

# IN-FLOOR TECH TRAINING 101



**PARAMOUNT  
INSTITUTE**

*Premier education for the pool industry.*

REV 012419





## IN-FLOOR TECH TRAINING 101

Paramount values the development of innovative products and strives to continue its mission of making pool life simplified. The same passion for great products is placed into how these products are maintained in order for them to maximize their performance. The IN-FLOOR TECH TRAINING 101 manual is intended to offer the information needed to troubleshoot and service the Paramount products. If you have any question regarding the content of this manual please call Paramount's Technical Support Department.

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## DDC & DDC2 DEBRIS CANISTER

Issue Date October 1, 2006



### 1. Debris Canister pulling air from on top of the internal lid.

- This can be caused by the 1½" equalizing line being restricted by either debris, or an eyeball fitting that has less than a 1" opening.
- Debris can either be in the equalizing line pipe, or in the space between the seat that the lid fits on and the wall of the canister.
- The debris can either be blocking the opening of the equalizer line inside the canister, or the debris could be preventing the internal lid from fitting flush on the seat.

#### SOLUTION:

- Make sure all debris is removed from the equalizer line and the inside of the canister.
- Remove eyeball from the equalizer line.

### 2. Canister is set too high and the water does not cover the internal clear lid.

#### SOLUTION:

- Order a "canister o-ring" (Part # 005152012000) from Paramount. Silicone the o-ring to the lid to stop it from rolling out of place. Allow the silicone to dry before installing the lid. A new quad ring will be available soon and will not need silicone.
- ALL NEGATIVE EDGE CANISTERS MUST HAVE AN O-RING AND BE PLUMBED TO PARAMOUNT STANDARDS. SEE PARAMOUNT FOR A DRAWING OF HOW NEGATIVE EDGE CANISTERS MUST BE PLUMBED.

### 3. No equalizer was plumbed from the canister into the pool.

#### SOLUTION:

- Order a "canister o-ring" (Part # 005152012000) from Paramount.

### 4. The internal lid is lifting off the seat and turning sideways or upside down inside the canister.

- This can be caused by excess air in the filter and a plugged auto air bleed inside the filter.
- The pressure pushes water backwards through the pump and into the canister when the pump is turned off. This could have caused the canister stops to become detached from the canister. Once this happens the lid will not stay in place.

#### SOLUTION:

- Fix the internal air bleed or add an external air bleed to the filter system.
- If the canister stops have become dislodged proceed as follows to replace the canister stops:



Turn off pump.

- Remove deck lid.
- Remove clear canister lid.
- Remove basket.
- Plug 1 1/2" balance line with an expansion plug from the poolside. (You may encounter a grate that has to be removed or other sized fittings)
- Plug 2" line from drain in sidewall of canister with threaded plug. (You may have to plug the other side line if the skimmer or a vac. line is connected here.)
- Plug 2" line to pump in bottom of canister with threaded plug. (You may have to plug the other bottom line if another pump is attached here.)
- Remove water from canister with shop vacuum
- Dry and clean out canister wall completely between old stop area and down into space between the lip the lid fits on and the canister wall.
- Using part number 005-670-6193-02 Ring Stop (NOTE: THIS PART IS TO REPLACE MISSING CANISTER STOPS AND IS FOR USE WITH CLEAR CANISTER LID NOT THE MVFUSE) Apply cleaner and glue to the ring stop and canister body, and place the ring stop with the wedges over the same position as the old wedges were. Make sure the feet on the ring stop are sealed on the bottom of the space between the canister wall and the lid lip. Place glue on the tee wedge and shove it in the slot of the ring stop to lock the ring in place.
- Allow time for glue to dry and then remove plugs and replace clean lid.

**5. Air is coming in under the internal lid in a large enough volume to affect the pump and cause loss of prime or performance.**

- a. The main drain line and skimmer line, if the skimmer is also plumbed into the canister, needs to be pressure checked to make sure that air is not coming in from a leak.
- b. The pool may be using a Vac. Line for the third layer of safety and it may be pulling air. Plug it off to test it, but it must be reinstalled for safety.
- c. If they are okay then it is possible to have a leak in the glue joints of the canister.

**SOLUTION:**

- There are two glue joints, one where the lower canister molded cap is glued on to the 8 inch pipe making up the middle, and the other where the top molded section of the canister is glued to the same center pipe.



- Plug and drain the canister, and seal the bottom seam with epoxy. The top section has a gap that must be filled with an epoxy that will not run. There are stick epoxies that can be mixed together that will fill the gap and seal the joint.
- It may also be possible that the flange, the main drain line, and/or skimmer line is glued into may be cracked. If so, it may not show up on a pressure test. This too can be epoxied at the inside threads of the canister on the suction side.

**6. Canister is out of round so internal lid won't fit.**

**SOLUTION:**

- File the lid so it will fit down flush on the sealing ring.

**7. The housing of the canister is cracked where the threaded fittings come in, or at the bottom of the housing.**

**SOLUTION:**

- Plug off all of the openings in the canister and drain all of the water out of it (Wet Vacuum works well) and dry off around the crack. Primer the surface around the crack and epoxy the crack.

**8. Drain line is plugged between the main drain and the canister.**

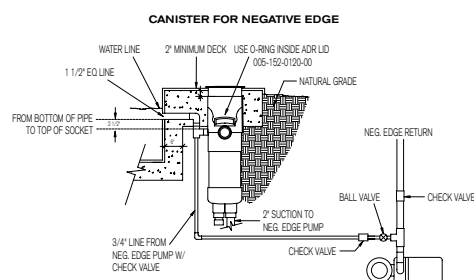
**SOLUTION:**

- This will cause cavitation and gas bubbles coming into the canister. To clean out the line you must determine if the MDX<sup>®</sup> has a vent line or an extra side drain tied into the suction line from the MDX<sup>®</sup> to the canister. If it is a vent line, plug off the vent opening. If it is a second side suction, remove the cover and plug off the opening with a test plug. Use the filter pump suction on full main drain to clean the line out. If this does not work then you may need to remove the MDX<sup>®</sup> cover and back-flush the line with a portable pump.

**Plumbing of ADR Canister on a negative edge basin**

**NOTE: YOU MUST UNPLUG VENT OR SECOND SIDE SUCTION WHEN FINISHED.**

**NOTE: NO LONGER USED AFTER 2016**



**9. Torn blue/net basket.**

**SOLUTION:**

- Replace with the new molded debris basket 005-152-2207-00 and if needed an optional fine mesh bag 004-152-4517-00 (catches hair, pine needles, and small leaves that would go through the molded basket. New basket has 333 cubic inches of volume.



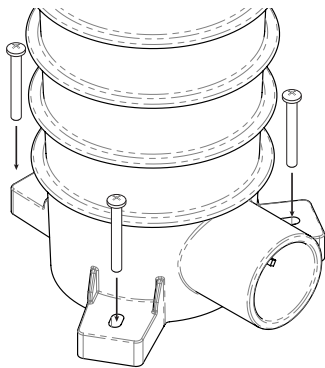
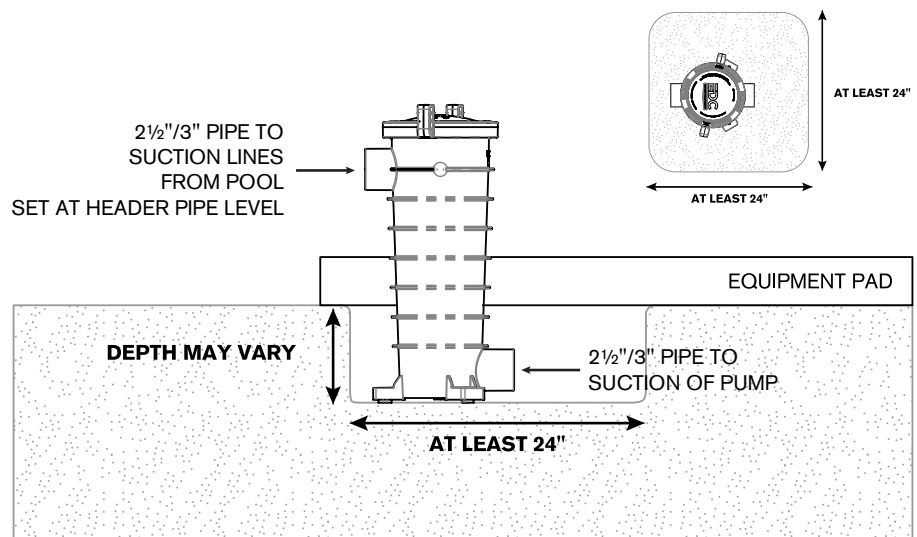


## EQUIPMENT SIDE DEBRIS CANISTER

The EDC is our leaf debris canister that is mounted at the pump. This allows it to be below water level or above water level.

### Locating the Canister Below Grade Installation

The EDC canister can be installed below grade. Dig a hole that is at least 24" x 24" depth may vary. Backfill the hole after plumbing; be sure to compact the soil around the canister to ensure stability.



### installing the EDC at grade

Anchoring the unit to the pad using the 3 mounting feet. Set the canister on the pad. Anchor the canister to the pad. Failure to anchor the canister puts undue stress on glue joints when removing the lid. Over time this can result in leaks. Also, anchoring the canister reduces vibration and aids in quieter operation of the equipment.

Possible problems with the EDC

### Air getting into the canister

#### Solution:

- Check and clean lid O-ring and replace if necessary.
- Look for suction leak at the w 3/8" threaded holes for a gauge and ozone.
- Pressure test from pump to all suction sources.



## PCC2000®, VANQUISH, VANTAGE, VECTORJET NOZZLES

Issue Date October 1, 2006

**CHALLENGE:** A PCC2000®/Large “floor” nozzle does not want to go into, or stay in, the body.

**Note:** The PCC2000®, VANQUISH, VANTAGE Large nozzles are 4" in diameter.

### CAUSES/SOLUTIONS:

- 1. PCC2000®, VANQUISH, VANTAGE 4" floor nozzles are “reverse locking”.**
  - Counter clockwise to install, clockwise to remove.
- 2. Red square O-ring is not in position on the bottom of the nozzle.**
  - If it is missing, the nozzle will not stay in the body.
  - If it is not pushed up into position at the top of the shaft, the nozzle will not go into the body.
  - If the o-ring does not fit tight on the nozzle shaft it must be replaced. Part #005-552-0142-00
- 3. The body has debris plaster or pebble in the cupped part of it which will not allow the nozzle to lock in place.**
  - Swirl the capped end of a Telescopic pole in the body, while that line is on, use the pause control on the water valve to lock the line on so the water flow can help clean the body.
  - Attach a screw driver to the pole with wire or tape, and break loose the debris, plaster or pebble in the body then repeat the previous step.
- 4. The nozzle is so far out in the pool that you can't get the nozzle to start turning.**
  - Take a file or knife and while holding the nozzle up-right, trim the right upper corner of the four lugs on the nozzle body to make a rounded corner. This allows the nozzle to start turning with out having to compress the square ring.
  - Because many telescopic poles now have a friction nut to lock them in place, which in many cases does not hold while putting in nozzles, duct tape the two pieces of the pole together so you can get adequate torque to tighten the nozzles in place.
- 5. The body is deformed or crushed.**
  - You may be able to trim the nozzle on the sides with a file to make it narrow enough to fit into the body. If not, then the body must be chipped out and replaced.



# PCC2000<sup>®</sup>, VANQUISH, VANTAGE, VANISH, VECTORJET NOZZLES SIZING

Issue Date October 1, 2006

## **CHALLENGE: Sizing the orifices on a PCC2000<sup>®</sup>, VANQUISH, VANTAGE System to the correct gallons needed per circuit.**

**SERVICE NOTE:** (Ask the homeowner if the pool builder provided them with a copy of the Paramount In-floor System design plan)

### **CAUSES/SOLUTIONS:**

#### **1. The PCC2000<sup>®</sup> system operates at 65 gpm at 70 feet of head on a single pump system.**

- The single pump system is 50 to 55 gallons per minute per circuit of the water valve

#### **AND**

- 10 to 15 gallons of water is diverted to the fixed “non-rotating” nozzles. All pools over 12' wide require fixed “non-rotating” nozzles, which are on each side of the main drain and aimed just slightly off center toward the main drain. Fixed nozzle sizes are 1/8" = 4 gpm. 1/4" = 7 gpm. 3/8" = 12 gpm. 1/2" = 25 gpm.

#### **2. The PCC2000<sup>®</sup> system operates at 50 to 55 gpm at 60' of head on a booster pump system. On booster pump systems the cleaning pump pulls from the skimmer(s).**

- The filter pump pulls from the main drain and one skimmer.

#### **3. The VANQUISH, VANISH & VANTAGE single and booster pump system operates at 50 to 55 gpm @ 60' of TDH for booster and 70' TDH for single filter pump systems.**

### **Floor Nozzle Size:**

#### **1. Gallons per large 4 inch floor nozzle size:**

- 3/4" = 50 gpm or 1 nozzle per circuit of the valve
- 1/2" = 25 gpm or 2 nozzles per circuit of the valve
- 3/8" = 12.5 gpm or 4 nozzles per circuit of the valve

#### **2. Gallons per 2 inch step nozzle size:**

- 5/8" = 20 GPM or no more than three per line
- 3/8" = 10 GPM or 5 per line
- 1/4" = 5 GPM or 10 per line

**Note: combinations of nozzles adding up to 50 to 55 gpm. can be used.**



### **Changing the size of the orifice in the PCC2000®, VANQUISH, VANTAGE, VECTORJET large 4" nozzle.**

- VectorJet nozzle size cannot be changed.
- Hold the top of the nozzle body in left hand and the shaft of the nozzle in the right hand. Turn the shaft counter clock wise 1/8 of a turn until it stops. **FIXED NOZZLES:** you must hold the cap from rotating and you may have to use pliers on the bottom of the shaft to rotate it.
- Holding the nozzle upside down pull the shaft out of the cap. Continue to hold the cap up side down and release and push the cap up and down so that it rotates to the point the pins line up with the release point and the cap comes out completely.
- At this time you can change the clear orifice to the size needed.
- The nozzles come with the 3/4" side open from the factory and a 1/2" clear orifice in the other side.
- Only the clear orifice can be changed by popping it out and replacing it with another size.
- When you put the nozzle back together it can go in two sides of the cap. Pick the one you want and reverse this procedure to reassemble the nozzle.
- Always check to make sure you have the right size after reassembling.
- Even if you set the nozzle to operate with the 3/4 opening you must keep the clear jet in the opposite side of the cap to stop water from by-passing the nozzle.

### **AIMING THE FIXED NOZZLES.**

- The fixed need to be set so the orifice is pointed towards the outside edge of the main drain. Each head should be aimed to the opposite side of the drain to create a vortex condition. Use the uncapped side of the pole and put the end in one of the top groves on the cap and push down about 1/2 inch and rotate clockwise until in position.

### **AIMING THE VECTORJET NOZZLES.**

- Go to <http://www.1paramount.com/builders/products/vectorjet/> and click on the link on the right "HOW TO USE THE VECTORJET AIMING TOOL VIDEO"  
VectorJet aiming tool part number for:  
VectorJet Body: 004-562-4600-00  
PCC2000 Body: 004-522-4600-00



### Step Nozzles

1. Step nozzles should be set up to equal to 50 to 60 gpm per circuit. 5/8" = 20 gpm, 3/8" = 10 gpm, 1/4" = 5 gpm.

2. Changing PCC2000® old style step small nozzle caps (spring-ratchet).

- Take the weight/cover rubber washer and retainer body off the shaft by pushing the 4 prongs together. Look under the nozzle cap for a notch. Using a hacksaw blade, cut the cap at the notch sideways so that you are splitting the cap. This then allows you to use a pair of pliers to pop the cap off. To put the nozzle back together again, put the shaft back in the body and then BE SURE TO GET THE RUBBER WASHER ALL THE WAY UP THE SHAFT before snapping the weight and weight-cover back in place.
- To put on the new nozzle cap, place the cap on the shaft and then while holding the bottom of the nozzle on a hard surface snap the cap in place with the palm of your hand.

**NOTE:** You should observe the system in operation once you have reinstalled any of the nozzles that were removed to make sure the nozzles are locked in.

**CHALLENGE:** If, by chance, a Step Nozzle cap comes off by itself.

- These caps are designed to pop off if the pressure is too great. To fix this make one or more of the nozzle sizes bigger on the same circuit to reduce the pressure. See gallonage requirements above, under 2" nozzle size. See step 1 above.
- This could also be a weighted nozzle with no spring. If this is the case, go to PV3 Nozzle section (Changing the caps section).

**PCC2000®, Vanquish, Vanish, Vantage New Style Step Nozzle weighted (no spring).**

1. Remove the weight and cover on the nozzle by using your thumb and four fingers from both hands to compress the four bottom prongs inward and lifting up on the weight and cover to remove them.
2. Remove the gasket and body form the shaft. On the bottom of the cap you will see a notch. Cut along the side with a hacksaw blade following the notch up the side and around the corner of the cap. This splits the cap and it can now be removed with a pair of channel locks.
3. To replace the new cap, put the nozzle back together and place the correct cap on it and with the bottom of the nozzle on a hard surface, strike the top of the cap with the palm of your hand to snap it in place.

**Changing the new style PCC2000®, Vanquish, Vantage New Style Step Nozzle twist cap**

1. Twist the cap counter clockwise to remove. Place the correct cap on the nozzle an twist clockwise





## PV3<sup>®</sup> PVR NOZZLES SIZING

Issue Date October 1, 2006

### 1. Sizing the PV3<sup>®</sup> nozzle caps to the correct gallons needed per circuit.

- a. The PV3<sup>®</sup> system operates at 65 gpm at a maximum 80' of head on a single pump system and at 65 gpm at 60' of head on a dual pump system. On a small pool, the PV3<sup>®</sup> system may operate on as little as 40 gpm at 60' of head. The amount of gallons needed depends on the number and gallonage requirements of the nozzles on a circuit.
- Gallons per PV3<sup>®</sup> nozzle cap sizes.
    - a. 5/8" = 20 to 22 gpm.
    - b. 3/8" = 10 gpm.
    - c. 1/4" = 5 gpm.

Note: Combinations of nozzles adding up to 65 gpm may be used. On 40 gpm systems only two 5/8" nozzles per floor circuit are used.

Note: To install an old style cap put the correct cap on the shaft so the key way lines up. Place the bottom of the nozzle on a hard surface and strike the top of the cap with the palm of your hand and the cap will snap in place.



### 2. Changing PV3<sup>®</sup> nozzle caps after they are snapped on. (Old style)

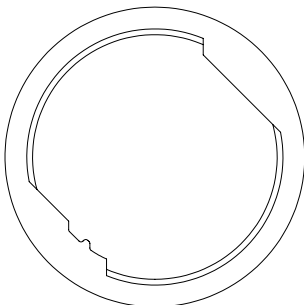
- Take the weight/cover rubber washer and retainer body off the shaft by pushing the 4 prongs together. Look under the nozzle cap for a notch. Using a hacksaw cut the cap at the notch sideways so that you are splitting the cap. This then allows you to use a pair of pliers to pop the cap off. To put the nozzle back together again, put the shaft back in the body and then **BE SURE TO GET THE RUBBER WASHER ALL THE WAY UP THE SHAFT** before snapping the weight and weight-cover back in place.
- To put on the new nozzle cap, place the cap on the shaft and then while holding the bottom of the nozzle on a hard surface, snap the cap in place with the palm of your hand.

### Changing the cap on a new style PV3 nozzle twist cap (Introduced 2016)

- Twist the cap counter clockwise to remove. Place the correct cap on the nozzle and twist clockwise

### 3. Nozzle caps are blowing off. (Old style press on)

- These caps are designed to pop off if the pressure is too high on a line. To fix this, make one or more nozzles on the same line bigger. Bigger relieves pressure and cleans further.
- **NEW STYLE TWIST LOCK.** Place nozzle cap on nozzle and turn clockwise until it snaps in place.



New twist lock caps



**4. Nozzle will not go down into the body.**

- Do not force it. Check to make sure no plaster or pebble is inside the body.
- Do not force it. Bad pipe or improper gluing may have caused this. Call Paramount and get a special head that is narrower and will fit the body.
- Do not force it. Check to see that the bottom of the nozzle is not making contact with a fitting that may have been installed too high. Measure the distance that the nozzle needs to be shortened and order a special nozzle from Paramount.

**5. Complete nozzle keeps coming out.**

- Replace standard o-ring with a thicker (pressure plug) o-ring.

**6. Nozzle is making vibrating noise.**

- Replace standard o-ring with a thicker (pressure plug) o-ring.

**7. Nozzle is sticking in body and not retract when the pump is off**

- Replace gasket between weight and body part #005-627-0060-00. This gasket can be affected by copper in the water from salt systems and algecides.







## CYCLEAN/ A&A RETRO CARETAKER RETRO/ NET'N'CLEAN RETRO/ ECOPOOL NOZZLE

### 1. Sizing the Cycleclean nozzle caps to the correct gallons needed per circuit.

- The Cycleclean system operates at 60 to 65 gpm at 80' of head on a single pump system and at 60 to 65 gpm at 60' of head on a booster pump system. On a small pool, the Cycleclean system may operate on as little as 40 gpm at 70' of head. The amount of gallons needed depends on the number and gallonage requirements of the nozzles on a circuit.
- Gallons per Cycleclean nozzle cap sizes.
  - 5/8" = 20 to 22 gpm
  - 3/8" = 10 gpm
  - 1/4" = 5 gpm

Note: Combinations of nozzles adding up to 65 gpm may be used and on small pools heads adding up to 40 gpm at 70 ft. of thd. can be used.

### 2. Nozzle caps are blowing off.

- These caps are designed to pop off if the pressure is too high on a line. To fix this, make one or more nozzles on the same line bigger. Bigger relieves pressure and cleans further.

### 3. Nozzle will not go down into body, and body is not obstructed with plaster or debris.

- Do not force it. Call Paramount 800-621-5886 for a solution.

### 4. Sizing the A & A, Caretaker, and Net n Clean Retro nozzles.

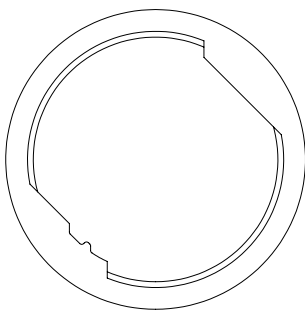
- Replace the nozzles with like sizes of the Retro nozzle caps. However if you have only two or three nozzles on a circuit use the largest cap size for maximum cleaning. If you have four nozzles on a circuit, and then make two of them 3/8" and two of them 5/8". Place the 5/8" nozzles in the bodies that are in the pool corners or sides and the two 3/8" nozzles in the easier areas to clean.

### 5. CAP REMOVAL. Cycleclean / All Retro Heads and Ecopool Nozzles.

- With a hack saw blade cut a small groove in the top corner of the existing cap
- Place the bottom of the nozzle on a hard surface and then with chisel or small flat blade of a screwdriver split the cap down the side. Once the cap is split you can remove the old cap with a pair of channel locks.
- To put the new cap on, place the cap in position with the nozzle on a hard surface and strike the top of the cap with the palm of your hand to snap it in place.

### Changing the cap on a new style PV3 nozzle twist cap (Introduced 2015)

- Twist the cap counter clockwise to remove. Place the correct cap on the nozzle an twist clockwise



New twist lock caps



# RetroJet Nozzle Replacement Guide

## Original Nozzle

## RetroJet Replacement Nozzle



A & A QuickClean 1® Nozzle\*  
(Approximate Release Date 1981)  
Nozzle Removal Tool: 004-652-5421-00



Paramount RetroJet Nozzle  
for A&A Quickclean 1

004-652-4955-XX

### RetroJet Nozzle for A&A Quickclean 1

Indicate your A&A Retrojet color choice by placing the appropriate color code in place of the "XX" at the end of the part number.

White-01    Black-03    Beige-07    Cream-09    Medium Gray-10



A & A QuickClean 2® Nozzle\*  
(Approximate Release Date 1992)  
Nozzle Removal Tool: 004-652-5422-00



Paramount RetroJet Nozzle  
for A&A Quickclean 2

004-652-4956-XX

### RetroJet Nozzle for A&A Quickclean 2

Indicate your A&A Retrojet color choice by placing the appropriate color code in place of the "XX" at the end of the part number.

White-01    Black-03    Beige-07    Cream-09    Medium Gray-10



A & A QuickClean Gamma 3® Nozzle\*  
(Approximate Release Date 2004)  
Nozzle Removal Tool: 004-652-5423-00



Paramount RetroJet Nozzle  
for A&A Quickclean Gamma 3

004-652-4957-XX

### RetroJet Nozzle for A&A Quickclean Gamma 3

Indicate your A&A Retrojet color choice by placing the appropriate color code in place of the "XX" at the end of the part number.

White-01    Black-03    Beige-07    Cream-09    Medium Gray-10



Net 'N' Clean Nozzle\*  
(Approximate Release Date 1999)



Paramount RetroJet Nozzle  
for Net "N" Clean

004-652-4945-01

### RetroJet Nozzle for Net 'N' Clean

White-01



# RetroJet® Nozzle Replacement Guide

## Original Nozzle | RetroJet Replacement Nozzle



CareTaker 99® Bayonet Nozzle\*  
(Approximate Release Date 1991)



RetroJet Nozzle  
for CareTaker 99 Bayonet

004-652-4954-XX

### RetroJet Nozzle for CareTaker 99 Bayonet

Indicate your CareTaker 99 color choice by placing the appropriate color code in place of the "XX" at the end of the part number.

- |               |          |          |          |
|---------------|----------|----------|----------|
| White-01      | Gray-02  | Black-03 | Taupe-04 |
| Light Gray-08 | Cream-09 | Blue-11  |          |



CareTaker 99® Threaded Nozzle\*  
(Approximate Release Date 1991)



RetroJet Nozzle  
for CareTaker 99 Threaded

004-652-4949-XX

### RetroJet Nozzle for CareTaker 99 Threaded

Indicate your CareTaker 99 color choice by placing the appropriate color code in place of the "XX" at the end of the part number.

- |               |          |          |          |
|---------------|----------|----------|----------|
| White-01      | Gray-02  | Black-03 | Taupe-04 |
| Light Gray-08 | Cream-09 | Blue-11  |          |



Pool Valet Nozzle\*  
(Approximate Release Date 1980)  
Nozzle Removal Tool: 004-502-5420-00



RetroJet Nozzle  
for Pool Valet

006-502-4714-XX

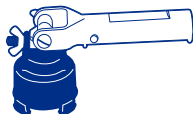
### RetroJet Nozzle for Pool Valet

Indicate your color choice by placing the appropriate color code in place of the "XX" at the end of the part number.

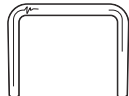
- |          |               |          |               |
|----------|---------------|----------|---------------|
| White-01 | Gray-02       | Black-03 | Taupe-04      |
| Blue-05  | Light Blue-06 | Beige-07 | Light Gray-08 |



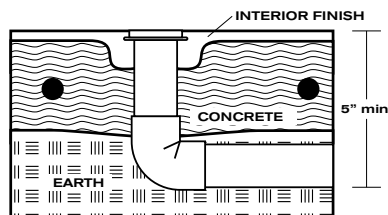
004-652-5422-00  
RetroJet Installation Tool



004-502-5452-00  
Pool Valet Retro  
Installation Tool



004-502-5420-00  
Original Pool Valet  
Installation Tool



## Notice:

RetroJet™ requires the PVC piping to be minimum of 5" in depth. Be sure to remove the old nozzle and check for depth before purchasing.

\*Some A&A QuickClean® step and bench nozzle installations used PVC piping only 1" in diameter, RetroJet™ will not fit these installations.





## POOL VALET OLD AND NEW STYLE / STEP CLEAN / OLD STYLE VANTAGE STEP NOZZLES

Issue Date November 2, 2009

### 1. Sizing the Pool Valet® nozzles.

- Each hole on the Pool Valet is either 1/4" or 3/8". The nozzle comes with 4 partial holes in it. Only one or two are drilled out all the way when they are ordered as a one or two hole nozzle. The nozzle can also be ordered as a blank and it is left to the installer to drill out the proper holes. Note: blank nozzles will cause the pump to dead head out if not drilled out.
- The number and size of the holes drilled out determine the gallonage of the nozzle. 1 ea. 1/4" hole equals 5 gpm, 1 ea. 3/8" hole equals 10 gpm, and two ea. 3/8" holes (the maximum allowed per nozzle) equals 20 gpm.
- Pool Valet systems work on either 40 gpm at 70 ft. of head or 60 gpm at 80ft. of head depending on the size of the pool. Example; 2 ea. 2 hole nozzles on a line equal a 40 gpm system, 3 ea. 2 hole or 4 ea. (2 ea. 2 hole and 2 ea. 1 hole) equal a 60 gpm system.

### 2. Broken Pool Valet nozzle.

- Remove the nozzle threaded ring with a tool available from Paramount. Replace the nozzle with the correct hole sizes. When a nozzle breaks there is usually a reason and most of the time it is because debris has plugged one or more of the nozzles in that circuit so check all nozzles on the circuit for debris.

### 3. Pool Valet Retro Nozzle

- If the threaded part of the body in the plaster is broken it can be repaired with a Pool Valet Retro available from Paramount and can be glued underwater using Wet or Dry glue. Pool Tite is one such brand of this type of glue. See page 20 for Pool Valet replacement.
- Some Pool Valet installers put 90 degree fittings to close to the bodies, heat bend pipe near the body, or slopped glue on the inside of the riser pipe. All of these things can stop the new Pool Valet Retro nozzle from going down all the way. Test the nozzle in the body for fit and if it does not go down then you may have to file the inside of the riser pipe attached to the old Pool Valet body. If this does not solve the problem a special narrower nozzle can be ordered from Paramount.



- **NOTE:** IF YOU ARE RE-SURFACING A POOL WITH POOL VALET AND DESIRE TO CHANGE THE COLOR TO MATCH THE NEW SURFACE, Pool Valet RETRO WILL NOT ONLY ACCOMPLISH THIS BUT CHANGE THE SYSTEM OVER TO A NEWER SYSTEM. If you do this, a 5/8" retro nozzle equals a 2 hole, a 3/8" retro equals a 1- hole Pool Valet nozzle and a 1/4" equals a 1/4".

**New Generation Pool Valet.**

- Uses a different ring and body. The new ring and body have 4 1/2" notches that use the PV-3, Cycleclean or PCC2000 step head tool to remove. Part number 004-552-5452-00.
- The New Generation Pool Valet has the same nozzle and flow rate as the old Pool Valet

**NOTES** \_\_\_\_\_

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## WATER VALVES

Issue Date October 1, 2006

### 1. Water valve is leaking.

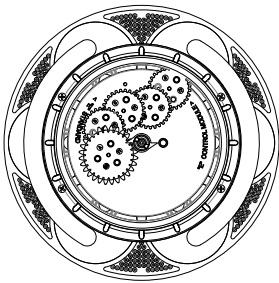
- Determine where the leak is. If it is from the clamp area, turn off the pump and take the clamp off. Remove the lid and inspect it for debris or a crack. If there are no visible cracks, place a new square ring in the groove and do not use lube. Put the lid back on, replace the clamp and start tightening the nut. You must tap the clamp on the opposite sides of the nut as you are tightening the nut so the clamp and o-ring will seat properly.
- If the valve is leaking from one of the glued in pipes at the base of the valve, some times you can epoxy around the inside of the valve where the pipe is glued in to stop the leak. Do not get epoxy on the raised sealing veins of the valve.

### 2. Valve lid or valve base is cracked.

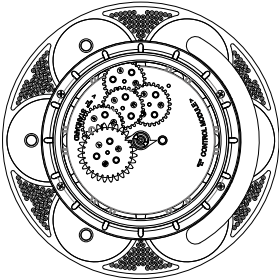
- If the lid is cracked replace it with a new one, and follow steps for leaking valve as shown above when putting the valve back together.
- If the base is cracked you must first determine if it is a 2" or 1 1/2" base.
  - a. 1 1/2" Base: Make seven nipples 6" long and glue couplers on to one end of them. Prime the new valve base and glue in the nipples to the base. Cut off the old base and make all of the risers the same height. Glue all of the risers and couplers with slow-drying heavy-body glue (gray glue) glue and push everything together at once. Hint: this is easier with two people.
  - b. 2" base; no fittings can be beside each other on the 2" valve.
- On the new 2" base, glue a 5" nipple in the center port of the base (be sure to primer all ports of the base).
- Cut 3 ea. 8" nipples and glue them on every other port of the water valve.
- Cut 3 more 11" nipples and glue them in the remaining holes.
- Cut the old water valve base off.
- Using an insider saw cut every other outside riser 6" lower than the center riser.
- Cut the remaining three outside risers 3" lower than the center riser.
- Glue couplings on all of the risers.
- Place glue (slow-drying heavy body) on all of the nipples and the inside of all couplings and push the base and nipples down on the risers.
- **Hint this is easier with two people.**



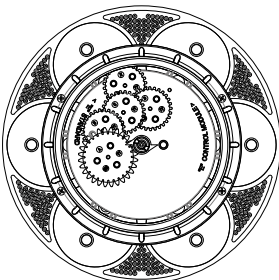




2 Port



4 Port



6 Port

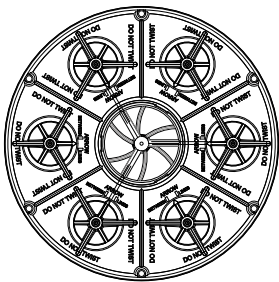
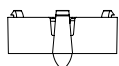
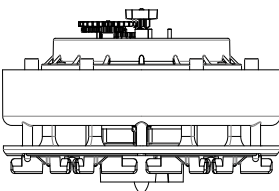


Fig. 1



Flow optimizer

## MODULES

Issue Date October 1, 2006

### 1. Determining when a module is in need of replacement.

- If a piston is in the open position when you remove the module from the water valve housing, this does not mean that the module has failed. This can be caused by debris being under one of the six balls on top of each piston, or an older diaphragm that is getting more pliable.

#### SOLUTION:

- Wash the module out in the pool thoroughly by swishing back and forth and sideways. Press the piston or pistons back flush to the sealing plate. **DO NOT TURN PISTON**
- Replace the module in the water valve housing and turn on the pump and see if a set of heads (other than the fixed nozzles on a PCC2000 system) stay in the up position.
- If a set of nozzles or nozzle stays up, push it down with a pole and if it comes right back up again then the module needs to be replaced.
- WE DO NOT REPAIR MODULES OR SELL PARTS. IT IS MORE COST EFFECTIVE TO PUT IN A NEW ONE THAT WILL HAVE ALL OF THE IMPROVEMENTS THAT HAVE BEEN MADE SINCE THE ONE YOU ARE REPLACING WAS MADE.**

NOTE: New modules on valve bases with 1 1/2" plumbing need to have the flow optimizer removed. Fig. 1

### 2. Determining which module needs replacing on a two or three valve system.

- Use the pressure gauge on the lid of the water valves (if bad replace) to determine which valve has water pressure on it. If the lid(s) don't have a gauge we strongly recommend you replace the lids with new lids that will accommodate a gauge.
- Pressure on one valve means on a 9 port (two valve system) that the valve with the pressure is the 3 plus 1 valve (4 port), and it is running through ports 1, 2, or 3. If one of these circuits stays up all of the time and the pressure is low on the gauge, then the 3 plus 1 module is in question. If both valves have pressure on them and the second valve never goes to 0 pressure then the 3 plus 1 is still the module in question. Use the SOLUTION steps to clean and recheck the module. **ON A 3 PLUS 1 MODULE THERE ARE TUBES CONNECTING THREE OF THE PISTONS TOGETHER. WHEN INSTALLING THE MODULE THE THREE PISTONS WITH TUBES MUST BE OVER THE CUT OUT SECTION OF THE BASE THAT HAS TWO PLUGGED PORTS WITH AN OPEN ONE IN BETWEEN.**



**NOTE:** IF A LID WONT GO DOWN ON A VALVE WITH A 4 PORT OR 1+1 MODULE THE TUBES MAY BE TOO LONG AND NEED TO BE SHORTENED

IF THE MODULE IS NOT PLACED CORRECTLY, THE ABOVE TESTING PROCEDURE WILL NOT WORK AND THE CLEANING SYSTEM WILL NOT OPERATE PROPERLY. TO CORRECT THIS: PLACE THE MODULE IN THE RIGHT POSITION.

- Once both valves have pressure on them, the 3 plus 1 is feeding the second valve. Once this happens, place the 3 plus 1 on pause with the pause control on the lid of the 3 plus 1. The pressure on the second valve should be no less than 3 to 4 pounds lower than the other valve. If a nozzle or set of nozzles (other than the two fixed on a PCC2000 system) stay up, then this is the module in question.
- On a 12 port valve there should only be pressure on two valves at a time, other than a few seconds while the 2 port (usually the center valve) is changing to the other valve. If pressure stays on all three valves then the 2 port module is the one in question. If a head(s) stay up on either one of the two six port valves, push down on them, and if they come back up then the six port valve with the pressure on it is the one in question. See Determining when a module is in need of replacement on page 26. to check it out. See page 28 for placement of 1 plus 1 module.

### 3. Module is not rotating.

- The gears may be locked up with debris. Clean out the gear train and spin the gears to make sure they are free of any drag or not locking up.
- If the module is older, the shafts and bearings might be worn enough to cause miss alignment causing the gears to bind. Replace the module if this is the case.
- Greatly reduced flow thru the valve will cause the impeller not to turn and one cause of reduced flow could be debris in the nozzles or the wrong size nozzles. This condition should show up as a higher pressure on the water valve gauge.
- Debris like a rock can stop the impeller and when you turn off the pump it may fall back into the center port making the module look like there is nothing wrong. With the module out turn on the pump that runs the cleaning system for a few seconds and clean out the line.

### 4. Module is running to fast.

- If this is a 1 1/2" base you must take the flow optimizer off the bottom of the module (Round with directional veins in it). It just snaps off.

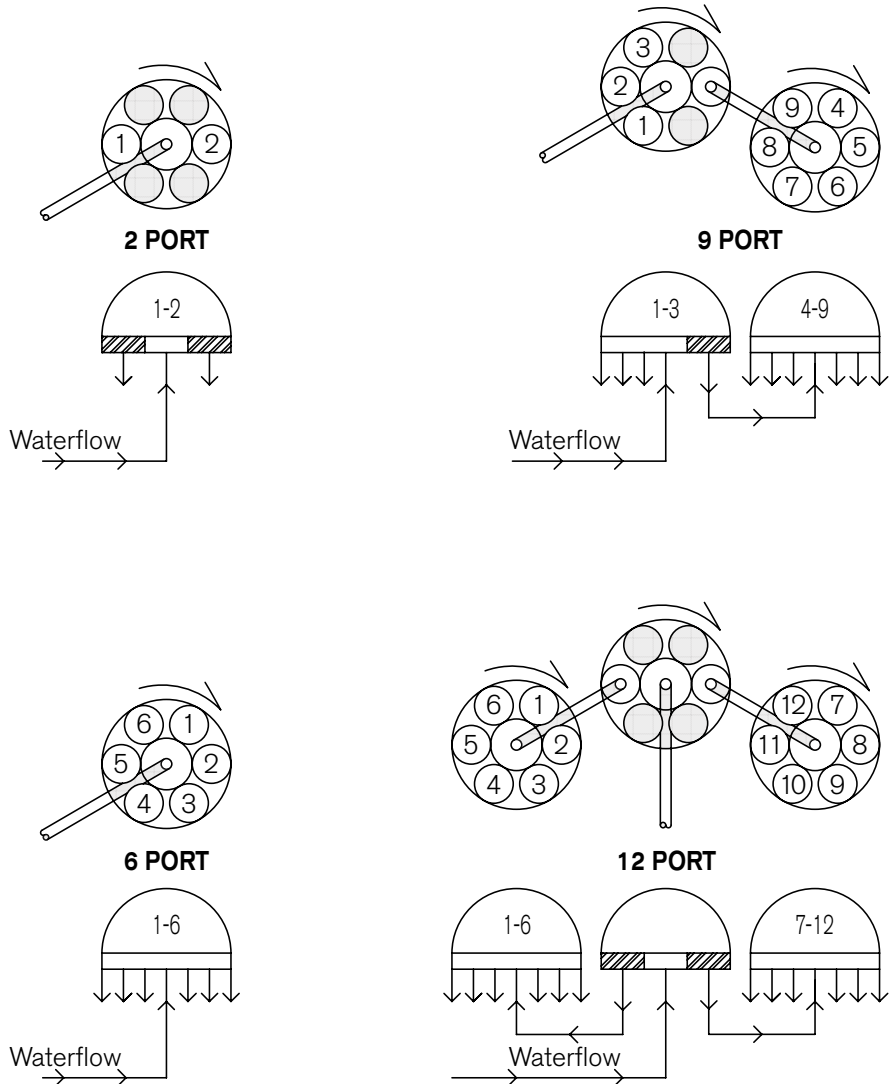
**HELPFUL HINT:** IF YOU WANT TO KNOW WHICH LINE THE MODULE IS ON, LOOK AT THE TOP GEARS BEFORE PULLING OUT THE MODULE. TAKE NOTE OF WHERE THE GEAR FURTHEST FROM THE CENTER THAT IS MESHED TO THE RING IS. THE PISTON CLOSEST



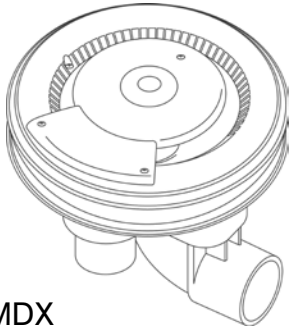
CLOCKWISE TO THAT GEAR IS THE PORT THAT IS OPEN.

**HELPFUL HINT:** IF YOU ARE IN THE FIELD AND DO NOT HAVE A 3+1 (4 PORT) OR 1=1 (2 PORT) MODULE YOU CAN MAKE ONE OUT OF A 6 PORT MODULE BY TAKING THE TUBES OFF THE BAD MODULE AND CAREFULLY DRILLING OUT THE HOLES IN THE NEW MODULE THAT CORRESPOND TO THE ONES IN THE BAD MODULE. THEN PUT THE TUBES BACK ON THE NEW MODULE.

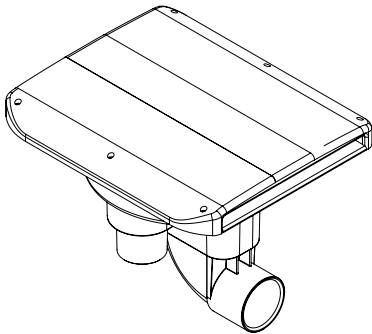
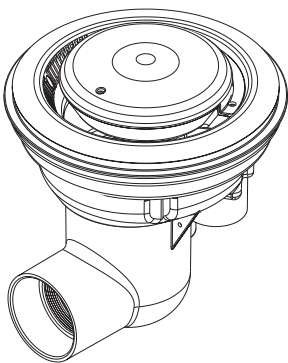
**Module replacement:** On a two port or the center valve of a twelve port three valve system, two sets of three pistons on the module will have tubes connecting them together. The center pistons of the three connected pistons are to be placed over the open ports on each side of the water valve base. On a nine port valve one side of the 4 port module will have tubes connecting 3 pistons. The center piston of the three connected pistons is to be placed over the open hole between the two plugged ports on the water valve base.





**MDX**

Must be brought into current VGB Compliance with install of MDX<sup>2</sup>

**MDX<sup>2</sup>****MDX-R3**

## SUCTION FITTINGS: MDX<sup>2</sup>/MDX-R3, SDX/SDX RETRO, SDX2/SDX2 RETRO

Issue Date November 2, 2009

**NOTE:** MDX is not VGB approved and must be converted to Retro MDX2 Cover. In high debris areas, it is possible for any drain to become partly plugged and may require periodic maintenance. The MDX1 drain is not VGB approved and must be converted to an MDX2 Retro (#004-202-2221-XX) for pools with existing finish, vinyl or composite pools. Use MDX2 with plaster ring when resurfacing pool (#004-202-2219-XX).

### 1. MDX<sup>2</sup>/MDX-R3 sump is set too low and will not allow the normal 1" of plaster-ring adjustment to be used.

- A five gallon plastic paint bucket (available at Home Depot) can be used to cut a sleeve. You must determine how much the plaster ring is lacking in distance from the sump and cut the sleeve to that length. Cut a notch in the sleeve to fit over the centering notch in the MDX® sump and place the leveling- ring at the proper height for the pool finish. **NOTE:** The leveling- ring notch must match the position of the notch in the MDX. Once this is done, use an expanding concrete to pour around the sleeve and leveling-ring. Leave a finger groove around the leveling ring for the pool finish to adhere to. You must also raise the center 2 1/2" threads in the MDX to the same dimensions, as that of the sleeve you cut, so the funnel assembly's compressible center piece will fit into it and create a seal.

### 2. MDX<sup>2</sup>/MDX-R3 sump is set too high.

- You may be able to float the floor with a brown coat or extra pebble to raise the floor to meet the MDX sump. If not, then you must lower the sump by removing the gunite around it and lowering it to the proper level. This should not happen, the guniters should use the MDX<sup>2</sup>/MDX-R3 as their guide for the height that the floor should be shot.

### 3. The MDX<sup>2</sup>/MDX-R3 is not pulling water even when the skimmer valve is closed down.

- On a new pool it is possible that the main drain line is plugged with plaster or pebble and may have to be cleaned out with acid. Call the pool finish company if this is the case and clean out the debris from the throat of the MDX<sup>2</sup>/MDX-R3. If the debris is not accessible from the top of the MDX<sup>2</sup>/MDX-R3, a special tool from Paramount is needed to remove the funnel assembly. **NOTE:** The MDX/MDX<sup>2</sup> is plumbed with one of three options:

1. A vent line (a line tied into the suction from the main drain line, or the 2" side port of the canister, going to air)
2. A side drain (tied into the main suction line from the MDX<sup>2</sup>/MDX-R3),



3. A FUSE (a special canister lid that is a listed SVRS).
  - a. If the system is using a vent line.
    - Locate it and temporarily block it off. Turn off the continued page 2 skimmer or skimmers and give full suction to the MDX/MDX<sup>2</sup>. Quickly switch the three way valve from skimmer to main drain several times. This should clear the line and allow you to unblock the vent line and reset the skimmer.
  - b. If the system is using the second side drain.
    - Remove the side drain cover and plug off the suction port with a test plug. Turn off the skimmer or skimmers and give full suction to the MDX/MDX<sup>2</sup>. This should clear the line and allow you to unplug the side drain and replace the grate cover. Sometimes a rubber mat over the side drain will seal it off enough to allow you leave the drain cover on.
  - c. If the system is a FUSE.
    - You must block the top of the canister with a towel and turn off the skimmer(s) to give full suction to the MDX/MDX<sup>2</sup>. This should clear the line and allow you to unblock the top of the canister lid.
    - IF NONE OF THESE SOLUTIONS WORK, YOU MAY HAVE TO USE A PORTABLE PUMP AND BACK-FLUSH OUT THE LINES.

**NOTE:** AFTER CLEANING THE MAIN DRAIN LINE YOU MUST MAKE SURE THAT VENT LINE, 2ND SIDE DRAIN, OR FUSE, IS OPERATING PROPERLY. UNDER NO CONDITIONS ARE THESE TO BE DISABLED.

#### 4. The MDX<sup>2</sup>/MDX-R3 is leaking.

- Check to see if the 2" opening in the MDX<sup>2</sup>/MDX-R3 has the plug removed and if so, does it have a nipple and a cap glued under it. It is also possible that it has been plumbed for a hydrostat and the hydrostat was never put in.
- The sump of the MDX<sup>2</sup>/MDX-R3, unless broken, will not leak. If there is a leak it will be because the installation of the leveling-ring was not done properly or there was insufficient gunite shot around the sides and bottom of the sump during construction. You can try to epoxy it from the inside of the sump, but in most cases, the sump must be chipped around to about 6"-8" below the gunite water seal, and re-poured with an expanding concrete.



#### 5. Super Flow 360 Drain.

- This is an unblockable drain so only one drain will be on a line.



### SDX / SDX RETRO / SDX2 / SDX2 RETRO

- The SDX and SDX RETRO (ANSI/APSP 16 - 2011 and NSF 50) main drains and side suction drains are rated at 200 gpm on the floor (each drain), and 192 gpm on the side wall. The SDX2 and SDX2 Retro will replace the SDX and SDX Retro as of 11/01/2016. The new ratings are 188 gmp on the floor and 154 on the wall. It's important to note that the original SDX products can be used until they reach the end of their 5 year life span. When they should be replaced in accordance with Paramount's written installation instructions and specifications available via the links on the next page.
- Whenever you decide to replace your existing SDX product, you should check your pool system's flow rate requirements and then take the following steps.
  - If the SDX2 meets your pool system's flow rate requirement, you can replace the SDX product with an SDX2 product; the SDX2 is designed to fit on the same support plate.
  - If your pool system's flow rate requirement exceeds the new SDX2 product's listed flow rating, then you will need to find a different drain cover that meets your pool system's requirements. It is unsafe to use a drain cover that does not meet your pool system's flow rate requirement, as it could result in serious injury or death.

The new codes require dual drains 3 or more feet apart with each drain being able to handle the full gpm they are rated at. Because of the unique design of the SDX / SDX RETRO they are able to have the suction pipe within one inch or more from the back plate of the SDX. They are also legal to replace a single drain cover if used with an SVRS.

- To install a SDX the gunite should be hollowed out around the pipe 2" deep by 11" wide with the pipe being cut back 1" or more from the pool surface and notched out around the pipe for sealing by pool finish.
- The SDX RETRO is installed on existing plaster rings or sumps and has slots in the back plate to accommodate most screw patterns. If the existing screw holes are damaged then concrete anchors are provided to secure the back plate. Once the back plate is secured to the pool and the slots in the back plate are plugged with the slot plugs, then the cover is attached using safety screws to hold it on.
- **NOTE:** ON VINYL POOLS AN ADDITIONAL SUPPORT RING SPACER IS USED WITH THE SDX RETRO AND THE ORIGINAL SUMP AND RING IS NOT REMOVED, JUST THE DRAIN THE DRAIN COVER. THIS COVER IS DISCONTINUED AS OF 2017. THE NEW SDX2 COVER WILL STILL FIT ON EXISTING RINGS AND BACK PLATES. THE REDUCED FLOW RATINGS MUST BE ADHERED TO.

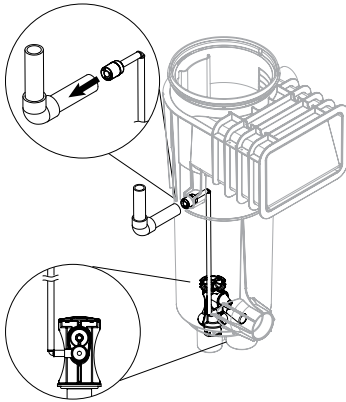






## PARASKIM / PARASKIMV VENTURI SKIMMER

Fig. 13  
Optional ozone venturi feed line

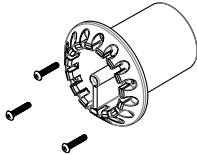


- The Paraskim venturi skimmer may be operated simultaneously with the normal skimmer functioning or the suction from the pump may be shut off or not installed allowing only the venturi powered skimming action taking place. Either way, a much stronger skimming action will result when compared to a standard skimmer. NOTE: THE INSTALLED VALVE CONTROLLING THE SUCTION SHOULD BE LEFT SLIGHTLY OPEN. THERE ARE OCCASIONS WHEN THE PUMP MAY BE “STARVED” WHEN 100% OF THE SUCTION IS COMING THROUGH THE MAIN DRAINS ONLY.
- If a D.E. filter is installed, one suction line is plumbed to at least one skimmer in the pool. This line only needs to be operated when charging the filter with D.E. NOTE: THE VENTURI DUAL PRESSURE NOZZLE VALVE MUST BE CLOSED AND OFF WHILE CHARGING THE D.E. OR IT WILL BE BLOWN OUT INTO THE POOL.

### 1. At start up with optional ozone venturi feed line.

- Before installing the dual pressure nozzle in the skimmer venturi return line, insert the short end of the tubing kit into the side of the dual nozzle assembly. Insert the dual nozzle into the skimmer, then plug the long end of the tubing into the port on the side of the skimmer below the basket rim. Fig. 13

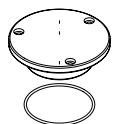
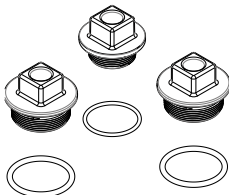
Return guard 005-702-9200-XX



Dual Pressure Nozzle  
005-702-8000-00



Plugs 005-702-5000-00



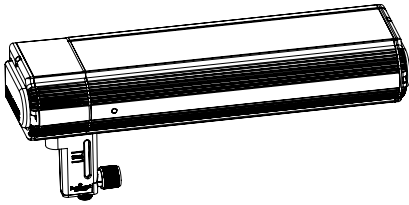
Winterizing plug #004-702-9970-00

### 2. Winterizing the Venturi version of the ParaskimV Skimmer.

Normal winterizing is the same on the Paramount skimmer as other any other skimmer, with the exception of the Venturi version which will require a few additional steps.

1. Lower the pool water below the skimmer opening.
2. Remove the Return Guard on the pool side of the Venturi discharge and place a return guard winterizing plug #004-702-9970-00 in the pipe. Store the Return Guard and screws with the basket in a safe location.
3. Remove the Dual Pressure Nozzle and ozone delivery tube if so equipped from the bottom of the skimmer and place with the skimmer basket.
4. Place a blow through plug in the bottom return port and blow the line back through the return header then close the valve at the pool return header.
5. Disconnect the ozone tubing from the standpipe at the equipment pad and blow the ozone line to the skimmer. Plug with a 1/4 inch plug in the port in the inside side of the skimmer.
6. From this point treat the skimmer like any standard and blow out all line and plug.
7. Drain the skimmer of all water.
8. Insert a piece of foam rope in the venturi return line for added protection.





## CLEAR O3 OZONE SYSTEM

Issue Date October 1, 2006

### 1. Bulb life and replacement.

- Ozone bulb life is around 3 to 4 years and at that time there is enough reduction in its ability to produce ozone that it should be replaced. THE LIGHT (visible through the sight hole on the front of the unit) WILL PROBABLY STILL BE ON, BUT THE BULB SHOULD BE REPLACED. Keeping track of replacement times for customers can be a great way to add profits for your company.
- To replace the bulb. **NOTE:** LOOKING AT LIT BULB IS HARMFUL TO EYES.
  - a. Turn off the power (which should be connected to the filter pump load, so if the filter pump is off the power should be off\*). ALWAYS TEST THE POWER LEADS TO MAKE SURE THERE IS NO POWER.
  - b. Remove the three screws and the end plate labeled “electrical connections”.
  - c. Pull the plug and bulb out about one inch and unplug the bulb. IF THE BULB DOES NOT PULL OUT EASILY TAKE OFF THE OPPOSITE BLACK END-CAP AND PUSH ON THE OTHER END OF THE BULB. THEN REPLACE THE JUST REMOVED END CAP BEFORE PUTTING THE NEW BULB IN.
  - d. Pull the bulb out the rest of the way.
  - e. Make sure the gasket is in place on the replacement bulb align with the key and slide the bulb in until it seats firmly.
  - f. Plug the connector into the bulb and re-assemble the cap.
  - g. Turn on the power and check to see if the light is visible through the sight hole. If the light is on, the unit is now producing ozone.

**NOTE:** IF THE LIGHT IS ON AND YOU AREN'T SURE IF OZONE IS BEING PRODUCED, THERE IS A WAY TO TEST FOR OZONE PRODUCTION. DO A TEST WITH OUT AND THEN DO A FREE CHLORINE TEST. THE RESULTS SHOULD BE ALMOST THE SAME. IF THEY ARE NOT THE OZONE IS NOT WORKING.

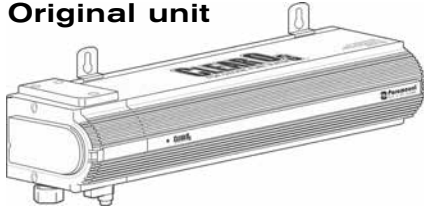
### 2. Bulb is not working after replacement with a new bulb.

- The ballast may need to be reset. The ClearO3 ballast has a safety cut off for power surges and bulb failures. To reset the ballast turn off all power to the ClearO3 unit\*. Call Paramount - 1.800.621.5886 and ask for customer service. Ask about the ClearO3 rebuild program. Rebuilt units includes a new 1 year warranty.

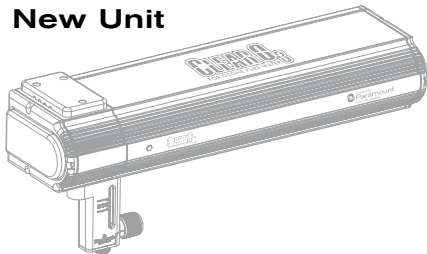
\*Pools with multi speed pumps even when off have power to them so you must turn off the breaker. Note: Power should be left off for 10 minutes to reset ballast.



Original unit



New Unit



### 3. Setting the needle valve on the original unit.

- Using a cubic feet per hour meter (available from Paramount) disconnect the hose from the compression nut at the Clear O-3 unit, and hook it to the meter. The needle valve and the check valve should be between the pump and the meter. Set the needle valve (while the pump is running) so the gauge reads 2 to 3 cubic ft. per hour. Remove the meter and insert the suction tube into the compression nut on the bottom of the unit. **NOTE: SET THE NEEDLE VALVE WHILE THE PUMP IS RUNNING ON HIGH SPEED IF IT IS A TWO SPEED PUMP OR MULTI SPEED PUMP. DO NOT READJUST NEEDLE VALVE EXCEPT AFTER NEXT FILTER CLEAN SEE NUMBER 10. BALL WILL DROP TO BOTTOM AT LOWER SPEED OR DIRTY FILTER UNIT IS SET CORRECTLY.**

New unit: Adjust needle valve on built in flow meter SD ball is between lines. Refer to note above if two speed or multi speed pump.

### 4. Pump is pulling in too much air

- Adjust needle valve to lower setting

**HINT:** On units without a flow meter, a kit is available to update the unit. From Paramount part # 005-402-3247-00.

### 5. Pump loosing prime

- Take the black suction hose off of the bottom of the sight glass and kink the hose or plug if off and retest to see if the air is getting into the pump when it is off. If the air is getting into the pump when off then check the check valve where it is treaded into the pump by pouring water over the check valve treads. If the air stops then re-seal the treads on the check valve. The check valve may be leaking because it is not strong enough, and a stronger check valve on sight glass for a leak by reattaching the black hose and pouring water the needle valve knob to see if air stops coming into the pump.
- If the pump is more than 1 1/2' above pool water see chart below

Pump elevation above water level	Check valve rating	Part #s
1' (30cm)	0.5 lb	005-402-1250-00
2' (60cm)	1.5 lb.	005-402-2502-00
4' (120cm)	3.0 lb.	005-401-2503-00
5' (150cm)	4.0 lb.	005-401-2504-00

### 6. Air shooting backwards through the pump when it turns off.

- The filter internal air bleed is not handling the gas from the ozone unit and an external air bleed kit (available from Paramount) should be put on the filter.



### 7. There is not suction on the pump trap

- When the pump is lower than the water level in the pool you must put a valve on the suction side of the pump and restrict the flow just enough to get suction on the pump. This will not hurt the out-put of the pump and once set the valve handle should be removed and tagged DO NOT ADJUST.
- A second option is to install a venturi on the return line part number 004-402-3873-00

### 8. Clear O3 Rebuild Program

- Any Clear O3 with a build date before Oct. 1, 2015 does not have a replacement ballast. If the ballast is bad a new unit is the only fix. A replacement ballast kit is available for units built after Oct. 1, 2015 (#005-402-3876-00). Call 1.800.621.5886 for details.

### 9. Water in ozone

- All ozone units must be mounted above water level or warranty is void for water intrusion.



Flow meter

### 10. Red ball on flow meter is showing no flow on a multi-speed pump when on low speed

- The flow meter must be set when the pump is on high speed.
- Follow the instructions and notes on page 38 "Setting The Air Flow"  
**Issue:** The pump is not drawing ozone at low speed setting.  
**Solution:** Unscrew the compression nut at the bottom of the flow meter and expose the tube. Place your thumb over the opening of the tube. If you feel suction then the pump is drawing ozone. If there is no suction on the black tube then the rpm is too low to pull ozone and must be raised until you feel the suction. See last note on page 38. Remember the red ball is very sensitive and is used to set the needle valve with a clean filter and the pump is running at the highest speed. The flow meter should not be adjusted again. At low suction the ozone is more concentrated. This compensates for the reduced volume of air.
- Even though the suction is less on the pump, there is more concentrated amount of ozone going into the pump because the speed of the air drawing over the lamp is slower thus converting more O<sub>2</sub> into O<sub>3</sub>. If there is no suction on the black tube then the rpm is too low for the pump to pull ozone and must be raised to the point that the pump has suction or the pump below water level. See last note on page 38.



Check Valve (Could be black or white)



Figure 11



Figure 12

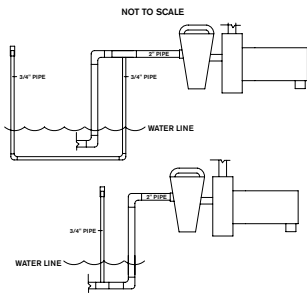


Figure 14



Figure 15



Figure 16

## ClearO3 Retrofit Needle Valve Installation

### MAKING PLUMBING CONNECTIONS

1. Turn off power to the filtration system pump at the circuit breaker.
2. Pump strainer pot installation:
  - a. Remove strainer pot plug. If there is an O-Ring on plug take O-Ring off of pot plug and slide over threaded end of check valve.
  - b. Install the check valve into the strainer pot plug-hole. (Fig. 11)
  - c. Remove the fitting adapter from the bottom left end of the ClearO3 unit.
  - d. Install the combination needle valve flow meter on the bottom of the ClearO3 unit. (Fig. 12)
  - e. Install 3/8" OD x 1/4" ID tubing on check valve (Fig. 11)
3. Pre-pump standpipe installation: (Fig. 14 & 15)
  - a. Cut cap off standpipe.
  - b. Glue a 3/4" elbow and a 3/4" x 1/4" NPT reducer bushing on end of standpipe.
  - c. Install the threaded end of the check valve included in the reducer bushing.
  - d. Install 3/8" OD x 1/4" ID tubing to check valve. (Fig. 16)
  - e. Go to step 2.3 above.

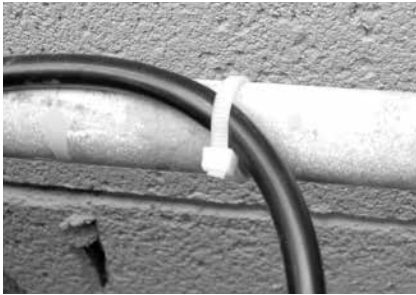


Figure 17

4. Lay the 3/8" tubing along desired route to the compression fitting on the combination needle valve flow meter on the ClearO3 unit.
5. Connect the tubing to the compression fitting.
6. Use the provided wires ties to tie the loose tubing to the conduit or plumbing. (Fig. 17)

### SETTING AIR FLOW

1. Clean filter and pump basket before setting airflow.
2. Turn the knob on the needle valve/ flow meter clockwise to close valve completely.
3. Turn on the power to the pump
4. Turn the knob on the needle valve / flow meter counter clockwise until the ball reads in the middle of the two lines on the flow meter (Fig. 19) or at Ideal line (Fig 20).



Figure 19

**NOTE:** if the pump that the o-zone is installed on is a pump running an in-floor system. Lock the water valve on pause on one station and set the needle valve so the ball is on the lower line while the water valve is locked on a single station (Fig. 19) or mid sight glass on newer units (Fig. 20)



Figure 20

**NOTE:** when using multiple speed pumps, set ozone flow, with pump running on high speed, so the flow meter ball is at the top line.

**NOTE:** The ball will drop down as the filter gets dirty or lower speeds are achieved. This is normal. **The needle valve is still set and only needs to be reset after cleaning the filter.**

**NOTE:** If the pump is below water level, there will be no suction at the pump. On pools that are 1' or less below water level. Place a gate valve in front of the pump and close it till the pump has suction, then remove handle from gate valve. On pools that the pump is more than 1' below water level a mazzei kit #004-402-3873-00 is needed.







# Ultra UV Ballast & Bulb Replacement

## Quartz Tube Maintenance

Cleaning quartz tube. The quartz tube requires cleaning every 6 months to ensure optimum performance.

1. Turn off all power to the Ultra UV unit and all other pool equipment. Unplug the unit from its power receptacle or turn OFF the circuit breaker that is the Ultra UV's power source. Before proceeding to step 2 allow at least 15 minutes for the bulbs in the unit to cool off.
2. NEVER REMOVE THE ELECTRICAL ENCLOSURE COVER WITHOUT FIRST UNPLUGGING OR TURNING OFF THE CIRCUIT BREAKER (POWER SOURCE) FOR THE ULTRA UV UNIT. NEVER REMOVE THE ULTRA UV UNIT'S COVER WITHOUT TURNING OFF THE PUMP. Remove the three screws on the plastic cover and lift up on the cover to remove. (Fig. 8)
3. With the cover off unplug the lamp connectors from the lamps by pressing the release and pulling the Mate-N-Lok connectors apart to separate, repeat to disconnect all lamps (Fig. 9, 10).

**NOTE: PRESSURE GAUGE NO LONGER USED AS OF 1/1/2016**



Fig. 8



Fig. 9



Fig. 10

**YOU MUST WEAR PROTECTIVE RUBBER GLOVES. DO NOT HANDLE A HOT LAMP OR SERIOUS BURNS WILL OCCUR. DO NOT TOUCH THE GLASS PART OF THE LAMP AS BODY OILS WILL CREATE HOT SPOTS & GREATLY SHORTEN LAMP LIFE. (Fig. 11)**

4. Carefully lift the lamp(s) from the quartz tube. Set aside in a safe area to avoid breaking or chipping the lamp(s) (Fig. 11).
5. Turning counter clockwise, unscrew the round aluminum sealing nut. If there isn't enough clearance to unscrew the aluminum sealing nut, unscrew one side of one ballast and loosen the screw on the other side (Fig. 12). Swing ballast out of the way to get a better grip or to use a tool. Remember to replace ballast.
6. Carefully lift the compression washer from the top of the quartz tube making sure not to lose the black gasket that cushions the edge of the quartz tube (Fig. 13).
7. Wearing protective rubber gloves, hold quartz tube with both thumbs inside and pull up (Fig. 14). Once the O-ring breaks free, the quartz tube should lift out easily (Fig. 15). Warning: The quartz tube is fragile, be sure to handle it with proper care and do not set it down on a hard surface.
8. Using protective rubber gloves and eye wear use a good shower/tub cleaner or a solution of white vinegar and water to clean the outside of the quartz tube (Fig. 16). If the inside of the quartz tube is moist or needs cleaning use the same cleaning method. The inside of the quartz tube must be completely dried before reassembly.  
**DO NOT USE ABRASIVE CLEANERS OR PADS.**
9. Inspect the quartz tube carefully for any cracks or chips and replace the quartz tube if any are found. The Ultra UV unit is supplied with 3 additional O-rings.



Fig. 11



Fig. 12



Fig. 13



Fig. 14



Fig. 15

**Do not use any other O-ring at any time for sealing the quartz tube doing so can result in a leak and possible damage to your UV unit.**

10. To reinstall the quartz tube place the O-ring 2 inches from the top of the outside of the quartz tube (Fig. 17). Place the quartz tube, with the O-ring in place, back into the unit. Gently lower the quartz tube into the unit until the O-ring makes contact with the top of the inside of the black threaded quartz tube sealing sleeve (Fig. 18).
11. Making sure the black gasket that was nested inside the aluminum compression washer is in place to cushion the edge of the quartz tube (Fig. 19).
12. Then place the aluminum compression washer on the quartz tube. Press down on the aluminum compression washer with an even steady pressure (Fig. 20). This will roll the O-ring into the area between the inside of the black threaded sleeve and the quartz tube. Check and make sure it is seated evenly around the circumference of the quartz tube. Screw on the quartz sealing aluminum nut hand tight plus 1/2 turn.
13. Carefully replace the lamp(s) in the quartz tube (Fig. 21). Reattach ballast if you've disconnected in step 5. Connect lamp(s) to ballasts (Fig. 22). Turn on pump and check for leaks. Replace the plastic cover and the three screws. Plug in or turn on the circuit breaker.

### Ultra UV2 Ballast Replacement

Determine which Ultra UV2 unit you are working on. Fig. A is a previous configuration with pre-wired ballast(s): 1 lamp ballast part #005-422-9003-00, 2 lamp ballast part #005-422-9004-00. Note: These ballasts will be discontinued and a universal ballast conversion kit will be used to replace ballasts in older units. Fig. B is an updated configuration and uses ballast replacement kit part #005-422-9030-00.

### Troubleshooting Ultra UV

1. No UV light
  - Check power to unit
  - Make sure unit has proper pressure (5#)
  - Bypass pressure switch to test it
  - Replace bulbs and or ballast

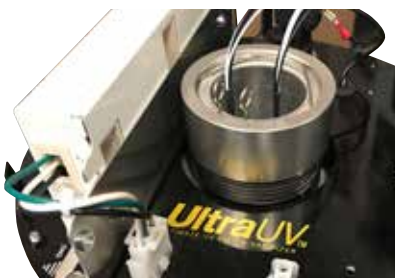


Fig. A



Fig. B





Fig. 8



Fig. 9



Fig. 10



Fig. 11

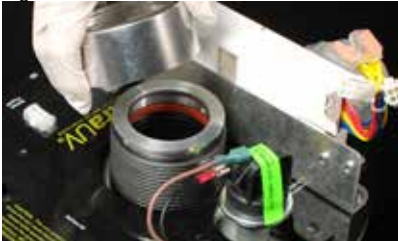
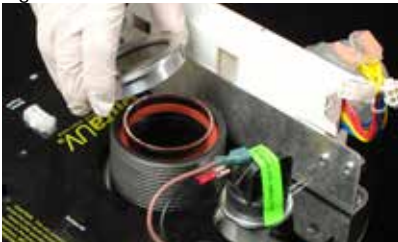


Fig. 12



## Ultra UV2 Quartz Tube Maintenance

Cleaning the quartz tube: The quartz tube requires cleaning every 6 months to ensure optimum performance.

1. Turn off all power to the Ultra UV2 unit and all other pool equipment.  
Unplug the unit from its power receptacle or turn OFF the circuit breaker that is the Ultra UV2's power source. Before proceeding to step 2 allow at least 15 minutes for the lamp(s) in the unit to cool.
2. Remove the three screws that secure the plastic cover then remove.

**DANGER: Never remove the electrical enclosure cover without first disconnecting the power (power source) for the Ultra UV2 unit. Never remove the Ultra UV2 unit's cover without turning off the pump.**

**WARNING: Before removing lamps you must wear protective rubber gloves and safety eye wear. Do not handle a hot lamp or serious burns will occur.**

**NOTICE: Do not touch the glass part of the lamp as body oils will create hot spots & greatly shorten lamp life.**

3. Disconnect all lamps by pressing the release tabs on connectors and gently pulling apart. Fig. 8
4. Remove the spring clip Fig. 9. Carefully lift the old lamp assembly, including lamp holder, from the quartz tube Fig. 10. Do not pull excessively on the lamp wires. Set aside the lamp assembly in a safe area to avoid breaking or chipping.
5. Turning counter-clockwise, unscrew and remove the round aluminum sealing nut. Fig. 11
6. Carefully lift the aluminum compression washer from the top of the quartz tube making sure not to lose the black gasket that cushions the edge of the quartz tube. Fig. 12
7. Grip quartz tube with both thumbs inside and pull up. Once the O-ring breaks free, the quartz tube should lift out easily. Fig. 13

**NOTICE: The quartz tube is fragile, be sure to handle it with proper care and do not set it down on a hard surface. Do not use abrasive cleaners or pads.**

8. Using protective rubber gloves and eye wear use shower/tub cleaner, CLR or equivalent, or a solution of white vinegar and water to clean the outside of the quartz tube. Remove the O-ring from the quartz tube. Fig. 14. If the inside of the quartz tube is moist or needs cleaning use the same cleaning method. The quartz tube must be completely dried and clear of residue before reassembly.
9. Inspect the quartz tube carefully for any cracks or chips and replace the quartz tube if any are found.

**NOTICE: Do not use any other O-ring at any time for sealing the quartz tube. Doing so can result in a leak and possible damage to your UV unit. The O-ring must be replaced after cleaning the quartz tube.**



Fig. 13

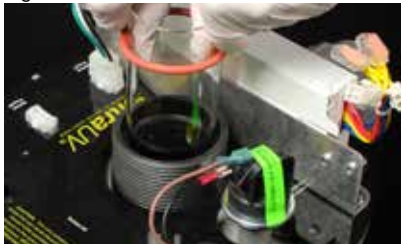


Fig. 14



Fig. 15

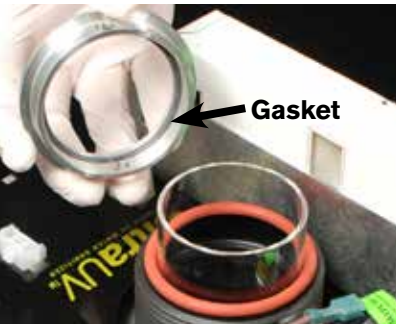


Fig. 16



10. All components must be completely dry and clean. Never use any type of lube or sealing agent. To reinstall the quartz tube place a new O-ring 2 inches from the top of the outside of the quartz tube Fig. 14. Gently lower the quartz tube into the unit until the O-ring makes contact with the top of the black threaded sealing sleeve. Fig. 15  
Note: Use a Paramount O-ring seal only.
11. Then place the aluminum compression washer and gasket on the quartz tube. Press down on the aluminum compression washer with an even steady pressure. Fig. 16 This will roll the O-ring into the area between the inside of the black threaded sleeve and the quartz tube. Lift aluminum washer and check to make sure it is seated evenly around the circumference of the quartz tube. Replace aluminum washer then screw on the quartz sealing aluminum nut to hand tight plus 1/2 turn.
12. Turn power on to the Ultra UV2 unit. Turn pump on to check for leaks. Confirm that there are no leaks then turn off pump and power off to the unit. Reinstall lamps, spring clip and connect to ballast(s). Reattach cover and turn power on to unit and turn pump on.

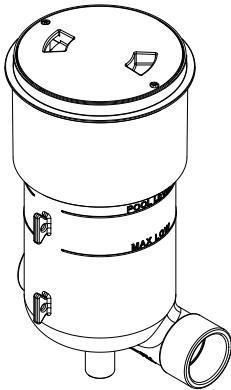
**CAUTION: Do not stand over the unit when it is under pressure or when the pump is on.**





# PARALEVEL

Issue Date May 1, 2009



## 1. Adjusting the Paralevel. Old style (Note: If there is no black adjustment wheel go to #8, new style.)

- Each full rotation of the adjustment wheel (Fig 1), the black wheel with four extensions sticking up to use to rotate the wheel) is equal to 1/4". Four full turns would equal 1". Turn clockwise to raise water level and counter clockwise to lower the water level.

## 2. Setting the water pressure on the Paralevel.

- The Paralevel must have full water pressure. Do not reduce the valve pressure at the water source. The Paralevel is designed to not create a water hammer or stick open so unlike other water fill units you should not limit the water flow to the unit. Doing so will cause the unit to delay coming on until the pressure builds up in the unit.

## 3. Winterizing or pressure testing the Paralevel.

- A winterizing kit does come with the unit but can also be purchased separately if needed. Part #055-760-2911-00. This same winterizing kit can be used for Pressure testing.

## 4. Replacing or repairing the float assembly.

- Grasp the top of the riser tube (Fig 2) push down and turn counter clockwise. Lift the float assembly out and repair or replace the unit. There is an o-ring on the bottom of the riser tube that must be in place for sealing. If the end of the riser tube is damaged then it can be trimmed off slightly to get rid of the damaged end. Leave as much of the tapered end as possible so it will slip easily into the hold in the center of the nut retainer (Fig 4). When replacing the float assembly make sure the ribs on the float straddle the ribs on the canister housing (Fig 3). Center the shaft on the float assembly by moving it around until you feel it drop in place into the hole in the retainer nut (Fig 4), and then press down on the top of the riser unit and twist clockwise 1/4 turn.

FIG. 1

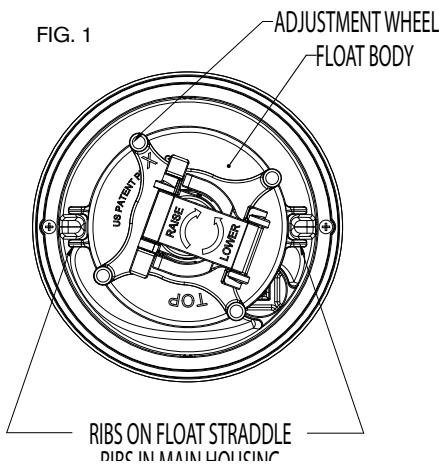


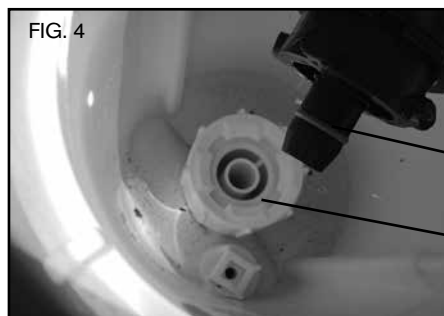
FIG. 2



FIG. 3



FIG. 4

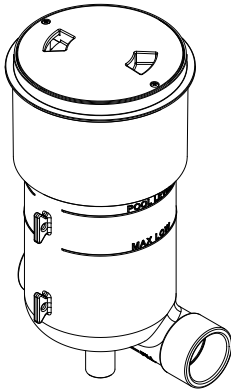


End of riser tube  
opening at top of nut retainer





### 5. If Paralevel does not shut off.



- Lift the float assembly to make sure the water level is high enough to shut off the unit. Check to make sure the swing arm is not jammed. It should move up and down freely. Check to make sure that the feed line valve is all the way open. The Paralevel needs about 45 psi to operate properly. Remove the float assembly and check to see if the o-ring is on the Paralevel float assembly. The o-ring is about 1/2" from the bottom of the float assembly and is in a groove. Remove the swing arm on the top of the float assembly by unsnapping the piece on the top that says Raise/Lower and then blow back through the center to clean out debris from the center tube.

### 6. If Paralevel does not add water.

- Remove the float assembly and turn on the water supply to blow out the line. Remove the C clip at the bottom of the float assembly. Pull down the float and shaft that it is threaded onto about 1". Pull the two arms that go around the shaft outwards and they will unsnap from the hinge attached to the top piece on the float assembly. Grab the whole unattached assembly and twist it clockwise to unsnap the pin from the shaft assembly on the upper right hand side. Once unsnapped the top assembly can be removed from the shaft and the rubber cup can be cleaned out. At this time you can also clean out the small tube in the center of the shaft. Replace everything in reverse order and put a little lube on the yellow O-ring on the bottom of the float assembly and reinstall it in the unit. To view video go to [www.1paramount.com/builders/howto/](http://www.1paramount.com/builders/howto/). Check to make sure the swing arm is not jammed. It should move up and down freely.

### 7. If Paralevel is set too high or too low.

- Call Paramount and ask for the tech department and have the exact height the float assembly needs to be raised or lowered.
- As of 2015 the old float and float assembly has been obsolete. The new float or float assemble see fig. 5, top is not flat. To use this float on the old unit you will to unscrew the float and turn it upside down and screw it back on To adjust the new float check the water level and measure the distance it needs to come up or down. Then you must remove the float assemble and turn the float up or down one full turn for each 1/4" of water up or down as needed.



### 8. New Paralevel and Float Assembly (Fig. 5)

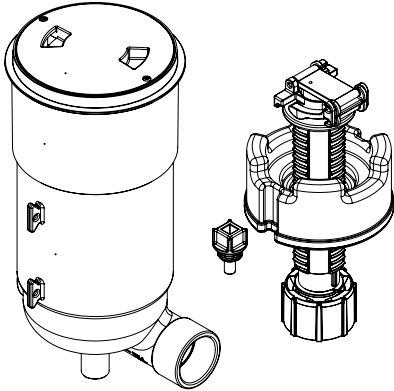


Fig. 5 - New Paralevel with Float Assembly

- Start with the float halfway on the sleeve adjuster. Position the end of the Riser Tube with the o-ring inside the opening at the top of the nut retainer. Turn the riser tube clockwise and wiggle until it drops into the nut retainer. Too much downward pressure before it sets into the opening of the Nut Retainer will cause the float assembly to hang up. Press down on the top of the Riser Tube and twist clockwise one 1/4 turn or until it stops to lock in place.

### 9. Adjusting the New Float Assembly

- With the float assembly installed in the unit allow the water level to rise until the float assembly shuts off.
- If it does not shut off and the pool water level is at the correct level turn the float clockwise until the Paralevel shuts off.
- Measure the water level in the pool and determine if it needs to be raised or lowered and for each 1/4 of an inch that it needs to go up, turn the float one complete rotation counter clockwise. If the level is too high, turn the float one full rotation clockwise for each 1/4" it needs to be lowered.





## MVFUSE Magnetic vacuum release / Safety Vacuum Release System (SVRS)

Issue Date November 2, 2009

### 1. ADR (Auto Debris Removal Canister) MVFUSE

- If the canister has a MVFUSE already, then no other canister lid will work. The canister ring stop is designed to only allow the MVFUSE to lock in place.

#### **WARNING THE MVFUSE IS A SAFETY DEVICE AND MUST BE IN-PLACE TO RUN THE POOL**

- If the fuse has fired and the pump is sucking air you will have to manually reset the fuse. Turn off the pump and remove the fuse. A plunger will be protruding from the bottom of the device. The device can be reset by turning the MVFUSE up side down, or you can tap the plunger on the deck to return it to its proper position.
- If the fuse is false firing then refer to the manual on how to set the device to match the system vacuum. **THE MVFUSE IS A SAFETY DEVICE AND SHOULD ONLY BE SET BY TRAINED POOL PROFESSIONALS.** For technical assistance call Paramount at 800.621.5886 or our Paramount Territory Manager.



### 2. Installing an MVFUSE in an existing Paramount ADR canister

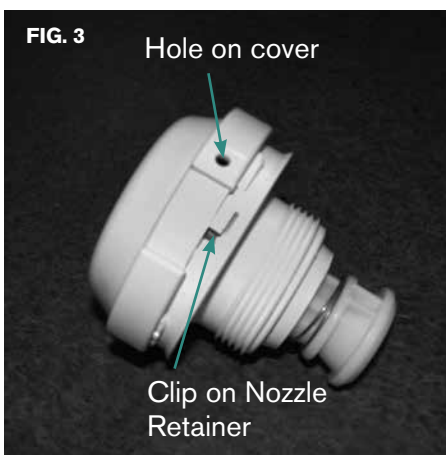
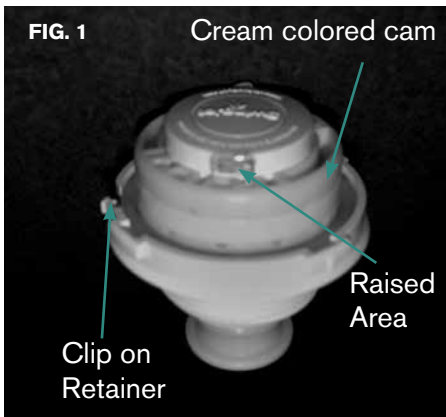
- You will first need to install a new SPECIAL ring stop in the canister that comes with the MVFUSE for existing canisters.
- The kit will come with complete instructions that must be followed.  
**WARNING:** The MVFUSE must be installed in accordance with Paramount's written instruction manual and in conformity with applicable Federal, State, Local and swimming pool industry building safety codes. If the canister has the old wedges or a ring stop designed for a clear canister lid they must be removed by peeling them out with a flat head screwdriver or a chisel. Then the new ring stop must be installed that comes with the MVFUSE kit. page 7



### 3. Resetting the MVFUSE (in-canister and in-deck versions)

- Turn the pump off and remove the MVFUSE from its in the deck container. The device can be reset by turning the MVFUSE up side down, or you can tap the plunger on the bottom of the MVFUSE on the deck to return it to its proper position.
- Make sure the main drain is not plugged. If the fuse fires again when starting up the pump refer to the manual for instructions on setting the device to match the system vacuum to match the system vacuum. **THE MVFUSE IS A SAFETY DEVICE AND SHOULD ONLY BE SET BY TRAINED POOL PROFESSIONALS.** For technical assistance call Paramount at 800.621.5886 or our Paramount Territory Manager.





## SWINGJET

Issue Date November 2, 2009

### 1. NEW SWING JET

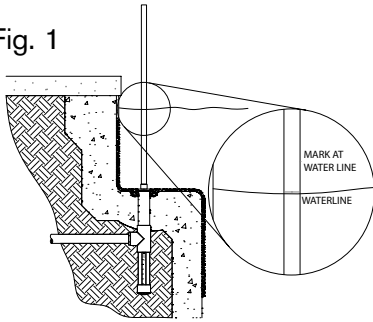
- The Swing Jet comes packed with the cover off.
- Push the nozzle up and look and feel for the raised area on the side of the colored nozzle that is in the center of the cream colored Cam. (FIG. 1). The nozzle jet opening is 180 degrees opposite that raised area. Push the nozzle shaft up and down until the nozzle jet is either all the way right or all the way left so when you are doing the next two steps you are aware of which direction it is going to travel when rotating.
- There are three notches in the cream colored cam above the raised area (FIG. 2). These cam notches are in a straight line with the cam notches on the opposite side of the raised area. The jet opening of the nozzle goes back and forth covering the 90 degree arc formed by the three ratchet positions as the nozzle extends and retracts when cycled.
- Grasp the cream colored cam and turn it either way to aim the nozzle jet to clean the desired area. Remember the nozzle is going to ratchet right or left depending on which of the two side notches you placed the pins in. (FIG. 1)
- Put one wrap minimum of Teflon tape on the threads to make the nozzle threads not seize up over time, and thread the swing jet in the return fitting tight, using the swing jet insert and removal tool. It should be tight enough so it can not be turned by hand. **NEVER USE A WRENCH DIRECTLY ON THE SWING JET. ALWAYS REMOVE THE COVER AND USE THE TOOL (AVAILABLE FROM PARAMOUNT 005-720-4508-00) TO COVER THE SWING JET RETAINER BEFORE USING A WRENCH.**
- Once in position find the clip on the outside ring of the nozzle retainer (FIG. 1) and place the hole in the cover so it is just to the counter clock wise side of the retainer clip (FIG. 3) Line up the notches on the cover with the locking cams on the nozzle retainer. Push the cover on to the retainer and rotate clockwise until the clip snaps in the hole. (FIG. 2 & 3)

### 2. ADJUSTING A SWINGJET WHEN IT IS THREADED IN PLACE

- Turn the pump on so the Swing Jet is on. If the Swing Jet is on a water valve circuit, wait for the Swing Jet to come on, and pause the water valve.
- Place the swing jet key provided with the unit (part # 005-720-4512-00) into the hole on the side of the cover of the Swing Jet (FIG. 3). Leaving the key in place, while pushing down on the key rotate the cover counter clockwise until it stops. Do not remove the key. The extended nozzle should now be able to be rotated to the desired position. If the nozzle won't easily rotate remove the key and very slightly move the cover counter clock wise until the nozzle will rotate. Once the nozzle is set to the correct position, remove the key and rotate the cover clock wise to re-lock the cover in place.
- Cycle the Swing Jet by turning the pump off and on to make sure you have set it in the desired position.



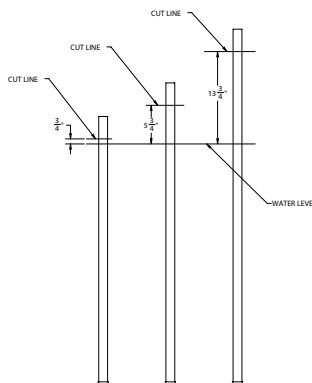
Fig. 1



## Replacing Riser Fountains on Parascope

Issue Date November 2, 2009

Fig. 2



1. Remove Plaster Cap from Fountain and blow out the lines to remove any construction debris that may be in the pipes.
2. Set the end of the fountain shaft with the stopper down over the fountain body and mark the water level on the shaft.(FIG. 1)
3. Transfer the water level mark to the other two shafts. (FIG. 2)
4. Using the longest 53" shaft, measure and mark an additional 13 1/4" inches away from the stopper end. (FIG. 2)
5. Using the 45" shaft, measure and mark an additional 5 3/4" away from the stopper end. (FIG. 2)
6. Using the 40" shaft, measure and mark an additional 3/4" away from the stopper end. (FIG. 2)
7. Cut all three fountains at the farthest mark from the stopper end.
8. Insert each fountain shaft through a fountain retainer so the bottom of the fountain retainer is next to the stopper that is glued to the shaft. (FIG. 3)
9. Umbrella Fountain (FIG. 4)

Fig. 3

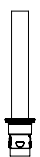


Fig. 4



Fig. 5

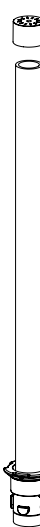


Fig. 6



- a. Select the longest fountain shaft.
- b. Put a small dab of PVC glue on the outside of the threaded insert and press into the shaft opposite the stopper end.
- c. Glue the umbrella end-cap over the outside of the fountain shaft, or same end as the threaded insert.
- d. Wipe off any excess glue.
- e. Thread the umbrella into the threaded insert until you have a 1/16" gap. When installed balance flow and gap to desired effect.

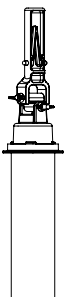
### 10. Flower Fountain (FIG. 5)

- a. Select the medium length fountain shaft.
- b. Glue the flower cap over the end of the fountain shaft opposite the stopper.
- c. Wipe off any excess glue.

### 11. Bubbler Fountain (FIG. 6)

- a. Select the shortest length fountain shaft.
- b. Glue the bubbler cap over the end of the fountain shaft opposite the stopper.
- c. Wipe off any excess glue.

Fig. 7



12. Install the fountain assembly (FIG. 7) into the fountain body in the pool using the 4-pronged nozzle tool.
13. Some Parascope only come with the bubbler fountain.

NOTE: PARAMOUNT NOW MAKES A MINI BUBBLER FOR TOP AND 2ND STEPS ONLY AND THIS USES ONLY THE BUBBLER FIG. 6







## PARAGLO LED POOL & SPA LIGHTS

- The Paraglo lights available in 6" and 3" 12 volt LED lights. UL approved plug in cord allowing the lights to be replaced without replacing the cord.
- Clear, blue, and multi- color lights

### Changing colors with the multi-color light

- Turn off light for 2 seconds, then turn it back on. This will signal the light to step through to the next color

### Color won't synchronize on mutual lights

- All lights must be on the same transformer. Be sure the lights are not P lights. (P on label tells it is for use on only Pentair Easy Touch/ IntelliTouch or Zodiac Aqualink/RS One-touch panels designed for controlling their lights. You must take the full two seconds between switching the lights from one color to another.

Reset or "synchronize" your lights; with the turned ON, turn the power OFF/ON once rapidly. This will put the lights into RESET mode (flashing BLUE), once this occurs turn the power OFF, wait 2 seconds and turn the power ON. Your lights should now be synchronized.

Important:

The Paraglo 3' light is **NOT** designed to be operational in conjunction with other manufacturers lighting products as the peanut.

### Paraglo P-Type Lights

The Paraglo 3" P-Type lights integrate with the Pentair EasyTouch, IntelliTouch & Zodiac Aqualink RS OneTouch (REV -R - current). This allows the user to have direct control over colors and light shows via the intelligent control unit.

To setup the controller to operate the Paraglo 3" P-Type lights. Follow the controller setup procedure and select "Intellibright as the desired operating mode.

### Paraglo Multi-Plus Lights

The Multi-Plus lights will sync with Pentair Easy Touch and IntelliTouch, Jandy Aqualink RS One Touch, Zodiac Aqualink Tri. Controller using Omnilogic. Note: It will not work with ProLogic. It will also work with existing Paraglo Multi Color and P-Type.

### Integrating Multi-Plus Lights with P-Type and Multi Color Lights

- Pentair or Jandy set controller to IntelliBrite.
- Hayward OmmiLogic set controller panel to Universal ColorLogic. Note: Multi-Plus lights will not work with ProLogic.

Go to link to watch video of how to set up multi-plus, multi color, p-type lights  
[1paramount.com/paraglo-mp-setup/](http://1paramount.com/paraglo-mp-setup/)



## ParaJet / TwirlyByrd Spa Jets

### Face plate will not stay on

- Later model Twirlybyrd's face plates have a locking device on them but the original one did not. On those you will need to put a dab of wet or dry glue on the face plate to hold it in place.



### TwirlyByrd not working

- Turn off pump
- Remove the face plate with the TwirlyByrd tool #004-852-0000-00
- Remove the venturi jet in the tee behind the spa wall with a socket and extension.
- Turn on the pump and blow out the line and clean the venturi jet.
- The air line may have to be blown out if it is not on a blower. This occurs when the water breaches the Hartford loop and fills the air line so it cannot pull air through the line.
- Replace venturi jet and face plate



### Maximum flow rates for sch. 40 PVC pipe

Pipe size	1½"	2"	2½"	3"	Therapy tees with a 3/8" jet @ 60' of HD
Suction: Nominal GPM @ 6fps	38	63	90	138	Require: 15-20 gpm ea. for firm
Return: Nominal GPM @ 8fps	51	84	119	184	Require: 14-17 gpm ea. for moderate

**Note:** Plumbing scenarios that differ from above table should be carefully considered to ensure they are within compliance.



## Airbar: Circa 2018



Airbar 004-852-7000-XX



45° Fitting  
004-852-7000-XX



90° Fitting  
004-852-9000-XX



Tee Fitting  
004-852-9100-XX



Cap  
004-852-8000-01



Air Hole Plug  
004-852-9400-00



Coupling Adapter  
004-852-9300-00

## Airbar Plumbing

Always install a Hartford loop above the waterline and as close as possible to the Airbar ring.

### Continuous Ring

Install 2" PVC from blower location to the Airbar ring. Reduce the 2" pipe to a 1" riser. The Airbar can be installed as a closed loop (octagon, square or rectangle).

### Straight Line

On a straight Airbar 7' or less, feed the air into either end. Use a 1" piece of pipe and a coupling adapter #004-852-9300-00 for the air feed connection. An Airbar cap #004-852-8000-01 is used to cap the open end of the Airbar.

### When Installed On Slopes

Keep the Airbar level across the slope. Do not install the Airbar where one end is higher than the other. To connect lengths of Airbar together, use a 2" length of 1" PVC pipe as an inside coupler in addition to the coupling adapter part #004-852-9300-00. See sizing chart for blower below but always follow manufacturer's recommendations of appropriate size blower for best results.

### Requirements for the Airbar

- Hole spacing 3" apart
- Use 3/16" (.188 mm) holes only
- Airbar must be installed horizontal and level
- Up to 7' in length use 1hp blower
- 7' to 14' in length use 2hp blower
- Any configuration shorter than 4' is not advised
- Any configuration longer than 14' (56 holes) will require a separate blower system\*
- Max depth is 42"\*
- It is not recommended to put the Airbar on a wall. Instead it should be on a bench or step at least 10" from the wall to reduce water movement over the tile line which could undermine the deck
- Airbar can be installed as a closed loop (octagon or square) or straight pipe

Run Length	up to 18"	19" to 32"	33" to 42"	Blower Size
4' - 7' length	16-56 holes	20-56 holes	24-56 holes	1hp
7' - 14' length	29-56 holes	29-56 holes	29-56 holes	2hp
Recommended number of holes				

### Installation example:

- Using the chart, use run length between 7' and 14' and depth between 19" and 32". With this information, the range of number of holes acceptable is 29-56.
- Using the recommended 3" spacing (4 holes per foot) = 12' x 4 holes/ft = 48 holes.

\*Commercial blowers can exceed these limitations

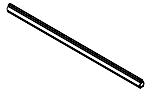


## Airbar: Current



### 48" Airbar

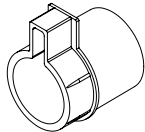
White 004-852-9800-01  
Gray 004-852-9800-02



Fits 1" US schedule 40 pipe

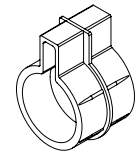
### 1" Airbar Spigot Adapter

White 004-852-9920-01  
Gray 004-852-9920-02



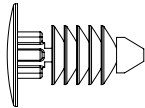
### Airbar Connector

White 004-852-9930-01  
Gray 004-852-9930-02



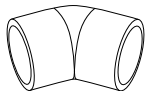
### Airbar Air Hole Plug

004-852-9400-00



### 1" - 45° PVC Ell, 50 per case

004-252-1340-00



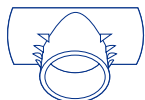
### 1" - 90° PVC Ell, 50 per case

004-252-1345-00



### 1" - PVC Tee, 50 per case

005-252-1920-00





## Winterization

### WINTERIZATION INSTRUCTION FOR PARAMOUNT'S IN-FLOOR CLEANING & CIRCULATION SYSTEMS

Winterizing a Paramount Pool & Spa Systems in-floor pool is the same as any pool with a main drain; it just has a few more lines to winterize. The following steps are procedures recommended for proper winterization of the Paramount In-Floor Cleaning Systems: PCC2000®, Pool Valet®, and PV3® for concrete pools, Vanquish for vinyl liner pools, or Vantage for fiberglass pools. These procedures are to be used in addition to standard winterization methods normally used in your area.

1. Turn off and drain out all pool equipment.
2. Remove valve lid or lids from valve(s)
3. Remove module(s) from valve housing(s). Store module in dry clean area out of the winter elements for winter until re installation in spring.
4. Remove any down jet returns in pool (threaded or slip) including down jet body for a secure fit of winterizing plug. Store with module(s).
5. Blowout and airlock all pool lines.
6. From valves to pool, place a Schrader plug or blow out plug as recommended.
7. Install and secure Schrader or blow out plugs in all parts of valve(s) (except center feed port of second and multiple valves when multiple valves are being used).
8. Proceed to blow out lines through Schrader or blow out plugs to pool.
9. While blowing out the in-floor nozzles, once a good amount of air has come through the nozzle, you have accomplished an air lock. (This procedure is similar to obtaining an air lock when blowing out the bottom drain in the pool).
10. Blow out center port of first valve back to filter equipment and plug.
11. While blowing out the down jets and while air is escaping through the in-wall hole, install and secure a regular winterizing plug.
12. Repeat until all ports are blown out.
13. In cases where multiple valves are in use, blow out the feeder port of the first valve into the center port of the second or multiple valve(s), install, and secure plug.
14. When necessary, pool winter anti-freeze solution should be poured into each line. Valve housing(s) should be wiped clean and dry of water, reinstall top lid and secure.

**WINTERIZATION OF MDX® DEBRIS REMOVAL SYSTEM WITH A CANISTER:**

If vacuum relief suction outlets are located below freeze line skip steps 1 and 2.

1. Remove grate from second suction and install blow through plug and blow line to achieve airlock.
2. If 3rd suction line is installed remove grate, install 3" blow-through plug and blow line to achieve airlock.
3. Go to Winterization procedure for Paramount canister below.
4. If vent line is installed, install blow through plug and blow line to remove water and add anti-freeze. Repeat vacuum out canister. Then complete canister step 5.

**WITHOUT A CANISTER:**

If vacuum relief suction outlets are located below freeze line skip steps 1 and 2.

1. Remove grate from second suction and install blow through plug and blow line to achieve airlock.
2. If 3rd suction line is installed remove grate, install 3" blow-through plug and blow line to achieve airlock.
3. If vent line is installed in main suction line, plug vent line and install blow through plug in pump inlet and blow line to achieve airlock.
4. Lastly, blow vent line to achieve airlock.

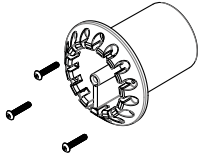
**WINTERIZATION PROCEDURE FOR PARAMOUNT CANISTER**

1. Remove outer lid, inner lid and basket, clean and dry off, and store in same area as modules.
2. Install and secure regular winterization plug in equalizer line of canister to pool at poolside.
3. Install and secure Schrader plug or blow out plug from canister to main drain. Blow out and obtain air lock as previously described, if skimmer is tied into canister, repeat procedure to skimmer.
4. Bottom port of canister to pump may require an extended pipe for ease of blowing out. Install and blow out line from canister to pump. Install and secure plug in pump. Using shop vac, remove all water from within canister components.
5. Extension pipe can be removed and replaced with plug or Gizmo type container if Gizmo not used. Be sure to install device to absorb ice expansion in canister area. Failure to do this may result in potential ice freeze damage to canister.

Winterization anti-freeze is to be used as necessary or when required  
Additional questions should be forwarded to Paramount Headquarters at 1.800.621.5886.



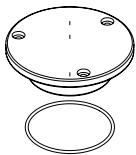
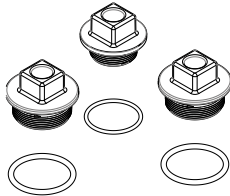
Return guard 005-702-9200-XX



Dual Pressure Nozzle  
005-702-8000-00



Plugs 005-702-5000-00



Winterizing Plug 004-702-9970-00

### WINTERIZING THE VENTURI VERSION OF THE PARASKIMV SKIMMER.

Normal winterizing is the same on the Paramount skimmer as other any other skimmer, with the exception of the Venturi version which will require a few additional steps.

1. Lower the pool water below the skimmer opening.
2. Remove the Return Guard on the pool side of the Venturi discharge and place a plug in the pipe. Store the Return Guard and screws with the basket in a safe location.
3. Remove the Dual Pressure Nozzle and ozone delivery tube if so equipped from the bottom of the skimmer and place with the skimmer basket.
4. Place a blow through plug in the bottom return port and blow the line back through the return header then close the valve at the pool return header.
5. Disconnect the ozone tubing from the standpipe at the equipment pad and blow the ozone line to the skimmer. Plug with a 1/4 inch plug in the port in the inside side of the skimmer.
6. From this point treat the skimmer like any standard and blow out all line and plug.
7. Drain the skimmer of all water.
8. Insert a piece of foam rope in the venturi return line for added protection.
9. A device like a Gizmo or non-toxic antifreeze should also be used for safety from outside water leaking in and causing damage from freezing.

NOTE: Additional methods may also be required. There are many methods to winterizing a pool and pool equipment. Different methods are used depending on regional conditions. It is the pool operator's responsibility to ensure all components of the pool and pool equipment are protected from the most severe freeze conditions in their specific area.





FAQ - PCC2000<sup>®</sup>, PV3, CYCLEAN, VANQUISH, VANISH, VANTAGE

**Why are two nozzles near the drain always up? (PCC2000 ONLY)**

The two nozzles make up part of the patented “Water Curtain” and direct debris to the drain for removal.

**What is the purpose of the water curtain, collection zone? (PCC2000 ONLY)**

The water curtain directs the debris swept up by the nozzles into the drain.

**Why are there two drains in my pool?**

Two points of suction are safer than one. Many Municipalities are now requiring two drains for each pump even when it is also tied to a skimmer.

**Why should the heater have an external bypass?**

Even though most heaters come with an internal bypass an external bypass is required to ensure that both heater and in-floor system function properly. The high flows with the in-floor system do not allow efficient transfer of heat in the heater, so a bypass is necessary to slow down the water going over the heat exchanger. The bypass also reduces the restriction on the system.

**Do the nozzles need to be set in a specific sequence?**

The nozzles themselves do not need to be sequenced, as they will not stay in sequence for long. They simply should be plumbed so that they cycle from the shallow area to the deeper area of the pool.

**Is there any guarantee on the components of the PCC2000<sup>®</sup>, PV3<sup>®</sup>?**

See Product Warranty

**Why use a booster pump?**

The addition of a booster pump to the system allows the cleaning nozzles to continue to work at peak efficiency because they are not subject to an increasingly dirty filter. The system then allows the pool water to be turned more quickly, thereby not needing to run as long.

**How do I winterize the system?**

It is easy to winterize the system with parts that are available from Paramount. See Winterization Instructions.

**What is the purpose of the o-ring on the nozzle?**

The O-ring acts as a cushion or spring to make the bayonet lock work.

**Where can I find a replacement manual for my Water Valve?**

<http://www.1paramount.com/products/aapdf/HomeownersSystemsManual.pdf>

**Why do the nozzles install counter-clockwise?**

As the nozzle extends and retracts, it pushes against the cams in the retainer putting a counter-clockwise load on the retainer. The nozzle installing counter-clockwise then is always being pushed into the seat.

**How do I get debris out of the body so my nozzle will go in?**

Before installing a nozzle into a body that has been without a nozzle for any period of time the line, allow the system to blow the line to eliminate any debris that may have fallen into the line. If some debris, rocks, is too heavy to lift out of the line, place the install tool over the hole to create turbulence in the body cup. This will eliminate any debris in the body cup.

**How do I determine if a sticking nozzle is a nozzle problem or a valve problem?**

Turn off the pump. If the nozzle retracts it is a module problem. If the nozzle stays up it is a stuck nozzle. For more information, see the Trouble Shooting Guide.

**If a nozzle seems to be working but the area around it is not cleaning, what is wrong?**

There is probably a blockage in the nozzle. Remove the nozzle and clear the blockage.

**How can I pressure test the system?**

A special molded plug is available to fit the body that will hold up to 50psi.

**How do the nozzle zones sequence?**

A patented water valve controls all of Paramount's cleaning and circulation systems. Water flows through the valve and out to the strategically placed nozzles in the pool. The zones switch automatically in a set sequence with no electrical hookup. See also the Water Valve Sheet.

**Why does my water valve pressure fluctuate?**

Each time the water valve switches; the next port opens before the one that has finished shuts off. The Paramount water valve always operates so that the system is pressure safe.

**Why is my water valve next to the pool instead of by the equipment?**

Placing the water valve next to the pool greatly reduces the quantity of pipe necessary to plumb the system. It also allows easier servicing of the system with the pause knob readily available to the pool area.

**If my module fails, can I run my pool without it?**

The water valve housing does not need a module in place to have water go through it. Remove the module and replace the seal lid and clamp, and water will be sent to all return points in the pool, so you will have circulation.

**Why is there a switch on top of the water valve?**

The switch is the pause feature; use it to stop the valve on a selected zone. This is helpful when you want the pool to have circulation but may not want nozzles popping up under foot. In addition, service technicians may use it to troubleshoot the system.

**Do I need surface returns with my In-Floor System?**

The PCC2000® and PV3® System does not require the use of surface returns. The force of the nozzles mixes and turns over the surface water eliminating the need to direct water to the surface.

**Why is it important to rinse a cartridge filter before removing the filter element?**

Failure to rinse the inside of the filter with the drain plug removed will cause debris to reenter the pool when the cartridge is lifted out.

**Where do I add DE Powder if I have a booster system?**

You may add DE to the canister or skimmer with booster off.

**How does the system remove debris from the pool?**

Strategically placed nozzles sweep up dirt and debris and keep it in suspension so it is removed through the skimmer and drain as the water is turned over by the filtration system.

**How do the nozzles rotate? (PV3 Only)**

The nozzles have an offset hole that thrust the nozzle forward while it transitions from the up to down position. Each time the nozzle comes on it is in a new position and cleans a new area of the pool.



## FAQ - DEBRIS CONTAINMENT CANISTER

### Is the canister a skimmer?

The canister is not a skimmer. The canister is a debris containment system that allows the system to work at maximum efficiency without starving the suction of the pump. The canister installs in the suction line, and holds 400% more debris than a standard pump basket.

### Why should I have the canister on my system?

The canister enhances the operation of the system keeping it at maximum efficiency for much longer than a system without it. Consequently, you need to empty the canister bag less frequently.

### Can I attach suction cleaners to the canister?

The canister is very effective in enhancing the operation of suction cleaners. The canister is located at a central position in the pool, and using the 2" side outlet stubbed through the side of the pool. You must use a spring-loaded vac plate over the hole through the pool wall.

### Can I vacuum into the canister?

Yes, see above. In addition, you may remove the clear lid and insert your vacuum hose in the suction outlet in the bottom of the canister.

### How do I winterize the system?

It is easy to winterize the system with parts that are available from Paramount.

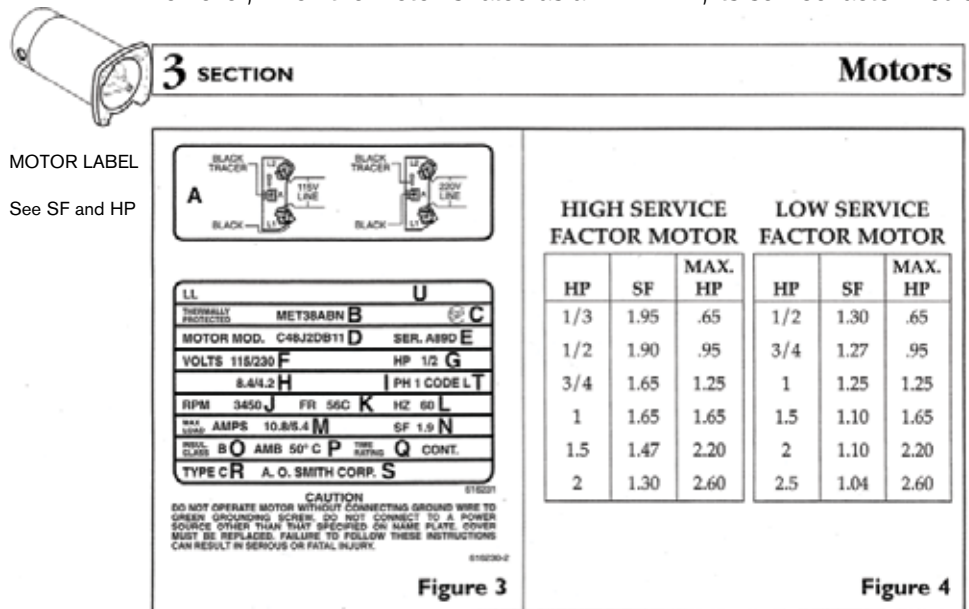
To download instructions: [www.1paramount.com/products/winter.pdf](http://www.1paramount.com/products/winter.pdf)



### LOW SERV FACTOR/RE-RATED PUMPS

Different areas of the country use swimming pool pumps that are either FULL RATED or LOW SERVICE FACTOR / RE-RATED PUMPS. All recommendation on HP from all of our literature is based on FULL RATED PUMPS. There are many misunderstandings on the differences between the two ratings. The only difference between a 2 hp full rated pump and a 2 1/2 hp low service factor / re-rate, is the label on the motor and the HP designation of the pump. THEY BOTH PUMP THE SAME GPM. AT THE SAME PRESSURE, but re-rates always show a higher HP rating and a lower service factor (SF) on the motor label. SF times HP on a motor label will equal or be greater than the next size HP rating on all full rated pumps. See examples below. Our drawings list only the GPM requirement at the pressure / ft of head that we need to make the cleaning system operate to its maximum ability. All pumps have a published curve (a graph showing how many gallons the pump produces (horizontal numbers on graph) at different ft of thd. (vertical numbers on the graph). These are available through your distributor or equipment manufacturer.

**High and low service factor.** An electric motor may be rated as either a 1 or 1 1/2 HP. However, when the motor is rated as a 1 1/2 HP, its service factor would



be change from 1.65 to 1.1. Both motors have the same full load capacity, and the maximum load amperage for both motors would be the same. The pumps that the motors go on would have the same impellers and produce the same GPM at the same FT of THD, even though the horse power rating on one would be 1 (full Rated) and the other 1 1/2 (re-rated/low service factor).

Many times the distributor does not even understand low service factor, and has no idea which pump he is selling. The pump model number will tell you.



**EXAMPLES: NOTE THAT EVEN THOUGH THE HP IS THE SAME THE GPM IS VERY DIFFERENT.**

PENTAIR PRODUCTS: **TWO** NUMBERS AFTER THE ALPHA LETTERS EQUALS LOW SERVICE FACTOR / ONE NUMBER EQUALS FULL RATED. WFE-6 FULL RATED 1 1/2 HP FULL RATED = 83 GPM AT 70 FT OF HD. WFE-26 RE-RATED 1 1/2 HP LOW SERVICE FACTOR = 62 GPM AT 70 FT OF HD.

CHALLENGER PUMPS: AN A AT THE END OF THE MODEL # = RE-RATE  
CHII-NI-1-1-1/2-F FULL RATED 1 1/2 HP = 74 GPM AT 70 FT OF HD.  
CHII-NI-1-1-1/2-A RE-RATED 1 1/2 HP = 58 GPM AT 70 FT OF HD.

STA-RITE PUMPS IF THERE IS AN A IN THE MODEL NUMBER IT IS A RE-RATED PUMP. P6E6F207L FULL RATED 1 1/2 HP = 77 GPM AT 70 FT OF HD. P6EA6F206L RE-RATED 1 1/2 HP = 60 GPM AT 70 FT OF HD.

JANDY IND. AN M IN THE MODEL NUMBER EQUALS RE-RATED.  
SHPF/1.5 FULL RATED 1 1/2 HP = 83 GPM AT 70 FT OF HD.  
SHPM/1.5 RE-RATED 1 1/2 HP = 55 GPM AT 70 FT OF HD.

HAYWARD IND. AN X IN THE MODEL NUMBER EQUALS RE-RATED  
SP4015NS 1 1/2 HP FULL RATED = 88 GPM AT 70 FT OF HD.  
SP4015X15NS 1 1/2 HP RE-RATE = 66 GPM AT 70 FT OF HD.

JACUZZI: A U IN THE MODEL NUMBER EQUALS RE-RATED. 15MF FULL RATED 1 1/2 HP = 80 GPM AT 70 FT OF HD. 15UMF RE-RATED 1 1/2 HP = 48 GPM AT 70 FT OF HD.

**MULTI-SPEED PUMPS.**

THE SPEED OF THE PUMP MUST BE SET SO THE WATER VALVE GAUGE IS AT 20 TO 24 PSI AND THAT SPEED NEEDS TO RUN FOR 4 HOURS ON A SINGLE WATER VALVE SYSTEM AND 6 TO 7 HOURS ON A 2 OR 3 VALVE SYSTEM.



# IN-FIELD TROUBLE SHOOTING GUIDE

PCC2000®     PV3®     POOL VALVE

Pool Builder \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_

Home Owner \_\_\_\_\_

Note: If possible get a Paramount Drawing to take with you to the job site.

• Pump Brand \_\_\_\_\_ HP. \_\_\_\_\_ #Service Factor (on motor label) \_\_\_\_\_

• The water valve gives maximum performance at 20 psi on the water valve gauge.

• Minimum filter sizes required on Paramount systems. Sand = 30 inch with 2 inch valve. DE = 36 sq. ft. with 2 inch valve. Cartridge 200 sq. ft. (strongly recommend 400sq ft or larger cartridge filter if possible).

• Does the pool have solar?  Yes  No

Is there a booster pump on the solar?  Yes  No

POOLS WITH SOLAR AND NO BOOSTER WILL NEGATIVELY AFFECT ANY INFLOOR SYSTEM.  
SOLUTION ADD A BOOSTER. See Paramount for plumbing instructions.

• Does the pool have a heater?  Yes  No

If yes, is there a by pass  Yes  No

IF THE CLEANING SYSTEM IS DOWN ON POWER, A 1 INCH BYPASS ON THE HEATER WILL  
ADD 2 TO 3 PSI TO THE CLEANING SYSTEM.

• Does the pool have o-zone introduced into the suction side of the pump?  Yes  No

TOO MUCH GAS INTRODUCED INTO THE PUMP SUCTION WILL GREATLY AFFECT  
THE PUMP PERFORMANCE. SOLUTION: REDUCE THE INCOMING O-ZONE.

• Is the skimmer cut back to 40% or less?  Yes  No

IN-FLOOR SYSTEMS REMOVE DEBRIS THRU THE MAIN DRAIN AND YOU MUST  
CUT BACK THE SKIMMER TO GET AT LEAST 60% FLOW FROM THE MAIN DRAIN.

• Single water valve systems must run at least 5-1/2 hours per day. Two-valve systems must run at  
east 8 hours. Three-valve systems must run at least 10 hours.

• There should be no nozzle or sets of nozzles that stay up all the time when the pump(s) are running.

(Except with the PCC2000® systems, which if the pool is over 12 ft. wide at the main drain, there should be  
two fixed nozzles that stay up the entire time the filter pump is running). IF OTHER NOZZLES STAY  
UP AND WHEN YOU PUSH THEM DOWN THEY COME BACK UP, THE MODULE MAY BE BAD.



### IN-FIELD TROUBLE SHOOTING GUIDE

Single Pump System (the filter pump is running the cleaning system) do steps 1 thru 7.

Booster pump system (the cleaning system has its own pump) skip to step 8.

The gauge on the water valve should be at 20 psi for maximum cleaning

1. Is water being diverted to the spa over flow? If yes, what is the length of the overflow?  
Yes \_\_\_\_\_ Overflow Length \_\_\_\_\_ No \_\_\_\_\_. If YES multiply the width of the spillway (overflow) in inches times 1.5 gallons which equals \_\_\_\_\_ GPM.
2. Returns that are diverting water to the pool or spa that are not on water valve.  
Take this number of returns \_\_\_\_\_ X 15 GPM = \_\_\_\_\_ Total GPM.
3. Is there any other water being diverted to a chlorinator or other device \_\_\_\_\_ GPM.
4. If the cleaning system is a PCC2000® does it have Fixed nozzles (Nozzles that stay up all the time the filter pump is on, are aimed at the Main Drain and do not rotate)  Yes  No  
If Yes, they will need 15 to 20 gpm to operate
5. Write gauge pressure on Water Valve [ ] or Filter [ ] under A. Add the gallons on each circuit by the formula for the system you are checking (See PCC2000® / PV3® / Pool Valet®) and write in under B. the total gallons needed on each circuit. 1 thru 6 for a one-valve system, 1 thru 9 for a two-valve system and. 1 thru 12 for a three-valve system.

**PCC2000®** = 3/4 opening is 50 gpm; 1/2 inch opening is 25 gpm; 3/8 inch opening is 12.5 gpm. Down jets (special return fittings on leg of water valve) 12.5 gpm. **SMALL PCC2000® STEP NOZZLES** = 5/8 inch is 20 gpm; 3/8 inch is 10 gpm; 1/4 inch opening is 5 gpm.

**PV3®** = 5/8 inch equals 20 gpm; 3/8 inch equals 10 gpm. 1/4 inch equals 5 gpm.

**Pool Valet®** = each drilled out 3/8 inch hole equals 10 gpm. 1/4 inch opening equals 5 gpm.

#1	A _____ PSI*	#2	A _____ PSI*	#3	A _____ PSI*	#4	A _____ PSI*
	B _____ +		B _____ +		B _____ +		B _____ +
#5	A _____ PSI*	#6	A _____ PSI*	#7	A _____ PSI*	#8	A _____ PSI*
	B _____ +		B _____ +		B _____ +		B _____ +
#9	A _____ PSI*	#10	A _____ PSI*	#11	A _____ PSI*	#12	A _____ PSI*
	B _____ +		B _____ +		B _____ +		B _____ +

6. IF YOU ANSWERED YES TO # 1, 2, 3, OR 4 ADD UP THE GALLONS USED BY THESE ITEMS.

1. \_\_\_\_\_ 2. \_\_\_\_\_ 3. \_\_\_\_\_ 4. \_\_\_\_\_ = \_\_\_\_\_ Total Gallons

7. ADD THE GALLONS FROM THE ABOVE TOTAL TO THE HIGHEST GALLONS REQUIRED ON CIRCUITS 1 THRU 12. THIS NUMBER OF GALLONS IS WHAT THE PUMP MUST PRODUCE AT 70 TO 80 FOOT OF HEAD TO MAKE THE SYSTEM WORK.

PCC2000® SYSTEMS NEED 50 TO 55 GPM PLUS 15 GPM FOR THE FIXED AT 70 FOOT OF HEAD FOR THE CLEANING SYSTEM TO OPERATE.

PV3® AND Pool Valet® SYSTEMS OPERATE AT 40 GPM AT 60 FT OF HEAD OR 65 GPM AT 80 FT OF HEAD DEPENDING ON THE AMOUNT OF FLOOR NOZZLES ON A CIRCUIT AND THEIR GALLONAGE DEMAND (See # 6. PV3® or Pool Valet®).





**BOOSTER PUMP SYSTEM (CLEANER HAS its OWN PUMP)**

- 8. Write gauge pressure on Water Valve under A. Add the gallons on each circuit by the formula for the system you are checking (See PCC2000® / PV3® / Pool Valve) and write in under B. the total gallons needed on each circuit. 1 thru 6 for a one-valve system, 1 thru 9 for a two-valve system, 1 thru 12 for a three-valve system.

**PCC2000®** = 3/4 opening is 50 gpm; 1/2 inch opening is 25 gpm; 3/8 inch opening is 12.5 gpm. Small PCC2000® STEP

Nozzles = 5/8 inch is 20 gpm; 3/8 inch is 10 gpm; 1/4 inch opening is 5 gpm.

**PV3®** = 5/8 inch equals 20 gpm; 3/8 inch equals 10 gpm; 1/4 inch equals 5 gpm.

**Pool Valet®** = each drilled out 3/8 inch hole equals 10 gpm; 1/4 inch opening equals 5 gpm.

#1	A	PSI*	#2	A	PSI*	#3	A	PSI*	#4	A	PSI*
	B	+		B	+		B	+		B	+
#5	A	PSI*	#6	A	PSI*	#7	A	PSI*	#8	A	PSI*
	B	+		B	+		B	+		B	+
#9	A	PSI*	#10	A	PSI*	#11	A	PSI*	#12	A	PSI*
	B	+		B	+		B	+		B	+

**PCC2000® SYSTEMS NEED 50 TO 55 GPM AT 60 FOOT OF HEAD FOR THE CLEANING SYSTEM TO OPERATE.**

**PV3® AND Pool Valet® SYSTEMS OPERATE AT 40 GPM AT 60 FT OF HEAD OR 65 GPM AT 80 FT OF HEAD DEPENDING ON THE AMOUNT OF FLOOR NOZZLES ON A CIRCUIT AND THEIR GALLONAGE DEMAND**



## IN-FIELD TROUBLE SHOOTING GUIDE - APPENDIX

### \*APPENDIX:

GAUGE PRESSURES FROM A. SHOULD BE WITHIN ONE OR TWO PSI OF EACH OTHER ON 6-PORT VALVES. ON 9-PORT VALVES, PORTS 1, 2, AND 3 SHOULD BE ABOUT THE SAME AND 4 THRU 9 (THE SECOND VALVE) WILL BE ABOUT 3 PSI LOWER THAN 1 THRU 3, BUT SHOULD BE ABOUT THE SAME AS EACH OTHER. ON A 12-PORT, THE CENTER VALVE WILL BE ABOUT 3 PSI HIGHER THAN THE OTHER TWO VALVES, WITH THOSE TWO VALVES BEING ABOUT THE SAME PRESSURE ON ALL PORTS.

A DIFFERENCE IN PRESSURES CAN MEAN:

- TOO HIGH = WRONG NOZZLES OR THE NOZZLES OR PIPES ARE PLUGGED WITH DEBRIS.
- TOO LOW= WRONG NOZZLES OR BAD MODULE.
- ON 9-PORT SYSTEMS IF BOTH VALVES HAVE PRESSURE ON THEM ALL THE TIME, THE 3+1 MODULE MAY BE BAD. THE GAUGE MAY BE BAD.
- ON A 12-PORT SYSTEM IF ANY OF THE 6 PORT VALVES HAVE PRESSURE ON THEM ALL THE TIME, THE 1+1 MODULE MAY BE BAD. THE GAUGE MAY BE BAD.

### # APPENDIX:

SERVICE FACTOR (SF) TIMES HORSEPOWER EQUALS HORSEPOWER OF PUMP. FULL RATED MEANS THAT THE HP. X SF. WILL EQUAL ONE SIZE BIGGER THAN THE LABEL READS.

EXAMPLE: 1 HP. X 1.5 OR BIGGER SF., EQUALS 1 -1/2 OR BIGGER HP.

### + APPENDIX:

THE PUMPS BELOW ARE FULL RATED EXAMPLES (SEE #)

	1 hp	1.5 hp	2 hp
Sta-Rite Max-E-Pro	60 gpm @ 70' head	75 gpm @ 70' head	70 gpm @ 80' head
Dura-Glass II	60 gpm @ 70' head	85 gpm @ 70' head 78 gpm @ 80' head	80 gpm @ 80' head
Pentair Whisperflo	60 gpm @ 70'head	85 gpm @ 70' head 68 gpm @ 80' head	78 gpm @ 80' head
Challenger	60 gpm @ 70' head	75 gpm @ 70' head 68 gpm @ 70' head	
Jandy PlusHP Pumps	60 gpm @ 70' head	85 gpm @ 70' head	72 gpm @ 80' head
Hayward Super II	60 gpm @ 70' head	80 gpm @ 70' head	80 gpm @ 80' head
Northstar	57 gpm @ 70' head	85 gpm @ 70' head	80 gpm @ 80' head
Jacuzzi Magnum Force	55 gpm @ 70' head	80 gpm @ 70' head	65 gpm @ 80' head



# TROUBLE SHOOTING WORK SHEET

VANQUISH     VANTAGE

Pool Builder \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_

Home Owner \_\_\_\_\_

Note: If possible get a Paramount Drawing to take with you to the job site.

- Pump Brand \_\_\_\_\_ HP. \_\_\_\_\_ #Service Factor (on motor label) \_\_\_\_\_
- Minimum filter sizes required on Paramount systems. Sand = 30 inch with 2 inch valve.  
DE = 36 sq. ft. with 2 inch valve. Cartridge 200 sq. ft.
- Does the pool have solar?     Yes     No  
Is there a booster pump on the solar?     Yes     No  
POOLS WITH SOLAR AND NO BOOSTER WILL NEGATIVELY AFFECT ANY INFLOOR SYSTEM.  
SOLUTION ADD A BOOSTER.
- Does the pool have a heater?     Yes     No  
If yes, is there a by pass     Yes     No  
IF THE CLEANING SYSTEM IS DOWN ON POWER, A 1 INCH BYPASS ON THE HEATER WILL  
ADD 2 TO 3 PSI TO THE CLEANING SYSTEM.
- Does the pool have o-zone introduced into the suction side of the pump?     Yes     No  
TOO MUCH GAS INTRODUCED INTO THE PUMP SUCTION WILL GREATLY AFFECT  
THE PUMP PERFORMANCE. SOLUTION: REDUCE THE INCOMING O-ZONE.
- Is the skimmer cut back to 40 % or less?     Yes     No  
IN-FLOOR SYSTEMS REMOVE DEBRIS THRU THE MAIN DRAIN AND YOU MUST  
CUT BACK THE SKIMMER TO GET AT LEAST 60% FLOW FROM THE MAIN DRAIN.
- Two speed pumps must run at least 5 hours on high speed. Multi-speed must run at a speed to have 20 psi on the  
water valve gauge for at least 4 hours
- There should be no nozzle or sets of nozzles that stay up all the time when the pump(s) are running.  
IF NOZZLES STAY UP AND WHEN YOU PUSH THEM DOWN THEY COME BACK UP, THE MODULE  
MAY BE BAD. EXCEPTION; VANTAGE POOLS MAY HAVE ONE OR TWO NOZZLES STAY UP WHICH IS  
ALWAYS AIMED AT THE MAIN DRAIN.



## TROUBLE SHOOTING WORK SHEET

### Single Pump System (the filter pump is running the cleaning system).

1. Is water being diverted to the spa over flow? If yes, turn off the spa.
2. Is there any other water being diverted to a chlorinator or other device \_\_\_\_\_ GPM.
3. Write gauge pressure on Water Valve [ ] or Filter [ ] under A. Add the gallons on each circuit by the formula for the system you are checking (See VANQUISH) and write in under B the total gallons needed on each circuit.

**VANQUISH/VANTAGE** = 3/4 opening is 50 gpm; 1/2 inch opening is 25 gpm; 3/8 inch opening is 12.5 gpm.  
Down jets (special return fittings on leg of water valve) 12.5 gpm.

#1	A	PSI*	#2	A	PSI*	#3	A	PSI*
	B	+		B	+		B	+

#4	A	PSI*	#5	A	PSI*	#6	A	PSI*
	B	+		B	+		B	+

### 6. IF YOU ANSWERED YES TO # 1 OR 2, ADD UP THE GALLONS USED BY THESE ITEMS.

1. \_\_\_\_\_

2. \_\_\_\_\_

Total gallon \_\_\_\_\_

7. ADD THE GALLONS FROM THE ABOVE TOTAL TO THE HIGHEST GALLONS REQUIRED ON CIRCUITS 1 THRU 6. THIS NUMBER OF GALLONS IS WHAT THE PUMP MUST PRODUCE AT 65 FOOT OF HEAD TO MAKE THE SYSTEM WORK.

**Total gallons from 6** \_\_\_\_\_

**Highest Circuit gpm** \_\_\_\_\_

**Number of gpm at 65ft of head required** \_\_\_\_\_

**VANQUISH SYSTEMS NEED 50 TO 55 GPM AT 65 FOOT OF HEAD FOR THE CLEANING SYSTEM TO OPERATE.**



# TROUBLE SHOOTING WORK SHEET

## \*APPENDIX:

GAUGE PRESSURES FROM A. SHOULD BE WITHIN ONE OR TWO PSI OF EACH OTHER ON 6-PORT VALVES.

A DIFFERENCE IN PRESSURES CAN MEAN:

- TOO HIGH = WRONG NOZZLES OR THE NOZZLES OR PIPES ARE PLUGGED WITH DEBRIS.
- TOO LOW= WRONG NOZZLES OR IF ONE NOZZLE OR SET OF NOZZLES STAY UP ALL THE TIME, IT COULD BE A BAD MODULE.

## # APPENDIX:

SERVICE FACTOR (SF) TIMES HORSEPOWER EQUALS HORSEPOWER OF PUMP.

FULL RATED MEANS THAT THE HP. X SF. WILL EQUAL ONE SIZE BIGGER THAN THE LABEL READS.

EXAMPLE: 1 HP. X 1.5 OR BIGGER SF., EQUALS 1 -1/2 OR BIGGER HP.

## + APPENDIX:

Sta-Rite Max-E-Pro	60 gpm @ 70' head	75 gpm @ 70' head	70 gpm @ 80' head
Dura-Glass II	60 gpm @ 70' head	85 gpm @ 70' head 78 gpm @ 80' head	80 gpm @ 80' head
Pentair Whisperflo	60 gpm @ 70'head	85 gpm @ 70' head 68 gpm @ 80' head	78 gpm @ 70' head
Challenger	60 gpm @ 70' head	68 gpm @ 70' head	75 gpm @ 70' head 60 gpm @ 80' head
Jandy PlusHP Pumps	63 gpm @ 70' head	85 gpm @ 70' head	72 gpm @ 80' head
Hayward Super II	57 gpm @ 70' head	85 gpm @ 70' head	80 gpm @ 80' head
Northstar	57 gpm @ 70' head	85 gpm @ 70' head	80 gpm @ 80' head
Jacuzzi Magnum Force	55 gpm @ 70' head	80 gpm @ 70' head	65 gpm @ 80' head



## A&A TROUBLE SHOOTING TIPS

### **VALVE NOT ROTATING:**

- Adjustable flow needs to be set for more flow to get gears moving or to increase the speed.
- Gears are stripped or there is a pebble lodged in them. If stripped, replace internals.
- Shafts that the gears are mounted on are worn or the gear is worn to cause misalignment. Replace valve internals.
- Shims are not right (top feed valve 1 shim, side feed valve 2 shims). Put proper shims in place.
- The second gear from the bottom is the gear that gets the most wear and can be switched with the bottom gear to replace it. The bottom gear is not used except for spacing.
- There are shims under the impeller and if the impeller is worn, the shims are probably missing. Replace impeller with new shims.
- Gears built into the valve body are stripped. Replace body.

**NOTE: THE 5-PORT AND 6-PORT VALVES USE A DIFFERENT CAM PLATE AND THE VALVES WILL NOT WORK IF YOU USE THE WRONG ONE.**

**TIP: USE A FOUNTAIN PEN TO HOLD THE GUIDES IN THE CENTER SHAFT TO STOP THEM FROM FALLING OUT DURING ASSEMBLY.**

### NOZZLE SIZING:

- High flow nozzle is 7/16 inch orifice and flows 18 gpm
- Low flow nozzle is 1/4 inch orifice and flows 5 gpm.

**NOTE: IF THE PRESSURE IS TOO HIGH, YOU CAN DRILL OUT THE BACK SIDE OF A NOZZLE, BUT YOU NEED TO GO TWO RIBS OVER FROM THE CENTER OF THE BACK OF THE NOZZLE.**

### BODIES:

- Do not primer the body but do primer the riser and use gray glue on both the riser and body.
- These bodies use Class 200 PVC risers from A&A

**NOTE: As of 2007, Paramount now makes replacement nozzles for the A&A bodies.**



## CARETAKER TROUBLE SHOOTING

**Symptom:** Dirty spots appear where none were before.

**Solution:**

- Make sure all auxiliary lines are shut off.
- Clean filter and pump and skimmer baskets.
- On 5-Port valve, clean valve strainer. On 8-Port valve, increase the run-time per zone using the dial on the control box.

**Symptom:** 5-Port valve doesn't cycle.

**Solution:**

- Turn pump on and off several times to clear the system.
- Clean the filter, pump basket, skimmer and valve dome strainer.
- Remove the top half of the valve, turn it upside down, and spray water into it.
- Replace gear assembly.

**Symptom:** Cleaning head isn't advancing.

**Solution:**

- Take it out and inspect for debris.
- Check for bent splines. Replace head if necessary.

**Symptom:** Leaf Trapper canister isn't pulling adequate water from drain.

**Solution:**

- Make sure there is adequate flow going to the canister from the pump.
- Unscrew the venture nozzle and clean out any debris. Check the return going into the pool from the canister to see that it has adequate flow. Make sure there are no restricter eyeballs on the line and that there is no debris blocking the grate.
- Snake the line. If necessary, dive down to take the stem off the drain and clean out the drain itself.

**Symptom:** Dirt is left between the heads

**Solution:**

- Verify that the heads on each side of the dirt are pointed in the same direction. Advance a head, if necessary, using the head removal tool to ratchet the head up and down until the nozzle points in the correct direction.
- Increase the cleaning time. If using the UltraFlex valve, increase run-time to 60 seconds.



**Symptom:** Cleaning head advances but is not cleaning.

**Solution:**

- Check for debris lodged in the nozzle.
- Remove the head from the collar. Run the pump for two full cycles.
- Recheck for particles in the cleaning head nozzle and re-insert the cleaning head.

**Symptom:** Cleaning head will not pop up.

**Solution:**

- Remove the head. Inspect the cleaning head and collar for pool finish remnants or debris.

**Symptom:** Cleaning head will not go down.

**Solution:**

- With system running and cleaning head in the upright position, depress gently down on the head, using a telescoping pole.
- Remove the cleaning head from the pool and inspect for damaged ratchets or debris in the ratchets.

**Symptom:** The 8-Port Valve doesn't cycle.

**Solution:**

- Make sure all auxiliary valves are closed.
- Verify that valve controller is not on pause.
- Make sure the GFI in the controller box is not tripped. (Important: If GFI is tripped, shut off power to the controller box before resetting the GFI. Failure to do so will blow the motherboard.)
- Check voltages coming out of the transformer, coming out of the motherboard, and going into the motor.
- Replace pressure-switch.
- Replace dial on controller box.

**Symptom:** The 8-Port Valve does not pause at an outlet port.

**Solution:**

- Verify that the valve cover is in place over the motor.
- Replace sensor on motor.

**Symptom:** Valve is squealing while in operation.

**Solution:**

- Relieve pressure from the line until squealing stops. This can be done either with a diverter valve or by increasing orifice size in cleaning heads. (Note: Squealing is caused by water bypass. Polaris will tell you to replace the o-rings in the Tee assembly which will only work short-term. Ultimately, the water-pressure needs to be reduced in order to eliminate bypass.





**Symptom:** The 8 port valve does not cycle.

**Solution:**

- Make sure all auxiliary valves, surface returns, water falls, spa over flow, etc. are closed.
- Verify that the valve is not in pause mode.
- Make sure the GFI is not tripped and check the main power source.
- Check wiring at the controller, the pressure switch and the valve. If the red LED is on but the valve is not rotating, check under the top plate for restrictions like debris or a damaged o-ring.

**Symptom:** The 8 port valve is leaking.

**Solution:**

- Check for debris underneath the top plate or around the face seal o-ring and clean and replace if necessary.
- Verify that top plate is tight. Re-tighten or replace O-ring if necessary.
- Shaft seal is leaking, Replace the seal.

