


Save these instructions. Carefully read and follow all safety instructions in this manual.

 <p><b>WARNING</b></p>	<p><b>Hazardous Suction.</b>  <b>Risk of hair or body entrapment, drowning or disembowelment.</b>                  Wall fitting on equalizer line must be non-entrapping of hair or body at flow rates up to 55 GPM.  <b>NOTE:</b> Skimmer is not equivalent to a main drain. All pools, spas, and hot tubs must have at least two main drains besides skimmer(s).</p>
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**CAUTION** Blocking pump suction can cause pressure surges and water hammer, which can damage pump or piping and may cause flooding.

## OPERATION

### All Models:

Pump suction pulls water through skimmer. Water flow into skimmer carries floating leaves, bugs, etc., into skimmer where they are trapped in skimmer basket. (Dust, body oils, etc., go on through to be removed by pool filter.) Floating weir in skimmer opening enhances surface flow and skimming action. Model Series 1403, 2403, 1404 and 2404 are NSF listed.

**Water level:** Keep pool, spa, or hot tub water level at least 1-1/2 to 2" above bottom of skimmer opening for proper operation.

**Float Valve:** Float valve protects pump from loss of prime if skimmer clogs or flow through skimmer is restricted. Trimmer valve plate on bottom of float valve balances flow between skimmer and main drains.

**Flow adjustment:** Balance flow between skimmer and main drain.

- Skimmers **without** float: Adjust shut-off valves in pump suction line from skimmer and pool main drain line. (See Figure 1, below.)
- Skimmers **with** float: If skimmer is equipped with float valve, adjust trimmer plate on bottom of float. To reach trimmer plate, remove cover, basket, and float valve (See Figure 2, below). Swing trimmer plate to one side to increase trimmer port size (more flow through skimmer, less flow through main drains); reduce port size for less flow through skimmer and more flow through main drains.

**Sweeping pool:** For installation without equalizer line, hold weir up to starve skimmer of water and close float valve. This directs all flow through main drains. To return to normal skimming operation, turn pump off 10-15 seconds, allowing skimmer to fill and float valve to return to open position. Skimmer will now operate normally as long as pool water level is high enough to allow normal flow over weir.

### Typical Public Pool Skimmer Installation with Equalizer Line Installed

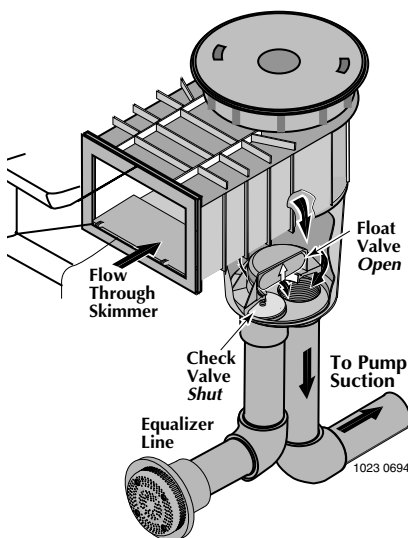


Figure 1: Normal operation: float valve open, check valve shut.

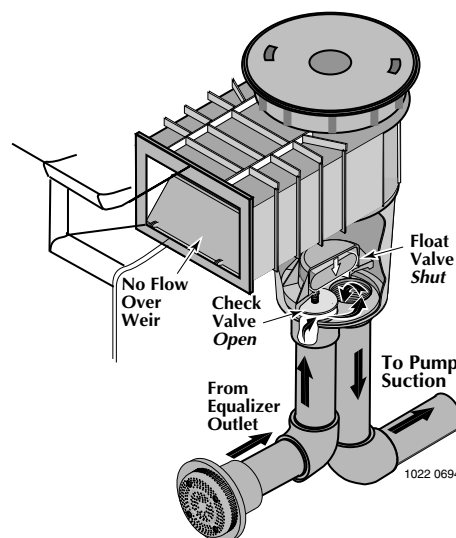


Figure 2: Equalizer operation; float valve shut, check valve open.

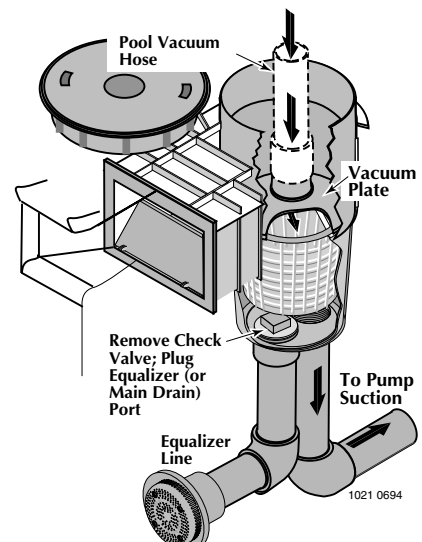


Figure 3: Vacuuming pool; float and check valves removed, equalizer (check valve) port plugged.

### Sta-Rite Pool/Spa Group

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**Vacuumping pool (Figure 5):** Remove cover, basket (and float valve and check valve if skimmer has them). Plug equalizer inlet. Replace basket and place vacuum plate on top of basket. Fill the vacuum hose with water, bring it in over coping or through skimmer throat, and attach the vacuum hose directly to the vacuum plate. Follow instructions in vacuum attachment or filter owner's manual for vacuuming operation. After vacuuming, remove hose and vacuum plate, unplug equalizer port, and reinstall check valve, float, basket, and cover. Be sure cover is solidly in the frame to prevent accidentally dislodging it. Fasten cover with screws provided if children use pool.

**Public pool models:**

**Check Valve (Public Pool Models):** Check valve is threaded into equalizer inlet port in skimmer. When closed, check valve prevents flow through equalizer line. If flow through skimmer decreases enough to let float valve drop, check valve opens to allow flow to pump from main drain/equalizer line (which prevents starving the pump).

Inspect equalizer regularly. During normal operation (with float valve open) the skimmer check valve prevents detectable flow through the equalizer wall fitting. There should be no flow through the wall fitting unless the skimmer float valve is closed. If you can feel suction into the equalizer wall fitting while the float valve is in normal (or up) position, the check valve is leaking; replace it.

**NOTICE:** The skimmer check valve is factory pre-set and not adjustable. If check valve appears worn or deteriorated, or if spring tension is loose, do not try to fix it; replace the check valve.

**Equalizer:** If flow over weir is restricted, Float valve closes, diverting pump suction to equalizer (or main drain) line and preventing loss of prime in pump. Seal normally remains until pump stops, when float valve will rise. If pump starts again before stoppage is cleared, float will close again and remain closed until pump stops, blockage is cleared, or pool water level returns to normal.

**⚠ 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 at flow rates up to 55 GPM and must conform to the requirements of ANSI/ASME A112.19.8M-1987 (Section 8.8.2). Install an 8011- Series non-entrapping suction fitting on equalizer line.

No. 08655-0017 check valve is required when skimmer is installed with equalizer. Check valve is not used when skimmer is installed without equalizer.

**NOTICE:** The equalizer is an emergency bypass intended to prevent damage to the pump when pool water level is low or skimmer basket is blocked. Do not allow flow through equalizer for extended time periods.

**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.

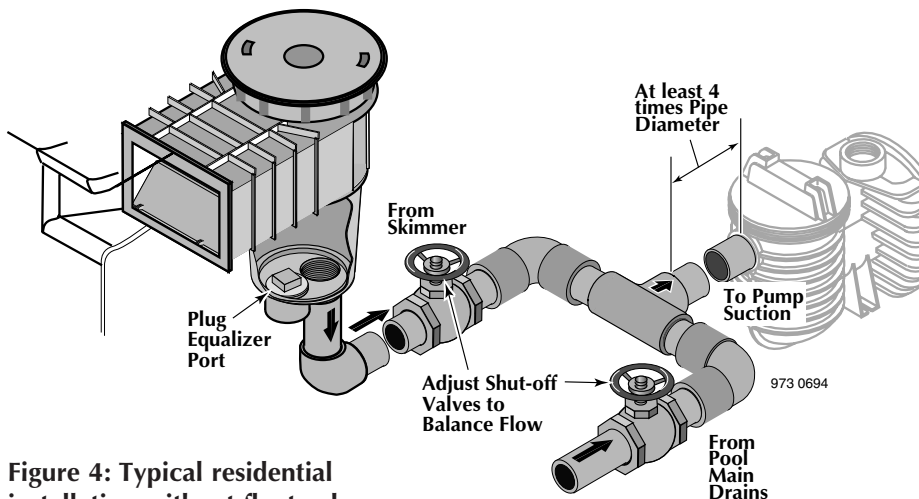
**Equalizer (Wall) Fittings:** Periodically check that wall fittings are correctly installed and that covers are tight to fittings.

**Water Level:** Maintain water level at least 1-1/2 to 2" above bottom of skimmer opening for proper operation. Adjust trimmer plate if necessary. Make sure set screw is tight.

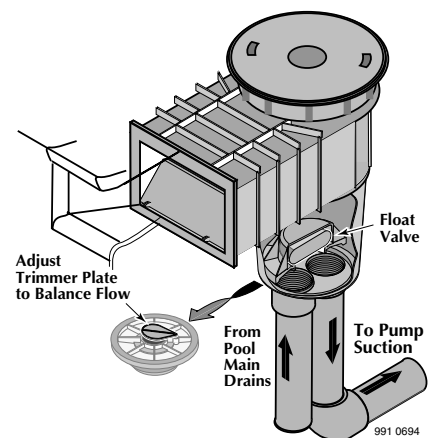
**Winterizing:** Drain pool until level is below skimmer inlet. Remove cover, basket and float. Plug both bottom ports with standard 1-1/2 or 2" pipe plugs. Cover skimmer to prevent rainwater or snow accumulation.

**⚠ WARNING 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 (5-10 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 in the cover, replace it.

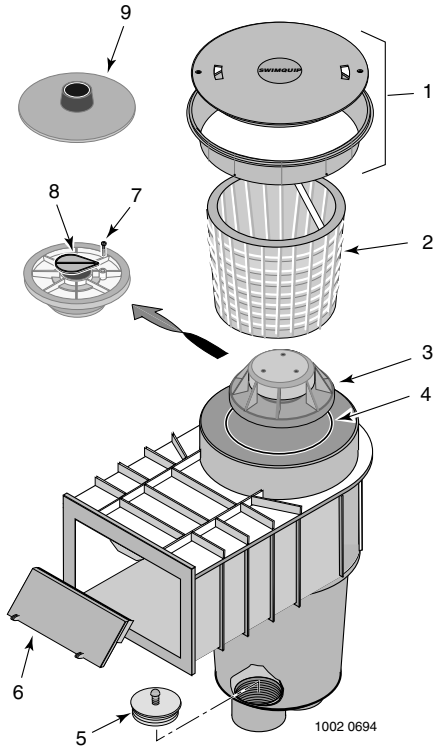


**Figure 4: Typical residential installation without float valve. Use with at least two main drains.**

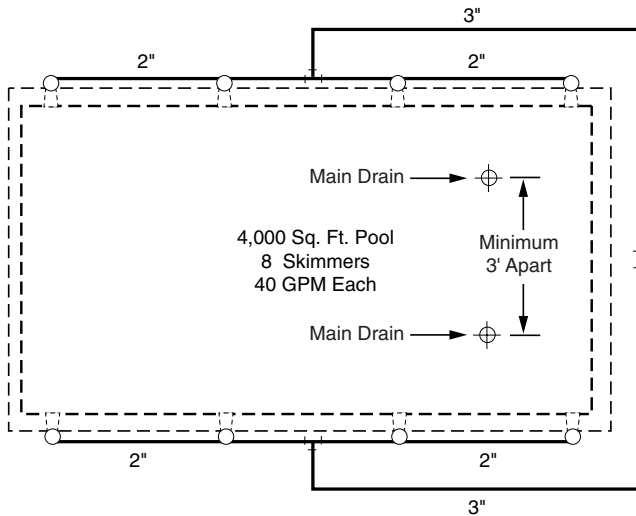


**Figure 5: Typical residential installation with float valve. Use with at least two main drains.**

## REPAIR PARTS LIST



Key. No.	Part Description	Public Pool U-3 Models	Residential Pool U-3 Models
	White, w/2 x 1-1/2 NPT Reducers	08650-1403	08650-4403
	White, w/2 x 1-1/2 Slip Reducers	08650-1404	08650-4404
	Tan, w/2 x 1-1/2 NPT Reducers	08650-2403	08650-5403
	Tan, w/2 x 1-1/2 Slip Reducers	08650-2404	08650-5404
	Tan/Gray, w/2x1-1/2 NPT Reducers	08650-3403E	-
	Tan/Gray, w/2x1-1/2 Slip Reducers	08650-3404E	-
	Tan/Gray, w/2x1-1/2 NPT Reducers	08650-6403E	-
	Gray, w/2x1-1/2 NPT Reducers	08650-3403	-
	Gray, w/2x1-1/2 Slip Reducers	08650-3404	-
1	Frame and Grate Kit (Tan)	08650-0159	08650-0159
1	Frame and Grate Kit (White)	08650-0169	08650-0169
2	Basket and Handle	08650-0007	08650-0007
	• Basket Handle Only	08650-0067	08650-0067
3	Float Assembly w/O-Ring	08650-0079	-
4	Float O-Ring Only	35505-1273	-
5	Check Valve	08655-0017	-
6	Hinged Weir Assembly	08650-0022A	08650-0022A
	• Weir Bumper	08650-0018	08650-0018
	• Screw #8 x 3/8"	37207-0825	37207-0825
	• Screw #8 x 1/2"	37207-0027	-
8	Trimmer Plate	08650-0048	-
9	Vacuum Plate	08650-0042	-



**Figure 7: Multi-Skimmer Installation with pipe sizing. Note multiple main drains.**

Pool Surface Area In Square Ft.	No. of Skimmers Required	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"

} Nom. Pipe Dia. (In)

**Chart I: Suction Pipe Sizing by Surface Area of Pool and Rated flow Capacity of Skimmers**

### LIMITED WARRANTY

Skimmers manufactured by Sta-Rite are warranted to be free of defects in material and workmanship for one (1) year from date of installation.

The foregoing warranties relate to the original consumer purchaser ("Purchaser") only. Sta-Rite shall have the option to repair or replace the defective product, at its sole discretion. Purchasers must pay all labor and shipping charges necessary to replace the product covered by this warranty. Requests for warranty service must be made through the installing dealer. This warranty shall not apply to any product that has been subject to negligence, misapplication, improper installation or maintenance, or other circumstances which are not in Sta-Rite's direct control.

This warranty sets forth Sta-Rite's sole obligation and Purchaser's exclusive remedy for defective products.

STA-RITE SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL OR CONTINGENT DAMAGES WHATSOEVER.

THE FOREGOING WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER EXPRESS WARRANTIES. IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, SHALL NOT EXTEND BEYOND THE DURATION OF THE APPLICABLE EXPRESS WARRANTIES PROVIDED HEREIN.

Some states do not allow the exclusion or limitation of incidental or consequential damages or limitations on how long an implied warranty lasts, so the above limitations or exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

Supersedes all previous publications.

Sta-Rite Industries, 293 Wright St., Delavan, WI 53115

## 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.

**NOTICE:** Installation must comply with all 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 Chart I allows for this.
3. See Figures 5 and 7, Pages 2 and 3, for piping layout. See Chart I, Page 3, for suction pipe sizing.
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

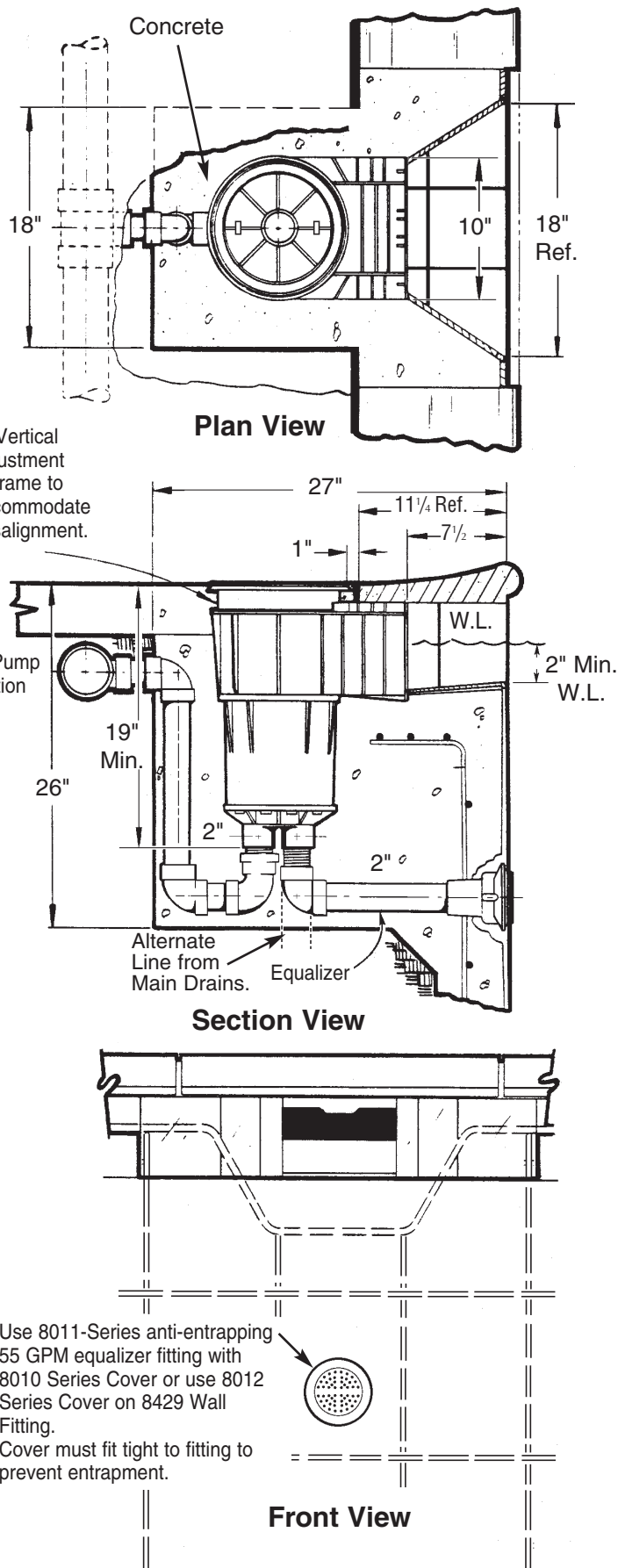
**Concrete:** See Figure 7 for basic dimensions. Top cover frame has 1" vertical height adjustment.

**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.

**Line Connections and Testing:** Connect pump inlet line to rear port in bottom manifold (Figure 7). 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 RTV Silastic #732\* (preferred), teflon tape, or Plasto-Joint Stik\*\*. 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 3 hours before pressure testing.

**⚠ WARNING** 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 sucks 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.



**Figure 8: U-3 Skimmer Installation Drawings and Specifications**

\* Dow Corning

\*\* Lake Chemical Co., Chicago, IL