

Safety Vacuum Release System

Installation Instructions

Model VA-2000

Vac-Alert™ Industries, LLC

**4505 Prosperity Drive
Fort Pierce, FL 34981**

www.vac-alert.com

October 30, 2007

○ VAC-ALERT MODEL VA-2000L (Lift)

The Vac-Alert™ Model VA-2000L is a Safety Vacuum Release System (SVRS) designed for suction lift applications. Suction lift in this case applies to all applications where the circulating pump suction is no more than 24” below, or no more than 42” above the level of the pool water surface. This unit incorporates a 0.170” diameter orifice opening installed below the surge tube section. This orifice opening is sized to prevent nuisance tripping of the SVRS unit caused by high vacuum surges typical of many pump start-up conditions.

The Model VA-2000L SVRS unit also utilizes a check valve assembly equipped with a 3.5 pound spring, a poppet disc and a one-way (up only) vented poppet. This check valve assembly permits continued water flow to the circulating pump while the SVRS unit is in the open or vented position. The 3.5 pound spring further compressed by the poppet disc, creates enough sealing force within the check valve to allow partial water flow to the circulating pump for suction lifts up to 3.5 feet. This is critical to the elimination of circulating pump damage that can be caused by a sustained dry-running condition. The one-way vented poppet allows the surge chamber to be internally recharged when the circulating pump is turned off.

○ VAC-ALERT MODEL VA-2000S (Submerged)

The Vac-Alert™ Model VA-2000S is a Safety Vacuum Release System (SVRS) designed for submerged suction applications. Submerged suction in this case applies to all applications where the circulating pump suction is more than 24” below the level of the pool water surface. For distances greater than 10’ below the water line, a Vac-Alert™ pump shutoff system should be added. This unit incorporates a 0.375” diameter orifice opening installed below the surge tube section. This orifice opening is sized to provide a limited amount of pump start-up surge protection, while at the same time allowing enough air into the piping system to insure dissipation of the dynamic suction force caused by the circulating pump.

The Model VA-2000S SVRS unit also utilizes a check valve assembly equipped with a 0.25 pound spring and a non-vented poppet (no poppet disc or hole through the poppet). This check valve assembly utilizes a light duty spring to minimize the sealing force of the check valve. The non-vented poppet insures that water from the circulating system, under a positive hydrostatic head condition, does not migrate up into the SVRS unit.

NOTE: The Model VA-2000 checked above is the Model you have purchased. Make sure you have the correct Model SVRS for your Application!

Vac-Alert™ Industries, LLC
Model VA-2000
Installation Instructions

INTRODUCTION

Though the SVRS (Safety Vacuum Release System) is easily installed, Vac-Alert™ highly recommends that a licensed contractor or service company install the SVRS.

When you properly install a Vac-Alert™ SVRS, you are providing an important layer of protection against dangerous body entrapment situations. This device is not designed for protection against evisceration (prolapse) or hair entanglement. The Model VA-2000 SVRS unit shall only be installed in conjunction with an ASME/ANSI A112.19.8.M suction fitting, or a 12"x 12" drain grate or larger, or an approved channel drain system at each suction outlet or drain outlet.

When installing this product on Pools or Spas with two or more suction outlets, it is critical that the outlets be separated by three feet, with 2-1/2" diameter connector piping and fittings, or larger diameter as required, to keep connector pipe velocity less than 3 feet per second when all suction outlets are flowing.

You don't need any special tools to install or test the Vac-Alert™ SVRS. In fact, this is all you need:

1. Portable drill with 1" or 1-1/4" hole saw type bit (if installing a snap or clamp-on tee)
2. Hacksaw or PVC pipe cutter
3. Flat bladed screwdriver
4. Small level (used to ensure vertical, level installation of the SVRS unit)
5. PVC primer and glue (medium body suitable for wet or dry field conditions)
6. 6" length of 1-1/2" diameter Schedule 40 PVC pipe (vertical section of pipe installed between SVRS and tee, or SVRS and elbow).
7. Schedule 40 PVC tee fitting (size of suction line)
8. Full-port ball valve, slide gate or butterfly valve, or pole-mounted test mat
9. Standard Schedule 40 PVC fittings necessary to adapt the SVRS to existing piping.

NOTE: Do not use a flow restricted test valve such as a two-way or three-way valve, or a slow acting test valve such as a gate, globe or diaphragm type valve. Use only full port fast acting test valves such as a ball valve, slide gate, or butterfly valve. A test valve may not be required if the SVRS can be mat tested. Use only a pole-mounted test mat for mat testing of Vac-Alert™ SVRS units. It is recommended that a test valve be installed to facilitate testing and inspection. A test valve may be required by the local inspection authority.

Determine the number of pumps and main drain suction lines to be protected. You will need to install a Vac-Alert™ SVRS for each pump plumbed to a dedicated main drain suction line. See enclosed installation pictures.

Next, determine the size of the main drain suction piping. Determine the Schedule 40 PVC fittings you will need to adapt the 1-1/2" diameter SVRS connection to the existing piping. The SVRS must be mounted in the vertical position. Some installations may require a Schedule 40 PVC reducing bushing, elbow, and pipe nipples to complete the SVRS installation. Turn off all pump motors and select the best location for SVRS installation.

SVRS LOCATION

1. **Locate the SVRS on the main drain suction line**, between the main drain and the main drain line shut-off valve, as close to the pump suction inlet as possible. For new construction installations, the SVRS should be installed within **five (5) feet** of the pump suction. For retrofit installations, the SVRS should be installed within five (5) feet of the pump suction inlet whenever possible. See attached plumbing and installation diagram for further details.
2. **Find a six to twelve inch section of pipe** where the SVRS can be installed. This location can be either a vertical or horizontal section of pipe. Locate and orient the SVRS away from other valves and high traffic areas. The SVRS can face any direction, but **must be installed vertical and level**.

SVRS INSTALLATION

1. Install a tee fitting at the optimum **horizontal section of pipe** location. If a **vertical section of pipe** is the only option it will require an elbow be used to mount the SVRS off the installed tee. A reducing bushing may also be required to mate the 1-1/2" diameter SVRS to the tee fitting installed. Utilize pipe nipples to join fittings in a close-coupled fashion, as required. **Note: A 6" long, 1-1/2" diameter, vertical section of Schedule 40 PVC pipe is to be installed between the SVRS and tee, or the SVRS and elbow.** The 6" vertical pipe section has no bearing on SVRS operation, but is recommended in the event the SVRS unit must be removed or relocated in the future.
2. Install a full port, fast acting test valve (ball, slide gate or butterfly) in the main drain suction line before the tee fitting for the SVRS unit. The test valve should be installed in the main drain suction line between the main drain and the SVRS, within two feet of the Vac-Alert™ unit for ease in testing. **A test valve need not be installed if the SVRS is to be mat tested at the main drain.**
3. For existing installations, when a snap tee or clamp-on tee is installed, after the fittings have dried, use a battery-operated hand drill to drill a 1" or 1-1/4" hole in the suction piping.
4. Install the SVRS unit on the 6" long, 1-1/2" diameter vertical pipe section, and let all glue joints dry before proceeding to **Pump Start-Up Test**.

PUMP START-UP TEST

- 1. At this point, the pump start-up vacuum level for the system needs to be determined. Close the SVRS vent by pushing down on the reset lever.**

Use the vacuum gauge on the installed SVRS unit to read the pump start-up vacuum level in the main drain line. The peak start-up vacuum level should be read with full prime on the pump, at maximum return rate of flow, with all suction flow directed from the main drain. This condition will typically produce the peak vacuum level that the SVRS will be exposed to during pump start-up. **Set valves and equipment to the above conditions, and...**

- Turn on the pump. Observe the SVRS response. Make sure to notice the peak vacuum level on the SVRS vacuum gauge. If the peak vacuum level exceeds 10" Hg, the SVRS will either leak air into the system or lock open (See Item 2. below).

The Vac-AlertTM SVRS unit is designed for systems that operate at vacuum levels equal to or less than 18" Hg. Do not install a Vac-AlertTM SVRS unit on any system that operates at a vacuum level above 18" Hg. For vacuum levels above 18" Hg, either throttle the return side of the pump to produce a running vacuum less than 18" Hg, or call Vac-AlertTM for further instruction.

- 2. NOTE:** Each SVRS comes factory set to remain closed (non-venting) for vacuum levels up to 10" Hg.
 - If the pump start-up test indicates a vacuum level above 10" Hg, the SVRS will either leak air into the system momentarily, and then re-seal, or the SVRS may lock open in the venting position. Given a start-up vacuum in excess of 10" Hg, or the SVRS is allowing too much air to leak into the system, the SVRS will need adjustment for site-specific vacuum levels.
 - If the pump start-up test indicates a vacuum level of less than 10" Hg, and the SVRS is not leaking air into the system, the SVRS should not need any further adjustment.

SVRS ADJUSTMENT

The SVRS is field adjustable for vacuum levels from 0” Hg to 18” Hg. As previously stated each unit is shipped from the factory set at about 10” Hg. **To adjust the Vac-Alert™ unit for site-specific vacuum conditions proceed as follows:**

1. **NOTE** -Before making any adjustment to the SVRS spring compression screw, make sure the pump is turned off and the Vac-Alert™ unit is in the open (venting) position. The SVRS can be placed in the open position from the vent end (gray end) by utilizing a screwdriver. Remove the vent screen and place the screwdriver in the hole at the vent end. Push the Vac-Alert™ piston towards the adjustment end until the lockout mechanism is engaged. A clicking sound is heard when the lockout mechanism is engaged.
2. Remove the security cap from the adjustment end (white end with Vac-Alert™ embossing on body) utilizing the spanner tool shipped with the unit. The security cap is removed by unthreading it, rotating in a counterclockwise direction. Once the security cap is removed, the spring compression adjustment screw is visible inside the Vac-Alert™ body. To adjust this screw, a flat bladed (straight slot) screwdriver is required.
3. With the Vac-Alert™ in the open position, turn the adjustment screw clockwise to increase spring compression (for higher vacuum operating levels), and counterclockwise to decrease spring compression (for lower vacuum operating levels).
 - To adjust the Vac-Alert™ for an operating vacuum level of less than 5” Hg, rotate the adjustment screw counterclockwise until the screw travel stops (minimum spring compression setting) is reached.
 - To adjust the SVRS unit for an operating vacuum level of 18” Hg, rotate the adjustment screw clockwise until the screw travel stops (maximum spring compression setting) is reached.
 - The adjustment screw must be positioned properly between the two travel stops to set the Vac-Alert™ unit for operating vacuum levels greater than 5” Hg and less than 18” Hg.

NOTE: Always adjust the Vac-Alert™ adjustment screw with the unit in the open (venting) position. The SVRS can be placed in the open position from the vent end (gray end) by utilizing a screwdriver. Remove the vent screen and place the screwdriver in the hole at the vent end. Push the Vac-Alert™ piston towards the adjustment end until the lockout mechanism is engaged. A clicking sound is heard when the lockout mechanism is engaged. Once screw adjustment is made, the SVRS can be returned to the closed (non-venting) position by gently pressing down on the reset lever.

FINAL ADJUSTMENT

1. The Vac-Alert™ should be adjusted to a spring compression level that ensures the SVRS unit does not lock open during pump start-up. Do not over tighten the adjustment screw. Adjust the screw in increments of two full rotations, then reset the unit, and retest for air venting. The SVRS should be tested at various adjustment levels to determine the balance point at which venting begins to occur at pump start-up.
2. Once the balance point is determined, the adjustment screw should be positioned clockwise two (2) full turns beyond this point as the **final SVRS setting**.

SVRS TESTING

Turn off skimmers and all other ports of suction except the main drain line. With the pump turned on, fully primed and with suction piping valves set to divert all flow from the main drain...

1. Close the test valve to simulate a main drain blockage. A pole-mounted test mat can also be used to cover the main drain to simulate the same effect.
2. The Vac-Alert™ SVRS should respond instantly to the simulated blockage. The SVRS should lock in the open position, venting air into the system and dissipating the suction vacuum. A near zero reading on the SVRS vacuum gauge confirms the system is operating properly.
3. Open the test valve or remove the test mat from the main drain, and reset the SVRS unit by gently pressing down on the reset lever. With the pump turned on and fully primed, once again simulate the main drain blockage as done in the previous test. The SVRS should respond as before. Repeat this test procedure at least three (3) times to confirm proper operation of the Vac-Alert™ SVRS unit.

FINAL INSTRUCTIONS

Important Note: The Vac-Alert™ Model VA-2000L (Lift) SVRS unit is designed to protect against dry running of self-priming pumps where pump suction lift is less than (3.5) feet. To make sure the unit is working properly, turn off the pump and place the Vac-Alert™ SVRS unit in the open (venting) position. Wait one minute, then turn the pump on and make sure the pump partially re-primed. Note that partial re-priming may take several minutes for some systems. Once partial re-prime is established, make sure there is a noticeable stream of mixed air/water flow through the pump returning to the pool or spa. **For suction lifts over (3.5) feet, or suction lift conditions where partial re-priming does not occur, even after several minutes of pump running time, call Vac-Alert™ Customer Service for further instructions.**

Reset the SVRS unit to the closed (non-venting) position before returning the system to normal operation.

The Vac-Alert™ SVRS unit is provided with a vent screen and an adjustment screw security cap. These must both be installed and properly tightened to complete the installation. It is critical that both of these covers be in place to ensure ongoing safe operation of the SVRS unit.

- The security cap is threaded into place utilizing the spanner tool provided with the unit.
- The vent screen is installed with a press fit covering the vent hole on the vent end (gray end) of the SVRS unit. The vent screen should be pushed into place so that the vent screen flange is flush to the vent end (gray end) surface. A screwdriver can be used to press this screen into final position. **Care must be taken to avoid bending or crushing the vent screen.**

Each SVRS unit is provided with a Vac-Alert™ Field Test Data Sheet that must be completed. Fill out this form and fax or mail it to Vac-Alert™ Industries as instructed on the form. It is critical that this form be completed and all of the information requested supplied.

The Vac-Alert™ SVRS must be routinely tested to ensure ongoing safe operation of the unit. It is required that the SVRS be tested, per the prescribed testing procedures, prior to the start of each swimming season, and thereafter at least once per month while the pool or spa remains in use.

IMPORTANT NOTICES **INSTALLER AND USER MUST READ!**

1. Locate the Vac-Alert™ SVRS on the main drain suction line whenever possible. The SVRS must be mounted in the vertical position. All SVRS units shall be field adjusted to site-specific hydraulic conditions. Once adjusted the SVRS unit shall be tested three times by simulating an entrapment event.
2. Do not use 2-way or 3-way valves as test valves. Use a fast acting, full-flow, full-port ball valve or butterfly valve, installed within two feet downstream of the SVRS unit, as a test valve. A test valve is an optional alternative to a pole-mounted test mat. Each Vac-Alert™ SVRS unit must be tested three (3) times to ensure proper adjustment and operation.
3. This SVRS unit must be routinely tested. The Vac-Alert™ SVRS unit must be tested at the start of each swimming season, and thereafter at least once per month while the pool or spa remains in use.
4. For multiple pump systems, one (1) Vac-Alert™ SVRS unit is required for each pump plumbed to a dedicated main drain suction line.
5. The Vac-Alert™ SVRS unit is rated for suction vacuum levels up to 18 inches of Hg (mercury). For vacuum levels above 18 inches of Hg, either throttle the return side of the pump to produce a running vacuum of less than 18" of Hg, or call Vac-Alert™ for further instruction.

6. **WARNING:** Hydrostatic valves, check valves and obstructions must be removed from the suction system. The presence of a hydrostatic valve or check valve in the suction piping has been shown to prolong the high vacuum present at the drain, even though the drain was protected by an SVRS device. Do not install (must be removed from existing systems) a hydrostatic valve or check valve in a main drain(s) suction line protected by a Vac-Alert™ SVRS.
7. This product, when installed in accordance with manufacturer's instructions, is designed to protect against injury caused by body or limb entrapment. This device is not designed for protection against evisceration (prolapse) or hair entanglement. The Model VA-2000 shall only be installed in conjunction with an ASME/ANSI A112.19.8.M suction fitting, or a 12"x 12" drain grate or larger, or an approved channel drain system at each suction outlet or drain outlet.
8. Tests conducted by independent, third part laboratory demonstrate that Vac-Alert's Model VA-2000 meets or exceeds the performance requirements of ASME/ANSI A112.19.17 – Manufactured Safety Vacuum Release Systems.

SVRS USE AND MAINTENANCE:

1. To use the Vac-Alert™ Model VA-2000 properly, and to maintain the unit in good working order, the following should be practiced.
 - a. Make sure that the vent screen is always in place and is clear of all obstructions or debris. This is critical to ensure that the air vent passageway is kept clear to allow the movement of air into the pump suction piping, in the event of a high vacuum occurrence due to a main drain blockage.
 - b. Using the installed test valve, or a pole-mounted test mat, conduct routine testing of the SVRS device to ensure proper adjustment of the unit. The Vac-Alert™ Model VA-2000 SVRS unit must be tested at the start of each swimming season, and thereafter at least once per month while the pool or spa remains in use.
 - c. If the SVRS does not function properly during a routine test, the device may need further adjustment. Refer to SVRS adjustment procedures detailed herein, and follow these procedures to re-adjust the SVRS unit. Test the SVRS unit three (3) times after re-adjustment to ensure proper SVRS operation. Should the SVRS unit still not operate properly, **immediately shut down the pool or spa**, and call your local licensed service company, or call Vac-Alert™ Customer Service for referral to your nearest dealer.
 - d. Make sure the security cap is always installed to guard against unauthorized tampering with SVRS adjustment.
2. The SVRS unit requires no lubrication, no oil, and no grease for proper operation. **Do not** apply any oil, grease or lubricant, on or in this SVRS device. **Do not** obstruct the vent screen on the SVRS unit with any foreign material, such as paint or aerosol sprays.

3. The Model VA-2000 SVRS unit is supplied with the following parts that may need replacement over time depending upon environmental exposure and use:
- a. Vacuum Gauge (0" to 30" Hg).....P/N VA-2680
 - b. Adjustment Screw Security Cap.....P/N VA-2900
 - c. Security Cap Key (Hexagonal Spanner Tool).....P/N VA-2970
 - d. End Cap Vent Screen.....P/N VA-2850
 - e. Check Valve Spring (Suction Lift @ 3.5 lb).....P/N VA-2880-3.5
 - f. Check Valve Spring (Submerged Suction @ 0.25 lb).....P/N VA-2885-.25
 - g. Check Valve Poppet (Suction Lift – Vented).....P/N VA-2870L-P
 - h. Check Valve Poppet (Submerged Suction – Non-Vented).....P/N VA-2875S-P
 - i. Threaded Cap (bottom of valve).....P/N VA-2315
 - j. Net End Fitting (bottom of valve).....P/N VA-2314
 - k. O-Ring (bottom of valve).....P/N VA-2319

To order any of the above parts, call your local licensed service company, or call Vac-Alert™ Customer Service for referral to your nearest dealer.

4. The Model VA-2000 SVRS unit should always operate in a dry state. Any indication that the unit is flooded or water logged, as evidenced by water leakage from the SVRS unit, requires immediate service attention. **Immediately shut down the pool or spa,** and call your local licensed service company, or call Vac-Alert™ Customer Service for referral to your nearest dealer.
5. The Model VA-2000 meets or exceeds the twelve hour -40F & 140F temperature performance testing set by the ASME/ANSI A112.19.17 Standard for Manufacturing Safety Vacuum Release Systems. We strongly suggest that the VA-2000 not be left in below freezing temperatures where the circulation system is not continually running or not protected by a pump house. In such cases, condensation could freeze piping and ice may impair or disable the safety features of the VA-2000. For installations that require winterization, the Model VA-2000 should be removed and stored, and then re-installed upon system start-up.”

**FOR CUSTOMER SERVICE IN FLORIDA & U.S. EAST COAST CALL:
1-800-513-4372**

**FOR CUSTOMER SERVICE IN ALL OTHER U.S. AREAS CALL:
1-800-374-7405**

Dated: October 30, 2007



“Save a child’s life. Vac-Alert™ saves lives.”

VAC-ALERT FIELD VA-2000 INSTALLATION DATA SHEET
1-800-374-7405

A copy of this installation form MUST be mailed or faxed to Vac-Alert Industries, LLC within 10 days of installation to maintain all product warranty. Mail to: Vac-Alert Industries, 336 West College Ave, Santa Rosa, CA 95401 or fax to (707)-576-8286.

SVRS INFORMATION

- A. Valve ARL serial number: _____
- B. Installation performed on: Pool() Spa() Fountain() Other() _____
- C. Did pool or spa have multiple main drains? Yes() No()
- D. Did valve trip three consecutive times? Yes() No()

INSTALLATION LOCATION INFORMATION

Name of Purchaser: _____

Installation Address: _____

I have discussed with the owner and/or individual the complete operational and testing procedure for the SVRS unit

Installation Performed By: _____

Date of Installation: _____

Note: Although the SVRS is easily installed, we at Vac-Alert do highly recommend that the unit be installed by a Licensed Pool Service Company or an Authorized Service Technician (where State required).

This SVRS does not offer protection from hair entrapment. Please be sure to install recognized anti-entrapment drain covers.

VAC-ALERT™ INDUSTRIES, LLC ASSURANCE OF QUALITY

Dear Vac-Alert Safety System Owner,

Your new Vac-Alert System has passed a rigorous quality control procedure and is in conformance with the ASME/ANSI A112.19.17 standard for manufactured Safety Vacuum Release Systems (SVRS). If you feel this unit is defective or damaged due to shipping or handling, it is your obligation to call: 1-800-374-7405 and speak to our technical support staff to answer any questions you may have. This system requires NO lubrication whatsoever. Lubricating this unit may cause failure and will void warranty. Vac-Alert assumes no liability or responsibility implied or otherwise if this system is lubricated. We highly recommend the use of an ASME/ANSI A112.19.8 approved main drain cover in conjunction with this system. This system is not an effective defense against hair entanglement or evisceration and under no circumstances should any child ever be left unattended at or by any body of water. Never sit, lay or swim near or by suction ports, suction fittings or main drains.

THIS PRODUCT IS 3RD PARTY TESTED TO CONFORM TO ASME/ANSI A112.19.17 STANDARDS

Date of Installation

This unit is warranted free of defects for a period of three years. This warranty applies to original purchaser only. This unit will be repaired or replaced at the discretion of Vac-Alert™ Industries, LLC, provided it is returned to the Manufacturer Freight-Prepaid.

Please keep this document with your other important papers

Vac-Alert™ Industries assumes no liability or responsibility if this unit is installed improperly or altered. This system MUST be installed by a licensed professional.

Installed by: _____ Date: _____

Installer ID(if applicable) _____

Vac-Alert Unit Serial # _____

Vac-Alert™ Industries, LLC

www.vac-alert.com



"Save a child's life. Vac-Alert™ saves lives."