

Safety Vacuum Release System
Installation Instructions
Model VA-2000

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March 15, 2009

○ 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 or spa 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. **The Model VA-2000S is recommended on commercial pool applications where the pump has a submerged or flooded suction and runs 24/7. In submerged suction applications, for pumps 10 horsepower and greater, or for pumps located 10’ or more below the water line, a pump shut-off switch (Model PSAC) is recommended.** The Model VA-2000S 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 type is indicated on the outside of the box and on the unit itself. Make sure you have the correct Model SVRS for your application! SVRS in these instructions refers specifically to the Vac-Alert™ Model VA-2000.

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

INTRODUCTION

INITIAL SYSTEM PREPARATION

Determine whether the installation requires a VA-2000L (suction lift) or a VA-2000S (submerged or flooded suction) SVRS unit. See the preceding page for a more detailed description of each SVRS type.

For commercial installations where the circulating pump has a submerged or flooded suction and runs continuously (24/7), the Model VA-2000S is recommended. For submerged or flooded suction installations where the circulating pump is 10 HP or greater, or the pump is located 10 feet or more below the pool or spa water surface, in addition to the installation of a Model VA-2000S unit, a pump shut-off switch (Model PSAC) is recommended. Contact your Vac-Alert™ representative for details on the Model PSAC.

The Model VA-2000L is designed for use in installations where a timer or air switch is used to automatically cycle the circulation pump. The VA-2000L unit is to be applied in these applications where the pump is located no more than 24" below, or no more than 42" above the level of the pool or spa water surface. For applications where the pump is located more than 42" above pool or spa water level, contact your Vac-Alert™ representative for further instructions. For applications where the pump is located more than 24" below pool or spa water level, use the VA-2000S SVRS unit.

The SVRS unit should be installed on the main drain line. It is not recommended that the SVRS unit be installed on the common header or common line to the pump, where additional skimmer line(s) or vacuum line(s) are also present. The SVRS is designed to protect against main drain suction entrapment, and the unit should be adjusted to the specific hydraulics of the main drain line.

Before installing the SVRS unit, check system vacuum level at the pump with all flow diverted from the main drain suction line, i.e. shut-off all other water sources except the main drain suction line. If the main drain line is plumbed through a skimmer, the skimmer will have to be blocked to insure all flow is routed from the main drain.

Using a vacuum gauge at the pump, note the level of the operating vacuum. If the vacuum level exceeds 15" Hg, system adjustments to lower the vacuum level will assist with the proper installation of the SVRS unit.

Following are suggestions for lowering system operating vacuum levels at an existing pool or spa.

1. Reduce the pump size or reduce the pump impeller diameter
2. Check the main drain line for blockages
3. Replace the drain cover with another cover that has a higher open area
4. Replace return side nozzles with smaller orifices to slow down flow

For new construction or a remodel project, increase the diameter of the connector piping and fittings where two or more main drains are employed, and increase the diameter of the main drain suction line to reduce pipe velocity and running vacuum level. Minimize the use of 90 degree elbows and other fittings that increase the system pressure drop. Keep your pipe runs as short as possible.

Once the system vacuum level is set at 15" Hg or less, the system can be prepared for SVRS installation.

SVRS INSTALL REQUIREMENTS

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 and limb entrapment situations. This system is not an effective defense against hair entanglement. This device may mitigate evisceration. The Model VA-2000 SVRS unit shall only be installed in conjunction with an ASME/ANSI A112.19.8-2007 or VGB 2008 approved suction fitting(s), or an approved channel drain system at each suction outlet or drain outlet.

For newly constructed pools or spas where two or more suction outlets are employed, it is important that the outlets be separated by three feet, with correctly sized diameter connector piping and fittings, to keep connector pipe velocity less than 3 feet per second when all suction outlets are flowing.

No special tools to install the Vac-Alert™ SVRS are required. Here is what 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
10. Vacuum Gauge*

Begin by checking the vacuum levels at each pump. Close off all other secondary lines and check the vacuum level with all flow coming from the main drain line. If the vacuum level is over 15", see previous suggestions for lowering system running vacuum level.

NOTE: Do not use a flow restricted test 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 two-way valve, ball valve, 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 local inspection authorities.

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 diagrams.

One Vac-Alert™ SVRS unit can be used on a pool / spa combination where a single circulation pump is employed. In this case the SVRS is located on the common main drain line for both the pool and spa (see installation diagrams). The SVRS can handle a difference of no more than 6" Hg between the operating vacuum level in pool mode, and the operating vacuum level in spa mode. System adjustments may be necessary to insure the two running vacuum levels don't differ more than 6" Hg.

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 isolation valve. Install the SVRS at least 12" away from the pump suction. Do not close-couple the SVRS to the pump suction. For new construction installations, the SVRS should be located 18" to 60" from the pump suction on the main drain line. For retrofit installations, the SVRS should be installed no closer than 12" from the pump suction, and within 60" of the pump suction inlet whenever possible. See enclosed installation diagrams 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 (two-way, ball 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. Where hydrostatic valve(s) are present in the circulation system, then the Vac-Alert™ should be mat tested at the main drain at least three times after installation.**
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-Alert™ SVRS unit is designed for systems that operate at vacuum levels less than 15” Hg. Do not install a Vac-Alert™ SVRS unit on any system that operates at a vacuum level above 15” Hg. See Initial System Preparation for options on how to lower system operating vacuum level.

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 15” 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 stop (minimum spring compression setting) is reached.

- To adjust the SVRS unit for an operating vacuum level of up to 15" Hg, rotate the adjustment screw clockwise until the screw travel stop (maximum spring compression setting) is reached, then back the adjustment screw off counter-clockwise one revolution.
- 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 15" 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

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

1. Quickly 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-priming 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 recommended thereafter at least once per month while the pool or spa remains in use by the end user.

IMPORTANT NOTICES
INSTALLER AND USER MUST READ!

1. **Locate the Vac-Alert™ SVRS on the main drain suction line.**
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 must be tested three times by simulating an entrapment event.
2. Use a fast acting, full-flow, full-port two-way valve, ball valve or butterfly valve, installed within two feet 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 recommended thereafter at least once per month while the pool or spa remains in use by the end user.
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 15 inches of Hg (mercury). For vacuum levels above 15 inches of Hg, see Initial System Preparation instructions for recommendations on how to lower system operating vacuum level.
6. **WARNING:** Check valves and obstructions located between the main drain(s) and the Vac-Alert™ SVRS must be removed from the suction system. Do not install (must be removed from existing systems) a check valve in a main drain line between the main drain(s) and the SVRS. A check valve may be installed in the main drain suction line between the SVRS connection tee and the circulation pump. Also, check valves may be installed anywhere on the return side of the pump. The Vac-Alert™ SVRS may be used with hydro-static valves, but a mat test of the SVRS operation is recommended.
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 hair entanglement. It may mitigate evisceration. The Model VA-2000 must be installed in conjunction with an ASME/ANSI A112.19.8-2007 or VGB 2008 approved suction fitting(s), 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 and ASTM standard F2387 – 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 recommended thereafter at least once per month while the pool or spa remains in use by the end user.
 - 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 pool/spa professional, 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).....VA-2680
 - b. Adjustment Screw Security Cap.....VA-2900
 - c. Security Cap Key (Hexagonal Spanner Tool).....VA-2970
 - d. End Cap Vent Screen.....VA-2850
 - e. Check Valve Spring (Suction Lift @ 3.5 lb)..... VA-2320-3.5
 - f. Check Valve Spring (Submerged Suction @ 0.25 lb)..... VA-2320S-.25
 - g. Check Valve Poppet (Suction Lift – Vented).....VA-2870L-P
 - h. Check Valve Poppet (Submerged Suction – Non-Vented).....VA-2875S-P

To order any of the above parts, call your local pool 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 -40 F & +140 F 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.”

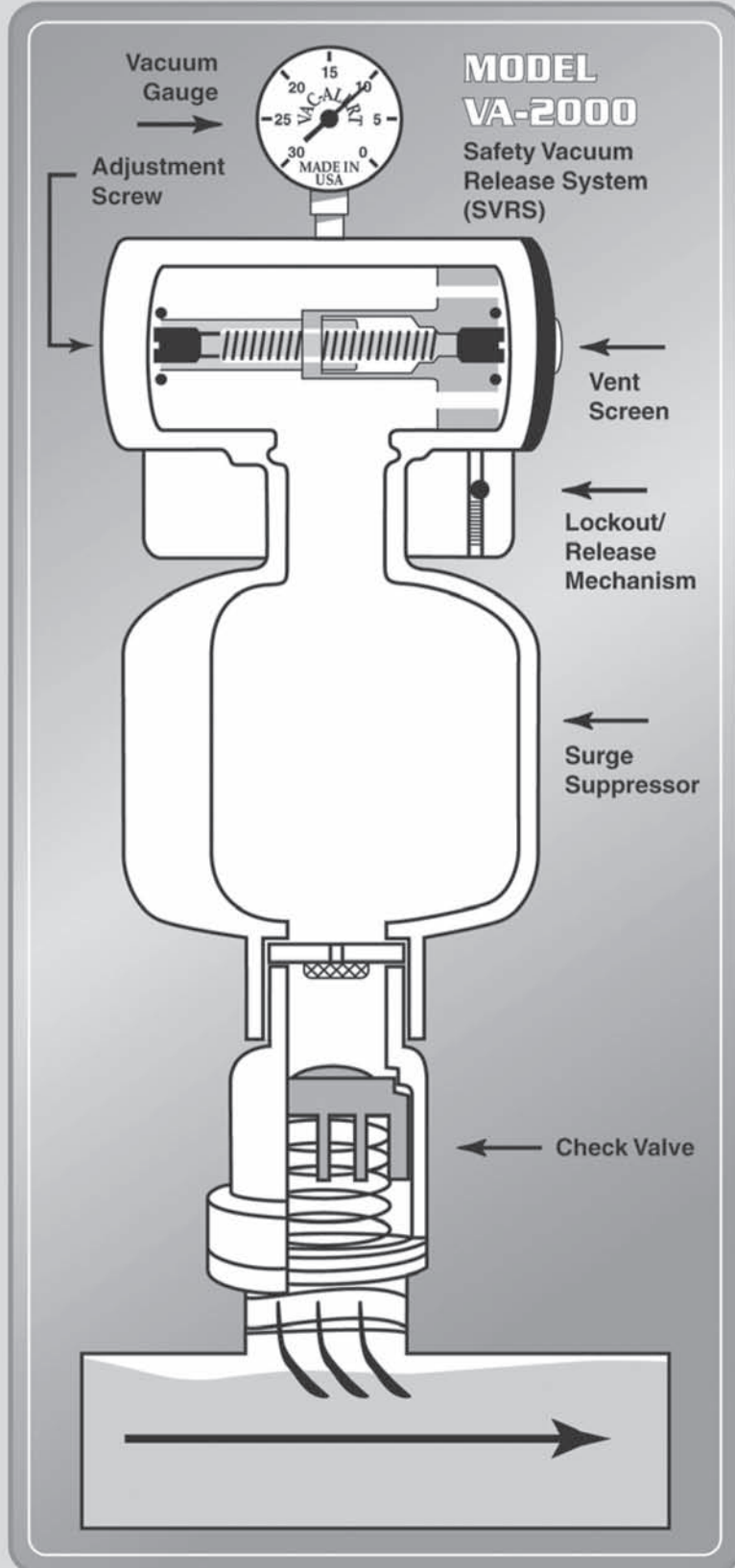
**FOR CUSTOMER SERVICE IN FLORIDA & U.S. EAST COAST CALL:
1-800-513-4372**

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

Dated: March 15, 2009

SAFETY VACUUM RELEASE SYSTEM

SVRS



MANUFACTURED BY
VAC-ALERT™ INDUSTRIES, LLC
VERO BEACH, FLORIDA
www.vac-alert.com

Vac-Alert™ Model VA-2000 SVRS Unit Reacts In Less Than A Second To Quickly Release Dangerous Pump Suction Vacuum.

A Totally Mechanical, Non-Electric Safety System, The VA-2000 SVRS Is Easy To Install, Adjust And Test.

Vac-Alert's Fail Safe Design Is Manufactured With Only Engineered Plastics And Type 316 Stainless Steel For Long-Life And Reliable Service.

The VA-2000 SVRS Provides A Critical Layer Of Protection Against Body Or Limb Drain Suction Entrapment.

Tests Conducted By Independent, Third Party 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.

The VA-2000 SVRS Is Backed By A 3-Year Limited Manufacturer's Warranty.

FOR SALES AND SERVICE CONTACT:

VAC-ALERT™ SAFETY VACUUM RELEASE SYSTEM (SVRS)

PLUMBING AND INSTALLATION DIAGRAMS

Figure 1 One (1) Pump
One (1) Main Drain Line

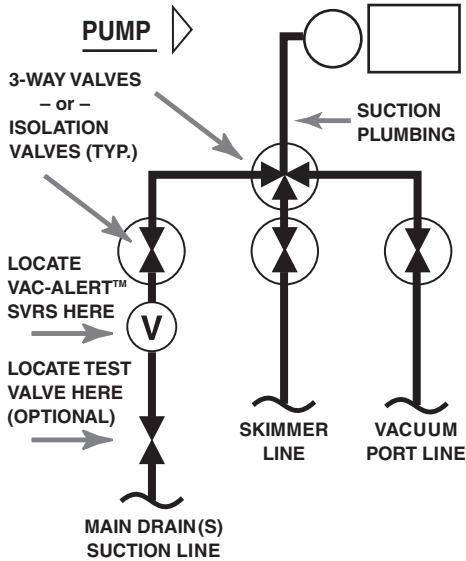
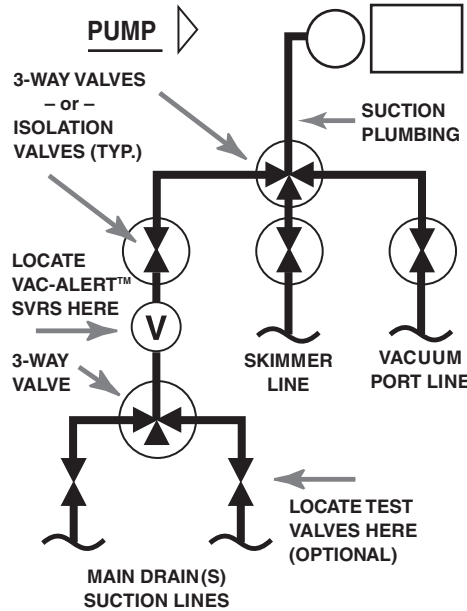


Figure 2 One (1) Pump
Two (2) Main Drain Lines



A: Always Locate The Vac-Alert™ SVRS On The Main Drain Suction Line. SVRS Unit Must Be Mounted In The Vertical Position.

B: 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 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 Insure Proper Adjustment And Operation.

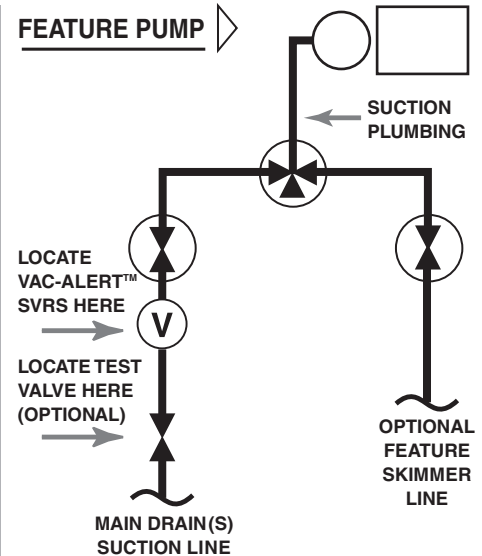
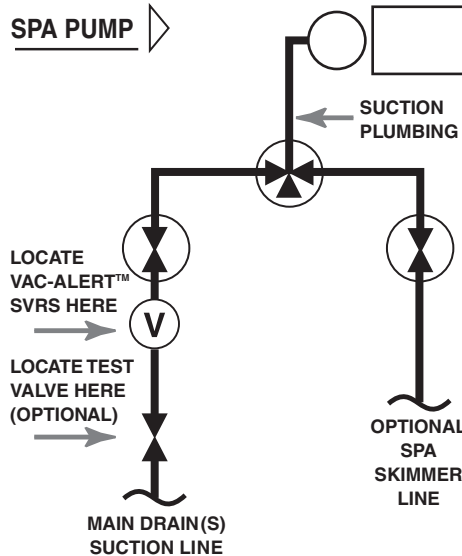
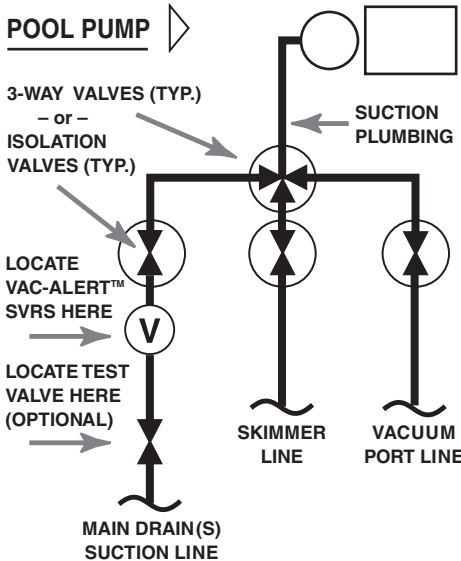
C: For Multiple Pump Systems, One (1) Vac-Alert™ SVRS Unit Is Required For Each Pump Plumbed To A Dedicated Main Drain Suction Line.

D: 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 Less Than 18 Inches Of Hg, Or Call Vac-Alert™ For Further Instruction.

E: Do Not Install A Check Valve In A Main Drain(S) Suction Line Protected By A Vac-Alert™ SVRS.

F: A Vac-Alert™ SVRS Unit May Also Be Used In A Vacuum Port Line To Protect Against Body Or Limb Entrapment.

Figure 3 Multiple Pumps
Multiple Main Drain Lines



FLOW THRU SCHEDULE 40 PVC PIPE

VELOCITY - FEET PER SECOND

PIPE SIZE	6 FPS	7 FPS	8 FPS	9 FPS	10 FPS
1"	16 GPM	18 GPM	21 GPM	23 GPM	26 GPM
1.5"	37 GPM	43 GPM	50 GPM	56 GPM	62 GPM
2"	62 GPM	72 GPM	82 GPM	92 GPM	103 GPM
2.5"	88 GPM	102 GPM	117 GPM	131 GPM	146 GPM
3"	136 GPM	159 GPM	181 GPM	203 GPM	227 GPM

THREE -YEAR LIMITED WARRANTY

This Vac-Alert™ Safety Vacuum Release System is warranted to the original purchaser to be free from defects in material and workmanship under normal use for a period of three (3) years from the date of original purchase. During the warranty period, and upon proof of purchase, the Vac-Alert™ Safety Vacuum Release System will be repaired or replaced (with the same or similar model), or the purchase price refunded, at our option without charge.

IT IS EXPRESSLY AGREED THAT THIS SHALL BE THE SOLE AND EXCLUSIVE REMEDY OF THE BUYER. IN NO EVENT SHALL VAC-ALERT INDUSTRIES, LLC BE LIABLE FOR ANY COSTS, LOSSES, EXPENSES OR DAMAGES, WHETHER PUNITIVE, SPECIAL, INCIDENTAL OR CONSEQUENTIAL, ARISING DIRECTLY OR INDIRECTLY FROM THE USE OF THE VAC-ALERT™ SAFETY VACUUM RELEASE SYSTEM, WHETHER BASED UPON WARRANTY, CONTRACT, NEGLIGENCE OR STRICT LIABILITY. TO THE EXTENT THE FOREGOING IS NOT APPLICABLE IN YOUR PARTICULAR STATE, UNDER NO CIRCUMSTANCES WILL VAC-ALERT INDUSTRIES, LLC BE LIABLE FOR DAMAGES IN EXCESS OF \$1000.00 MORE THAN THE PURCHASE PRICE PAID FOR THE PRODUCT.

VAC-ALERT INDUSTRIES, LLC EXPRESSLY DISCLAIMS ANY AND ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, OF ANY KIND OR NATURE WHATSOEVER, INCLUDING, WITHOUT LIMITATION, AS TO MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE OR USE. IN ADDITION, VAC-ALERT INDUSTRIES, LLC DOES NOT WARRANT THAT THE VAC-ALERT™ SAFETY VACUUM RELEASE SYSTEM COMPLIES WITH ANY LOCAL, MUNICIPAL, STATE OR FEDERAL CODES, OR OTHER RULES OR REGULATIONS.

This warranty shall not apply to any Vac-Alert™ Safety Vacuum Release System or parts that: (a) have been repaired or altered other than by an authorized Vac-Alert Industries, LLC repair facility; (b) have not been installed by a professionally licensed pool and spa installer; (c) have been subjected to misuse, negligence or accident, or used in a manner contrary to Vac-Alert Industries, LLC s instructions; (d) are nicked, scratched, faded or discolored which affects the product cosmetically only, and does not affect the product s mechanical performance; or (e) are damaged from external causes, such as from fire, sand, dirt, windstorm, lightening, earthquake, or an Act of God.

This limited warranty is valid and enforceable only on Vac-Alert™ Safety Vacuum Release Systems purchased and installed in the United States of America. This limited warranty is applicable only if the Vac-Alert™ Safety Vacuum Release System is purchased from a Vac-Alert™ authorized distributor or dealer. If uncertain whether the seller of this product is a Vac-Alert™ authorized distributor or dealer, please call Vac-Alert Industries, LLC at (800) 374-7405.

Some states do not allow the exclusion or limitation of incidental damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may have other rights that vary from state to state. Any implied warranty imposed by state consumer law, not otherwise disclaimed herein, is limited in duration to one (1) year from the date of purchase.

Vac-Alert Industries, LLC neither assumes nor authorizes any authorized distributor or dealer or any other person or entity to assume for it any other obligation or liability beyond that which is expressly provided for in this limited warranty, including, without limitation, the provider or seller of any extended warranty or service agreement.

By purchasing this Vac-Alert™ Safety Vacuum Release System product, you agree that any dispute between you and Vac-Alert Industries, LLC will be settled by binding arbitration conducted in St. Lucie County, Florida, under the rules of the American Arbitration Association, and an award of attorney s fees and costs will go to the prevailing party.

To obtain service or replacement, contact your Vac-Alert™ Safety Vacuum Release System authorized distributor, or call Vac-Alert Industries, LLC directly at (800) 374-7405

Vac-Alert Industries, LLC
775 8th Court, Suite 4, Vero Beach, Florida 32962
(800) 374-7405 Fax: (707)576-8286



"Saves Lives"

SVRS Quick Installation Guide

PAGE 1 OF 2

800-374-7405 www.vac-alert.com

- The Vac-Alert™ SVRS unit is installed:
 - Vertically.
 - Above or off a tee installed on the main drain suction line.
 - No closer than 1 foot and within 5 feet from the circulation pump where possible.
- Since the SVRS is an air passageway only, the unit does not convey water, and therefore can be installed on small or large pipe sizes.
- Most installations can be completed in less than 30 minutes.

The Vac-Alert™ SVRS unit is plumbed into the main drain line between the pump and the main drain. For simple testing be sure to install a fast-acting, full port test valve between the unit and the main drain.

- Parts needed (Fig. 1):
 - Tee fitting
 - 1-1/2" reducer bushing
 - 6-inch piece of 1-1/2" PVC pipe
 - Fast-acting, full port test valve

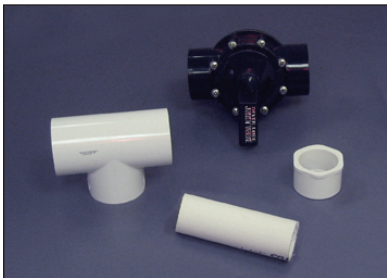


FIGURE 1. Vac-Alert™ SVRS installation parts needed.

- The unit may need to be **field adjusted** to accommodate normal operating system vacuum. Normal operating vacuum is the vacuum reading obtained on the Vac-Alert™ gauge when there is no air leaking through the unit's vent port.
- The unit has been factory adjusted to accommodate system vacuum levels up to **10 inches of mercury**. Vacuum levels higher than this will require field adjusting of the unit.
- The SVRS unit should be installed on pools/spas with drain(s) protected with a properly installed cover certified to ASME/ANSI A112.19.8-2007.

Field Adjusting the Vac-Alert™ SVRS

The unit is designed to protect against main drain entrapment; therefore, any secondary source lines such as skimmer or vacuum lines must be closed off before adjusting or testing the unit.

1. With the pump running and all secondary source lines closed off:
 - a) **Remove the security cap** using the spanner tool provided (Fig. 2).
 - b) **Remove the vent screen** (Fig. 3).

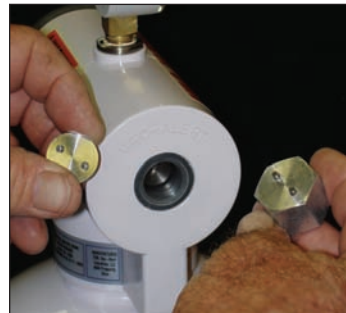


FIGURE 2. Remove security cap with the spanner tool.



FIGURE 3. Remove the vent screen.

- c) **Test for an air-leak** by quickly tapping your finger over the vent hole (i.e., on, off, on, off). If there is an air-leak, you will feel suction. Your finger should not remain on the vent hole, otherwise the vacuum inside the unit will equalize with your finger resulting in a false sense of an air leak (Fig. 4).



FIGURE 4. Test for an air leak by tapping the vent hole (the gray end of the SVRS unit).

2. **If a leak is present:** adjust the unit to handle a higher vacuum level:
 - a) Turn off the pump.
 - b) If not already removed, remove the security cap using the spanner tool provided (Fig. 2).
 - c) Lock open the piston by pushing a screwdriver through the *vent opening* until a clicking sound is heard (the vent screen must already be removed; Fig. 5). With a flat head screwdriver, turn the adjustment screw two full revolutions to the right/clockwise (Fig. 6).



FIGURE 5. Lock open the piston.



FIGURE 6. Turn the adjustment screw.

- d) Reset the piston by gently pressing down the reset lever (Fig. 7).

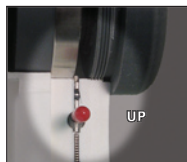


FIGURE 7. Reset lever. In the *up* position before being reset, and the *down* position after being reset.

- e) Restart the pump.

3. Check again for an air leak. If an air leak persists, lock open the piston, and repeat this procedure two revolutions at a time until air no longer leaks through the vent end of the SVRS unit.

CAUTION:

- If the adjustment screw must be adjusted completely inward to the adjustment stop, be sure to **back off a quarter turn** (counterclockwise) to set the unit to its maximum working position.
- **Do not over-adjust** the unit as this could impair performance.
- Start and stop the pump **at least three times** to make sure the unit does not react to pump start-up surge. Allow the unit's vacuum level to drop below 5 inches of mercury before each start of the pump. Adjust the unit further if required.

5. When adjustment is completed, **replace the vent screen and security cap.**

Testing the Vac-Alert™ SVRS

The SVRS unit must be tested successfully at least three times.

The unit is easily tested by closing the fast-acting test valve installed between the unit and the main drain while the circulating pump is fully primed and running. *Close the test valve quickly, with a quick snap: open-shut-open.* Closing the test valve this way simulates an entrapment event (Fig. 8).

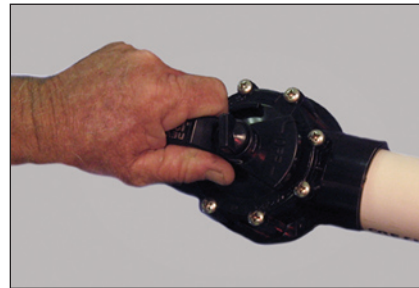


FIGURE 8. Fast-acting, full port test valve.

In lieu of a test valve, place a test mat (Fig. 9) over the main drain to simulate an entrapment event.



FIGURE 9. Test mat.

For further assistance, please call Vac-Alert™ at 800-374-7405.



“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, 2455 Bennett Valley Rd., Santa Rosa, CA 95405 or fax to (707)-576-8286.*

SVRS INFORMATION

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

INSTALLATION LOCATION INFORMATION

<p>Name of Purchaser: _____</p> <p>Installation Address: _____</p> <p>I have discussed with the owner and/or individual the complete operational and testing procedure for the SVRS unit</p> <p>Installation Performed By: _____</p> <p>Date of Installation: _____</p>

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 and ASTM F2387 standards 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. This device may mitigate evisceration. 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 AND ASTM F2387 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. We recommend this system be installed by a pool/spa professional.

Installed by: _____ Date: _____
Installer ID(if applicable) _____
Vac-Alert Unit Serial # _____



Vac-Alert™ Industries, LLC
www.vac-alert.com
1-800-374-7405(toll free)
707-576-8286 (fax)

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