



INSTALLATION & OPERATION GUIDE
SAFETY VACUUM RELEASE SYSTEM
(SVRS)

BY
VACLESS SYSTEMS

Sylmar, CA 91342

Model: Breather III-ADJ



ASME A112.19.17 Certified
Meets SVRS Requirements of Virginia Graeme Baker Act

INSTALLATION & OPERATION GUIDE

SAFETY VACUUM RELEASE SYSTEM

WARRANTY INFORMATION & WARRANTY CARD

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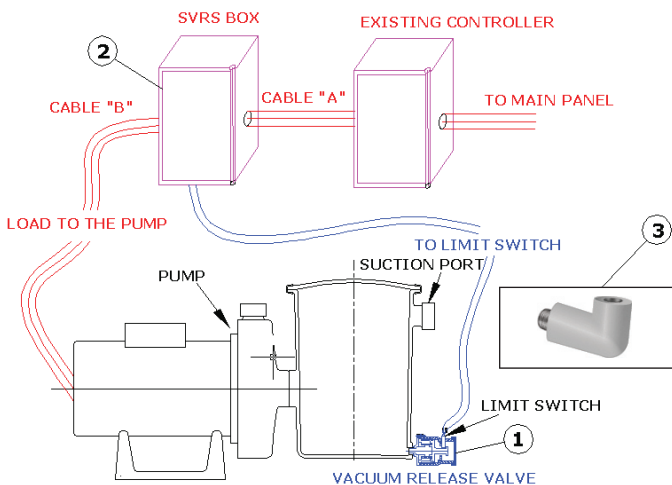
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1. PARTS LIST (See Figure 1)

Breather III Parts List
P/N SVRS-30ADJ or P/N SVRS-31ADJ

Item #	Name	P/N	Qty	Picture
1	SVRS Valve	VAL-30ADJ (for center port) Or VAL-31ADJ (for offset port)	1	
2	SVRS Box	BOX-30	1	
3	Installation Elbow	FIT-10	1 set	
4	User Manual	MAN-30ADJ	1	N/A


Figure 1. Breather III-ADJ System Schematic

2. INTRODUCTION

- 2.1 Breather III-ADJ serves three main purposes: Besides its intended function as an added layer of protection against human entrapment that could lead to serious injury including drowning and death, it also functions as a winterizing device and a surge suppressor.
- 2.2 The valve is to be attached to swimming pool, wading pool, spa and hot tub pumps ranging between 0.5 HP and 10HP; in place of any suction side Drain Plug.
- 2.3 Upon entrapment, the valve will open, allowing ambient air to rapidly fill the pump suction side and cause the pump to lose its suction ability to ease the removal of the entrapment. Simultaneously, the pump will be turned off for 3 minutes to assure the safe removal of the entrapment.
- 2.4 The winterization function is achieved by simply removing the valve (item # 1) until all water in the pump is fully drained.
- 2.5 The surge suppressor function is achieved by venting off startup vacuum rises while the seal is momentarily depressed. At this role, the valve protects the pump and the filtration equipment against water hammers; shocks and vibrations during pump start-ups leading to reduced maintenance costs, less down time and longer equipment life.

BREATHER III-ADJ SHALL NOT BE EMPLOYED TO GUARD AGAINST EVISCERATION OR HAIR SNARE.

- 2.6 Breather III-ADJ is factory set for normal pool vacuum variations (5 to 23" Hg) included in suction lift or submerged pump applications. Normally, no site adjustment is required. However, some abnormal pool conditions may require adjustability as detailed in paragraphs 5.5 (Operation) and 7.0 (Adjustability).
- 2.7 Breather III-ADJ shall only be installed in conjunction with an ASME A112.19.8 suction fitting, or a 12 in X 12 in (305 mm X 305 mm) drain grate or larger, or an approved channel drain system at each suction outlet or drain outlet.
- 2.8 Check valves and hydrostatic valves shall not be used in suction systems protected by SVRS devices.

WARNING: THE PRESENCE OF A HYDROSTATIC 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.

- 2.9 One SVRS valve shall be installed for each circulating pump plumbed directly to the suction outlet(s) without the use of valves that could isolate the SVRS device from the suction system.
- 2.10 While Breather III-ADJ is easily installed Vacless Inc. urges that a licensed electrician or service professional install the system.

3. MATERIALS AND TOOLS YOU NEED

- 3.1 Materials:
 - a. A piece of cable with copper conductors same gauge as the existing cable to make cable "A" and cable "B" if needed. See Figure 1.
 - b. Conduits, connectors and strain relief grommets that fit the cable
- 3.2 Tools: Flat Screw Driver, Drill, Pliers, Wire Cutter, Wire Stripper and a Hammer.

4. INSTALLATION

STEP 1: Valve installation:

- 4.1 Perform normal maintenance of the filtration system.
- 4.2 While the pump is turned “on”, remove a suction side drain (winterization) plug.
- 4.3 Quickly hand-tighten the valve (item # 1) onto the pump in place of the removed plug. One or two of the provided fittings (item # 3) may be used to facilitate the valve installation. Teflon tape may be used for enhanced seal.

“Care shall be exercised not to tangle the limit switch wire bundle”

Note 1: Do not over tighten the valve.

Note 2: Vertical or angled installation using the 90° elbow is recommended. (See Figure 5)

- 4.4 Turn the pump “off” and disconnect electricity by switching off the main panel.

STEP 2: Box Preparation:

CAUTION: TURN POWER “OFF” AT MAIN PANEL BEFORE SERVICING THIS CONTROL BOX OR THE PUMP.

- 4.5 Wall-mount the SVRS box (item # 2) within 7 to 12 feet from the pump.
 - a. Arrange for a convenient location for the SVRS box near existing controller and out of reach of children.
 - b. Mark mounting position on the wall, drill holes and drive screws into holes. Use anchors if necessary.

STEP 3: Wiring:

- 4.6 Remove the most convenient knockout of the SVRS box and attach incoming line from existing timer or controller cable “A” to box using proper conduits and cable connectors as shown in Figures 1 and 3.
- 4.7 If your pump is cord and plug connected, remove plug at end of pump cord. Split cord about 4 inches and strip wire ends 1/2 inch. Remove the most convenient knockout of the SVRS box and attach cord to box using proper strain relief grommet as shown in Figures 1 and 3.
- 4.8 If your pump is hard wired, (if needed) prepare cable “B” by stripping the ends of wires about 1/2 inch, Using proper conduits and cable connectors attach cable “B” to the box as shown in Figures 1 and 3.
- 4.9 Connect the cable to the pump motor and then the wires to the motor terminals per motor instructions and nameplate diagram. Remove the most convenient knockout of the SVRS box and attach the other end of the cable to the box using proper cable connector as shown in Figures 1 and 3.
- 4.10 Push the protective plate (see figure 4) upward to access the terminal block.

STEP 3: Wiring (continued):

4.11 Attach the wires coming from the controller (Paragraph 4.7) and from the pump (Paragraphs 4.8 or 4.9) to the terminals of the SVRS box as shown in wiring diagram Figure 3. Insert only the stripped copper ends of wires under the pressure plates of terminal screws as shown in Figure 2. Tighten screws firmly (20 to 25 inch-lbs).

4.12 Connect incoming line and load grounds to the box ground screw.

Note: All electrical equipment must be grounded according to ANSI/UL 1563-1995 "Standard for Electric Hot Tubs, Spas, and Associated Equipment"

4.13 Remove a convenient knockout of the SVRS box casing, route valve leads away from traffic area and connect it to box using proper strain relief grommet then connect leads to box terminals marked "SWITCH" as shown in Figure 3.

4.14 Push the protective plate (figure 4) down to completely cover the terminal block.

4.15 Secure the box cover onto the box using the four plastic screws.

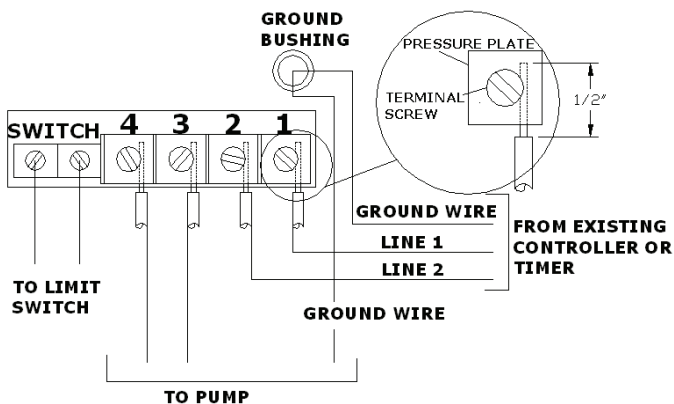


Figure 2. SVRS Box Terminal Layout

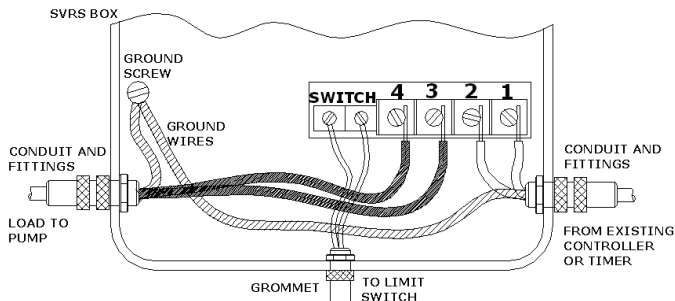


Figure 3. Wiring Diagram

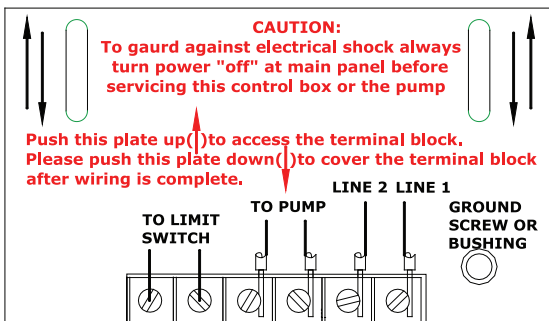


Figure 4. Protective Plate



Figure 5. Vertical or Angled Installation

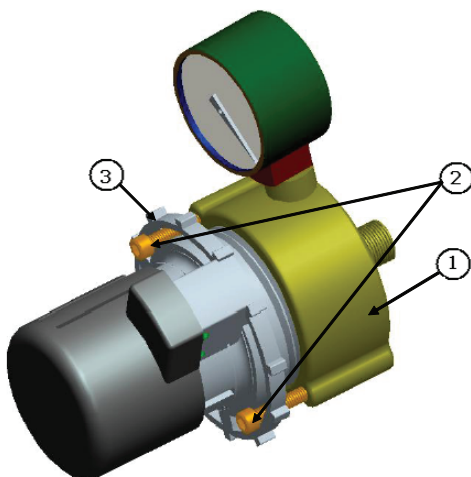


Figure 6. Air Leakage Adjustability

5. OPERATION

- 5.1 Turn "on" electricity to main controller or timer.
- 5.2 Reset main controller/timer to normal operating cycle.
- 5.3 The pump will continue to operate normally while the valve is venting off startup vacuum surges to protect the pump and the filtration equipment against water hammers and shocks.
- 5.4 Observe the vacuum gauge reading. The vacuum gauge should show a steady reading of anywhere from 8-18 in. Hg for suction lift piping and 3-10 in Hg for submerged suction piping. Actually, the readings are not as important as a steady needle. Erratic (unstable) pointer usually means excessive air induction into the pump.
- 5.5 Correct for the erratic readings as follows: (See Figure 6)
 - Remove the bolts (item # 2)
 - While holding the Adapter Plate (item # 1), rotate the Valve Cap (item # 3) clockwise or counter clockwise until the vacuum gauge needle becomes steady.
 - a. Clockwise rotation increases gauge reading and corrects for air leakage during pump normal operation.
 - b. Counter clockwise rotation decreases gauge reading and corrects for failed entrapment tests.
 - Using the Bolts (item #2) lock the valve in the position achieved above. Do not over tighten the bolts.
- 5.6 Upon entrapment, the valve will open, allowing ambient air to rapidly fill the pump suction side causing it to lose its suction ability while electrically turning off the pump and activating an audible alert. The valve seal will automatically return to the closed (priming) position with a manually resettable three minute time delay pump restart.
- 5.7 For winterization where freezing conditions occur, remove the SVRS valve until all the water is drained from the pump casings.

6. SYSTEM VALIDATION & TEST

- 6.1 Leave the main suction inlet open and plug all other inlet ports to the pump including skimmers.
- 6.2 Simulate entrapment by completely plugging off the open suction inlet using a ball, butterfly or a sliding gate valve installed within 2 feet upstream from the pump. You can also simulate entrapment by completely plugging off the open suction outlet / inlet using a 10"X10" rubber mat attached to a long pole or equivalent (See Figure 7). If a mat is used, pull & slide the mat off.



Figure 7. Test Mat

- 6.3 The valve seal (piston) should activate allowing the pump to lose its suction ability or the mat (entrapment) to be freed.
- 6.4 The pump should immediately be turned "off" and the entrapment should be freed within one to three seconds. The pump can be manually reset (Box-30 reset button) or will resume operation within 3 minutes.
- 6.5 To correct for failed tests Adjust per paragraph 7 (ADJUSTABILITY).
- 6.6 Repeat above test three times.

This system must be tested at least once every month to insure vacuum safe operation of the pump.

7. ADJUSTABILITY (IF NEEDED)

- 7.1 Turn the pump "off" and remove the valve Cover (item # 10). Use a flat screwdriver to release latching pin (item # 11). Pull the cover out. (See Figure 8)
- 7.2 Loosen Jam-nut (item # 12) and move Striker (item # 13) on Stem (item # 14) inward or outward to achieve the following results:
 - d. Inward movement: Corrects for pump not shutting down during entrapment tests.
 - e. Outward movement: Corrects for false pump shutdown at high vacuum starts.
- 7.3 Lock the new position of the Striker (item # 13) using Jam-nut (item # 12)
- 7.4 Reinstall valve Cover (item# 10). Make certain latching pin is fully depressed into latching hole.
- 7.5 Retest per paragraph 6.0 SYSTEM VALIDATION & TEST.
- 7.6 If necessary, repeat steps 7.1 thru 7.5 until all tests are accomplished successfully.

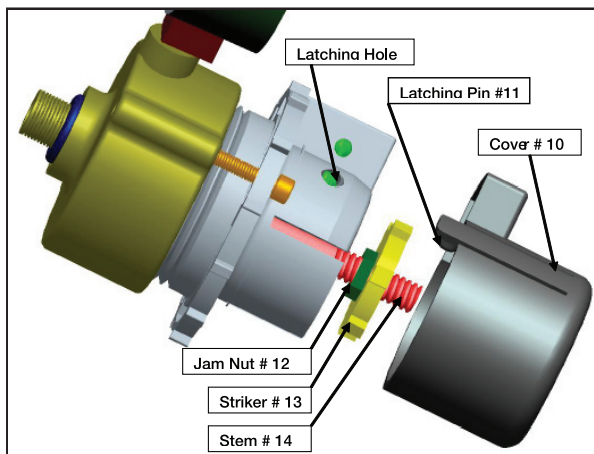


Figure 8. Adjustability

8. TROUBLE SHOOTING

Problem	Possible Cause	Solution
No power after 3 minutes of start	Breaker off/tripped	Check and/or reset breaker
	Improper wiring	Verify that wiring is correct
	Loose terminal screws	Tighten the screws
	Loose limit switch (valve) wires	Connect the two wires correctly
Valve leaks	Defective O-Ring	Replace the defective O-Ring
Valve ceased to operate	Defective Spring	Replace Spring
Valve does not respond to vacuum variations	Valve is installed in the pressure side of the pump	Reinstall the valve in the suction side of the pump
Control box does not respond to vacuum variations	Switch (SW) leads are loose or disconnected	Firmly connect the leads to the box terminals
Pump shuts down at startup	High vacuum level	Move Striker (item # 12) outward per paragraph 7
Pump does not shutdown during entrapment tests	Low vacuum level	Move Striker (item # 12) inward per paragraph 7
Audible alert remains on	Cut or loose limit switch wire	Repair, replace or secure wire

9. THREE YEAR LIMITED WARRANTY

- 9.1 Vacless Systems, Inc. [hereafter referred to as "VSI"] hereby warrants, to the original purchaser, that all its SVRS products are free from defects in material and workmanship under normal use for a period of three (3) years from the date of original purchase, as registered with VSI through our website submission or by the return of the enclosed Warranty Registration Card. A two (2) year extended warranty is available through our website registration for an additional cost within 90 days from the date of original purchase.
- 9.2 If the product is determined to be defective during the warranty period, and upon proof of purchase, the Vacless SVRS unit will be repaired or replaced with (the same or similar unit) or the purchase price of the unit will be refunded such refund shall be solely at the discretion of VSI. This is the sole and exclusive remedy for the consumer under a claim of defect in materials or workmanship. VSI will not be responsible for any shipping charges or installation labor associated with any of the warranty claims.

LIMITATION ON WARRANTY:

- 9.3 This warranty does not apply to corrosion, wear and tear from normal use, misuse, abuse damage as a result of improper installation as determined by VSI's authorized service and repair personnel, or damage caused by environmental factors, electrical surges, or operation of the units in a manner not consistent with its intended use or as authorized in the VSI's User Guide supplied at the time of the product purchase or that have been repaired or altered other than by an authorized VSI repair facility. Except where prohibited by law, in no event shall VSI be liable for any loss or damage arising from the SVRS product, whether direct, indirect, special, punitive, incidental or consequential whether based upon warranty, contract, negligence or strict liability or any other legal theory. Some states and countries do not allow the exclusion of incidental or consequential damages. This warranty gives you specific legal rights and you may have other rights that vary from state to state or country to country. VSI neither assumes nor authorizes any authorized distributor or dealer or any other person or entity to assume for it any other obligation beyond which is expressly provided for in this limited warranty including, without limitation, the provider or seller of any extended warranty or service agreement.
- 9.4 By purchasing this product, you agree that any action to enforce any provision of this limited warranty shall be filed in the Los Angeles Superior Court (general or limited jurisdiction) and shall be governed by the laws of the State of California. The prevailing party in any action or proceeding arising out of or to enforce any provision of this warranty shall be awarded reasonable attorneys' fees and costs.
- 9.5 To obtain service or a replacement unit, contact your Vacless Systems, Inc. authorized distributor or call Vacless Systems, Inc. directly at: (818) 899-1700.

Website registration and extended warranty purchase is available at www.vacless.com or fill out and mail the registration form on the next page.

Vacless™ Commissioned SVRS Certificate Startup & Warranty Form

Complete Your Warranty Form Online

To ensure notification of any potential product recalls and to expedite processing of a warranty claim please complete the online form as shown below and click on the submit button. Alternately, print the form and complete out by hand, then post to the appropriate address below.

Instructions:

This form allows a pool or spas technician to certify that a Vacless SVRS has been installed and commissioned. Sections A, B, and C must be filled out by the technician or the home owner at the time of installation. A copy of this completed form must be promptly submitted to Vacless Systems by mail, via fax #(818) 899-1744 or at vacless.com and a copy provided to the home owner.

Follow the user's manual test instructions to complete the testing of the Vacless SVRS.

Section A Site Information	Installer Name: (Technician or Homeowner Name)	Customer name:	SVRS Commissioning Date:
	Site Street Address:	Site City, County & State:	Site Phone Number:

This section is to record the SVRS data as shown below:

Section B SVRS Data	SVRS Model:	Serial Number:
	Dealer Name:	Purchase Date:

This section is to record the site data as shown below:

Section C Site Data	Pump Maker:	Pump Model:	Pump HP:
	Pump Level: (above waterline or below waterline?) ∴ Above waterline (Suction lift) ∴ Below waterline (Submerged Suction)		

This section is to record the results of the validation test.
(Test to be conducted per the User's Manual test instructions)

Section D Test Results	Did the SVRS unit activate 3 times to break the vacuum?
	∴ Yes ∴ No