10" ULTRA RETRO SUCTION OUTLET



NSF

640-213x V

INSTALLATION INSTRUCTIONS

Designed, Engineered & Manufactured in the USA.

waterway™

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ULTRA RETRO SUCTION OUTLET OWNER'S MANUAL

For Model Numbers: 640-213x V

VGBA 2017

⚠ WARNING: IMPORTANT SAFETY INSTRUCTIONS. READ, UNDERSTAND, AND FOLLOW ALL WARNINGS AND INSTRUCTIONS. SAVE THESE INSTRUCTIONS.

Read and follow all instructions in this owner's manual and on the equipment. Failure to follow instructions can cause severe injury and/or death.

SOFA INSTRUCTIONS

When installing and using this equipment, basic safety precautions shall always be followed, including the following: IMPORTANT SAFETY INSTRUCTIONS. READ, FOLLOW, AND UNDERSTAND ALL INSTRUCTIONS AND WARNINGS.

Any modification that increases the flow rate of the circulation system shall require re-evaluation of the cover/grate and sump to ensure that the flow rating of the Suction Outlet Fitting Assembly (SOFA) is not exceeded.

Missing, broken, or cracked cover/grates, sumps, mud-frames, or any other SOFA component shall be replaced before bathers are allowed to use the pool.

Loose cover/grates shall be reattached before bathers are allowed to use the pool.
SAVE THESE INSTRUCTIONS.

IMPORTANT SAFETY INSTRUCTIONS



WARNING - SUCTION ENTRAPMENT HAZARD
Suction in suction outlets and/or suction outlet covers which are damaged, broken, cracked, missing, or unsecured can cause severe injury and/or death due to the following entrapment hazards:

Hair Entrapment: Hair can become entangled in suction outlet cover.

Limb Entrapment: A limb inserted into an opening of a suction outlet sump or suction outlet cover that is damaged, broken, cracked, missing, or not securely attached can result in a mechanical bind or swelling of the limb.

Body Suction Entrapment: A negative pressure applied to a large portion of the body or limbs can result in an entrapment.

Evisceration / Disembowelment Entrapment: A negative pressure applied directly to the intestines through an unprotected suction outlet sump or suction outlet cover which is damaged, broken, cracked, missing, or unsecured can result in evisceration / disembowelment entrapment.

Mechanical Entrapment: There is potential for jewelry, swimsuit, hair decorations, finger, toe, or knuckle to be caught in an opening of a suction outlet cover resulting in mechanical entrapment.

This cover/grate shall only be installed on the sump configuration authorized by these instructions - SOFA configuration 640-213xV, with certified flow rating 178 gpm floor / 132 gpm wall

USE ONLY GENUINE WATERWAY REPLACEMENT PARTS.

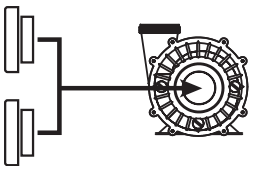
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- **Suction cover life is 7 years, the sump wall fitting life is 14 years, the rest of the components have 25 year life, cover and all SOFA components shall be replaced on or before the end of service life.**
- **The use of adhesives or other attachment methods that prevent access to suction piping or SOFA components is prohibited.**
- **Please refer to Head Loss Curve.**
- **This is a blockable SOFA as marked on the suction cover.**
- **Hand tighten screws, DO NOT USE POWER TOOLS TO INSTALL FASTENERS. Ensure proper thread engagement to prevent cross-threading.**
- **Ensure proper flatness of installation surface.**
- **When mud-rings, sump and other components are held in place by the interior surface of the pool, the surface should be free of deterioration or voids**
- **Damaged Fasteners shall be replaced with original parts, and must be grade 316 stainless steel. The wall fitting shall be inspected for the presence of any CRACK or material loss. Cracked/damaged mud rings, sumps, or wall fittings shall be replaced.**
- **No unauthorized field modifications. Unauthorized modifications will void certification.**
- **This product is intended for use on gunite, vinyl, fiberglass, and roto-molded pools, spas and hot tubs.**
- **No modification shall be made to SOFA structure or flow path unless the configuration has been certified as a new SOFA.**
- **Service life begins the month and year in which SOFA components are installed with or without water.**
- **For winterization remove the cover and plug the inlet.**
- **Use TORX wrench and screw driver for service and removal of fasteners.**
- **Apply 20 in-lbs torque to TORX Screws.**
- **Observe cover/grate/fasteners for damage each operational day.**
- **During installation ensure components and fastener receptacles are clean, free of debris and obstructions.**
- **Hand-check cover/grate for snugness to the sump/frame/wall fitting after installation.**
- **SOFA installation components with crack, chunks, or pieces broken off, stripped screw holes, and/or unusual discoloration should be replaced.**
- **The mounting surface or interior surface of the pool should be free of deterioration.**
- **Start installation of screws by hand to ensure proper thread engagement and to prevent cross-threading.**
- **Do not exceed the safe flow rating of SOFAs as listed.**
- **All SOFAs should be installed in accordance with Waterway installation instructions.**
- **Under no condition should SOFA special flow rating be exceeded while the pool is open.**
- **The capacity of secondary circulation system (skimmer, cutters, etc) should not be included when evaluating an individual suction system flow rating.**
- **For the flow rating for pools with multiple blockable SOFAs in one body of water without isolation valves: combine all SOFAs, minus the flow rate of one, if all are not equal use the larger flow rate.**
- **"Blockable" SOFAs in new pools shall be installed in multiple-SOFA system ONLY.**
- **"Blockable" SOFAs in existing pools with single SOFA systems shall be installed with an additional anti-entrapment device or system.**
- **This SOFA is suitable for in-place replacement.**
- **SOFA(s) should be chosen so that the individual suction system flow rate is greater than the pumping systems maximum system flow rate.**
- **The flow rating for existing pools with a single blockable SOFA is the flow rating of the SOFA when installed with an additional device to prevent suction entrapment.**
- **A single blockable SOFA in a system that does not have an additional device or systems shall result in a flow rate of zero.**

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TO REDUCE THE RISK OF ENTRAPMENT HAZARDS:



• Use two or more suction fitting on each pump suction line. The suction fittings shall be separated by a minimum of 3 ft. (91.44 cm), or if any are located closer they shall be located on two different planes (i.e., one on the bottom and one on the vertical wall, or one each on two separate vertical wall).

- In the event of one suction outlet being completely blocked, the remaining suction outlets serving that system shall have a flow rating capable of the full flow of the pump(s) for the specific suction system.
- Dual suction fittings shall not be located on seating areas or on the backrest for such seating areas.
- The maximum system flow rate shall not exceed the flow rating of any listed (per ASME A112.19.8-2007) suction outlet cover installed. In the event of one suction outlet being completely blocked, the remaining suction outlets serving the system shall have a flow rating capable of the full flow of the pump(s).
- Never use a pool or spa if any suction outlet component is damaged, broken, cracked, missing, or not securely attached.
- Replace damaged, broken, cracked, missing, or not securely attached suction outlet components immediately.
- Two or more suction outlets per pump should be installed in accordance with latest APSP Standards and CPSC guidelines, and follow all National, State, and Local codes applicable.
- Replace the suction within 7 years from the installation date.
- Installation of a vacuum release system, which relieves entrapping suction, is recommended.

WARNING

Failure to remove pressure test plugs and/or plugs used in winterization of the pool/spa from the suction outlets can result in an increased potential for suction entrapment as described on the previous page.

Failure to keep suction outlet components clear of debris, such as leaves, dirt, hair, paper and other material, can result in an increased potential for suction entrapment as described on the previous page.

Suction outlet components have a finite life. The cover/grate should be inspected frequently and replaced at least every seven years, or if found to be damaged, broken, cracked, missing, or not securely attached.

This fitting is rated at 178 GPM for floor mount and 132 GPM for wall mount. If the fitting is missing or broken, replace with a fitting of equivalent rating or higher. Use of a lower rated suction fitting could result in entrapment of the body which could result in serious injury including drowning.

Do not use or operate pool, spa, or hot tub if this suction fitting is missing, broken or not secured per instructions. The suction fitting is intended to prevent entrapment of the body. Use of the spa hot tub with a missing, broken or improperly secured suction grate may result in serious personal injury including drowning.

When the pool, spa or hot tub is in operation, suction is created at this fitting. Users of the spa or hot tub must be instructed not to come in contact with this fitting in such a way as to block its orifice. If a user of the spa or hot tub blocks this fitting with his/her body, serious personal injury or drowning may occur.

It is imperative to securely attach the suction cover to the wall fittings (use only the original supplied screws or obtain original replacements). Do not over tighten the screws. Inspection of fasteners and observation for damaged/tampered with suction fittings is required.

Any and all broken or missing parts must be replaced prior to starting spa or pool pump. Never operate spa or pool without drain cover in place and properly affixed, death or serious injury can result.

Do not exceed the safe flow rate. Do not increase flow through system by increasing pump size or horsepower.

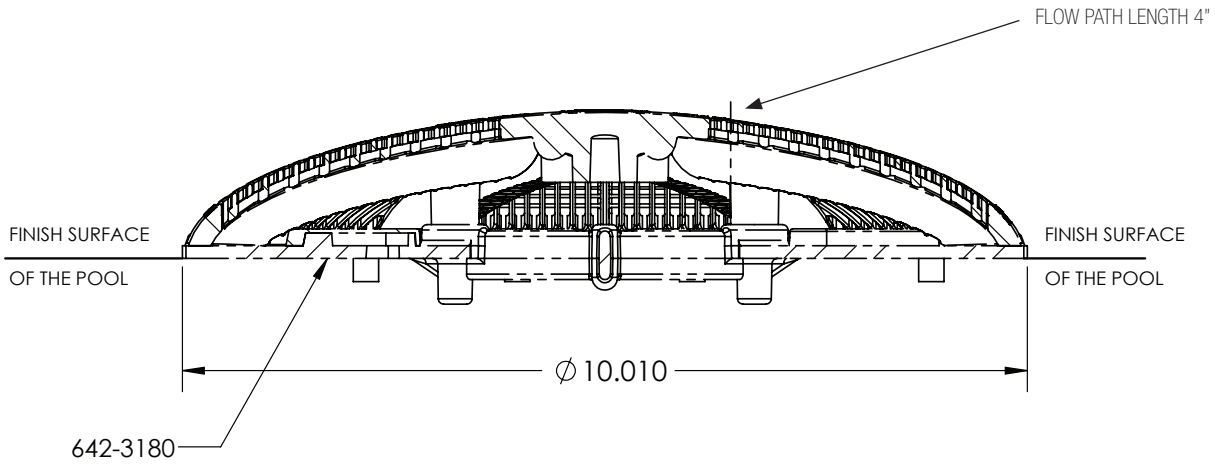
Do not allow children to sit, play or interact with main drains or suction outlet.

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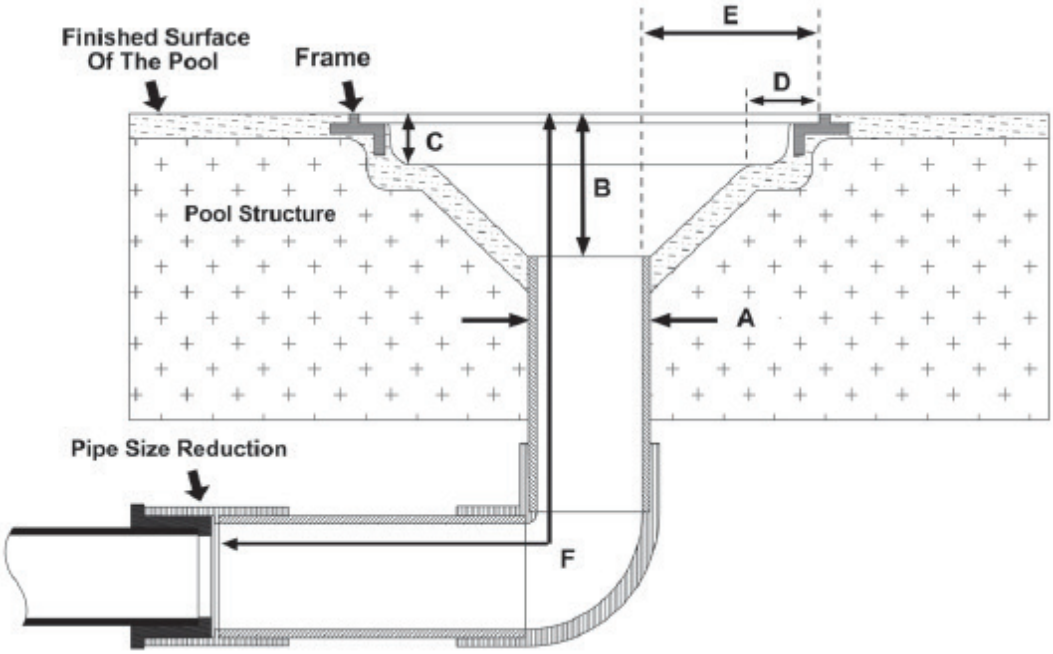
FLOW PATH ZONE DIMENSIONS:

This is a sumpless drain.



Sump Specifications:

This is a sumpless drain.



A - PVC Pipe: 2”
B - Minimum Sump Depth: 1”
C - Minimum Ledge Depth: 1”
D - Minimum Ledge Width: 1/2”
E - Minimum Pipe Offset: 1/2”
F - Minimum Length Before Reduction: 16”
Pipe Orientation: Vertical to pool surface

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ULTRA RETRO SUCTION OUTLET - IMPORTANT INFORMATION

Ultra Retro is an underwater suction drain cover system intended to replace any drain cover up to 10 inches in diameter.

The maximum flow rate for Ultra Retro is 178 gallons per minute (GPM) Floor and 132 GPM Wall. Ultra Retro should operate best when used with residential pumps of up to 3 HP. Please ensure your pool or spa pump system meets this specification.

CAUTION: if you do not have two underwater points of suction in your pool or spa for each pump, safety issues regarding suction entrapment exist and could cause serious injury or death. If you do not have two underwater points of suction for each pump in your pool or spa, you must contact a licensed pool builder or remodeler to install a second point of suction.

ULTRA RETRO SUCTION OUTLET INCLUDED COMPONENTS

Your Ultra Retro includes five important components. All components #1-4 below must be used for proper installation. These components are as follows:

1. Drain cover support plate
2. Drain cover
3. Three #10 x ⅞ security screws to secure drain cover to drain cover support plate, together with a tool for installing these screws
4. Assorted screws, fasteners, and plastic spacers for attaching drain cover support plate to pool or spa surface (see Figure 1)

See the following Installation Instructions to determine which components you will need to use for your installation.

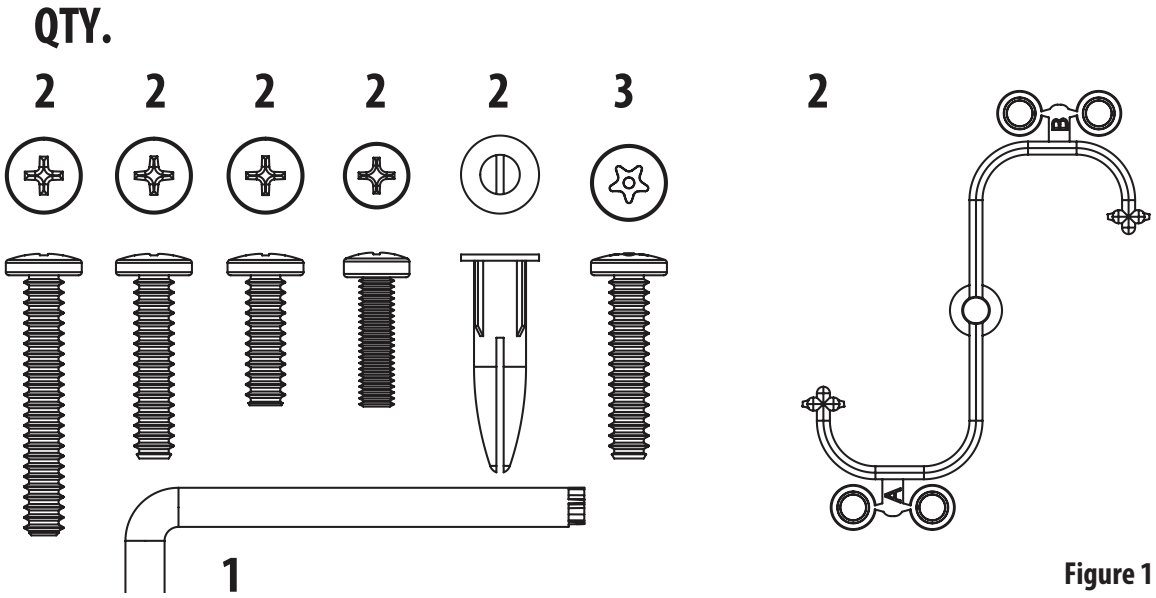
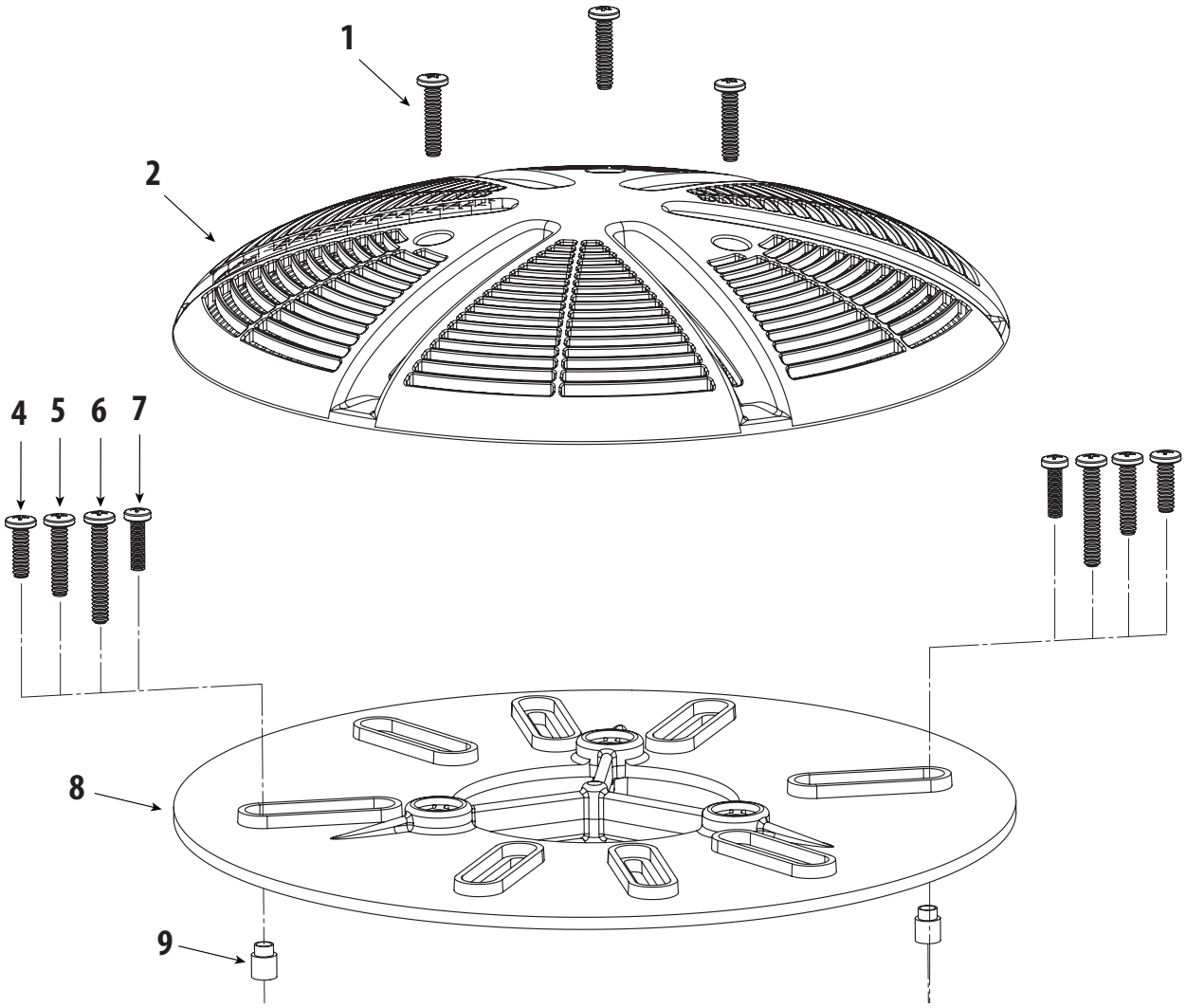


Figure 1

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ULTRA RETRO SUCTION OUTLET COMPONENTS



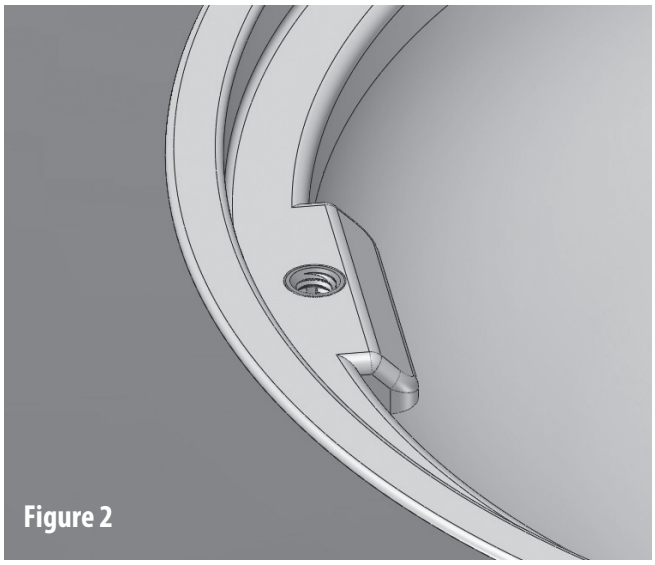
Item	*Part No.*	*Description*
1	**819-0913**	#10 x ⅞" Security Screw
2	**642-3170 V**	10" Ultra Retro Suction Cover
4	**819-0910**	#10 x ⅝" Self-Threading Screw
5	**819-0912**	#10 x ⅞" Self-Threading Screw
6	**819-0911**	#10 x 1 ¼" Self-Threading Screw
7	**819-0999**	#8-32 x ¾" Screw
8	**642-3180**	Support Plate
9	**642-3220B**	Spacer Bushing
10	**821-0010**	#10 Plastic Anchor

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INSTALLATION INSTRUCTIONS

1. Turn off all power to pool or spa and pump systems. Installation is easiest when pool or spa is drained.
CAUTION: Draining a pool or spa may cause structural damage. Before draining contact your local licensed pool builder or remodeler.

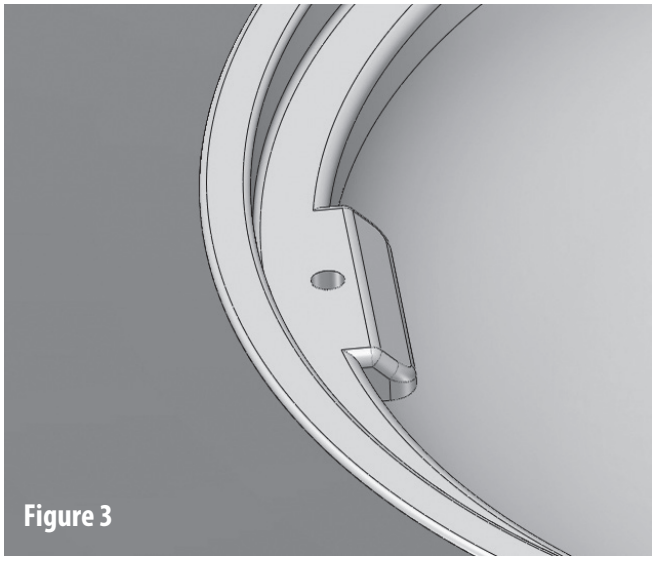

Figure 2

2. Remove existing drain cover.

3.Determine from the following choices which provided screws, fasteners, and spacers to use to attach the drain cover support plate to the pool or spa surface.

3a. If the pool or spa surface has an embedded ring around the suction pipe and this ring has threaded screw hole inserts, use the provided two #8-32 x ¾" screws (Figure 2). Use the provided spacers (small end up) (Figure 7) to close the gap between the drain cover support plate and the embedded ring. Apply 24 In-Lbs of torque.
CAUTION: Failure to use the correct spacers may cause the pool cover support plate to be pulled from the pool or spa surface.

This replacement SOFA is only acceptable for use if the provided fasteners can be installed as intended by these instructions Verify proper installation by checking that the sump dimensions meet the required dimensions shown for values A through F as well as the required pipe size.


Figure 3

3b. If the pool or spa surface has an embedded ring around the suction pipe and this ring does not have threaded screw hole inserts, or the pool or spa surface has an indented sump without threaded screw hole inserts, use the provided self-threading screws according to the following table (below). No spacers will be needed (Figure 3). Apply 24 In-Lbs torque to rest of screws.

Distance Between Pool Surface and Tops of Screw Hole	Type of Self-Threading Screw
0 - ¼"	#10 x ⅝"
¼" - ½"	#10 x ⅞"
½" - ¾"	#10 x 1 ¼"

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INSTALLATION INSTRUCTIONS

3c. If the pool or spa surface has no usable holes around the suction pipe that will hold the support plate securely, drill two new 0.160" diameter holes in the plastic ring. Then use the correct length #10 self threading screws provided from the instructions above to secure the drain to the pool or spa surface. No spacers will be needed. Apply 24 In-Lbs torque.

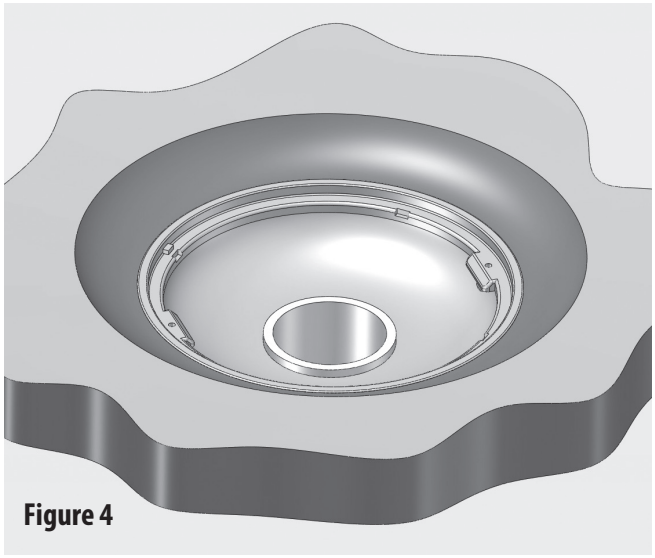


Figure 4

4. Align the drain cover support plate (#8) over the ring or sump (Figure 5). The top of the outlet pipe should be recessed a minimum of 1 inch from the back of the plate (Figure 6).

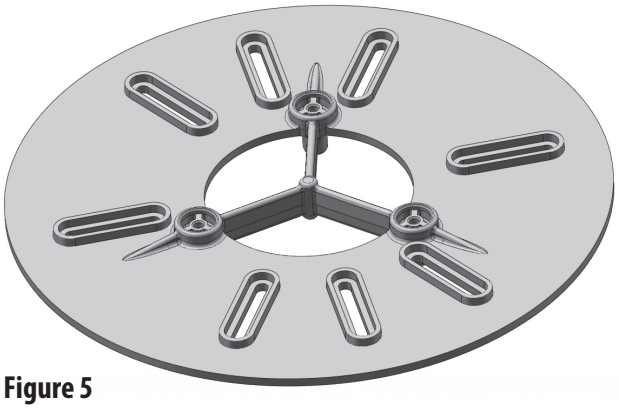


Figure 5

5. Attach the drain cover support plate to the pool or spa surface with the appropriate screws, fasteners, and spacers as described in 3 above (Figures 6 or 7). Once installed, be sure that the drain cover support plate is firmly in place and cannot be pulled out of the pool or spa surface. If the drain cover support plate is not firmly in place, re-read these instructions and try another installation method (perhaps 3c above).

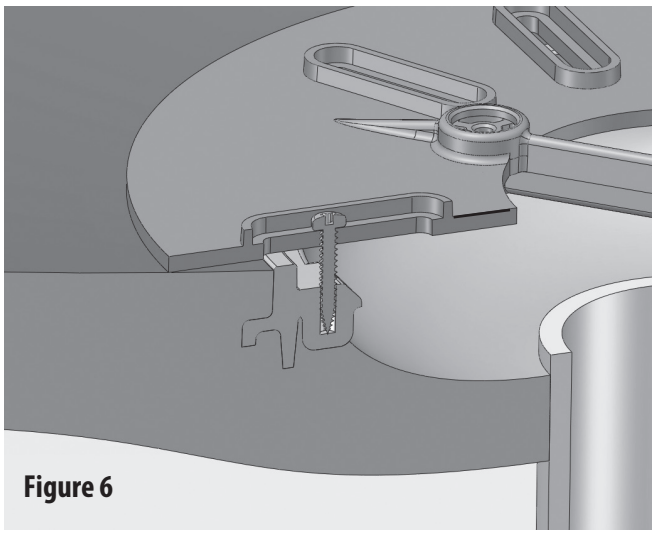


Figure 6

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INSTALLATION INSTRUCTIONS

6. Attach the drain cover (#2) to the drain cover support plate (#8) using the tool and the three #10 x ⅞ security screws provided. Waterway requires the use of security screws to secure the cover. Apply 20 In-Lbs torque to security Torx Cover Screws.
CAUTION: Use only supplied screws to secure the cover. DO NOT use power tools.

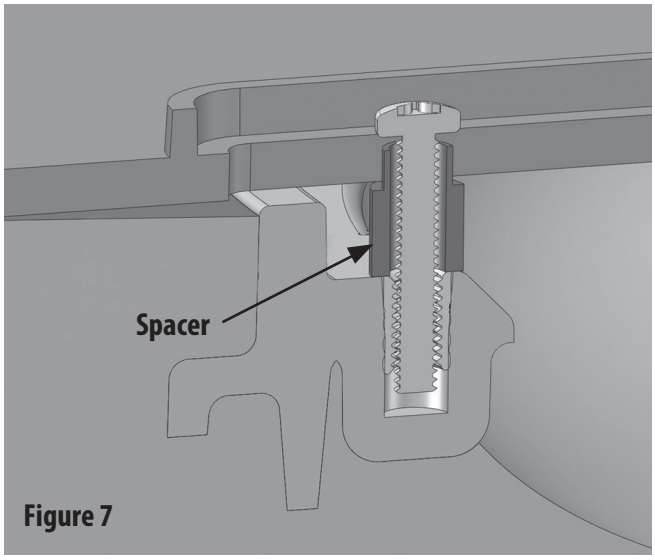


Figure 7

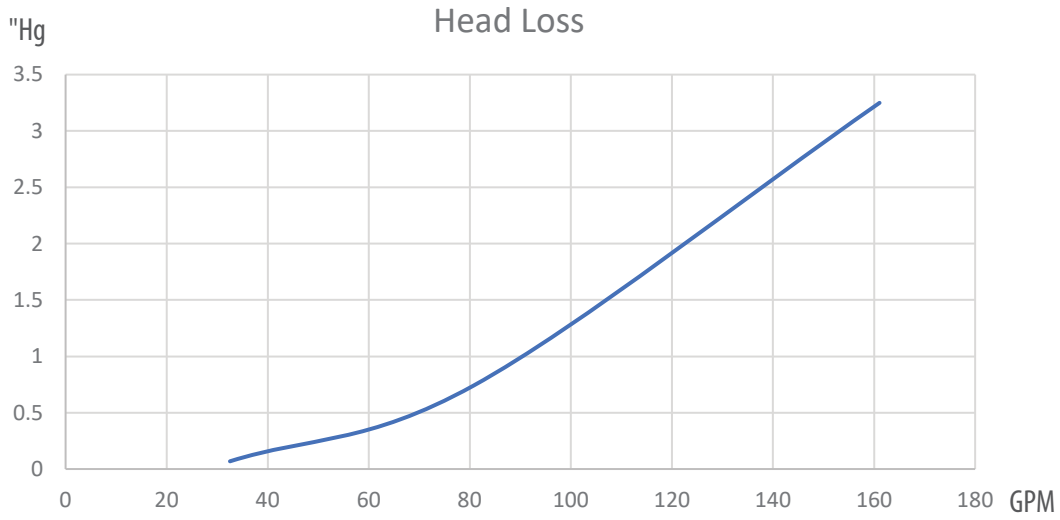
7. If the Ultra Retro is on a curved wall such as a spa, or the wall/floor of the pool is uneven, then the gap between the back plate of the Ultra Retro and the pool finish must be filled. An underwater epoxy such as AB epoxy putty may be used or if the pool is empty then silicon glue may be used. Allow for the drying time in both cases before suction is applied to the drain cover. **CAUTION: the SOFA back plate CANNOT be attached to the wall using the adhesive(s).**

NOTE: For fastener repair, evaluation and replacement - if any of the listed fastener or fastener receptacles in these instructions are damaged in any manner such that that the required torque specification cannot be achieved, both the fastener and receptacle parts must be replaced

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ULTRA RETRO SUCTION OUTLET HEAD LOSS CURVE



2" Connection: measured 15" downstream of the 90°elbow that was directly attached to the 'sump' (in this case, the fittings used to create an open pipe placed 1" below the bottom of the adapter plate); 2" sch 40 PVC

	20%	50%	100%
Flow Rate (GPM)	35.7	89.0	178.1
Total Head Loss ("Hg)	0.18	1.02	4.26

WARRANTY

For product registration visit: www.waterwayplastics.com.
For Warranty questions or claims please contact point of purchase.

Designed, Engineered & Manufactured in the USA.

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Installation Information Label
10" Vinyl Ultra Retro Suction

Cover/Grate Model#: 640-212x V, 640-213x V, 640-214x V
Life & years from the date of installation: 7 Years

	Flow Ratings
Floor Flow Rate:	178 GPM @ 3.53 fps
Wall Flow Rate:	132 GPM @ 3.03 fps

Cover/Grate Model#: 640-215x V
Life & years from the date of installation: 7 Years

	Flow Ratings
Floor Flow Rate:	191 GPM @ 3.53 fps
Wall Flow Rate:	160 GPM @ 3.03 fps

Location of the Installed SOFA, such that it can be successfully identified in the future:

_____

The date the cover/grate was installed in the pool, where the month and year indicators on the label are easily activated in the field:

_____

Installer shall fill-in the location of the installed SOFA and the cover/grate Installation before giving this information label to the pool owner. This Installation Information Label shall be permanently posted as near feasible to the pump control, and that a copy of this information be given to the pool owner, to be kept with other important pool related documents.

10" Round Ultra Retro Suction Outlet -Vinyl: 640-212x V, 640-213x V, 640-214x V

Floor Flow Rate: 178 GPM @ 3.53 fps Wall Flow Rate: 132 GPM @ 3.03 fps

10" Round Ultra Retro Suction Outlet -Vinyl: 640-215x V

Floor Flow Rate: 191 GPM @ 3.53 fps Wall Flow Rate: 160 GPM @ 3.03 fps

Removable Tags for Blockable Cover/Grate Packaging
"READ, FOLLOW, AND UNDERSTAND ALL INSTRUCTIONS AND WARNINGS". "This VGBA Suction outlet has an installation specific flow rating and this product SHALL NOT be installed on a pumping system that is capable of exceeding this limit, which varies based on the number and location of installed suction outlets. READ and FOLLOW this section of the included installation instructions explaining how to calculate the suction system flow ratings and that of the installed pumping system.

⚠"WARNING! This is a BLOCKABLE VGBA Suction Outlet that must ONLY be installed in a multiple VGBA Suction Outlet System." (9.8.2.1)

This is a BLOCKABLE VGBA Suction Outlet. It must ONLY be installed in a suction system that also includes one or more of the following devices or systems designed to prevent suction entrapment, when and if the suction cover marked for single use and used as the sole source of water for a single suction outlet :

- Safety Vacuum Release System
- Suction Limiting Vent System
- Gravity Drainage System
- Automatic Pump Shut-Off System
- Drain Disablement
- Other Systems determined by Consumer Product Safety Commission to be equally effective as , or better than above-mentioned systems at preventing or eliminating the risk of injury or death associated with pool drainage system.

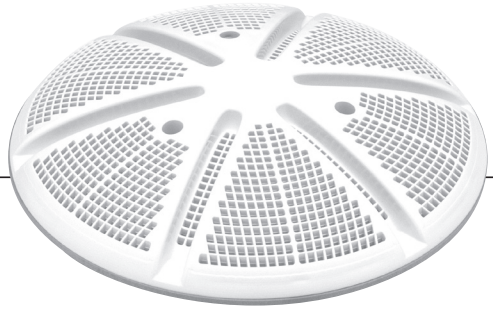
THIS TAG/LABEL IS TO BE CUT & REMOVED BY THE INSTALLER ONLY

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CERTIFICATION OF COMPLIANCE

10" ROUND, VINYL ULTRA RETRO SUCTION OUTLET: P/N 640-213x V



Contents:	1
Part Number:	**640-213x V**
Description:	**Round Ultra Retro Suction Outlet - Vinyl**
Size:	**10"**
Type:	**Blockable**
Life:	**7 year**
Open Area:	**20.4 in²**
GPM @ 1.5 fps:	**95**
Floor Flow Rate:	**178 GPM**
Wall Flow Rate:	**132 GPM**
Place of Manufacturer:	**Oxnard, CA**

NSF

VGBA 2017

For Date of Manufacture please see the manufacture mark on product



Date of Installation: _____

Name of Installer: _____

Signature of Installer: _____

This product has been tested to ANSI/ASME 112.19.8-2007 (ANSI/APSP - 16. 2017) per §1404 of the Virginia Graham Baker Pool and Spa Safety Act. Certified by: NSF International, Inc., 729 N. Dixboro Rd., Ann Arbor, MI 48105, 734-769-8670

This product is certified to comply with §1404 of the Virginia Graham Baker (VGBA 2017) Pool and Spa Safety Act. A copy of the test results for the above may be found at www.waterwayplastics.com or go to www.nsf.org. This product is manufactured by Waterway Plastics, Oxnard, CA 93030

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