold water cutoff, or green for normal operation.

Technical Support: Phone: (800) 831-7133

www.pentairpool.com - www.staritepool.com

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P/N 520943 - Rev A - 08/26/08

PENTAIR RAINBOW™ CHLORINE/BROMINE FEEDER MODEL #320

Features:

- No special venting required.
- Completely enclosed-no escaping gases.
- Positive external no-clog control valve.
- When used with timer, feeder is designed to automatically lower the water level so tablets are not soaking during off period of pump. This allows more efficient use of tablets.
- No equipment damage.
Feeds sanitizer directly to pool or spa.
- All parts replaceable.
- To prevent over chlorination during use, completely close the control valve and the built in check valve will prevent chemical from being fed into pool or spa.

YOUR LIFEGARD® FEEDER IS THE MOST EFFICIENT AND TROUBLE-FREE AUTOMATIC FEEDER YOU CAN BUY, BUT IT CAN ALSO BE DANGEROUS TO YOU AND YOUR EQUIPMENT. PLEASE FOLLOW INSTRUCTIONS EXACTLY AND HEED ALL CAUTIONS. YOUR SAFETY AND THE PROTECTION OF YOUR EQUIPMENT IS OUR FIRST CONCERN.

It is important to read all information **BEFORE** proceeding with the installation. The information will guide you in installing your feeder properly and to avoid problems due to improper installation.

IF YOUR POOL OR SPA HAS COPPER PLUMBING . . . STOP!!

Never install the feeder into copper plumbing as pipe damage will occur. (See Equipment Safety CAUTION sheet enclosed). **NOTE:** If heaters are used, a Fireman's Switch or equivalent must be installed to prevent possible damage and improper operation of Check Valve and other equipment subject to heat damage.

INSTALLATION INSTRUCTIONS MODEL #320

Note: Make sure all pumps and timer switches are in the OFF position.

WHERE TO INSTALL YOUR FEEDER

The #320 feeder is designed for permanent installation in the return line of your new pool or spa and must always be installed after the heater, pool cleaner, valves, etc. If your pool does not have a heater, then it must be installed after the filter or any other piece of equipment.

DAMAGE TO THE HEATER AND OTHER EQUIPMENT COULD RESULT IF HIGHLY CHLORINATED WATER FLOWS THROUGH IT.

If your pool is equipped with a solar system it may be necessary to install a **HI FLOW KIT**. This kit can be installed if your feeder is not getting adequate flow and/or pressure through the system. Refer to information on sheet enclosed. Your feeder may be installed in existing PVC plumbing but will require a union and/or other fittings. The feeder comes complete for installation with 2" or 1½" PVC plumbing. Choose a site in the return line where feeder can be installed in a vertical position. Always install as far from any metal equipment as practical since fumes, etc. can corrode them. If optional corrosion resistant check valve is required refer to installation instructions before next step.

BASIC PLUMBING INSTALLATION INSTRUCTIONS

2" OR 1½" PVC PIPE: If feeder is being installed on a pool, spa or pool/spa combination, correct plumbing procedures must be followed to insure proper flow through feeder. If pool or spa is plumbed with 2" PVC pipe, be certain the pump, filter and heater all have 2" inlet and outlet fittings. If any part of the equipment has less than 2" fittings or pipe, then a minimum of 6" x 1½" reducer bushings must be installed directly into the inlet side of the feeder using the 2" x 1½" reducer bushings supplied. This will build pressure directly into the feeder insuring proper operation. Continue with 2" PVC pipe on the outlet side of the feeder.

POOL/SPA COMBINATION: If plumbing and equipment is a full 2" and the feeder is being installed on the pool return line after the diverter valve, with a portion of the water diverted to the spa, install a minimum section of 6" x 1½" PVC pipe directly into the inlet side of the feeder using the 2" x 1½" reducer bushing supplied. Continue with 2" PVC pipe on the outlet side of the feeder. This will compensate for that portion of water being diverted to the spa.

90° ELBOWS: Plumbing a 90° elbow directly into the inlet side of the feeder may cause turbulence inside the elbow. This will prevent water from being scooped into the feeder. A minimum of a 6" length of PVC pipe should be installed between the 90° elbow and the inlet side of the feeder.

2" PVC: Simply glue feeder to the return line using **PVC SOLVENT CEMENT**. Be sure arrows on feeder point in the direction of water flow returning to the pool or spa.

1½" PVC: Remove (2) 2" x 1½" slip reducer bushings packed inside the feeder and glue into 2" slip tee on bottom of feeder. Complete installation by gluing into 1½" return line making sure the arrows on feeder point in the direction of water flow returning to the pool or spa. Use only **PVC SOLVENT CEMENT**. Follow directions on solvent cement label. Allow to dry. Installation is now complete.

OPERATING INSTRUCTIONS

Before start up of feeder, your pool should be properly conditioned and the residual should be 1.0 to 1.5 ppm. The water in a newly-filled pool should be properly conditioned to insure maximum effectiveness of the feeder. Consult your local dealer for water conditioning information for your area.

1. Remove cap of feeder and fill with proper size tablets.
- For Pools: 1" or 3" dia. tablets For Spas: 1" dia. tablets in optional Spa Chamber.
2. Making sure O-ring is clean, lubricated with Lifeguard Silicone and is in place, replace cap. Hand tighten only.
3. Turn on pump and timer switches for a minimum of 6 to 8 hours.
4. Adjust control valve according to your pool/spa size. Use a test kit to determine the

chemical residual. It is recommended that the chemical residual be checked daily for the first 5 days. Remember . . . hot days, higher water temperature or increased pool/spa activity will cause your pool/spa to use more sanitizer. When possible, increase the feed rate a day or two in advance. Because the chlorine demand in your pool/spa varies and is dependent on many factors (sunlight, bather load, water temperature, etc) your valve setting may have to be changed from time to time to adjust to these conditions. For example, the winter setting may be #2 while the summer setting is #3. Check the chlorine residual daily to find the ideal setting. Note: Higher numbers dispense more chemical. Small gradual changes are imperative for control.

HOW TO RECHARGE FEEDER

1. Turn control valve to the closed position. **SHUT OFF PUMP.**
2. Wait one minute. This will allow water and fumes to drain from feeder.
3. Leave control valve closed and turn on pump. The check valve will prevent water from entering the feeder.
4. Remove cap and fill with proper size tablets or sticks. (See Operating Instructions #1)
5. Making sure O-ring is clean, lubricated with Lifeguard silicone and is in place, replace cap. Hand tighten only.
6. Open control valve to original setting. Inspect inlet line below control valve each time feeder is recharged. Replace lines yearly if necessary.

SPECIAL FEATURES AND INSTRUCTIONS

If while using 3" diameter tablets the #320 feeder does not provide enough chlorine residual, switch to 1" tablets. The smaller tablet will erode faster producing more chlorine residual. If this does not correct the situation, the #320 has been fitted with an optional opening at the top of the feeder (which is plugged). To accommodate attachment of the valve and tubing assembly for top entry of water into the feeder, an additional length of tubing has been included. The following procedure should only be used if the suggested change has not solved the situation. Top entry in normal situations can cause over chlorination.

1. Turn off pump and timer switches.
2. Remove tubing by unscrewing compression nut at each end of tubing.
3. Remove plug at top of feeder directly above control valve.
4. Remove control valve. If nipple stays in valve, carefully remove by using pliers at the center of nipple. There is no need to remove the 90° tube fittings.
5. Wrap plug with 2 or 3 wraps of threaded tape in opposite direction of tightening. Screw into opening where control valve was attached. Hand tighten plus 2 or 3 turns. Do not overtighten.
6. Wrap threads of nipple with threaded tape. Thread nipple into top opening. Finger tighten only. Thread valve onto nipple. After nipple starts to turn from tightening valve, 2 to 3 more turns is enough. The nipple or valve can be broken by overtightening.
7. Slide compression nut over long section of tube. Slide tube over tapered part of 90° tube fitting and tighten. Hand tighten only. Repeat for other end of tubing.
8. Set control valve to #1. Turn on pump and timers. Check residual daily to determine proper setting. Small gradual changes are imperative for control.

BELOW WATER LEVEL INSTALLATION

Feeder should be installed above water level whenever practical. If installed below water level, a drain valve must be installed to prevent spillage and dangerous splash back of high chlorinated water during recharging. Drill and tap a ¼" MPT hole at the same level the control valve is located. Make sure there is no water or tablets inside the feeder before drilling. Install optional drain valve, Part R172060, or suitable chemical resistant drain valve.

BELOW WATER LEVEL RECHARGING INSTRUCTIONS

1. Shut off pump and timer switches.
2. Shut off control valve.
3. Place a clean container under drain and open drain valve.
4. Exercise extreme caution when opening or servicing feeder. Do not inhale fumes. Wear protective gear. Remove cap. Water will now drain from feeder. Empty container back into pool or spa.
5. Close drain valve. fill with proper size tablets or sticks.
6. Making sure O-ring is clean, lubricated with Lifeguard Silicone and is in place, replace cap.
7. Turn on pump and timer switches.
8. Reset control valve to original setting. Inspect inlet and outlet line each time feeder is recharged. Replace lines yearly if necessary.



DANGER

READ CAREFULLY

This feeder is designed to use only CLEAN Trichlor-s-trizinetriene OR CLEAN Bromine tablets - slow dissolving type. Never use dirty tablets. **UNDER NO CIRCUMSTANCES MIX Trichlor or Bromine with Calcium Hypochlorite, with other forms of concentrated chlorine or with other chemicals. Keep inside of feeder clean of dirt and debris at all times. FIRE AND/OR EXPLOSION MAY RESULT.**

NEVER use oils or grease to lubricate o-ring. Oil in contact with Trichlor OR Bromine may result in **FIRE**. Lubricate o-ring with Lifeguard Silicone o-ring Lubricant ONLY, available at your dealers. If shock treatments or Algaecides containing chemicals other than sanitizers tablets in feeder must be used, turn off Feeder OR remove tablets until the shock or Algae treatment is complete and all granules have dissolved. Failure to do so may result in granules mixing in feeder causing **FIRE AND/OR EXPLOSION**. The shock or algae treatment dissolved in water is safe with tablets. If you are not the original owner of this feeder, not sure which chemicals was used, or if dirt and/or debris inside feeder, be **SAFE** and flush thoroughly with fresh water. **CAUTION SHOULD BE USED WHEN REMOVING CAP. DO NOT INHALE FUMES.**

CALCIUM HYPOCHLORITE IS NOT TO BE USED IN ANY FORM. Use of chemicals other than listed by manufacturer may be hazardous.

#320 CHLORINE / BROMINE FEEDER PARTS BREAK DOWN DRAWING

Item	Qty.	Part No.	Description
A	Optional	R172052	Cap wrench
B	1	R172008W	3" Threaded cap
C	1	R172009	3" O-Ring
D	1	R172331	#320 Body only (new)
E	1	R01052	Lock screw
F	1	R172248	Check valve
G	1	R172317	Divertor tee
H	1	R172256	1/2" x Short MPT nipple
I	1	R172086	1/2" Chlorine control valve
J	2	R172272	1/2" NPT x tube fitting w/nut
K	1	R172091	5/8" OD Chlorinator tube
K1	1	R171097	Tube support spring
*L	2	R172210	2" x 1 1/2" s x s bushing
M	Optional	R172037	Spa chamber
N	1	R172036	Silicone lubricant
**O	1	R172255	Screen
P	1	R172134	1/2" MPT PVC plug
Q	1	R172253	5/8" OD 18" tube (optional top feed)
R	1	R172319	Bottom O-ring
S	Optional	R172288	1 1/2" Corrosion resistant check valve
T	1	R172048B	Standpipe adapter

*Not used with 2" PVC, for 1 1/2" PVC only.

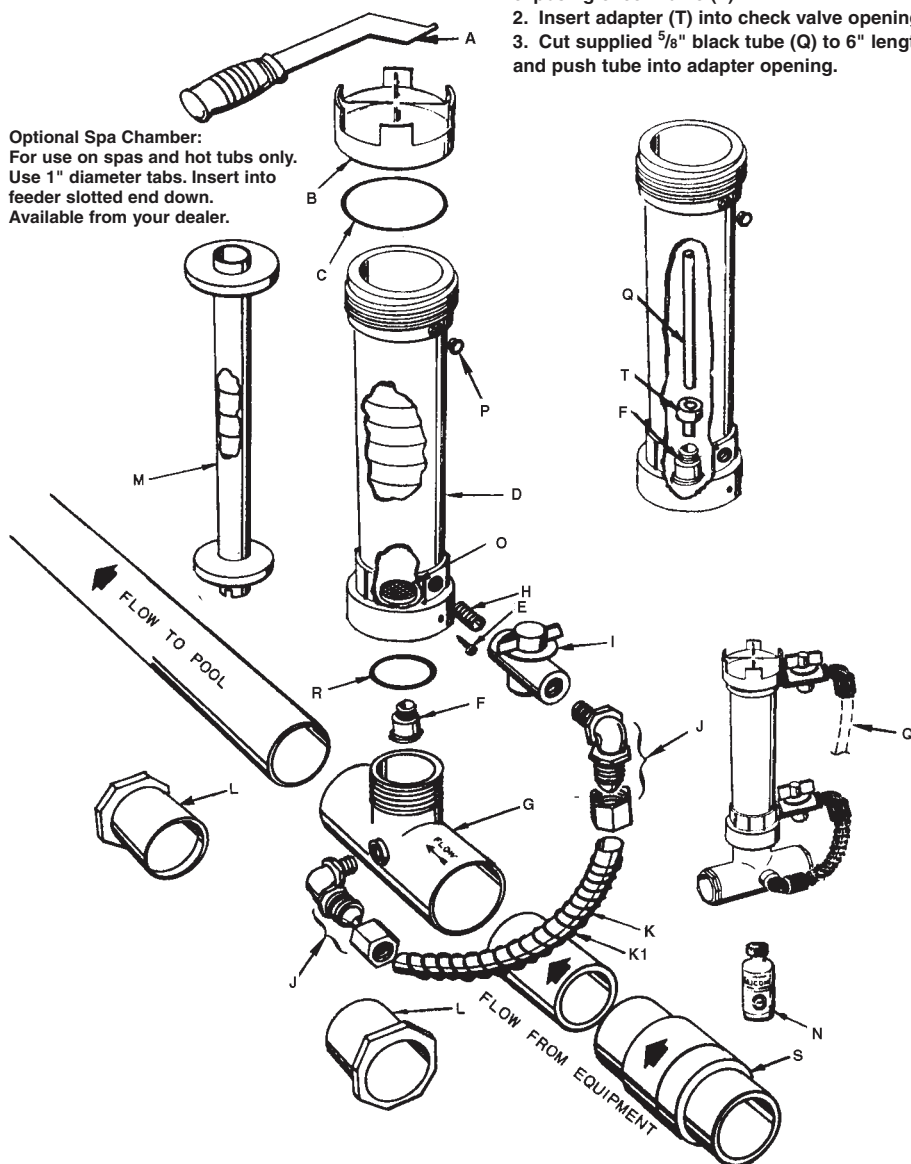
**Be sure screen has not come loose in shipment—if loose: Simply snap over 4 posts in bottom of chlorinator to replace.

NOTE: To service check valve F, Remove lockscrew E, and unscrew (counter-clockwise) D chlorinator body from G divertor tee.

Bromine Standpipe Installation

To increase erosion of small bromine tablets, install Bromine Standpipe as follows:

1. Remove screen from bottom of chamber exposing check valve (F)
2. Insert adapter (T) into check valve opening.
3. Cut supplied 5/8" black tube (Q) to 6" length and push tube into adapter opening.

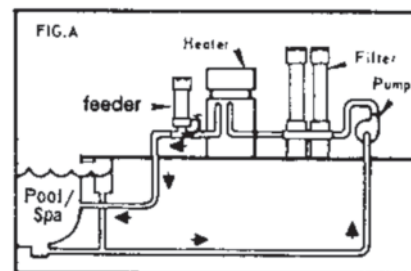


YOU MAY SUBSTITUTE BROMINE TABLETS OR STICKS FOR TRICHLOR IN THIS FEEDER. **DO NOT MIX.**

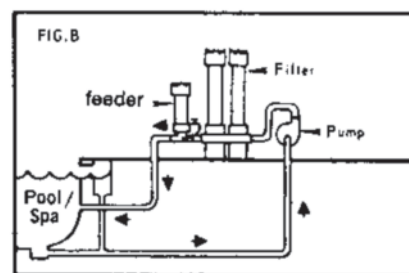
CALCIUM HYPOCHLORITE IS NOT TO BE USED IN ANY FORM.

IMPORTANT OPTION.
SEE CORROSION CAUTION SHEET.

CAUTION
Do not install feeder into copper plumbing. Pipe damage could occur. Never install feeder before heater. Heater damage could occur.



Typical Installation #320 with heater.



Typical Installation #320 without heater



NSF listed for public or residential use in Swimming Pools, Spas or Hot Tubs using Trichlor or Bromine and when used with a flow indicating device such as Rainbow Lifeguard Model #R172276.

Technical Support: (800) 831-7133



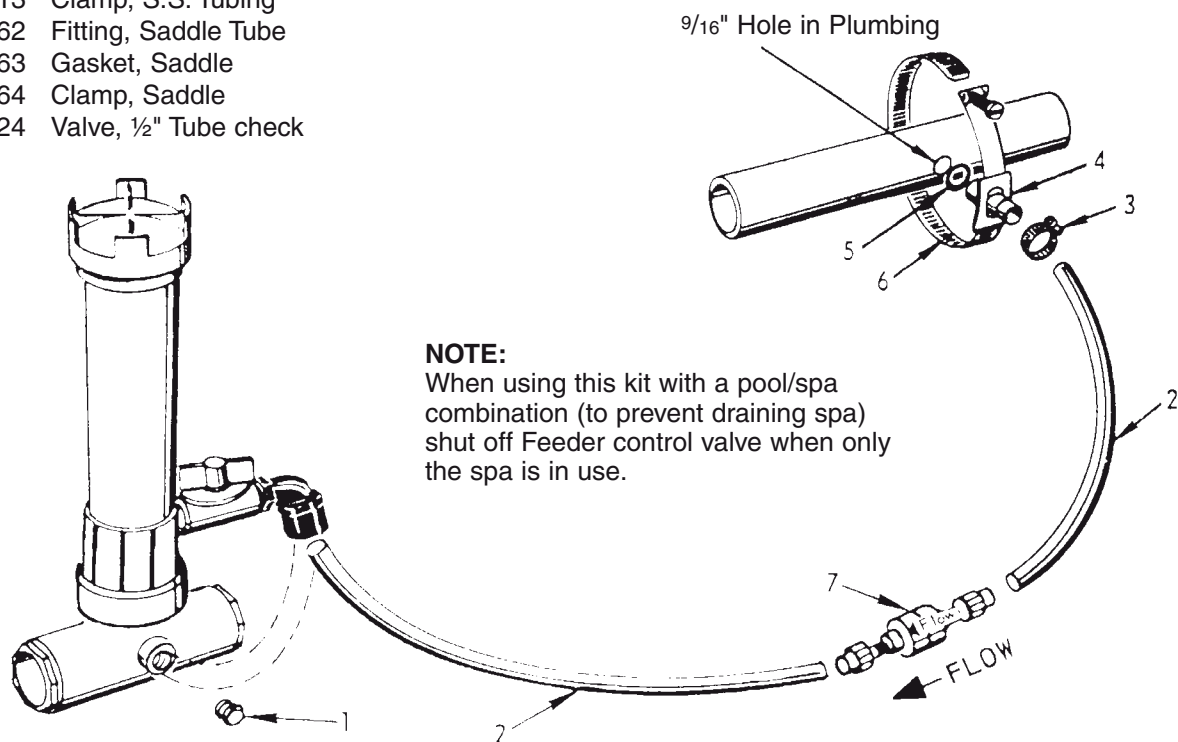
HI FLO FEEDER KIT #R171099 FOR MODELS #320 & #322

DIRECTIONS

1. Turn off pump and timer switches.
2. Loosen compression nut and remove Feeder tube and 90° elbow from the diverter tee at base of Feeder.
3. Using thread seal tape as thread sealant, wrap $\frac{1}{2}$ " MPT plug threads (1) with several turns of the tape only. Install in place of 90° elbow on diverter tee.
4. Disconnect other end of Feeder tube from control valve 90° elbow, by loosening compression nut. Use the compression nuts from old tube to attach new 6' section (2).
5. Push compression nut over tubing end, then push tubing onto tapered end of elbow. Tighten nut firmly by hand.
6. Connect other end of plumbing. **IF POOL/SPA HAS A HEATER, INSTALL BETWEEN FILTER AND HEATER. IF YOUR POOL/SPA HAS A SOLAR SYSTEM, INSTALL BEFORE SOLAR SYSTEM INLET LINE. IF NO HEATER, INSTALL BETWEEN PUMP AND FILTER.** Drill $\frac{9}{16}$ " hole in plumbing, remove burrs, and install saddle clamp assembly. (See illustration) Tighten clamp with screwdriver. Slide small stainless steel clamp #3 over tubing #2 and slide tubing over saddle tube fitting #4. Secure tubing to fitting by tightening camp with screwdriver. Make sure clamp is below rib at end of saddle tube fitting.
7. To install $\frac{1}{2}$ " **CHECK VALVE**, cut tube approximately 6" away from plumbing connection. Remove compression nuts from check valve. Slide nuts over both ends of tube. Insert check valve ends into both pieces of tubing and tighten compression nuts firmly by hand. Be sure arrow "**FLOW**" is pointing toward the Feeder.

HI FLO FEEDER KIT #R171099 PARTS BREAKDOWN DRAWING

Item	Quantity	Part No.	Description
1	1	R172134	Plug, $\frac{1}{2}$ " MPT
2	6'	R172093	Tube, $\frac{1}{2}$ " ID Chlorinator
3	1	R175013	Clamp, S.S. Tubing
4	1	R171162	Fitting, Saddle Tube
5	1	R172263	Gasket, Saddle
6	1	R172264	Clamp, Saddle
7	1	R172324	Valve, $\frac{1}{2}$ " Tube check



Technical Support: (800) 831-7133

EXTENSIONS

- Going on vacation?
- Need more chlorine?
- Filling Chlorinator/Brominator too frequently?

LIFEGARD CHLORINATOR EXTENSIONS SOLVE THE ABOVE PROBLEMS BY:

1. Increasing tablet capacity.
2. Larger chamber size allows more erosion of tablets. (See special instructions below)

The 10" extension doubles and the 20" extension triples (approximately) the capacity and time between refills. ***AVAILABLE THROUGH LIFEGARD DEALERS ONLY.**

NOTE: On free standing #300 series chlorinators, the base of the chlorinator should be secured to prevent the possibility of the chlorinator tipping over due to increased height.

INSTALLATION INSTRUCTIONS

1. Follow recharging instructions to the point of filling with tablets
2. Making sure O-Ring is clean, lubricated with Lifeguard Silicone and in place, screw on extension tightly and secure with lock screw. (You may wish to wait until back in operation before tightening screw to insure against leaks).
3. Fill with tablets and continue with normal recharging procedure.

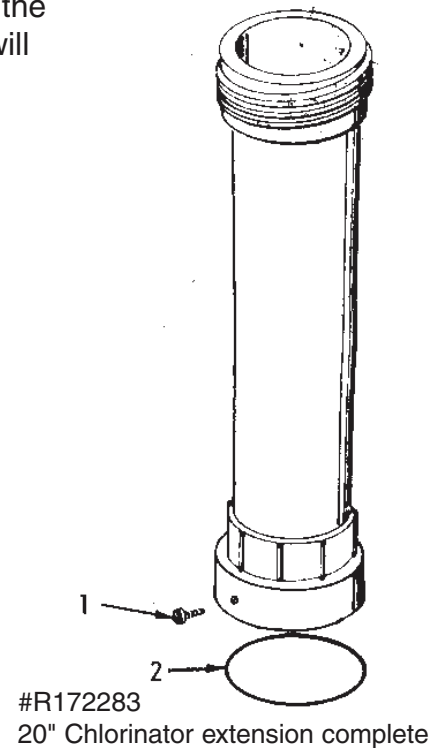
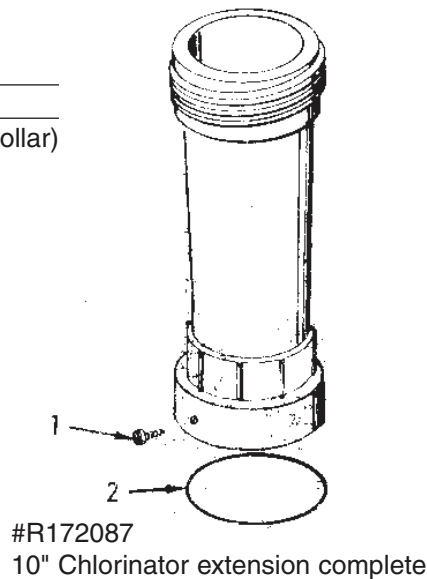
SPECIAL INSTRUCTIONS:

The large chamber size will result in more chlorine being dispensed at the same valve setting, therefore, once installed, several days monitoring will be necessary to readjust chlorinator output.

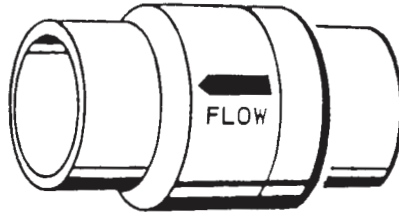
*Does not apply to large capacity #300-19 or #300-29.

Parts Breakdown Drawing

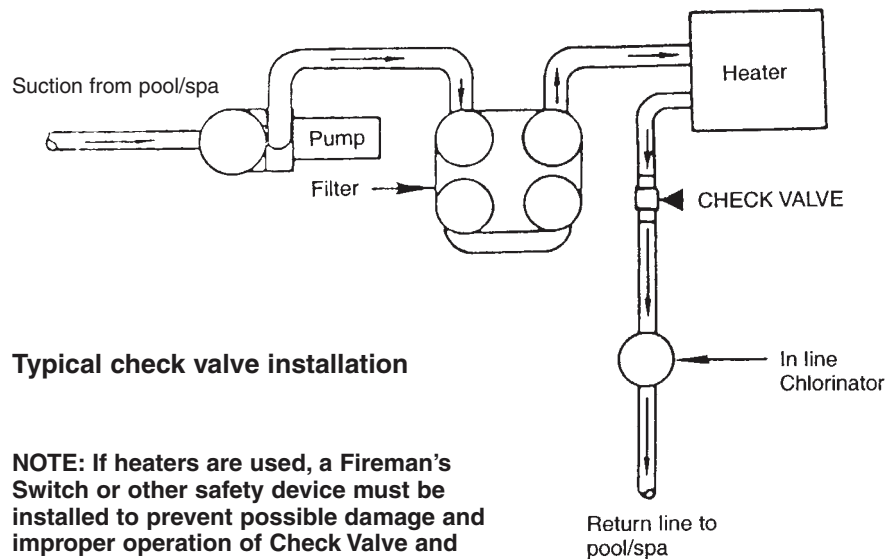
Item	Quantity	Part No.	Description
1	1	R172078	Lockscrew (bottom collar)
2	1	R172009	O-Ring



#R172288 1½" & 2" SLIP SPRING CHECK VALVE



- Special corrosion resistant 1½" & 2" slip spring check valve can be used to check back flow of fluids, air, etc.
- Full free flow design
- Special Spring and Seal for corrosive applications.
- Enclosed spring insuring free operation.
- Very effective when used in conjunction with chlorinator to check back flow of chemicals to pool/spa equipment, preventing corrosion problems and damage.
- Can be mounted in any position.



Typical check valve installation

NOTE: If heaters are used, a Fireman's Switch or other safety device must be installed to prevent possible damage and improper operation of Check Valve and other equipment subject to heat damage.

Technical Support: (800) 831-7133

EQUIPMENT SAFETY

CAUTION!

PLEASE READ CAREFULLY

Since most pool's plumbing is not airtight, and a mixture of air and chlorine is highly corrosive to metals, it is important to protect these items from corrosion in the OFF period when no circulation is taking place. (There is no chance for chlorine corrosion when the circulating system is in operation.)

Of course, corrosion or erosion of metal components can still occur independently of any chlorinator installation for the following reasons:

1. Water velocity too high.
2. Water pH less than 7.2.
3. Total alkalinity less than 100 PPM.

If your pool or spa has any of the following equipment, special plumbing procedures must be followed for safe operation:

1. Brass or bronze gate, rotary or backwash valves.
2. The preceding valves constructed of PVC or other plastic material with metallic shafts.
3. Filters, heaters, heat exchanges or other items with metallic tanks, shafts, coils or tubes.
4. **NOT FOR USE IN COPPER PLUMBING.**

Installation of the **OPTIONAL** Rainbow #R172288 positive seal, corrosion resistant check valve **SHOWN ON REVERSE SIDE** will prevent the backflow of corrosive liquids and gases that can damage equipment containing metallic components. Examples listed above.

WARNING: If your pool is equipped with a permanent built in pool-cleaning system, damage could occur to that system if materials are not compatible with low pH Tri-Chloro feeders. Check with manufacturer for compatibility.



TECHNICAL SUPPORT (800) 831.7133

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P/N R24290 REV D 12/13

Fig.1

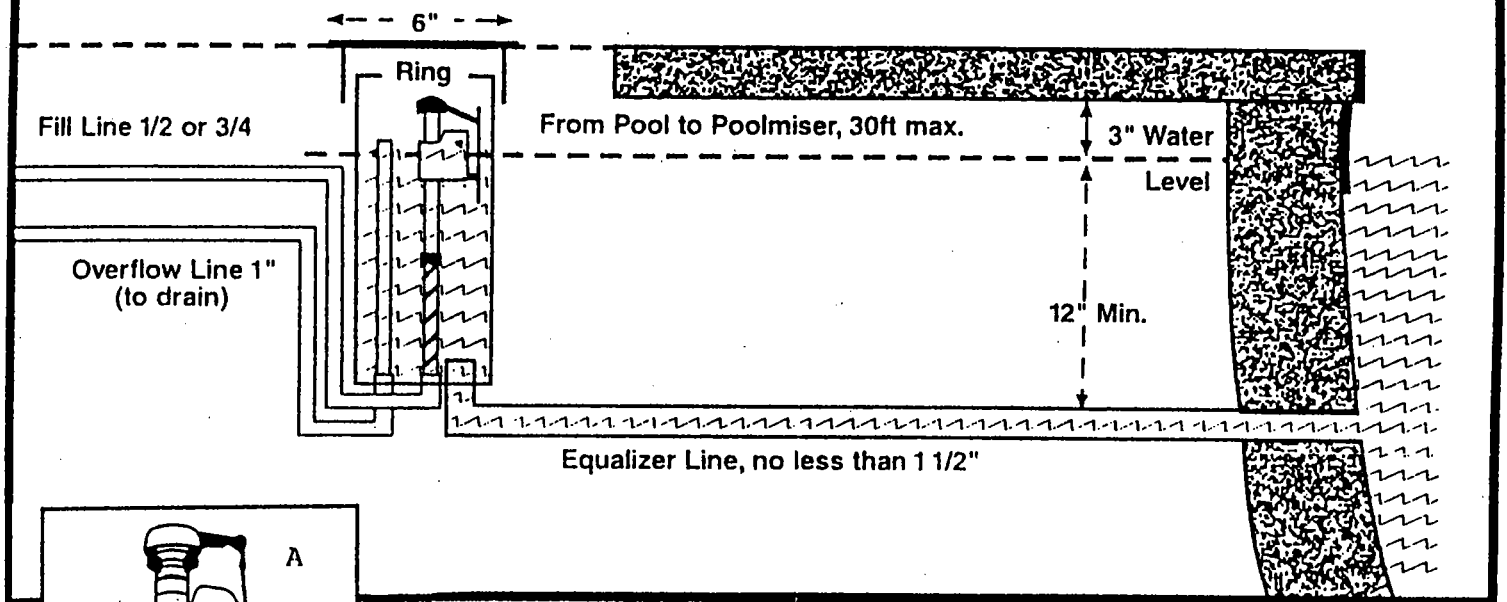
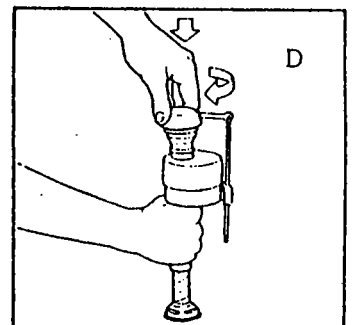
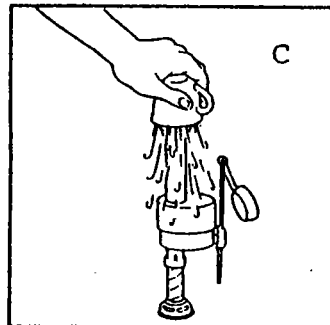
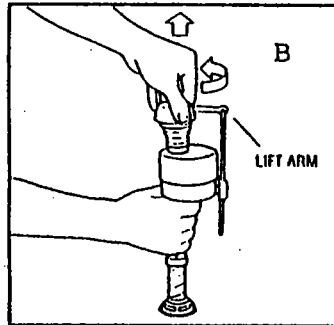
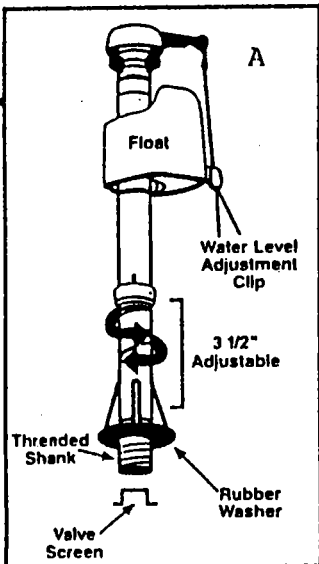


Fig.2

(CLEARING SAND AND RUST FROM VALVE)



Clear sand and rust from system: Remove valve TOP by lifting arm and rotating top 1/8 turn counterclockwise. While holding a container over the uncapped VALVE to prevent splashing, turn water supply on and off a few times. Replace TOP by engaging lugs and rotating 1/8 turn clockwise. MAKE CERTAIN TOP IS TURNED TO THE LOCKED POSITION. VALVE MAY NOT TURN ON IF TOP IS NOT FULLY TO THE LOCKED POSITION.

PACKING LIST:

- 1 = Tank
- 1 = Ring Lid
- 1 = Valve
- 1 = 1" x 10" Overflow PVC Pipe
- 1 = Instruction Sheet w/pkg. of 3 screws, 1 filter, 1 washer

WARRANTY

POOLMISER WILL WARRANTY THAT THE TANK, RING AND LID WILL BE FREE FROM DEFECTS AT THE TIME OF SHIPMENT. INSPECT CAREFULLY BEFORE YOU INSTALL THEM. THE FLUIDMASTER VALVE HAS A MANUFACTURER'S WARRANTY TO BE FREE FROM DEFECTIVE MATERIALS AND WORKMANSHIP FOR A PERIOD OF THREE YEARS.

FILL IN INFORMATION BELOW; AFFIX POSTAGE AND MAIL TODAY

CUT HERE

Date purchased _____

Installed by ☐ Pool contractor

Date installed _____

☐ Plumber

Your name
and address _____

☐ Yourself

Purchased from _____

Name and address _____

Signature _____

★ ★ INSTRUCTIONS ★ ★

LOCATION VERY IMPORTANT

To eliminate possible earth movement problems, we suggest installing the POOLMISER outside of the decking area. We recommend that the POOLMISER and all pipes within 3 feet be backfilled with sand.

STEP 1

BUILT-IN POOLS (GUNITE OR CONCRETE): Before you gunite, place the POOLMISER (with the tank top) 3 inches higher than desired water level (see Fig.1). Extend the 1 1/2" equalizer line through the gunite, allowing enough to extend through finished plaster, (can be cut later). **VERY IMPORTANT:** The equalizer line must be a minimum of 12 inches below desired water level. Hook up the threaded fill inlet to the water line and connect the overflow line to a convenient drain. (It is recommended to add a shut-off valve between the POOLMISER and the main water line). When guniting, fill tank with newspaper to make clean-up easier.

***VINYL LINER IN-GROUND POOLS, ABOVE GROUND POOLS, STEEL WALL POOLS, TUBS OR SPAS:** Use the same process as above. The only difference is the equalizer line must go through the wall, using an inlet fitting.

STEP 2

Before installing the valve into the tank, remove newspaper, insert the black washer seal and the filter screen, (see Fig. 2A); flush the lines two or three times. Remove the cap from the valve (see Fig.2B) to permit it to screw freely into the tank. Hand tighten the valve into the tank.

Before replacing the cap, flush the whole system one more time, (see Fig. 2C). Put the cap back on (see Fig. 2D); turn on your water supply, and your POOLMISER is now ready to operate.

NOTE 1

To adjust water level, turn off water supply, remove the cap (see Fig. 2B); adjust the shank (turn to the left for lower and to the right for higher) to the proper desired level, and replace the cap (see Fig. 2D). Water level is usually set between 3 and 4 inches below the top of the cap. Turn on the water supply. A final tune-up can be made by adjusting the clip on the side of the float (see Fig. 2A).

VERY IMPORTANT (Please Read)

- A) *Do not reduce the equalizer line; 1 1/2" is the minimum (line can be bigger). Equalizer line can be installed at any depth below 12" from top of water (up to 10 feet).
- B) *For better results, keep the fill line between 30 psi to 60 psi.
- C) *It is a good idea to take the valve apart before you install your first unit to know how the valve functions, for adjustments and for maintenance.
- D) *Overflow line should always be hooked up to prevent overflowing from heavy rain or malfunction of the system.
*The provided overflow stand pipe is tight-fitting; Do Not Glue.

GENERAL INFORMATION

- *The POOLMISER will operate the same if it is placed one foot from the pool or up to 15 feet away.
- *The POOLMISER is capable of adding up to 4000 gallons of water in a 24 hour period.
- *The POOLMISER should be turned off completely for 15 days after installation, to make sure your pool is not leaking.
- *If the valve does not close completely, or if it drips, there is some dirt or debris in the valve cap. Clean cap under running water, and flush the line (see Fig. 2B, 2C. & 2D).
- *Water hammer can be caused by a variety of factors.....if you experience water hammer in the operation of your POOLMISER, consult with a plumber.
- *The POOLMISER is made of ABS plastic; most of the piping is made of PVC plastic. Be sure to use a pipe cement compatible with both materials.

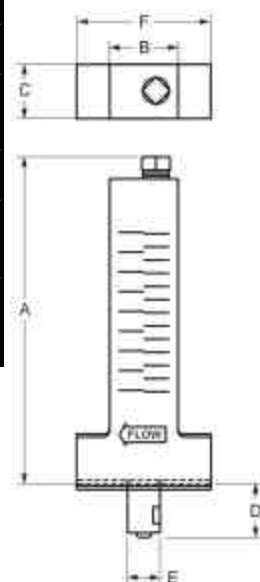
PLACE
STAMP
HERE

POOLMISER, INC.
307 Sixth Street
Petaluma, CA 94952

INSTALLATION INSTRUCTIONS

F - 300

Specifications	
Meter Body:	Acrylic
Floats:	#316 Stainless Steel, Hastelloy
Scale:	Permanent Silkscreen
Max. Pressure:	See Temp vs. Pressure chart
Max. Temperature:	See Temp vs. Pressure chart



F- 300 Series	
English System	
Letter	Dimension
A	6 -7/16 in
B	2 -1/2 in.
C	1 in
D	1 -9/16 in
E	5/8 in

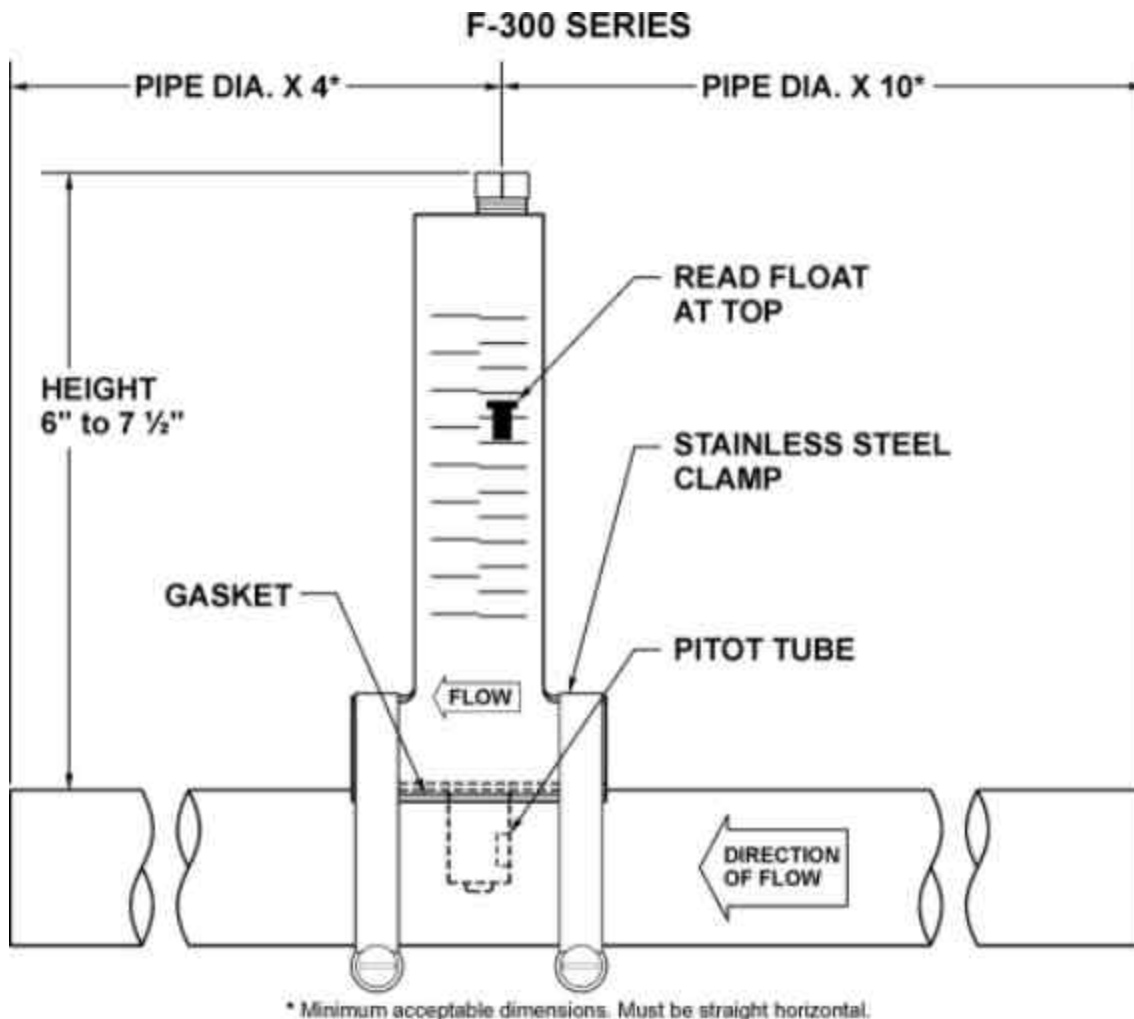
F- 300 Series	
Metric System	
Letter	Dimension
A	(174.6 mm)
B	(63.5 mm)
C	(25.4 mm)
D	(39.7 mm)
E	(15.9 mm)

Your Blue-White F-300 Series vertical mount Flowmeter

Your Blue-White flowmeter was designed to be easy to install.

Please read the Instruction Guideline on the next page before installing your flowmeter.

This flowmeter is an instrument and special care should be taken when installing.



Caution: Follow these tips to avoid failure.

Danger: Wear eye protection when installing or removing flowmeter.

General: F-300, D-300 and U-300 series flowmeters should only be used on the size and type of pipe for which they were intended. Incorrect use will result in inaccurate readings and leakage problems.

- Install the flowmeter with at least the minimum dimensions called for in installation drawings. For all units except F-30600 & F-30800, drill a 5/8" to 11/16" hole at the top center of the pipe. For F-30600 & F-30800 drill a 3/4" or 11/16" hole. Carefully remove all burrs. Insert the pitot tube, with gasket in place, into the drilled pipe. Tighten the clamps alternately, a little at a time. Make certain the flow direction is towards the pitot tube opening.

Blue-White® guarantees the meter is suitable with air and water only.

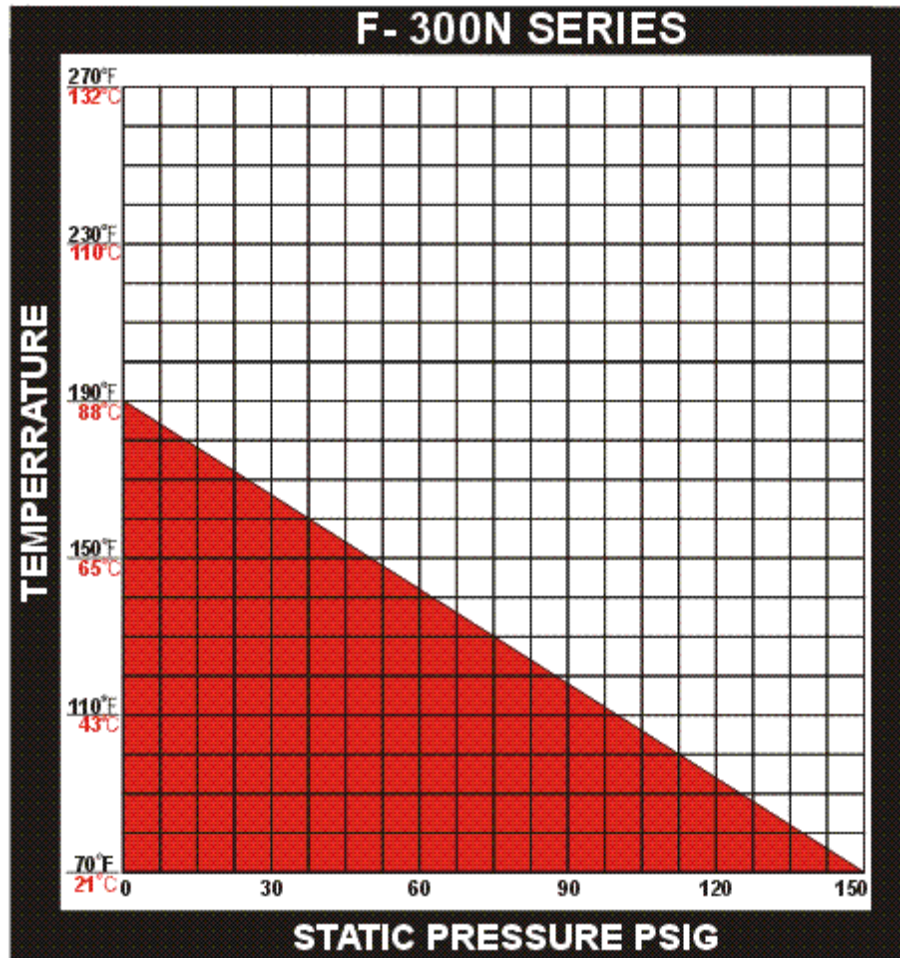
PLEASE NOTE: Acrylic can be adversely affected by ultra violet light. Protect flowmeters from direct sunlight.

Maintenance

* Minimal flowmeter maintenance is required. Should the meter fail to read, make certain the pitot tube opening is unobstructed, that the pitot tube opening faces the direction of the flow, and that you have installed the meter on the correct type and size pipe.

Cleaning: The flowmeter body and all other parts can be cleaned by washing in a mild soap and water solution. A soft bristle brush will simplify cleaning inside the meter body. Note the floats up position for re-assembly.

Pressure Vs. Temperature



Pressure and Temperature

Pressure and temperature limits are inversely proportional. At the maximum suggested pressure the temperature should approach 190°F / 88°C; at the maximum suggested temperature the pressure should approach zero psi. **We cannot guarantee our flowmeters will not be damaged either at or below the suggested limits simply because of many factors which influence meter integrity; stress resulting from meter misalignment, damage due to excessive vibration and/or deterioration caused by contact with certain chemicals as well as direct sunlight.** These situations and others tend to reduce the strength of the materials from which the meters are manufactured.

Flowmeters are tested and calibrated for water or air only.

Exploded View and Parts List

**Exploded
view
Coming
soon**

Replacement Parts List		
Key	Description	Part Number
1	O-Ring for cap /F-300NP(NT) models	C-502V
1	Cap Plug for all F-300, D-300 & U-300	F-3005
2	Cap Plug for F-300N units	91001-088
3	Mounting Clamp, F-30100P, F-30100T, F-30125P & F-30125T	F-3028
3	Mounting Clamp, F-30200P, F-30200T, F-30150P, F-30150T, F30150NP(NT), & F30200NP(NT)	F-3040
3	Mounting Clamp, D-30150P, D-30150T, D-30200T, F-30250T, U-30150P, U-30150-T, U-30200T	F-3044
3	Mounting Clamp, F-30250P	F-3048
3	Mounting Clamp, F-30300T, D-30200P, U-30200P	F-3052
3	Mounting Clamp, F-30300P	F-3056
3	Mounting Clamp, F-30400T	F-3064
3	Mounting Clamp, F-30400P	F-3072
3	Mounting Clamp, F-30600P, F-30600T	F-3116
3	Mounting Clamp, F-30800P, F-30800T	F-3152
4	Float, #316 S.S., for all D&U-300 series except low flow rate "R" & "N" units	F-3001
4	Hastelloy Float, may be used on all D&U-300 and F-300 units except "R" models	F-3001H
4	Float, stainless steel for F-300NP(NT) models	90007-549
5	Gasket Seal, for all pipe & tubing units through 4" O.D.	F-3003
5	Gasket Seal, for all pipe & tubing units 6" through 8" O.D.	F-3004
5	Screw #6-32X1-1/4", F-30100 through F-30200, pipe & tubing, except "R" models	F-3018

Flowmeter Conversion Table for Liquids with specific gravities other than 1.0										
Specific Gravity	0	1	2	3	4	5	6	7	8	9
	CONVERSION FACTOR									
0.4	1.647	1.626	1.605	1.585	1.565	1.548	1.529	1.513	1.495	1.479
0.5	1.426	1.447	1.433	1.418	1.404	1.391	1.377	1.364	1.351	1.339
0.6	1.326	1.316	1.304	1.292	1.282	1.271	1.259	1.250	1.239	1.229
0.7	1.220	1.211	1.202	1.192	1.183	1.175	1.167	1.157	1.149	1.142
0.8	1.134	1.125	1.117	1.111	1.104	1.096	1.089	1.082	1.075	1.068
0.9	1.062	1.055	1.048	1.042	1.035	1.030	1.024	1.017	1.011	1.005

1.0	1.000	0.994	0.988	0.982	0.978	0.972	0.967	0.962	0.956	0.951
1.1	0.947	0.943	0.936	0.932	0.927	0.923	0.917	0.913	0.909	0.904
1.2	0.900	0.895	0.891	0.887	0.883	0.878	0.871	0.870	0.866	0.862
1.3	0.858	0.854	0.850	0.846	0.842	0.838	0.835	0.831	0.827	0.824
1.4	0.820	0.818	0.814	0.810	0.806	0.803	0.800	0.797	0.794	0.791
1.5	0.787	0.784	0.781	0.778	0.776	0.773	0.770	0.767	0.764	0.759
1.6	0.756	0.754	0.751	0.748	0.745	0.742	0.740	0.737	0.734	0.730
1.7	0.728	0.726	0.723	0.720	0.717	0.714	0.712	0.709	0.706	0.704
1.8	0.701	0.699	0.696	0.694	0.691	0.689	0.686	0.684	0.682	0.679
1.9	0.677	0.674	0.672	0.669	0.667	0.665	0.663	0.661	0.658	0.657
2.0	0.654	0.652	0.650	0.648	0.646	0.644	0.641	0.640	0.637	0.636
Example: Sp. Gr. of 1.54 ; use factor of 0.776										
Please Note: Although Blue White has obtained this information from reliable sources, the company can not assume any responsibility for its accuracy. Please verify this information before using.										

Blue White Limited Warranty

- * Blue White Flowmeters are warranted to be free from defects in material and workmanship for 12 months from date of factory shipment. Warranty coverage is limited to repair or replacement of the defective flowmeter only.
- * Blue White Industries liability for consequential and incidental damages is expressly disclaimed and in all circumstances is limited to and shall not exceed, the purchase price paid. This limitation of liability shall be enforced to the extent allowable under applicable law.
- * This warranty does not cover damage to the flowmeter that results from misuse or alterations, nor damage that occurs as a result of: meter misalignment, improper installation, over tightening, use of non recommended chemicals, use of non-recommended pipe dopes or adhesives, excessive heat or pressure or allowing the meter to support the weight of related piping .
- * Flowmeters are repaired at the factory only. Call or write the factory to receive a return authorization number. Carefully pack the flowmeter to be returned, including a brief description of the problem. Not the R.A. number on the outside of the carton.
- * PREPAY ALL SHIPPING COSTS. The factory does not accept C.O.D. shipments. Damage that occurs during shipping is the responsibility of the sender.

Blue-White® Industries

AMERLITE® UNDERWATER LIGHT

INSTALLATION INSTRUCTIONS

IMPORTANT SAFETY INSTRUCTIONS

READ AND FOLLOW ALL INSTRUCTIONS

SAVE THESE INSTRUCTIONS

Contents

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DANGER



Risk of Electrical Shock or Electrocution

This underwater light must be installed by a licensed or certified electrician in accordance with the National Electrical Code and all applicable local codes and ordinances. Improper installation will create an electrical hazard which could result in death or serious injury to pool users, installer, or others due to electrical shock, and may also cause damage to property. Read and follow the specific instructions below.

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 this manual.

Important Notice



Attention Installer.

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

PRODUCT LABELING: Certain product labeling has been provided in French and Spanish.

Install these labels over the corresponding English text label if the personnel operating or servicing the product is fluent in either of these languages.

If more than one language is spoken by personnel operating or servicing this equipment, then install the additional labels of the required language adjacent to the English text label. If insufficient space is available on the product to install multiple labels, then these labels should be placed on a placard or sign and posted near the equipment where it is visible to all who operate or service this equipment.

Before installing the label, remove all dirt or grease from the surface that the labels will be installed upon using a mild detergent solution.

DANGER! Risk of Electrical Shock or Electrocution!



This product 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 will create an electrical hazard which could result in death --- or serious injury to pool users, installers or others due to electrical shock, and may also cause damage to property. Always disconnect the power to the pool light at the circuit breaker before servicing the light. Failure to do so could result in death or serious injury to serviceman, pool users or others due to electrical shock. **READ AND FOLLOW ALL INSTRUCTIONS IN THIS MANUAL.**

WARNING — Important Safety Information for Pentair Niche and Light Installation

- All Niche and Light installations must conform with all codes. If local codes mandate a cord seal, use Pentair plastic niches (P/N 79206600 and P/N 79206700).
- Under no circumstances replace lights by splicing wire under water or behind niche.

WARNING — RISK OF ELECTRIC SHOCK AND INJURY - USE ONLY THE INSTALLATION METHOD SPECIFIED BELOW.


Important Safety Information for Fountain Fixture Installations

Location of Luminaire (Light) Use	Pentair Fountain Fixture* (P/N 560000 – P/N 560001) (P/N 560002 – P/N 560003)	Required Installation Method
Swimming Pool or Spa	Wet-Niche Swimming Pool (or Spa) Luminaire (Light)	Fixture Housing (Forming Shell) ONLY. DO NOT USE Fountain Fixture Stand.
Fountain	Wet-Niche Submersible Swimming Pool (or Spa) Luminaire (Light)	Fixture Housing (Forming Shell) or Fountain Fixture Stand.

(*) **Note:** Wet-niche luminaires complying with requirements for both uses may bear both the Listed Wet-Niche Swimming Pool (or Spa) Luminaire UL Mark and the Listed Wet-Niche Submersible Luminaire UL Mark. A luminaire not bearing the corresponding UL Listing Mark is not considered by UL to have been produced under UL's Listing and Follow-Up Service for the associated usage location.


WARNING — THE LIGHT LENS MAY GET HOT WHEN IN USE. USERS SHOULD AVOID CONTACT WITH THE LIGHT AS SERIOUS BURNS MAY RESULT FROM PROLONGED CONTACT WITH THE LIGHT.

Before Installing luminaries read the following:

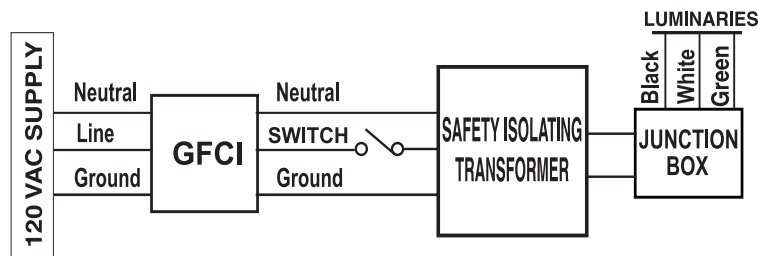
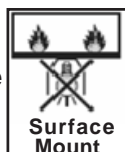
 **WARNING!** Always install a new lens gasket (see part number in User's Guide), when ever reassembling the light. Failure to do so may permit water to leak into the assembly which could cause; (a) an electrical hazard resulting in death or serious injury to pool users, installer, or others due to electrical shock, or (b) breakage of the lamp or lens, which likewise could result in serious injury to pool user, installers, or bystanders, or in damage to property. **REPLACE ANY CRACKED PROTECTIVE SHIELD (CRACKED LENS) WITH NEW LENS AND GASKET.**

- **FOR 12 VAC LUMINARIES: ALWAYS USE A SEPARATE SAFETY ISOLATION TRANSFORMER TO POWER LUMINARIES.** See diagram on right.

Note: Connect all three (or two wires) wires to the corresponding circuit wires in the Junction Box (black wire to power, white wire to common, and green wire to ground (for a 3-wire light).

- **12 VAC LUMINARIES SPECIFICATION:**
12 0VAC  , 50/60 Hz

Luminaires not suitable for direct mounting on normally flammable surfaces (suitable ONLY for mounting on non-combustible surfaces.



NOTE: FOR 120 VAC ILLUMINARIES, ISOLATION TRANSFORMER IS INCLUDED IN LIGHT FIXTURE.

1. Verify that the pool meets the requirements of the current National Electrical Code and all local codes and ordinances. A licensed or certified electrician must install the electrical system to meet or exceed those requirements before the underwater light is installed. Some of the



- requirements of the National Electrical Code which the pool's electrical system must meet are listed below.
- The lighting circuit must have a Ground Fault Circuit Interrupter (GFCI), and an appropriately rated circuit breaker.
 - The Junction Box (or, for 12 volt models, the low voltage transformer) must be located at least 8 inches above water level, 4 inches above ground level, and at least 48 inches from the edge of the pool; see Figure 1.
 - The light fixture and all metal items within 5 feet of the pool must be properly electrically bonded.
 - The wet niche must be properly installed so the pilot screw hole is at the 12 o'clock position and that the top edge of the underwater light's lens is at least 18 inches below the surface of the water in the pool; see Figure 1.

The required orientation of all Pentair lights is with the pilot screw at the 12 o'clock position. This is guaranteed by proper niche installation.

- e. The wet niche must be properly electrically bonded and grounded via the No. 8 AWG ground connector located at the rear of the niche; see Figure 1.
 2. To be certain that the pool's electrical system meets all applicable requirements, the electrician should also consult the local building department.
 3. Use only Pentair Aquatic Systems wet niches to insure proper bonding and grounding connections.
- B. Steps to perform after the electrical system requirements are met.
1. Feed cord through conduit to Junction Box, leaving at least 4 feet of cord at the light fixture to coil around the light; see Figure 1. This 4 feet of cord around the light allows the light to be serviced after the pool is filled with water.
 2. Cut the cord at the Junction Box, leaving at least 6 inches of cord to make connections.
 3. Strip 6 inches of the outer cord jacket to expose the three insulated wires. Be careful not to damage the insulation on the three inner wires.
 4. Connect all three wires to the corresponding circuit wires in the Junction Box (black wire to power, white wire to common, and green wire to ground) and secure the Junction Box cover in place.
 5. For lights with 2-conductor cords only (no ground wire) connect two wires to the corresponding circuit wires in the Junction Box, black wire to power, white wire to common and secure the Junction Box cover in place.

Never operate this underwater light for more than 10 seconds unless it is totally submerged in water. Without total submersion, the light assembly will get extremely hot, which may result in serious burns or in breakage of the lamp or lens. This may result in serious injury to pool users, installers, or bystanders, or in damage to property.

- P/N • Núm/Pte. • Réf. 99360000

WARNING

Use only the special pilot screw provided with this underwater light. This screw mounts and electrically grounds the housing securely to the mounting ring and wet niche. Failure to use the screw provided could create an electrical hazard which could result in death or serious injury to pool users, installers or others due to electrical shock.

7. Fill the pool until the underwater light is completely submerged in water before operating the light for more than 10 seconds. Turn on main switch or circuit breaker, as well as the switch which operates the underwater light itself, to check for proper operation.

SECTION II. Replacing light fixture in existing pool

DANGER



Risk of Electrical Shock or Electrocution

This underwater light 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 will create an electrical hazard which could result in death or serious injury to pool users, installers or others due to electrical shock, and may also cause damage to property.

Always disconnect the power to the pool light at the circuit breaker before servicing the light. Failure to do so could result in death or serious injury to serviceman, pool users or others due to electrical shock.

A. Before replacing the light fixture.

1. Verify that the pool meets the requirements of the current National Electrical Code and all local codes and ordinances. A licensed or certified electrician must install the electrical system to meet or exceed those requirements before the underwater light is installed. Some of the requirements of the National Electrical Code which the pool's electrical system must meet are as follows:
 - a. The lighting circuit has a Ground Fault Circuit Interrupter (GFCI), and has an appropriately rated circuit breaker.
 - b. The Junction Box (or, for 12 volt models, the low voltage transformer) is located at least 8 inches above water level and at least 4 inches above ground level and at least 48 inches from the edge of the pool; see Figure 1.
 - c. The light fixture and all metal items within 5 feet of the pool are properly electrically bonded.
 - d. The wet niche is properly installed so that the top edge of the underwater light's lens is at least 18 inches below the surface of the water in the pool; see Figure 1.
 - e. The wet niche is properly electrically bonded and grounded via the No. 8 AWG ground connector located at the rear of the niche; see Figure 1.
2. To be certain that the pool's electrical system meets all applicable requirements, the electrician should also consult the local building department.
3. Use only Pentair Water Pool and Spa wet niches to insure proper bonding and grounding connections.

B. Replacing light fixture after electrical system requirements are met.

WARNING

Failure to bring the pool's electrical system up to code requirements before installing the underwater light will create an electrical hazard which could result in death or serious injury to pool users, installers, or others due to electrical shock, and may also cause damage to property.

1. Turn off main electrical switch or circuit breaker, as well as the switch which operates the underwater light.
2. To remove light assembly, remove the special pilot screw at top of face ring, remove light assembly from niche, and place assembly on deck.

WARNING

Be sure to keep the special pilot screw from this underwater light. This screw mounts and electrically grounds the housing securely to the mounting ring and wet niche. Failure to use the screw provided could create an electrical hazard which could result in death or serious injury to pool users, installers or others due to electrical shock.

3. Remove Junction Box cover, disconnect the light fixture wires, and pull the cord through the conduit.
4. Feed the new light fixture cord through the conduit from the niche to the Junction Box.

NOTE:

Depending on the length of the conduit, special tools may be required to pull the cord through the conduit.

5. Leave at least 4 feet of cord to coil around the light fixture; see Figure 1. This 4 feet of cord coiled around the light allows the light to be serviced after the pool is filled with water.
6. Cut the cord at the Junction Box, leaving at least 6 inches of cord to make connections.
7. Strip 6 inches of the outer cord jacket from the cord to expose the three insulated wires. Be careful not to damage the insulation on the three inner wires.
8. Connect all three wires to the corresponding circuit wires in the Junction Box (black wire to power, white wire to common, and green wire to ground) and secure the Junction Box cover in place.

WARNING

Never operate this underwater light for more than 10 seconds unless it is totally submerged in water. Without total submersion, the light assembly will get extremely hot, which may result in serious burns or in breakage of the lamp or lens. This may result in serious injury to pool users, installers, or bystanders, or in damage to property.

9. Replace light assembly into niche and tighten special pilot screw.

WARNING

Use only the special pilot screw provided with this underwater light. This screw mounts and electrically grounds the housing securely to the mounting ring and wet niche. Failure to use the screw provided could create an electrical hazard which could result in death or serious injury to pool users, installers or others due to electrical shock.

10. Fill the pool until the underwater light is completely submerged in water before operating the light for more than 10 seconds. Turn on main switch or circuit breaker, and the switch that operates the underwater light itself, to check for proper operation.

SECTION III. Replacing a lamp only

DANGER



Always disconnect power to the pool light at the circuit breaker before servicing the light. Failure to do so could result in death or serious injury to installer, serviceman, pool users or others due to electrical shock.

1. Turn off main electrical switch or circuit breaker, as well as the switch which operates the underwater light itself.
2. You will need the following items.
 - a. A new lens gasket (p/n 79101600).
 - b. A lamp, for proper type and wattage; see Table 1.

WARNING

Replace lamp with a similar type and wattage. Failure to replace lamp with the same type of lamp will damage the light assembly and may cause an electrical hazard resulting in death or serious injury to pool users, installers, or others due to electrical shock, and may also cause damage to property.

Table 1.

Lamp Specifications:	12* volt Models	120 volt Models
120 volt - 300 watt - R-40 lamp	100 watt	300 watt
120 volt - 400 watt - R-40 lamp	300 watt	400 watt
120 volt - 500 watt - R-40 lamp		500 watt
12 volt - 300 watt - R-40 lamp	*Trnsfmr. req.	
12 volt - 100 watt - R-40 lamp		

⚠ WARNING

Always install a new lens gasket (part number 79101600) whenever disassembling the light. Failure to do so may permit water to leak into the assembly which could cause:

- (a) an electrical hazard resulting in death or serious injury to pool users, installers or others due to electrical shock; or,
- (b) breakage of the lamp or lens, which could result in serious injury to pool users, installers, bystanders, or in property damage.

3. To remove light assembly, remove the special pilot screw at top of face ring, remove light assembly from niche, and place assembly on deck.

⚠ WARNING

Be sure to keep the special pilot screw from this underwater light. This screw mounts and electrically grounds the housing securely to the mounting ring and wet niche. Failure to use the screw provided could create an electrical hazard which could result in death or serious injury to pool users, installers or others due to electrical shock.

4. Disassemble light fixture and remove bulb. Remove and discard old gasket; see Figure 2.
5. Install new gasket during reassembly of light, Pentair Aquatic Systems part number 79101600.

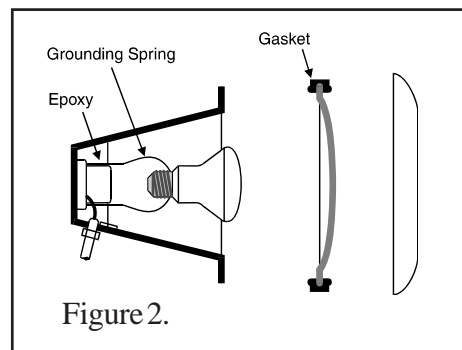
⚠ WARNING

Never operate the underwater light for more than 10 seconds unless it is totally submerged in water. Without total submersion, the light assembly will get extremely hot and may result in serious burns or in breakage of the lamp or lens. This may result in serious injury to pool users, installers, bystanders, or in damage to property.

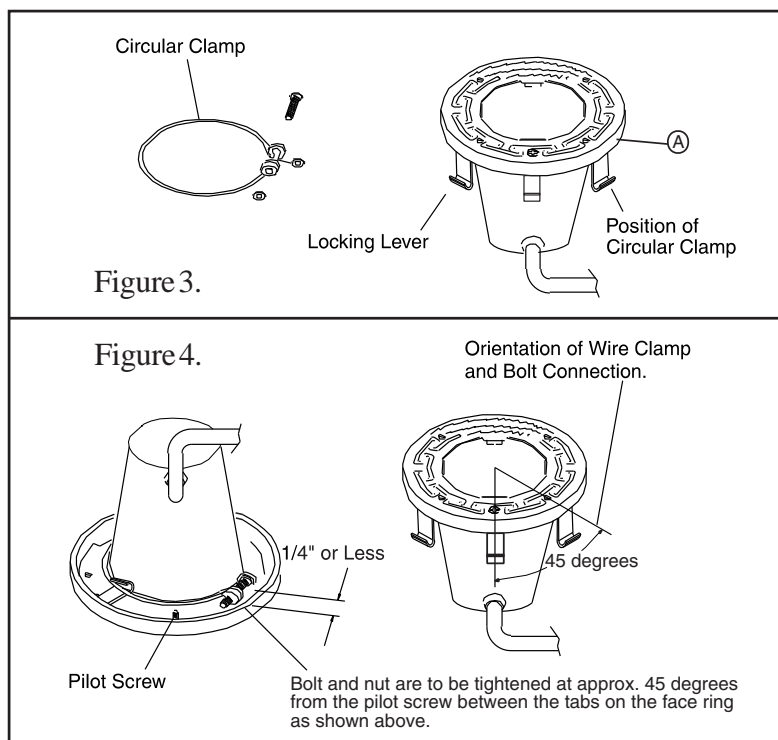
6. Align the pilot screw on the face ring with the first “E” in the word “BEFORE” on the lens face. Then align the lens/facing assembly to the housing by lining up the pilot screw with the arrow on the warning label.
7. Securing ring to light fixture. Sealing screws must be tightened in the following manner to assure a proper seal;
 - a. For lights with chrome or brass face ring:
 - (1) Partly tighten the screw at the 12 o’ clock position, and then partly tighten the screw at the 6 o’ clock position. Partly tighten the screw at another ‘opposite’ position, and then partly tighten the screw directly across from it.
 - (2) Continue partly tightening all screws in the above sequence until all screws are evenly and securely tightened. Recommended 20 inch pounds torque.
 - b. For lights with stainless steel face ring:
 - (1) With the light resting on its base, align the face ring, and lens/gasket on top of the light shell as described in Step 6. A NEW LENS GASKET MUST BE USED EACH TIME THE LIGHT IS REASSEMBLED. The locking levers should all be hanging freely down to install over the lens and gasket. Before installing the Unitension Clamp be sure that the gap at the ends of the clamp is approximately 1 in. apart. Pull the ends of the Unitension Clamp past one another to accomplish this.
 - (2) With the bent ends of the circular unitension clamp pointing down spread the clamp and place it in the “U” recesses of the locking levers. Be sure the bent ends of the clamp are located between the pair of locking levers as shown in Figure 3, location A. Check to see that the clamp is properly engaged with all of the levers.
 - (3) Turn the light so that it is now resting on its lens. Tighten the bolt and nut until the distance between the ends of the clamp equals 1/4 inch or less; see Figure 4.
8. Replace light assembly into niche and tighten special pilot screw.

⚠ WARNING

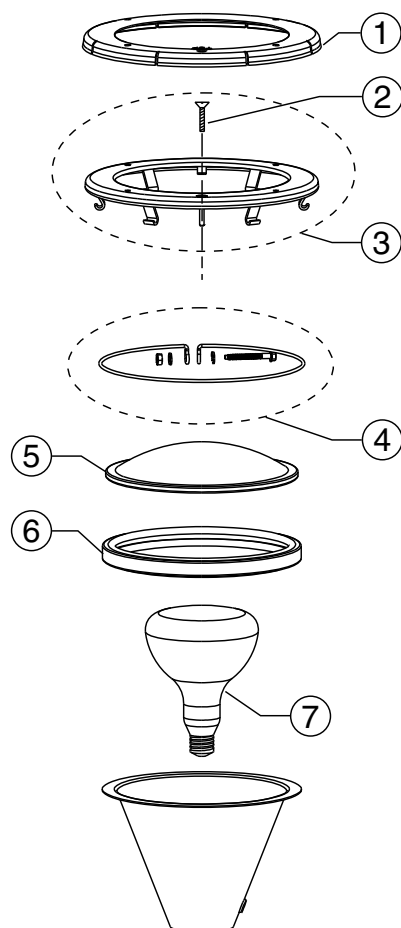
Use only the special pilot screw provided with this underwater light. This screw mounts and electrically grounds the housing securely to the mounting ring and wet niche. Failure to use the screw provided could create an electrical hazard which could result in death or serious injury to pool users, installers or others due to electrical shock.



9. Fill pool until the underwater light is completely submerged in water before operating the light for more than 10 seconds. Turn on main switch or circuit breaker, as well as the switch which operates the underwater light itself, to check for proper operation.



SECTION IV. Amerlite Replacement Parts



Item No.	Part No.	Description
1	79212100	Face ring, large plastic, for S/S only, white
1	79212165	Face ring, large plastic, for S/S only, gray
1	79212111	Face ring, large plastic, for S/S only, black
2	79104800	Pilot Screw, with captive gum washer, brass
2	619355	Pilot Screw, with captive gum washer, S/S
3	79110600	Face ring assembly, S/S
4	79111000	Uni-tension wire clamp assy.
5	79100100	Lens, clear, 8-3/8 in. dia., tempered
5	79100200	Lens, med. blue, 8-3/8 in. dia., heat resistant
6	79101600	Gasket, 8-3/8 in. lens
7	79101800	Floodlamp, med. base, 100 watt, 12 volt
7	79101900	Floodlamp, med. base, 300 watt, 12 volt
7	79102100	Floodlamp, med. base, 500 watt, 120 volt
7	79107600	Floodlamp, med. base, 300 watt, 120 volt
7	79102200	Floodlamp, med. base, 400 watt, 120 volt
	78900700	Kwik-change lens cover, green
	78900800	Kwik-change lens cover, blue
	78900900	Kwik-change lens cover, red

SAVE THESE INSTRUCTIONS



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

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Pentair Water Pool and Spa, Inc. ("Pentair") manufactures its products with the highest standards of workmanship, using the best materials available through state of the art processes. Pentair warrants its products as follows:

Limited Warranty: Pentair warrants its products to be free from defects in material and/or workmanship for a period of sixty (60) days (parts only) from the original date of purchase and/or installation. Customer agrees to prepay all shipping charges to Pentair.

All products used in commercial applications receive a one (1) year warranty.

Exceptions that may result in denial of a warranty claim:

1. Damage caused by careless handling, improper repackaging, or shipping.
2. Damage due to misapplication, misuse, abuse or failure to operate equipment as specified in the owner's manual.
3. Damage caused by failure to install products as specified in the owner's manual.
4. Damage due to unauthorized product modifications or failure to use Pentair original replacement parts.
5. Damage caused by negligence, or failure to properly maintain products as specified in the owner's manual.
6. Damage caused by failure to maintain water chemistry in conformity with the standards of the swimming pool industry for any length of time.
7. Damage caused by water freezing inside the product.
8. Accidental damage, fire, acts of God, or other circumstances outside the control of Pentair.

Extended Warranty for Specific Products (Offered from Date of Installation)

PRODUCT FAMILY	WARRANTY LENGTH										
	Out of Box										
60 days Only	Filters and Valves	1 year	INTELLIFLO & INTELLIPRO Variable Speed Pumps – 3 years	INTELLIFLO & INTELLIPRO Commercial Applications** – 1 year	MINIMAX 75/100 & Commercial Applications** – 1 year	Compressor Parts and Labor – 10 years	Titanium Heat Exchanger – Lifetime	Bulbs – 60 days	SUNTOUCH Solar & SOLARTOUCH Solar System – 3 years	ACU-TROL Equipment Repairs – 60 days (for Non-Warranty Repairs)	INTELLICHLOR (SCG) w/o Power Center/Supply – 1 year (Self Installed)
	Heaters	1 year									
	Pumps	1 year									
	Heat Pumps – Residential	2 years									
	Heat Pumps – Commercial**	1 year									
	Lights	1 year									
	Automation Equipment	1 year									
	ACU-TROL Commercial Controllers**	5 years									
	ACU-TROL Electronic Modules	5 years									
	ACU-TROL AK Color and Accessories	1 year									
	ACU-TROL Commercial pH or ORP Probe**	2 years									
WARRANTY LENGTH	Center/Supply	1 year									
	White Goods and Water Features	1 year									
	Chlorine Bromine Feeders	1 year									

****NOTE:** Please keep the original sales receipt as proof of purchase and save the qualified installer's invoice and date of installation when you register your product(s).

****NOTE:** For warranty purposes, a commercial facility is defined as any facility other than a single family dwelling.

PENTAIR WATER POOL AND SPA, INC.

1620 Hawkins Ave. Sanford, NC 27330 / 10951 W. Los Angeles Ave. Moorpark, CA 93021

Phone: 800-831-7133

P/N 151629 Rev. U 8/14

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PRODUCT FAMILY	WARRANTY LENGTH		EXCEPTIONS
Maintenance Equipment/ Replacement Parts	60 days		
Automatic Pool Cleaners	1 year	Robotic, KREEPY KRAULY, KREEPY KRUISER, GREAT WHITE and SANDSHARK – 2 years Brushes, Climbing Rings, Cartridge Filters – 60 days Suction Seal, Foot Pad, Wings, Bumper Strap, Seal Flaps – 1 year	
Aboveground Systems	1 year		

****NOTE:** Please keep the original sales receipt as proof of purchase and save the qualified installer's invoice and date of installation when you register your product(s).

****NOTE:** For warranty purposes, a commercial facility is defined as any facility other than a single family dwelling.

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Please Detach Along Dotted Line and Mail This Section. Keep the Warranty for Your Records



PRODUCT WARRANTY REGISTRATION CARD

To register your product online, please visit www.pentairpool.com/support/product-registration.html

Please promptly complete and return this postage paid card. In the unlikely event we must notify you of safety modifications to your product, under the Consumer Product Safety Act, this will allow us to communicate with you quickly. Incomplete or missing information such as your serial number will not be registered. **Your Limited Warranty is attached to this reply card.** Please detach it, review it thoroughly so you are familiar with the terms of your warranty coverage and keep in a safe place.

ALL INFORMATION REQUESTED BELOW IS REQUIRED IN ORDER TO RECEIVE AN EXTENDED WARRANTY.

Product:

- ☐ FILTER ☐ PUMP ☐ HEATER ☐ HEAT PUMP ☐ LIGHT ☐ AUTOMATION
- ☐ AUTO CLEANER* ☐ AUTO FEEDER ☐ MAINT. EQUIPMENT ☐ WHITE GOODS

Brand/Model Name: _____

I purchased the Pentair product for use in: _____

- ☐ Inground Pool ☐ Inground Pool/Spa Combination ☐ Aboveground Pool ☐ Spa Only

My Serial Number is: _____

1. Name: _____

(If applicable)

Street Address: _____

City: _____ State: _____ Zip: _____

Tel. No.: (_____) _____ E-mail: _____

☐ I do not wish to receive promotional emails from Pentair Aquatic Systems. We will not rent or sell your personal information under any circumstance.

2. Date of Purchase/Installation: _____ ☐ New ☐ Replacement

Signature: _____

Date: _____

3. Where did you purchase your Pentair Product?

- ☐ Pool Builder ☐ Pool Store ☐ Pool Service ☐ Mail Order ☐ Internet ☐ Other

Company Name: _____

Location: _____

4. Who installed your product?

Name of Installer: _____

Location of Installer: _____

Installer Tel. No.: _____

Please attach original qualified installer's invoice and original sales receipt here as proof of qualified installation and purchase.

***Note:** Automatic Cleaners purchased in the USA from entities outside the USA do not qualify for any USA programs including warranty, trade-in or rebate programs.

LIMITED WARRANTY



TO OBTAIN AN EXTENDED WARRANTY, PLEASE SEE THE THREE (3) OPTIONS BELOW.

- a) **One (1) Year Warranty:** Pentair warrants certain products listed in the extended warranty section to be free from defects in material and/or workmanship for a period of one (1) year from the original date of installation on a single product if installed by a qualified installer. Products must be registered within sixty (60) days of installation at www.pentairpool.com/pool-owner/warranty.
- b) **Two (2) Year Warranty (Heaters Only):** Pentair warrants heaters to be free from defects in material and/or workmanship for a period of two (2) years from the original date of installation on a single product if installed by a qualified installer. Products must be registered within sixty (60) days of installation at www.pentairpool.com/pool-owner/warranty.
- c) **Three (3) Year Warranty IntelliFlo® or IntelliPro® Variable Speed Pumps & Select Bundled Products Only*]:** Pentair warrants the IntelliFlo or IntelliPro Variable Speed Pumps and selected bundled products to be free from defects in material and/or workmanship for a period of three (3) years from the original date of installation if installed by a qualified installer. Products must be registered within sixty (60) days of installation at www.pentairpool.com/pool-owner/warranty.

→ This extended three (3) year coverage on bundled products applies to purchases and qualified installations of three (3) or more of the following products: inground pump, filter, heater, heat pump, control system, automatic cleaner, lighting or salt chlorine generator. ***Note: Bundled products must be from three (3) different product groups, purchased on the same invoice and installed at the same time.**

- The above extended warranty is applicable to the original owner only, beginning on the date of installation and is not enforceable by any third party. Proof of purchase and/or date of installation by a qualified installer will be required to register a warranty claim.
- **Warranties by others:** Some Pentair products incorporate components manufactured by other manufacturers. Some of these manufacturers provide warranties in addition to the warranty provided by Pentair herein. In all such cases, a copy of the third party manufacturer's warranty will be provided with the product. To the extent protection provided under any such third party warranty exceeds the Limited Warranty provided herein, the Customer will have to contact the specific manufacturer for the additional protection.

Pentair Warranty Obligations

Should a defect in workmanship and/or material in any item covered by this warranty become evident during the term of the warranty, then upon the customer following the procedures set forth below, Pentair will, at its sole option, repair or replace such product or part of equal value, in lieu of repair. Pentair is not, however, responsible under this warranty for any cost of shipping or transportation of the product or parts thereof to or from the technical Service Department. Also, Pentair is not liable for any loss of time, inconvenience, incidental expenses such as telephone calls, labor or material charges incurred in connection with the removal or replacement of the equipment, or any other incidental or consequential damages.

The above mentioned warranties are void if the product is repaired or altered in any way by any persons, agents or representatives other than those authorized by Pentair. Expendables including, but not limited to refrigerant, recovery of refrigerant, or transportation for components are not covered under this limited warranty. Reasonable vehicle trip and evaluation charges may be assessed by a Pentair service representative.

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

No Other Warranties

To the maximum extent permitted by applicable law, Pentair disclaims all other warranties, either expressed or implied, including, but not limited to, implied warranties of merchantability and fitness for a particular purpose, with regard to the product(s), part(s) and/or any accompanying written materials.

Procedure for Obtaining Performance

In order to obtain the benefits of this warranty, the consumer who made the original retail purchase must contact the Pentair Technical Service Department as soon as possible after discovery of the product related issue, but in no event later than the expiration date of the respective warranty periods provided herein. Upon receipt of this communication, Pentair will promptly notify the customer of the address to which the product may be shipped. The customer shall then ship the product, freight prepaid, to the address indicated, together with a "RETURN GOODS AUTHORIZATION" form obtained from Technical Service and a brief description of the problems encountered. Unauthorized returns will not be accepted. Freight must be prepaid by customer.

Warranties or Representations by Others

No third party has any authority to make any warranties or representation concerning Pentair or its products. Accordingly, Pentair is not responsible for any such warranties or representations.

Other Rights

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

Sole Warranty

Supersedes all previous publications.

BUSINESS REPLY MAIL
FIRST-CLASS MAIL PERMIT 8 FARMINGTON MO

POSTAGE WILL BE PAID BY ADDRESSEE

PENTAIR WATER POOL AND SPA, INC.
PO BOX 1228
FARMINGTON MO 63640-9852



FOLD IN HALF AND SEAL FOR MAILING



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

Rail Maintenance

A regular maintenance program is required to maintain the appearance and function of your S.R.Smith rails.

Cleaning

The maintenance program includes thorough cleaning of all rail components. Insufficient cleaning leads to a buildup of chlorides and other aggressive chemicals that exceed the corrosion resistance of the stainless steel. The required frequency of the cleaning depends upon the environment where the rails are installed. Table 1 below is a guideline for recommended cleaning intervals for different types of pool environments. The table is a recommendation and actual required cleaning intervals should be adjusted as required for the particular environment where the rails are installed.

Harsh Environments

Some pool environments are more corrosive to metal equipment than others. Environments that are considered highly corrosive include: indoor pools, salt pools, and outdoor pools located near coastal regions.

In indoor pool environments, chlorides and other chemicals are continually being deposited onto the surfaces of the rails. The humidity in the air of indoor pools is water vapor containing chloride. Chlorides and other chemicals are deposited on the surfaces of the rails through a cycle of condensation and evaporation. In an indoor pool environment, rails should be rinsed thoroughly with fresh water on a daily basis.

More thorough cleaning with mild soap (non-chlorinated, PH neutral, dishwashing soap) and warm water is recommended on a weekly basis.

Chlorides from dissolved salts will break down the passive (protective) layer of stainless steels. Rails installed on salt water pools or located in coastal regions should be rinsed daily with fresh water. More thorough

cleaning with soap and warm water is recommended on a weekly basis.

Mild to Moderate Environments

Outdoor, non-salt pools that are not located in coastal regions are considered mild to moderately corrosive environments. In mild to moderately corrosive environments, it is recommended that the rails be thoroughly rinsed with fresh water daily. Thorough washing with soap and water may be done once or twice a month depending upon the particular environment. The rails should be cleaned before there is a noticeable buildup of chemical deposits or corrosive buildup.

Cleaning Process

Daily Cleaning:

- Thoroughly rinse all rail surfaces with fresh water.

Weekly Cleaning:

- Wash all rail surfaces with warm fresh water containing mild soap.
- Use a soft cloth along with the cleaning solution to wipe down rail surfaces.
- In some cases, it may be necessary to use a soft nylon brush to remove rust or staining.
- After all surfaces have been wiped down with the cleaning solution, thoroughly rinse the entire rail with fresh water.
- A quality automotive wax may be applied to help maintain the finish of the rails between scheduled cleanings.
- Using a cleaner such as Bon Ami® to clean the rail surfaces will help to minimize corrosion and maintain the appearance of the rail.

Do not use: chloride containing cleaners on metal components, abrasive cleaners, or steel wool. All of these things can cause damage to the rail and promote further corrosion.

Table 1: Guideline for Recommended Cleaning Intervals

POOL ENVIRONMENT	CHLORINATION	CORROSION FACTOR	CLEANING & MAINTENANCE	FREQUENCY
Outdoor pools, in-land	Chlorine	Mild/Moderate	Rinse with fresh water	Daily
			Wash with soap and water	Monthly
Outdoor pools, in-land	Salt	Moderate	Rinse with fresh water	Daily
			Wash with soap and water	Weekly
			Remove any visible signs of rust or staining with a nylon brush	Monthly
Outdoor pools, coastal regions	Chlorine or Salt	Severe	Rinse with fresh water	Daily
			Wash with soap and water	Weekly
			Remove any visible signs of rust or staining with a nylon brush	Monthly
Indoor pools, all regions	Chlorine or Salt	Severe	Rinse with fresh water	Daily
			Wash with soap and water	Weekly
			Remove any visible signs of rust or staining with a nylon brush	Monthly

S.R. Smith, LLC warrants to the original retail purchaser that products manufactured by S.R. Smith, when properly assembled and installed in accordance with S.R. Smith's assembly and installation instructions, and properly used and maintained, shall be free from defects in material and workmanship for a period of three (3) years from the date of original manufacture except for the following items: WetDek (1 year), PoolSonix™ (2 years) and Aquatic Lift System frames, components and batteries (as set forth below). The original retail purchaser must follow the procedure set forth below when submitting a warranty claim. S.R. Smith will repair or replace, at its option, the product, and return it to the owner freight prepaid. Determination of repair or replacement shall be solely at the discretion of S.R. Smith. Aquatic lift systems, components and batteries have a separate warranty, set forth below.

All Aquatic Lift Systems have a three (3) year warranty on the frame, excluding the powder coated finish, which may become scratched with normal use. All electronic and motor components, with the exception of batteries, have a full two (2) year warranty. Within the warranty period, S.R. Smith will repair or replace any item deemed to be found defective. Lift batteries come with a one-year, pro-rated warranty. During the first 90 days of ownership, batteries will be covered 100%. If a battery failure occurs between day 91 and day 365, batteries are covered at 50% of the original cost. Normal maintenance and care of the unit, including charge of the battery when not in use is recommended. Do not store the unit, battery or components near or around chemicals.

All S.R. Smith Lighting products have a three (3) year warranty, excluding lighting control products and fiber optic products, which have a one (1) year warranty.

The warranty is non-transferable and is subject to the following terms and conditions ([View complete S.R. Smith Terms & Conditions of Sale](#)):

S.R. Smith shall not be responsible for the cost of removal or replacement of any defective S.R. Smith product, nor for any other expenses or for damages which might be incurred in such removal and replacement.

This warranty specifically excludes fading of materials, microbiological staining of diving boards or pool slides and rust, powder coated finish, or corrosion of any metallic products or parts. Refer to S.R. Smith care and maintenance instructions for regular maintenance and cleaning of S.R. Smith Products. Maintenance instructions can be found at the [Care & Maintenance](#) tab on this page.

This warranty relates only to defects in materials and workmanship and does not include damage or failure resulting from other causes, including, but not limited to Acts of God, misuse or abuse, accident or negligence, fire, improper assembly or installation, chipping or flaking of powder or vinyl coatings, or ice damage. Damage induced by the improper use of chemicals is not covered by this warranty. In the event that products are altered or repaired by anyone without the prior written approval of S.R. Smith, all warranties are void.

IMPORTANT: WEIGHT LIMIT ON DIVING BOARDS, JUMP BOARDS, STANDS, SLIDES, LADDERS AND LADDER STEPS SHALL BE NOT MORE THAN 250 POUNDS. EXCEPTIONS: FRONTIER IV BOARD AND BASE NOT MORE THAN 400 POUNDS. TURBOTWISTER AND TYPHOON

SLIDES NOT MORE THAN 275 POUNDS. CYCLONE SLIDES NOT MORE THAN 175 POUNDS. VORTEX SLIDES NOT MORE THAN 325 POUNDS.

IN NO EVENT SHALL S.R. SMITH BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL, SPECIAL, DIRECT, INDIRECT, PUNITIVE OR EXEMPLARY DAMAGES OR LOST PROFITS FROM ANY BREACH OF THIS LIMITED WARRANTY OR OTHERWISE. Some states do not allow the exclusion or limitation of incidental, special or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights, which may vary from state to state. The warranty is extended to, and enforceable only by the original retail purchaser.

If any S.R. Smith products fail during the warranty period as a result of a defect in material or workmanship covered by this warranty, the original retail purchaser must notify S.R. Smith by using the [Warranty Claim form](#), located on the Warranty Claim tab on this page. This notice from the original retail purchaser must contain all pertinent product information as outlined in the warranty claim form. S.R. Smith will determine if the product is to be returned to the factory or will ask that (1) the defective area and (2) the part of the product stamped with the serial number be removed and returned. Product pieces must be cleaned and returned freight prepaid to S.R. Smith's facility at either 1017 SW Berg Parkway, Canby, OR 97013 or 105 Challenger Drive, Portland, TN 37418 as determined by S.R. Smith.

THE WARRANTIES CONTAINED HEREIN ARE THE EXCLUSIVE WARRANTIES GIVEN BY S.R. SMITH AND SUPERSEDE ANY PRIOR, CONTRARY OR ADDITIONAL REPRESENTATIONS, WHETHER ORAL OR WRITTEN. S.R. SMITH HEREBY DISCLAIMS AND EXCLUDES ALL

OTHER WARRANTIES WHETHER EXPRESS, IMPLIED, OR STATUTORY INCLUDING ANY WARRANTY OR MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, ANY IMPLIED WARRANTIES OTHERWISE ARISING FROM COURSE OF DEALING, COURSE OF PERFORMANCE, OR USAGE OF TRADE.

THE SOLE AND EXCLUSIVE REMEDIES FOR BREACH OF ANY AND ALL WARRANTIES WITH RESPECT TO THE PRODUCTS SHALL BE LIMITED TO REPAIR OR REPLACEMENT AT S.R. SMITH'S DESIGNATED FACTORY OR IN PLACE AT S.R. SMITH'S OPTION. IN NO EVENT SHALL S.R. SMITH'S LIABILITY EXCEED THE ENTIRE AMOUNT PAID TO S.R. SMITH BY THE ORIGINAL PURCHASER FOR THE FAILED OR DEFECTIVE PRODUCT.

No representative of S.R. Smith, nor any of its agents, distributors or dealers has any authority to alter in any manner the terms of this warranty and S.R. Smith is not responsible for any undertaking, representation or warranty made by any other person beyond the warranty expressly set forth in this warranty.

Terms and Conditions of Sale

Introduction

These Terms and Conditions of Sale apply to any S.R. Smith, LLC product(s) purchased directly from S.R. Smith, LLC. By purchasing such product(s) Buyer agrees to these Terms and Conditions of Sale. As all statements herein are subject to change, without prior notice, check our website at www.srsmith.com for the latest Terms and Conditions of Sale. If you have questions about this policy, contact our customer service department at 800-824-4387.

Standard Terms and Conditions of Sale

Goods sold by S.R. Smith, LLC are expressly subject to and conditioned upon the terms and conditions set forth below. Any different or additional terms set forth by Buyer, whether in Buyer's purchase order or another communication, are expressly rejected and will not be binding on S.R. Smith, LLC unless agreed to in writing by an authorized officer of S.R. Smith, LLC.

Sales and payment terms: Possession of a price list or other pricing information does not constitute an offer or agreement to sell. All prices, quotations and billing originated by S.R. Smith, LLC are in U.S. Dollars. All taxes, duties or other fees are the responsibility of the Buyer. Payment is due in Net 30 days on approved credit. Until credit is approved, payment must be made with the order. Cash in Advance (CIA) or Credit Cards are acceptable. A service charge of 1.5% per month (Annual percentage rate of 18%) will be charged on all past due accounts.

Acceptable forms of payment: All remittances must be in a single payment in the full amount of the invoice (adjusted for any debit memos approved by S.R. Smith, LLC) and must be in accordance with the following requirements, (S.R. Smith, LLC Special Terms and Conditions excluded, ie. Early Buy):

- Wire or electronic fund transfer (referencing invoice number) and Buyer must be the originator of wire.
- Buyer company check (drawn on company account with company name).
- Third-party checks, bank checks, and foreign drafts will be accepted only if approved in advance in writing by the CFO of S.R. Smith, LLC and must have accompanying documentation that references invoices being paid.

Minimum orders: All orders less than \$50.00 will be charged a \$25.00 handling fee.

Security interest: Buyer hereby grants to S.R. Smith, LLC and S.R. Smith, LLC reserves, a purchase money security interest in each product sold by S.R. Smith, LLC to Buyer in the amount of its purchase price. Any such security interest shall be satisfied by payment in full of the invoiced amount. Buyer agrees to execute any and all such documents, including financing statements, as may be necessary for S.R. Smith, LLC to protect such security interest.

Prices: Products and services will be invoiced at prices in effect as of date of shipment (invoice date). Prices are not necessarily valid for other current and future sales. Any and all invoice errors must be disputed within 15 days of invoice date and are subject to correction by S.R. Smith, LLC, at its sole discretion. Prices exclude any present or future federal, state, provincial, local, or other governmental taxes, duties, and tariffs applicable to the sale, transportation, or use of products purchased, all of which taxes, duties, and tariffs shall be paid by Buyer. **In lieu of S.R. Smith, LLC collecting sales and use taxes from resellers, the Buyer or reseller must provide S.R. Smith, LLC with a current, valid sales and use tax exemption certificate for all states in which they do business.**

International sales are subject to applicable transportation and import duties, licenses, and fees, or as agreed to by S.R. Smith, LLC in Buyer's purchase order. All prices are FOB shipping point. S.R. Smith, LLC has established a Minimum Advertised Price (MAP) Policy on certain S.R. Smith, LLC products. The policy applies to all reseller and distributors of S.R. Smith, LLC products under applicable laws. For complete details about S.R. Smith, LLC's MAP Policy, please consult your S.R. Smith, LLC sales representative.

Change in Buyer's financial condition: Buyer agrees to notify S.R. Smith in writing of any material changes to its financial condition. S.R. Smith, LLC reserves the right to cancel an order or require full or partial payment if (1) solvency of Buyer is in question; (2) Buyer files for bankruptcy; (3) there is an appointment of trustee or receiver for Buyer. S.R. Smith, LLC also reserves the right to cancel Buyer's credit at any time.

Delivery, title, and risk of loss: All shipments will be FOB shipping point, and title and risk of loss will pass to Buyer when accepted for shipment by the freight company. On-time shipment is dependent upon Buyer promptly supplying all necessary documentation. S.R. Smith, LLC will ship via its preferred carrier. S.R. Smith, LLC reserves the right to make partial shipments unless specifically stated otherwise on Buyer's purchase order. S.R. Smith, LLC will determine the point of shipment. Products may ship from multiple locations.

Excusable delays: S.R. Smith, LLC shall use commercially reasonable efforts to deliver all products ordered by Buyer as soon as reasonably practical. In the event of interruption of any such delivery due to causes beyond the reasonable control of S.R. Smith, LLC, including but not limited to fire, labor disturbances, riots, accidents, or inability to obtain necessary materials or components, S.R. Smith, LLC shall have the right, in its sole discretion and upon oral or written notice to Buyer, to delay or terminate such delivery.

Freight damaged goods: Buyer must inspect all goods before signing the delivery receipt. If goods are obviously damaged, the Buyer should refuse the specified damaged products. If concealed loss or damage is discovered, report it promptly to the delivery carrier. Follow up with written

confirmation to the carrier. Hold shipping cartons and contents for inspection in as close to the same condition as they were when the loss or damage was discovered. If the report is not made within 7 days after delivery, the burden of proof will shift to the consignee (Buyer) and it will then be the responsibility of the Buyer/consignee to prove that the loss or damage did not occur after the delivery of shipment. All shipments include a consignee form which clearly states that the consignee must refuse shipment if it is damaged. The consignee has 7 days to file a claim with the carrier, and not S.R. Smith. After 7 days, the consignee accepts full responsibility for any loss or damage of the shipment.

Shortages: Buyer must notify S.R. Smith, LLC Customer Service Department of shortages within 7 business days. All claims for shortages shall be waived and released after 7 business days of receipt. At S.R. Smith, LLC's option, shipment will be fulfilled or a credit will be mailed to Buyer within 30 days of claim receipt.

Product Return Policy

S.R. Smith, LLC products (except custom products and discontinued items) held for less than ninety (90) days from the ship date may be returned for a credit of the purchase price minus a restocking fee of 25%. All returns must be authorized by the S.R. Smith, LLC warranty department and must have a corresponding RMA (Return Merchandise Authorization) number to qualify for this program. Products returned without the required elements referenced above will be rejected. The sender will be responsible for all freight costs associated with the return. All returns are subject to a restocking fee to cover the cost of returning product to saleable condition. Credit for the returned product, less restocking fee, will not be issued until the returned product(s) have been received, inspected and deemed suitable for resale. No returns will be accepted in the month of December or after the product has been in the possession of the customer for more than ninety (90) days.

Limitation of Liability

S.R. Smith, LLC's liability to Buyer on any claim of any kind, whether as a result of breach of contract, warranty, indemnity, tort (including negligence), strict liability, or otherwise, for any loss or damage arising out of, connected with, or resulting from the transaction, or from S.R. Smith, LLC's performance or breach thereof, or from the design, manufacture, sale, resale, installation, repair, operation, or use of any products furnished herein, shall in no event exceed the price paid by Buyer for the products which give rise to the claim. Any such liability shall terminate upon the expiration of the applicable warranty period, provided, however, that Buyer's rights to prove title in the products purchased from S.R. Smith, LLC shall not terminate. In no event, whether as a result of breach of contract, warranty, indemnity, tort (including negligence and strict liability), or otherwise, shall S.R. Smith, LLC or its suppliers be liable for any special, consequential, incidental, direct, indirect, punitive or exemplary damages, including but not limited to: loss of profit or revenues; loss of use of the products or any associated equipment; damage to associated equipment; cost of capital, substitute products, facilities, or

services; downtime costs; or claims of Buyer's customer for such damage.

Disclaimer: S.R. Smith, LLC does not make any claims or warranties of any kind regarding any pool alarm product's potential, ability, or effectiveness to detect, minimize, or in any way prevent death, personal injury, property damage, or loss of any kind whatsoever. S.R. Smith, LLC is not responsible for any death, personal injury, damage, loss, or theft related to the pool alarm product or its use or for any harm, whether physical or mental, related thereto. S.R. Smith, LLC does not represent that the pool alarm product may not be compromised and/or circumvented, or that the pool alarm product will prevent death, personal injury, bodily injury, and/or damage to property of Buyer. Buyer understands that a properly installed and maintained pool alarm product(s) may only reduce the risk of unauthorized objects or people in the area where the pool alarm product is installed but is not insurance or a guarantee that such events will not occur or that there will be no death, personal injury, and/or property damage as a result.

Design changes: S.R. Smith, LLC reserves the right to make changes in design of any of its products without incurring any obligation to notify Buyer or to make the same change to units previously purchased. Code compliance: S.R. Smith, LLC products are designed and manufactured in compliance with federal, national or international standards (i.e. ADA, CPSC, CE, etc.). State and Local code requirements may differ from these standards. It is the responsibility of the Buyer to ensure that the assembly, installation and use of S.R. Smith, LLC product(s) purchased meets any and all State and Local code requirements.

Export laws: Buyer agrees to comply with all applicable export laws, assurances, codes and license requirements, and controls of the United States and other applicable jurisdictions in connection with the use and resale of S.R. Smith products including Buyer's acceptance of responsibility for the payment of any relevant taxes or duties, etc.

Governing law: These Terms and Conditions of Sale shall be governed by and construed and enforced in accordance with the laws of the State of Oregon. The invalidity or unenforceability of any provision of these Terms and Conditions of Sale by a court of competent jurisdiction, shall not affect the validity of the remainder of these Terms and Conditions of Sale, which shall at all times remain in full force and effect. Any litigation with regard to these Terms and Conditions of Sale shall be brought in the state or federal courts serving Clackamas County in Oregon. Buyer hereby stipulates and consents to the personal jurisdiction of the state and federal courts serving Clackamas County in Oregon.

CONTROL PANEL WITH TIME SWITCH FOR INDOOR/OUTDOOR USE
Suitable for Pool Equipment Control and for Direct Connection of Underwater Lights
ELECTRICAL RATINGS: See inside Enclosure Door

DANGER! TO AVOID RISK OF INJURY:
...do not permit children to operate the Control Unit or use the Pool/Spa unless they are closely supervised at all times.
...test GROUND FAULT protection regularly. If it fails to reset, DO NOT USE THE POOL or SPA!
 Contact a qualified service technician.
...always disconnect electricity before servicing this control or the equipment connected to it.

READ, FOLLOW AND SAVE THIS INSTRUCTION MANUAL

GENERAL INFORMATION

Many of today’s energy efficient pools and spas utilize the advantages of a single electrical panel, containing all the necessary controls for the safe, efficient and automatic operation of the pool/spa equipment. In addition, this Panel can also be used to control any outdoor equipment, sign or pump within its rated capacity.

The all-weather enclosure contains none one or two heavy-duty, industrial grade Time Switches. Also, it has provisions to install switches or a GFCI receptacle on the side as well as the inside. The Time Switch can also accommodate an optional heater control (fireman) switch.

The Control is designed to operate any pump, within its rated capacity. However, if protection to prevent dry start is required by the pump manufacturer, it must be provided in addition to this Control. Contact pump manufacturer if not sure and/or for more details.



IMPORTANT SAFETY INSTRUCTIONS

When installing and operating this Product and other associated equipment, basic safety precautions should always be followed, including the following:

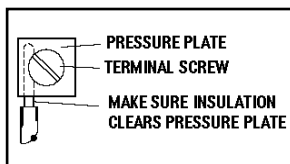
1. Read and follow all instructions.
2. This Control must be installed by a qualified electrician, according to National and Local Electrical Codes.
3. Install this control not less than 5 feet (3 meters in Canada) from inside edge of pool. **USE COPPER CONDUCTORS ONLY.**
4. Do not exceed the maximum ratings of individual components, wiring devices, and current carrying capacity of conductors.
5. For Control grounding, bonding, installing and the wiring of underwater lights, refer to Article 680 of the National Electrical Code or Article 68 of the Canadian Electrical Code.
6. The Control should not operate any equipment which would cause bodily injury or property damage should it be activated unexpectedly.

READ, FOLLOW AND SAVE THIS INSTRUCTION MANUAL

INSTALLATION

1. Remove the four #10 hex head screws from the **back** of the enclosure and attach mounting brackets to enclosure.
2. Select the proper location for the Control and hang enclosure on a flat vertical surface or other support, using hardware suitable for the purpose.
3. Prepare the necessary conduit runs, terminate them at both ends and pull in the conductors as specified by the installation layout.

4. Refer to Figure 1 below; note that this enclosure contains one or two Time Switch(es). To wire the panel, follow the wiring diagram located inside the enclosure door. Make sure that connections to time switch terminals are tight (25 lb.-in. minimum) and insulation clears the pressure plate - see illustration.



5. If required by the heater manufacturer, install fireman switch kit 156T4042A (not furnished) on Time Switch Plate and make the fireman switch connections. Use at least #18 AWG wiring with insulation rated 300 Volt or higher. Place heater ON/OFF switch on heater to **ON** (see Figure 2). Some heaters may require a special connecting harness, contact heater manufacturer for details.

6. For direct wiring of underwater lights, the installation must comply with Article 680-21(b) of the National Electrical Code or in Canada, Articles 68-060, -062 and -066.
7. To install additional wiring devices inside the enclosure, first remove rectangular knock-out(s) in dead front. Next, remove hex head screws in back of enclosure and install stand-offs* in place of screws. Attach wiring device to stand-offs.

- Stand-offs are not furnished. Order 21T156A for a set of four (4) stand-offs and mounting hardware.

8. If external bonding is required, install a bonding lug at bottom of enclosure and bond installation according to code requirements.
9. Testing of the installation is optional and recommended only if pump is securely in place and will not be damaged by this test:
 - a. Turn the manual lever of the Time Switch to OFF.
 - b. Turn ON power at breaker panel.
 - c. Move the manual lever of Time Switch to the right (ON). Pump should start and run on full speed.

In case of unsatisfactory results, turn OFF power, check your wiring, refer to Troubleshooting on Page 3.

10. Install front panel over wiring compartment. The control is now ready for programming, see OPERATION section on Page 3.

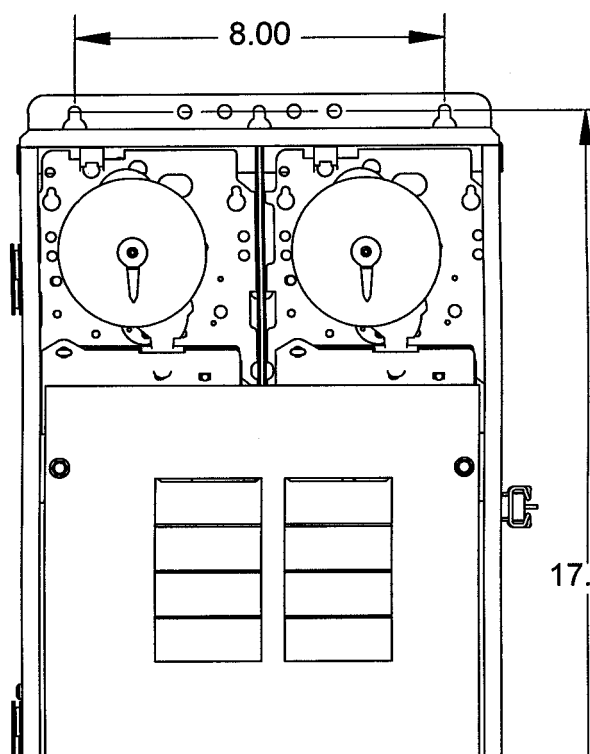
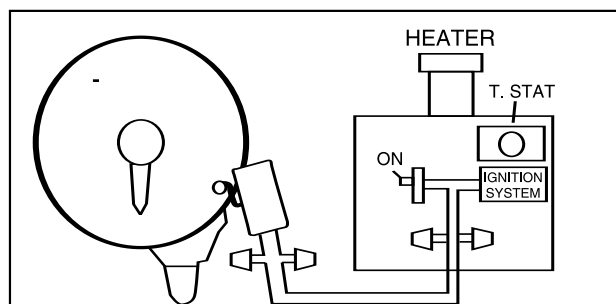


Figure 1

OPERATION

TO SET FILTER PUMP TIME SWITCH, follow instructions on the right. The length of the daily filtration/heating cycle depends on many variables such as size, shape, geographic location of the pool, water chemistry, type of pool equipment, usage and season of year. If not sure, contact your local pool service professional for advice.

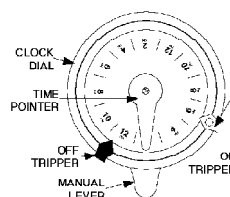
THE FIREMAN SWITCH (Heater Protection Mechanism), if required, is factory set and shuts OFF the heater 20 minutes before the Time Switch turns OFF the filter pump. The Fireman Switch requires no setting or service.



WARNING : Do not disconnect high limit or pressure switches.

Figure 2

TIME SWITCH OPERATING INSTRUCTIONS



1. TO SET "ON" AND "OFF" TIMES: Hold TRIPPERS against edge of CLOCK-DIAL, pointing to time (AM or PM) when ON and OFF operations are desired. Tighten tripper screws firmly.

2. TO SET TIME-OF-DAY:

Pull CLOCK-DIAL outward. Turn in either direction and align the exact time-of-day on the CLOCK-DIAL (the time now, when switch is being put into operation) to the pointer.

- **TO OPERATE SWITCH MANUALLY:** Move MANUAL LEVER below CLOCK-DIAL left or right as indicated by arrows. This will not affect the next operation.
- **FOR MORE THAN ONE DAILY ON-OFF OPERATION:** Place additional tripper pairs on CLOCK-DIAL (order 156T1978A).
- **IN CASE OF POWER FAILURE:** Reset CLOCK-DIAL to proper time of day. See step 2 above.

TROUBLESHOOTING

SYMPTOM	CAUSE(S)	CORRECTIVE ACTION
1. Time Switch will not keep time but dial is turning.	1a. Frequent power outages 1b. Wrong voltage/cycle 1c. Loose clock motor connections	Reset dial Change clock motor Check connections
2. Time Switch Dial stops at ON or OFF tripper.	2a. Loose tripper 2b. Bent dial 2c. Defective motor	Check/change tripper Check/change mechanism Change clock motor
3. Dial stops after switch turns OFF.	3a. LINE leads are connected to LOAD terminals	Reverse LINE and LOAD connections
4. Load is ON at all times - dial is turning.	4a. Welded contacts 4b. Two ON trippers and no OFF tripper on dial 4c. Defective mechanism	Change mechanism Change tripper Change mechanism
5. Dead clock motor. (Clock motor gears do not rotate).	5a. Defective clock motor (open coil due to lightning or surge) 5b. Loose clock motor connections 5c. Wrong voltage	Change clock motor Check connections Change clock motor

WIRING DIAGRAM

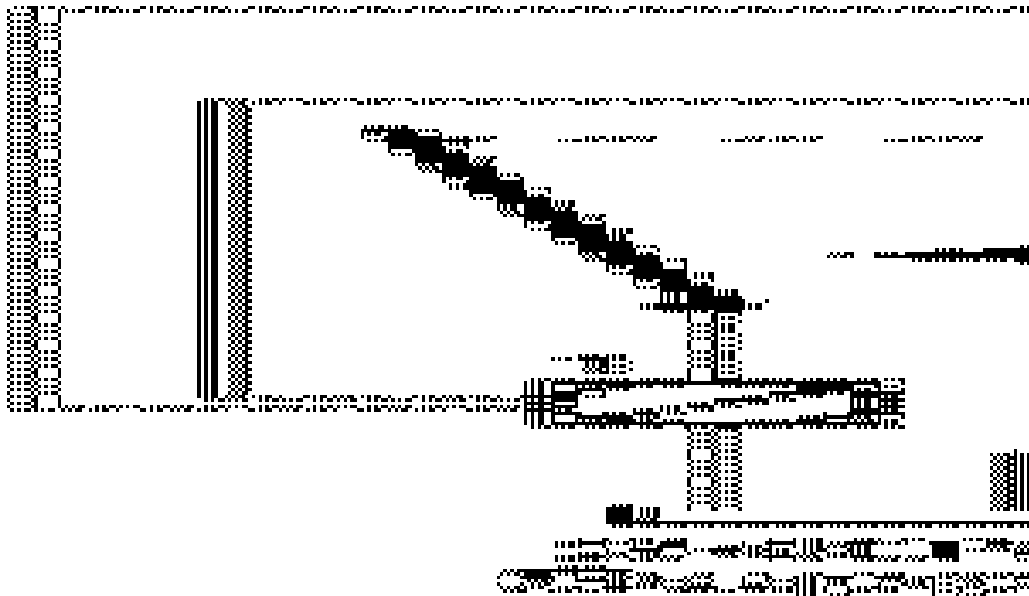
Typical 120 Volt Installation



Typical 240 Volt Installation



Filter and Cleaner Timer Inter-Connections



- NOTES:**
1. Grounding connections are not shown but must be provided. Refer to the National Electrical Code for details.
 2. Diagrams above are only two of the many variations this Panel can accommodate.

WARRANTY

If within one (1) year from the date of installation, this product fails due to a defect in material or workmanship, Intermatic Incorporated will repair or replace it free of charge.

The warranty does not cover labor for removal or reinstallation and does not apply to: (a) damage caused by accident, abuse, mishandling, or dropping; (b) a unit which has been subject to unauthorized repair; (c) units not used in accordance with directions; (d) damages exceeding the cost of the product. Some states do not allow a limitation of damages so the foregoing warranty may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

This warranty service is available, if the defective product or its defective component is returned with proof of purchase and date of installation, either (a) to the dealer from whom the unit was purchased or (b) by shipping prepaid to the **Intermatic Incorporated/After Sales Service**, 7777 Winn Rd., Spring Grove, IL 60081-9698/815-675-7000 <http://www.intermatic.com>

Because of our commitment to continuing research and improvements, Intermatic Incorporated reserves the right to make changes, without notice, in the specifications and material contained herein and shall not be responsible for any damages, direct or consequential, caused by reliance on the material presented.

INTERMATIC INCORPORATED, SPRING GROVE, IL 60081-9698
<http://www.intermatic.com>