



BERMUDA™ GUNITE SKIMMER FOR SWIMMING POOLS



INSTALLATION AND USER'S GUIDE

IMPORTANT SAFETY INSTRUCTIONS
READ AND FOLLOW ALL INSTRUCTIONS
SAVE THESE INSTRUCTIONS

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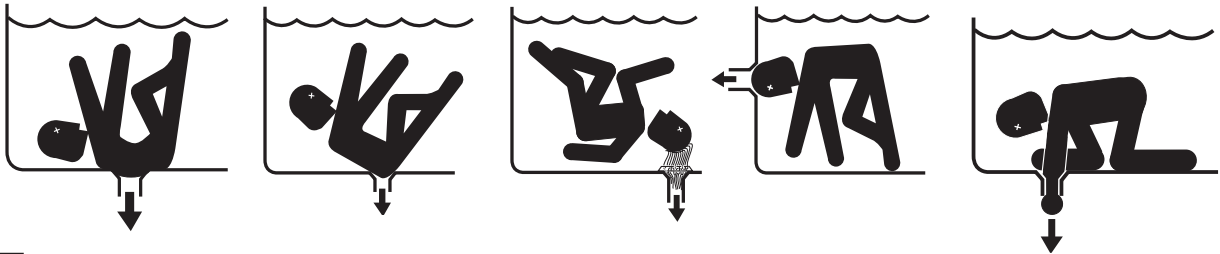
IMPORTANT WARNING AND SAFETY INSTRUCTIONS

⚠ WARNING INSTALLERS, POOL OPERATORS AND POOL OWNERS MUST READ THESE WARNINGS AND ALL INSTRUCTIONS BEFORE USING THIS PRODUCT!

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

⚠ WARNING FOR USE WITH MULTIPLE SUBMERGED SUCTION OUTLETS OR A SINGLE SUBMERGED SUCTION OUTLET. IF ONLY A SINGLE SUCTION OUTLET OR MAIN DRAIN EXISTS, A SAFETY VACUUM RELEASE SYSTEM (SVRS) SUCH AS THE PENTAIR WATER POOL AND SPA INTELLIFLO® VS+ SVRS PUMP, A GRAVITY DRAINAGE SYSTEM, AN AUTOMATIC SHUT-OFF SYSTEM OR A SUCTION-LIMITING VENT SYSTEM MUST BE USED.

⚠ WARNING IMPROPER INSTALLATION OR USE OF THIS PRODUCT MAY PRESENT A RISK OF HAIR OR BODY ENTRAPMENT AND DROWNING. INSTALL THIS EQUIPMENT IN ACCORDANCE WITH THE INSTRUCTIONS PROVIDED. USE ONLY WITH THE COMPONENTS AND MOUNTING HARDWARE PROVIDED. FAILURE TO FOLLOW THESE INSTRUCTIONS AND/OR USE WITH COMPONENTS NOT PROVIDED BY PENTAIR POOL PRODUCTS® AND INTENDED TO BE USED WITH THIS PRODUCT MAY RESULT IN IMPROPER POSITIONING OR FUNCTIONING OF DRAIN COVER AND MAY CAUSE SEVERE PERSONAL INJURY OR DEATH.



⚠ DANGER SUCTION ENTRAPMENT HAZARD

Pool and spa pumps produce high levels of suction, which can pose extreme danger if a person comes in close proximity to an open pool or spa drain or if a drain cover is loose, cracked, broken or missing.

Pool and spa pumps move large volumes of water, which can pose extreme danger if a person's hair comes in close proximity to a drain that is not the proper size for the pump or pumps.

SUCTION ENTRAPMENT DANGERS INCLUDE:

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

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

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

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

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

⚠ WARNING Use these fittings only with a pumping system rated for the corresponding flow or less for two (2) inch plumbing. FAILURE TO DO SO CAN RESULT IN HAIR OR BODY ENTRAPMENT WHICH CAN CAUSE SEVERE PERSONAL INJURY OR DEATH. If in doubt about the rating of your system, consult a qualified pool or spa professional.

⚠ WARNING Hazardous Suction: Risk of hair or body entrapment, drowning or disembowelment. Wall fitting on equalizer line must be non-entrapping of hair or body and must conform to ANSI/ASME A112.19.8 requirements. A check valve is required when skimmer is installed with equalizer. Check valve is not used when skimmer is installed without equalizer.

IMPORTANT WARNING AND SAFETY INSTRUCTIONS

IMPORTANT NOTICE

Regularly inspect all drain covers for cracks, damage and advanced weathering. If a drain cover becomes loose, cracked, damaged, broken or is missing, close the pool or spa immediately, post a notice and keep the pool or spa closed until an appropriate VGB 2008 certified drain cover is properly installed. Drain covers deteriorate over time due to exposure to sunlight and pool chemicals. This drain cover must be replaced within seven (7) years from installation (or earlier if the cover becomes damaged in any way).

⚠ WARNING An ANSI/ASME A112.19.8a approved anti-entrapment drain cover must be used for each drain. Pools and spas should utilize two drains per pump. If a drain cover becomes loose, broken or is missing, close the pool or spa immediately and shut off the pump until an approved anti-entrapment drain cover is properly installed with the supplied stainless steel screws. Only the supplied 316 stainless-steel screws should be used with the drain cover. Substitute screws such as masonry screws, sheet rock screws or other types of screws should never be used. Screws put into the frame anywhere except in the original screw holes will not hold and will allow the drain cover to come off the main drain, causing an entrapment hazard, including possible limb and body entrapment or evisceration/disembowelment. If the screw holes of the frame are stripped or the brass inserts are missing, loose, or damaged, replace the frame. **DO NOT DRILL NEW SCREW HOLES IN THE FRAME AS THIS WILL DAMAGE AND WEAKEN THE FRAME.**



IMPORTANT NOTICE

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

⚠ WARNING Before installing this product, read and follow all warning notices and instructions which are included. Failure to follow safety warnings and instructions can result in severe injury, death or property damage.

Call (800) 831-7133 for additional free copies of these instructions. It is absolutely critical that the suction plumbing be installed in accordance with the latest national and local codes for swimming pools.

⚠ DANGER A pool/spa pump produces high levels of suction, which can pose extreme danger if a person comes in close proximity to an open pool or spa drain or a loose or broken drain cover or grate.

If you have any questions about installation or maintenance of this drain cover, please contact your pool professional. Never attempt to alter or repair the cover or frame on your own.

⚠ WARNING Keep the skimmer lid properly secured at all times. Failure to keep the lid secured can cause the lid to become dislodged when stepped on, resulting in risk of serious injury.

⚠ WARNING Replace the skimmer lid if it is worn or damaged. Failure to replace a worn or damaged skimmer lid can cause the lid to break when stepped on, resulting in risk of serious injury.

⚠ WARNING Hazardous Suction: Risk of hair or body entrapment, drowning or disembowelment.

Wall fitting on equalizer line must be non-entraping of hair or body and must conform to ANSI/ASME A112.19.8.



Note: Skimmer is not equivalent to a main drain. All pools, spas, and hot tubs must have at least two main drains besides skimmer(s).

CAUTION! Blocking pump suction can cause pressure surges and water hammer, which can damage pump or piping and may cause flooding.

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

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

POOL SKIMMER LAYOUT AND SUCTION LINE SIZING

NOTE: In any installation, there should be at least two main drains at least three feet apart in addition to any skimmers installed. A pool may use more than two, but should never have less than two main drains.

NOTE: Installation must comply with all current applicable codes, including NSF Standard 50 (if required). Equalizer lines may be required on public pool or commercial pool installations.

1. Use one skimmer per 500 square feet of pool surface area. Suction line sizes are based on a water velocity of less than seven feet per second. Since building codes vary, check your local building code before installing pool and skimmers.
2. Suction line sizes for each section of piping must allow for the total number of skimmers feeding that section of the line. Suction line sizing in Table 1 (page 4) allows for this.
3. See Figure 4 for piping layout and for suction pipe sizing layout see Table 1 (page 4).
4. For good hydraulic balance, divide skimmers as equally as possible between the main branches of the piping layout.
5. For long pipe runs (in which friction can reduce flow and pressure), refer to your friction/flow chart for proper pipe sizes.
6. When planning location of skimmers on one- and two-skimmer outdoor pools, locate skimmers so that the prevailing wind blows into the skimmers.

INSTALLATION

Bermuda™ Skimmer (Gunite/Concrete) Installation (For skimmer dimensions, see page 4)

NOTICE: Skimmer MUST be surrounded by at least 4" of structural concrete in a monolithic pour, using a cold joint as shown in installation drawings (Figure 1).

Line Connections and Testing: Connect pump inlet line to rear port in bottom manifold (Figure 2). Skimmer is ABS plastic; manifold connections are 1-1/2 or 2" threaded or 1-1/2" slip. For threaded connections, do not use pipe dope; to seal joint use threaded seal tape for slip connections, apply PVC primer to PVC pipe only. Then apply ABS to PVC solvent cement to both pipe and slip connections. Consult dealer for correct solvent cement for pipe used. Assemble joint per cement manufacturer's instructions. Allow at least three (3) hours before pressure testing.

Plastic cements and primers can be flammable, poisonous, or both. Closely follow cement manufacturer's instructions when using plastic cement.

In residential installations where equalizers are not required and where the main drain lines do not connect to the skimmer equalizer port, low water levels in the pool, spa, or hot tub or clogged skimmer baskets may damage the pump due to loss of prime (if skimmer pulls air) or cavitation (if skimmer clogs). Air pulled in by skimmer(s) can be trapped in filter tanks, which may be a safety hazard. If skimmer regularly vortexes or sucks air, raise water level or contact your pool service representative for advice.

1. For optimum skimmer functionality, the skimmer should be placed relative to the prevailing wind and water flow direction. Consult pool manufacturer's instructions for placement recommendations.
2. Assemble piping and pipe fittings to skimmer. All piping must conform to current local and state plumbing and sanitary codes.
3. Long pipe runs and elbows restrict water flow. For best efficiency, use the fewest possible fitting and large diameter pipe (1-1/2" for 1-1/2" skimmers and 2" for 2" skimmers).

CAUTION When using threaded plastic pipe fittings for skimmer hook up, use only silicone sealant and hand tighten fittings plus 1-1/2 turns MAXIMUM. DO NOT OVERTIGHTEN.

CAUTION WHEN GLUING PVC PIPE INTO AN ABS SKIMMER, YOU MUST USE THE PRIMER AS RECOMMENDED BY THE GLUE MANUFACTURER. THIS WILL ENSURE PVC TO ABS CEMENT COMPATIBILITY AND A LEAK FREE JOINT.

4. Seal off any used skimmer ports with O-ring styled plugs. Tighten plugs until the O-ring contacts the skimmer and then turn an additional 1/4 turn. HAND TIGHTEN ONLY!

CAUTION Overtightening the drain plug may result in failure of the drain plug or the skimmer body and will not be covered under the terms of the Limited Warranty.

CAUTION For sealing skimmer ports, use only the plugs and O-rings provided (Items 10, 11 - see parts). DO NOT use tapered metal plugs as this will void manufacturer's warranty. If skimmer must be bypassed for line pressure testing, use only commercially available test kits with O-ring sealing provisions.

5. Support skimmer securely in position. Support locators on bottom of skimmer; allow 1-1/2" or 2" PVC pipe to be used as a support. The deck ring collar has a friction fit that allows 1-3/4" of vertical adjustment. Additional collars may be stacked upon each other to accommodate desk height as needed.

CAUTION Ensure piping is adequately supported on undisturbed earth. If additional backfilled and tamping is necessary, do not stress pipe or skimmer port by lifting or moving pipe after skimmer port connections have been made.

6. Structural gunite/concrete should be applied in a monolithic pour, in conjunction with a cold joint as shown in Figure 1.

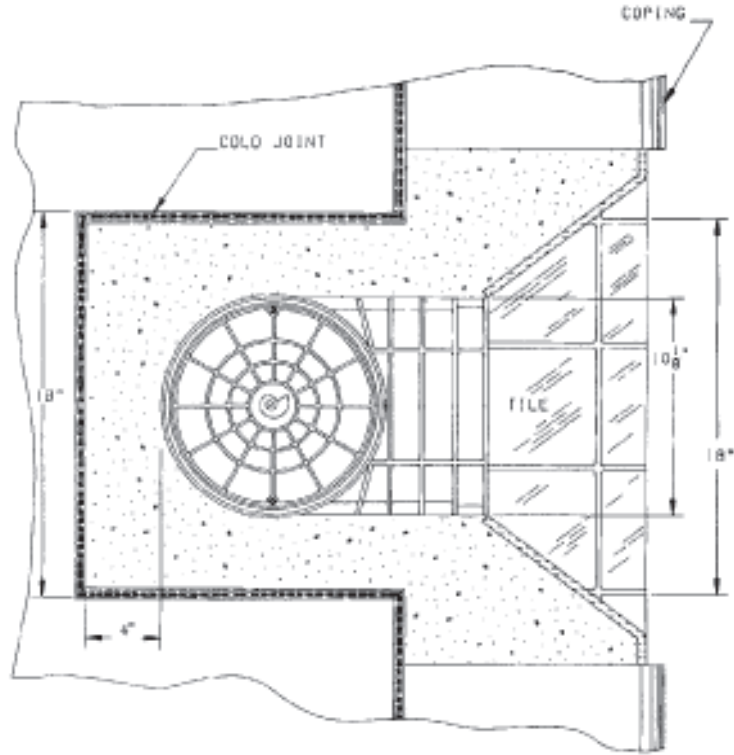


Figure 1: Top View

1" Vertical adjustment of frame to accommodate for misaligned pump suction

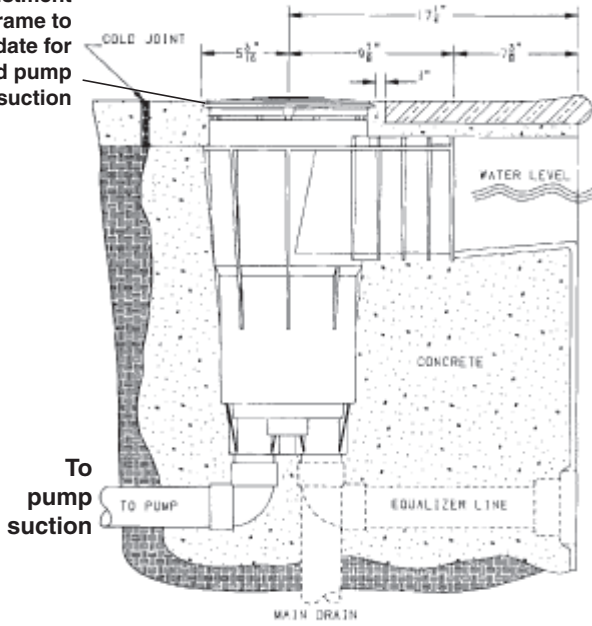


Figure 2: Section View

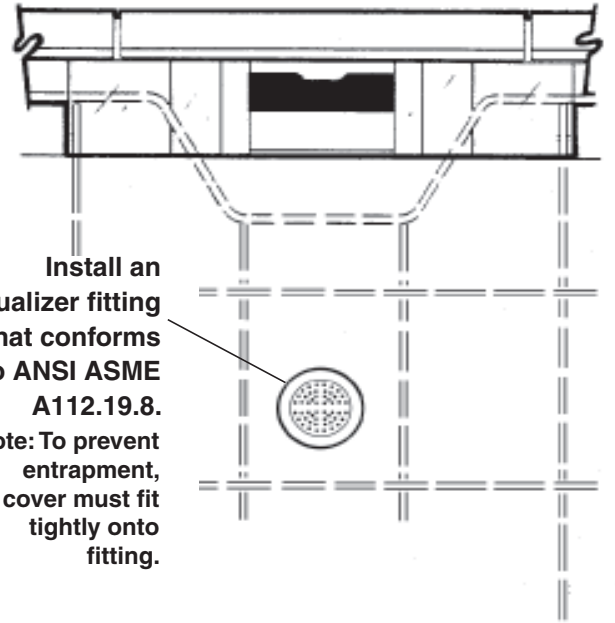


Figure 3: Front View

EQUALIZER VALVE AND FLOAT VALVE INSTALLATION (OPTIONS)

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

EQUALIZER VALVE INSTALLATION

1. Ensure the O-ring is in the retainer groove of the equalizer valve. Check for operation of the equalizer mechanism.
2. Install equalizer valve by threading valve into the skimmer equalizer line port as shown below.
3. Be sure that pump port in bottom of skimmer is not blocked by trimmer plate and that the trimmer plate on the bottom of the float valve is moved as far as possible to the side of the valve.

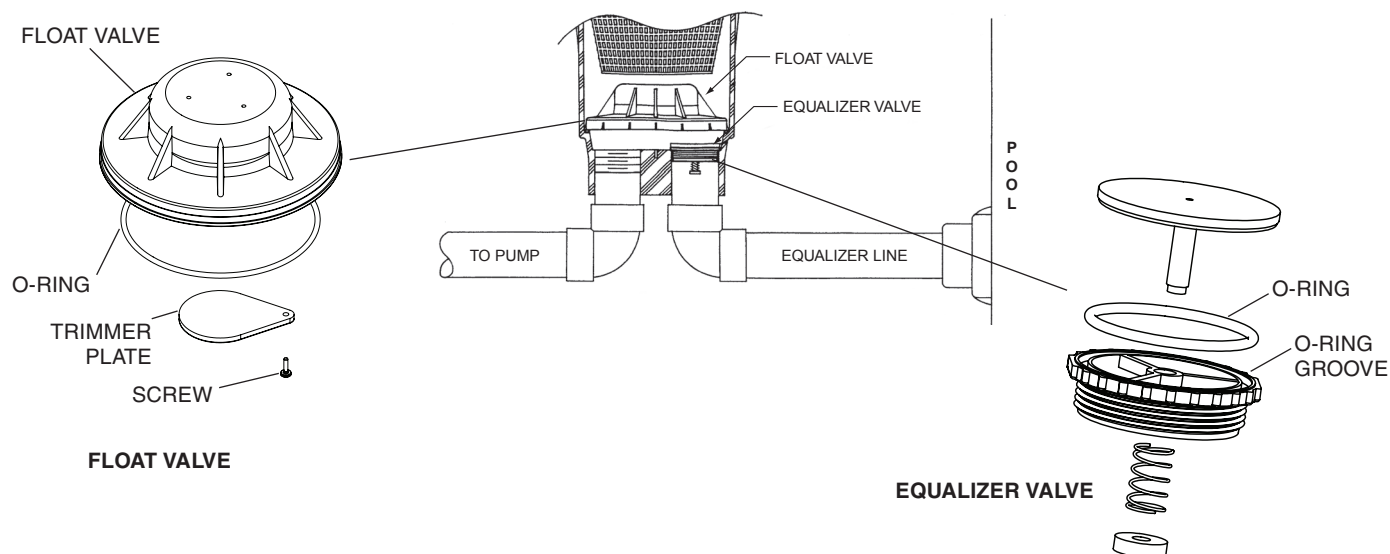
FLOAT VALVE INSTALLATION

1. Install the large O-ring in the O-ring groove near the bottom of the skimmer.
2. Place float valve into bottom of skimmer. Press to seat the O-ring in place.
3. To increase water flow through the valve, slide the trimmer plate to uncover the hole in the bottom of the valve. To decrease flow, slide the trimmer plate to cover the hole in the bottom of the valve.

OPERATION

When the water level drops below the weir of the skimmer, the water level in the skimmer will drop until the float valve closes. The equalizer valve will open at this time, allowing water to flow to the pump from the equalizer line.

After the pump has been turned off, and the water level raised to the appropriate level for good skimming action, the equalizer valve will close and the float valve will open automatically. Normal operation will resume when the pump is turned back on.

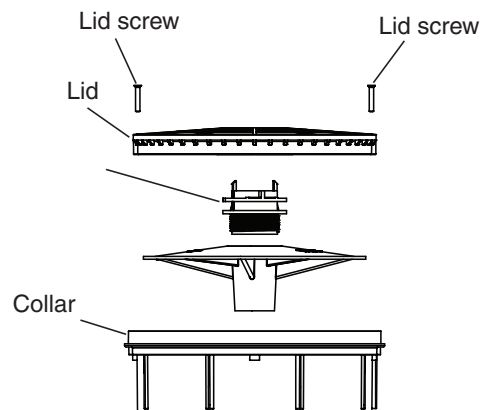


VACUUM PLATE INSTALLATION (OPTION)

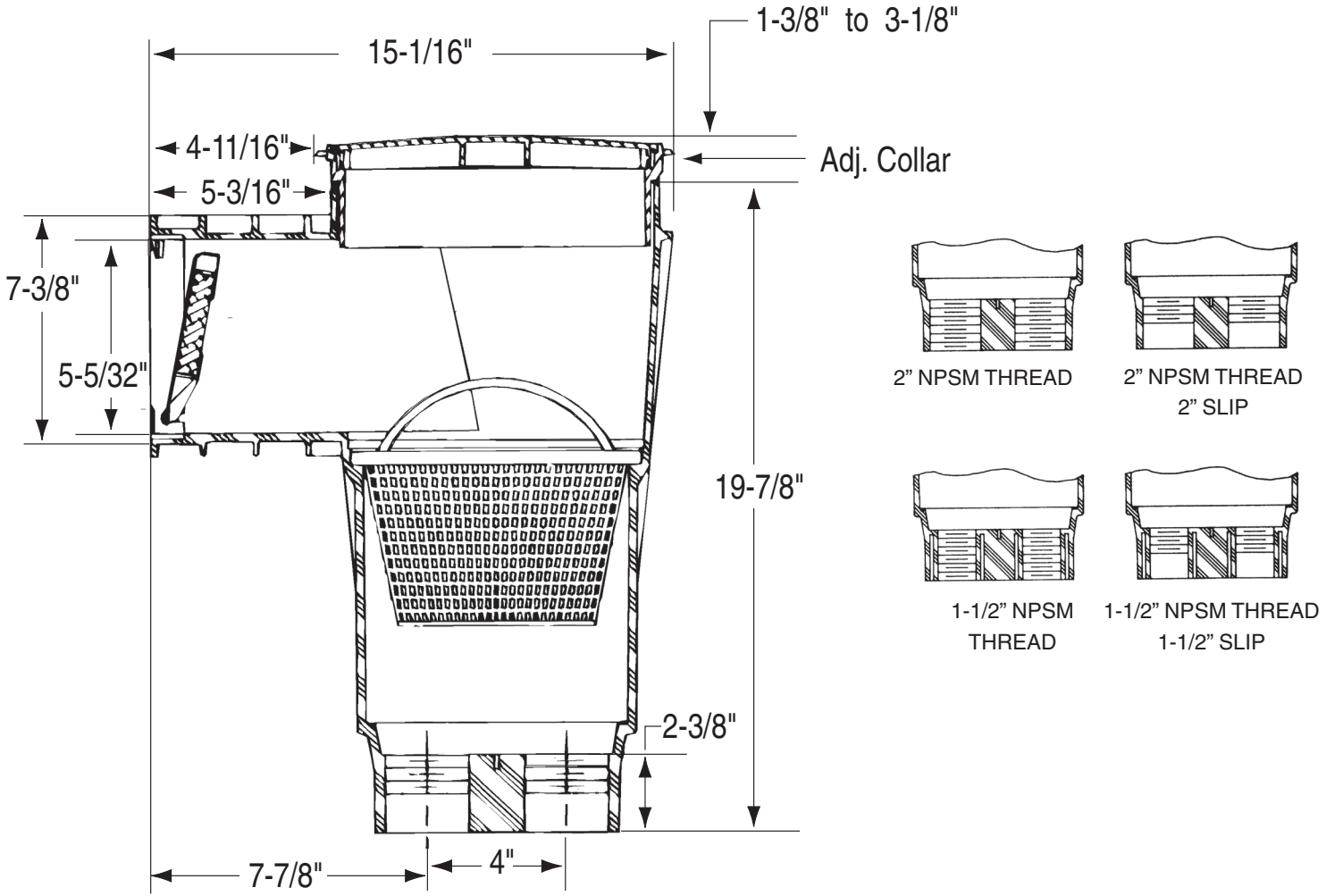
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VACUUM PLATE INSTALLATION

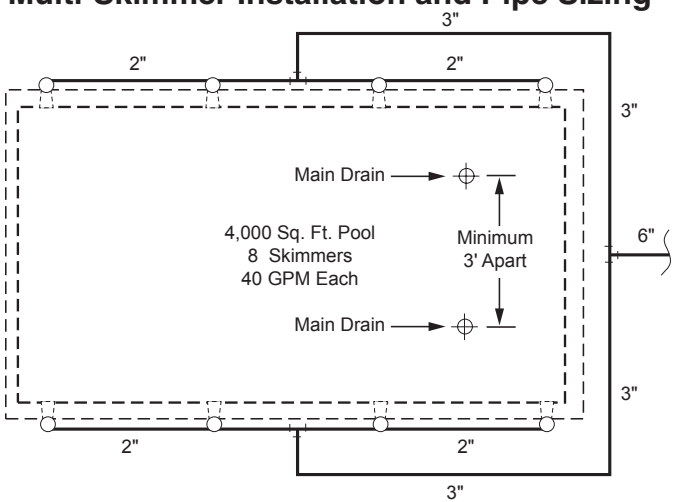
1. Remove the skimmer lid screws.
2. Remove skimmer lid: Press index fingers into the slots in the skimmer lid and press the tabs toward the center of the lid, while lifting the lid.
3. Orient locking tabs on lid insert with notches in underside of skimmer lid.
4. Push skimmer lid insert firmly until it snaps in place into the lid.
5. Thread vacuum plate onto insert.
6. Replace skimmer lid with vacuum plate to skimmer.
7. Fasten skimmer lid with screws provided.



Bermuda™ Skimmer Dimensions



Multi-Skimmer Installation and Pipe Sizing



Pool Surface Area In Square Ft.	No. of Skimmers Req.	Skimmer Rated Flow (GPM)				
		30	35	40	45	50
Up to 600	1	2"	2"	2"	2"	2"
1,000	2	2½"	2½"	2½"	2½"	2½"
1,500	3	2½"	3"	3"	3"	4"
2,000	4	3"	4"	4"	4"	4"
2,500	5	4"	4"	4"	4"	4"
3,000	6	4"	4"	4"	4"	5"
3,500	7	4"	4"	5"	5"	5"
4,000	8	4"	5"	5"	5"	5"
4,500	9	4"	5"	5"	5"	6"
5,000	10	5"	5"	5"	6"	6"
5,500	11	5"	5"	6"	6"	6"
6,000	12	5"	5"	6"	6"	6"

Table 1. Suction Pipe Sizing by Surface Area of Pool and Rated flow Capacity of Skimmers.

Figure 4: Multi-Skimmer Installation with pipe sizing. Note multiple main drains.

MAINTENANCE

Weir: Periodically check weir for free operation. Replace if damaged or worn.

Strainer Basket: Check strainer basket every few days for accumulated leaves, debris, etc. Empty basket as required. Reset float valve if it closed.

Float Valve: Periodically check that float valve is operating freely and is not waterlogged. If necessary, tighten trimmer plate pivot screw to maintain desired flow balance.

Check Valve (Public Pool Models): Inspect for wear or deterioration. Make sure that screw is tight in check valve body. If you can detect flow through equalizer with float valve open, replace check valve.

Equalizer (Wall) Fittings: Periodically check that wall fittings are correctly installed and that covers are tight to fittings.

Water Level: Maintain water level at least 1½" to 2" above bottom of skimmer opening for proper operation. Adjust trimmer plate if necessary. Make sure set screw is tight.

Winterizing: Drain pool until level is below skimmer inlet. Remove lid, basket and float. Plug both bottom ports with standard 1½" or 2" pipe plugs (see item 10 and 11 in parts list on page 6. Cover skimmer to prevent rainwater or snow accumulation. Falling and tripping hazard. Skimmer grate may deteriorate with prolonged use. Cover must be flush with pool, spa, or hot tub deck level. Skimmer is made of impact and weather resistant materials, but extended use (5-7 years) may lead to reduced strength. Regularly check condition of skimmer cover. Look for cracks, chips, deterioration of plastic, etc. If any sign of damage or deterioration is found.

TROUBLESHOOTING

Problem	Cause	Solution
Pool surface not clean, inadequate skimming effect.	1. Skimmer basket obstructed.	Clean skimmer basket.
	2. Incorrect pool water level.	Raise/lower pool water level to recommended heights.
	3. Inadequate pool water	Position pool water return fittings to increase surface circulation.
Pool surface clean, bottom dirty.	1. Main drain obstructed.	Clean main drain. Remove obstruction from main drain line.
	2. Inadequate pool water circulation.	Position pool water return fittings to increase surface circulation at bottom of pool.
Air returning to pool.	1. Low pool water level.	Raise pool water level to recommended height. Position pool water return fittings to increase surface circulation at bottom of pool.

Parts List

Bermuda™ Pool Skimmer

Item No.	Product Number	Description	Qty.
1	516242	SCREW, #8-32 X 1" SS	2
2	516215	DECK LID, WHITE	1
2	516216	DECK LID, TAN	1
2	516306	DECK LID, BLACK	1
3	516253	DECK COLLAR, GUNITE, WHITE	1
3	516258	DECK COLLAR, GUNITE, TAN	1
3	516329	DECK COLLAR, GUNITE, BLACK	1
4	516112	BASKET	1
5	516243	SCREW, #8-1/2" SS	1
6	516228	TRIMMER PLATE	1
7	516252	WEIR GATE ASSEMBLY	1

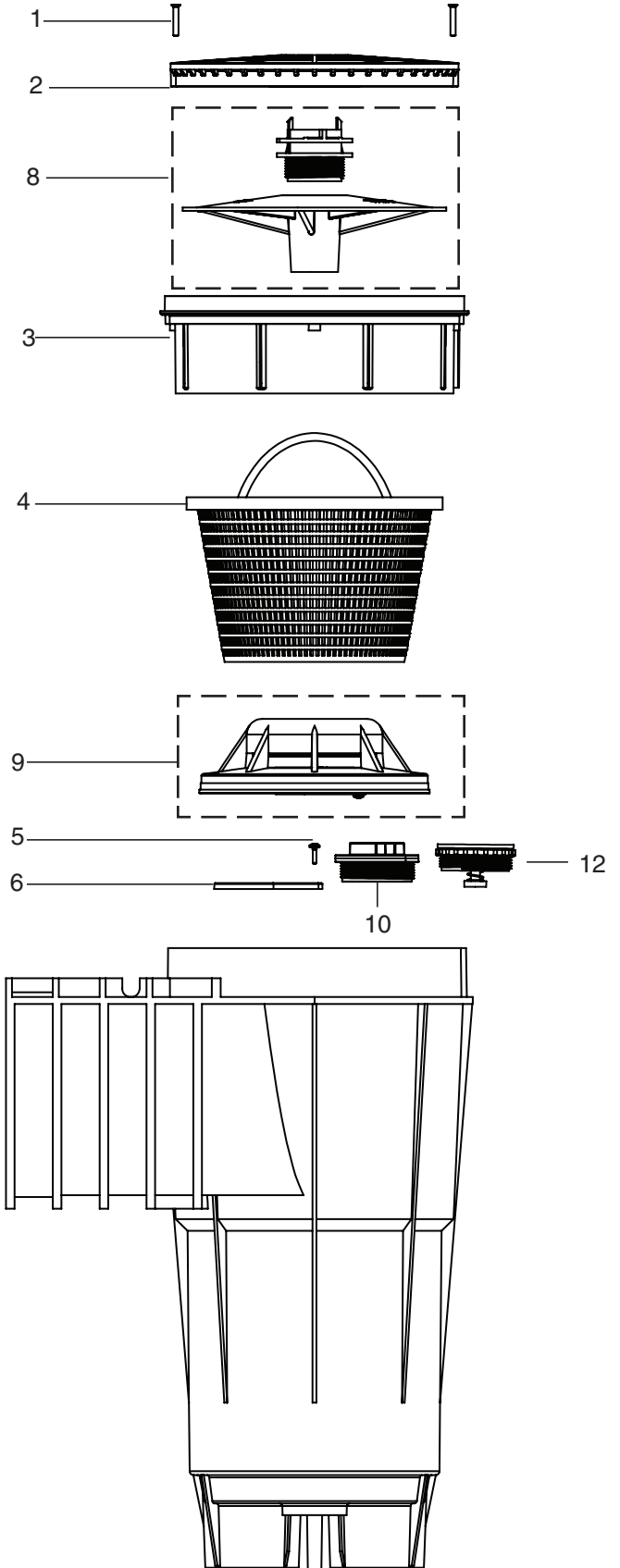
OPTIONS (some options not shown)

8	506161	VACUUM PLATE ASSEMBLY	1
9	506160	FLOAT VALVE ASSEMBLY	1
10	195853	2" O-RING STYLE PLUG	-
11	273062	2" O-RING FOR 19-5853 PLUG	-
10	191368	1-1/2" O-RING STYLE PLUG	-
11	191474	1-1/2" O-RING FOR 191368 PLUG	-
12	506162	EQUALIZER ASSEMBLY	-

Float Valve Parts List

355330	O-RING SMALL	1
516228	TRIMMER PLATE	1
516243	SCREW, #8-X1/2"	1
516244	O-RING, LARGE	1

NOTE: All NSF approved skimmers come complete with the optional Float Valve assembly (P/N 506160) and Equalizer Assembly (P/N 506162).



Illustrated Parts View



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