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**ATOMIC**  
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MADE IN THE U.S.A.

7/05

# SS1

## Safe Second/Inflator

OWNER'S MANUAL



**ATOMIC**  
*AQUATICS*

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## INTRODUCTION

Thank you for choosing Atomic Aquatics. Our company is dedicated to creating and manufacturing only the finest diving products. Since our first product release of the world's first titanium diving regulators, our regulators have received worldwide acclaim for performance, ergonomics and quality.



The SS1 integrates the functions of the safe second and power inflator into one compact, low profile unit. The SS1 is the most advanced, highest quality and best performing product of its' type. It is the first safe second/inflator with primary regulator performance. The innovative design of the SS1 makes it both easy to use and easy to maintain. The design is complimented by using only the finest materials (titanium, 316 stainless steel, chrome plated brass and various engineering polymers, and silicone elastomers) resulting in unsurpassed reliability and trouble free performance.

## BEFORE USE Warranty Registration

Please take a moment to locate, complete and return your warranty registration card to Atomic Aquatics. This card is very important. It will help you obtain warranty service and is our only way to contact you in the event of safety notices, service updates, or changes regarding this product. You may also register your warranty online at: **[www.atomicaquatics.com](http://www.atomicaquatics.com)**.

### IMPORTANT SAFETY INFORMATION PLEASE READ CAREFULLY

## **WARNING!**

This safe second/inflator is intended for use only by those competent, trained and certified by a nationally recognized SCUBA training agency. This manual is not a substitute for such training. Diving without such training is extremely hazardous and could result in serious personal injury or death.

## **WARNING!** **NITROX (EAN) USE**

### IMPORTANT NOTICE - READ BEFORE YOU USE THIS REGULATOR

This safe second/inflator has been assembled, cleaned and made compatible for enriched air Nitrox (EAN) to a maximum 50% oxygen concentration at a maximum pressure of 3500 psi. They do not require additional cleaning or servicing.

Do not under any circumstances use this regulator with pure oxygen or any gas mixture exceeding 50% oxygen. Failure to comply with the above warnings could cause serious personal injury or death from fire or explosion.

Do not use silicone or petroleum based greases or oils in or around regulators being used for EAN Nitrox or oxygen mixes.

## PRODUCT DESCRIPTION

The SS1 is a combination safe second and power inflator for back-up emergency breathing in the event of a malfunction of the primary second stage or air sharing with another diver. It offers push button pneumatic or oral inflation of the buoyancy control device (BCD), push button deflation, and breathing from the primary air supply. It may be used in place of, or in addition to an octopus regulator. The SS1 does not include a redundant air supply or separate first stage. It is attached to one of the low-pressure ports of your primary first stage normally used for your power inflator. A specially designed, high-flow quick disconnect is supplied with your SS1. The SS1 will connect to virtually any existing BCD inflation hose via specialized adapters configured to fit various corrugated hose sizes. This exclusive feature allows quick and easy removal of the SS1 from your BCD for transport or use on another BCD (Fig. 1).

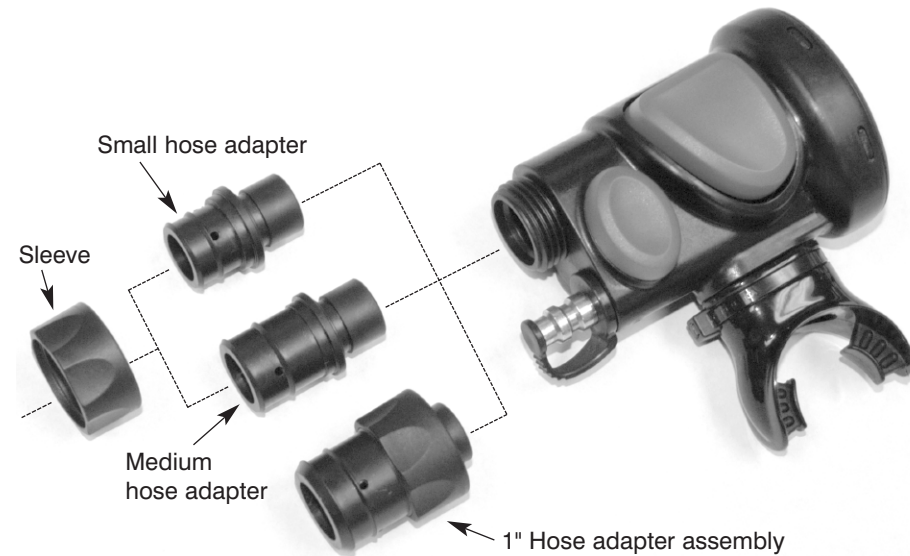


FIGURE 1: SS1 AND ADAPTERS

## PRODUCT ADVANTAGES

When used in place of a conventional octopus set-up, the SS1 offers several advantages.

### **Less gear, less weight, fewer hoses.**

The SS1 is only slightly larger than the inflator it replaces and uses a single low-pressure hose routed the same as your standard inflator hose. It combines the functions of two products into one. Less equipment means less weight and a more streamlined profile. One less hose reduces snagging problems.

### **Familiarity of location.**

The SS1 is placed in the same location on your BCD as your previous inflator. It is in a fixed location where you always know where it is.

### **Familiarity through frequent use.**

Since the inflator of the SS1 is used constantly throughout the dive, the diver becomes intimately aware of its' operation and condition. You know not only where it is, but how it works, and that it works when you need it.

## IMPORTANT NEW FEATURES

### **Built for performance.**

Typically, many octopus units and safe second/inflators don't deliver the same performance as a primary second stage. The SS1 brings you the same high quality performance, design and workmanship Atomic Aquatics has become famous for. The breathing performance is comparable to or exceeds that of many primary regulators.

### **Dependable: 2-year service interval.**

Featuring the exclusive Atomic "seat saving orifice" (patent #5,803,073) and constructed of the finest corrosion resistant materials, the SS1 features an unparalleled two- year service interval and limited lifetime warranty.

A constant problem in second stage regulators of most other brands is the rubber valve seat. In standard designs, this seat is pushed tight against a sharp edged orifice from the day it leaves the factory, eventually making a deep impression in the seat resulting in poor performance and annoying leaks. The orifice of the SS1 only contacts the seat when pressurized. When not being used, the orifice automatically retracts away from the seat just enough to prevent damage during storage. This dramatically increases the service life and maintains like new performance.

**Adaptable: Attaches to almost any BCD.**

The SS1 can be used with virtually any manufacturers BCD by utilizing specially designed adapters (patent pending) that allow the SS1 to work with a variety of hose designs and sizes.

**Convenient: Exclusive Quick Disconnect System.**

Exclusive to Atomic Aquatics, the quick disconnect adapter system allows quick and easy detachment of the SS1 from your BCD for transport and storage with your primary regulator system or even switching to another BCD.

**Designed for Comfort and Function.**

The low profile elliptical shape lies flatter on your BCD than existing designs and is more hydrodynamic. The control buttons are very large, ergonomically placed and surfaced by a soft, tactile elastomer. The entire front cover is flexible and can be used to purge the regulator.

**SET-UP** **CAUTION**

These instructions are provided for the convenience of those capable and familiar with set-up of this type of equipment. It is strongly recommended that your professional retailer or scuba repair technician do the final installation and check of the SS1.

 **WARNING!**

Do not connect the inflator hose or any low-pressure hose to a high-pressure (HP) port of the first stage. The hose could rupture and could cause serious personal injury.

Do not assemble the high-pressure gauge to any of the low-pressure (LP) ports or the gauge will not indicate tank pressure. Consult with your dealer if you have any doubts about set up of this equipment.

## Low Pressure Hose and Quick Disconnect

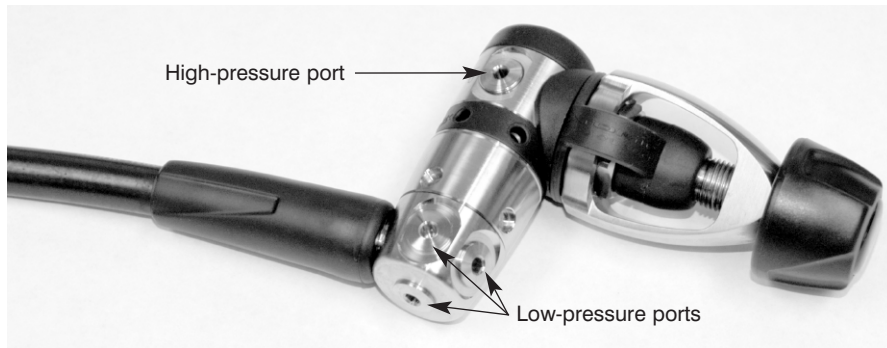


FIGURE 2: FIRST STAGE AND HOSE

The low-pressure hose with quick disconnect fitting installs into one of the low-pressure ports of your first stage regulator. It is compatible with any conventional first stage operating with an intermediate pressure of 125-145 psi.

Your regulator first stage will normally have multiple low-pressure (LP) ports for the attachment of second stages and inflators (usually thread size 3/8-24), and one or more high pressure (HP) ports for the attachment of pressure gauges and dive computers

(usually a larger thread size 7/16-20). Choose the low-pressure port that gives you the best orientation for your particular BCD set-up. The LP hose and quick disconnect is usually routed over the left shoulder where it follows the corrugated hose of your BCD. The LP port plug is removed by unscrewing with a 5/32 (4mm) hex wrench. Install the LP hose with quick disconnect into the port of choice and snug up with a wrench. Do not over tighten as this will not improve the seal and may damage the threads.

## Assemble SS1 adapter to BCD corrugated hose

Your SS1 was shipped with a set of hose adapters. One of these adapters will be the proper size for your particular BCD hose. The most common is the 1" inside diameter hose, found on nearly all of the BCD's used today. Once selected, the appropriate adapter will be installed to the BCD corrugated hose and clamped on place. The SS1 can then be threaded onto the adapter. The SS1 can be removed from the BCD by simply unscrewing the adapter. This feature allows you to remove the SS1 for transport with your primary regulator or use on a second BCD (Fig 3).

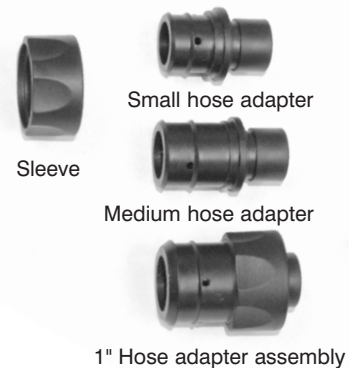


FIGURE 3: ADAPTERS

If you have an existing inflator, remove it from the end of your BCD hose. This is usually done by cutting the disposable plastic clamp, or if fitted with a reusable one, unthreading the screws to loosen it. The nipple of the old inflator may then be pulled or twisted from the corrugated hose. In some instances the hose may be glued in place for extra security with rubber cement. If so, carefully work a screwdriver or suitable tool under the hose to break the glue bond. Be careful not to cut or puncture the hose. If your BCD has a cable attached to the nipple of the inflator for dumping air, push the retaining pin out of the inflator and disconnect it from the cable.

Select the appropriate sized adapter that fits your particular BCD hose. Insert and remove the barbed end of the adapter to check the fit.

**The correct adapter may fit snugly but should never fit loosely.** If you are using one of the smaller adapters, slip the threaded sleeve over the barbed end of the adapter before connecting the cable or installing into the corrugated hose (Fig. 4).

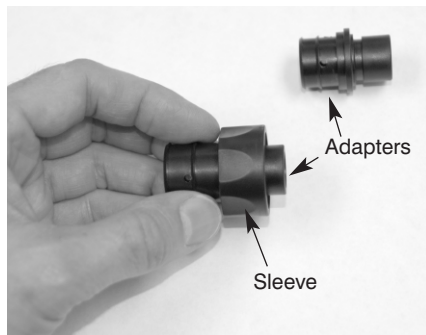


FIGURE 4



FIG. 5: CABLE &amp; PIN

Make sure the adapter sleeve is in place and the hose is not pushed tight against it, or it will not spin freely. Secure the nipple to the hose with either the new plastic cable ties or the re-usable plastic clamp that was originally on your BCD (Fig. 6).

To attach the SS1 to the adapter, slide the adapter into the threaded fitting on the SS1 and tighten hand tight. It should be snug enough that it will not become unscrewed accidentally yet not so tight as to damage the plastic parts (Fig 7).

Once you have determined the proper adapter, re-connect the cable (if present) by placing the pin through loop of the cable and inserting the pin through the holes in the adapter (Fig 5). There are 3 different pins, one for each size adapter. **Be sure to use the correct pin for the adapter you are using.** The correct pin should fit completely through and be flush with the outside diameter of the adapter. You are now ready to secure the corrugated hose to the adapter nipple.

We recommend placing a thin coating of rubber or neoprene (wetsuit) cement on to the outside of the adapter nipple where it connects to the corrugated hose. Apply glue to the inside flange of the corrugated hose, then insert the barbed nipple.



FIG. 6: PLASTIC CLAMPS



FIG. 7: ATTACHING SS1 TO ADAPTER



FIG. 8: ATTACHING QUICK DISCONNECT

## Final Check

Attach the Quick disconnect fitting to the SS1 by sliding back the sleeve and pushing it onto the metal nipple of the SS1 (Fig. 8), then release the sleeve. This may be done before or after the air is turned on. Slowly turn on the air. Test the SS1 for inflation of the BCD, and deflation using the deflation button. Fully inflate the BCD and leave inflated for a few minutes to check for leaks around the corrugated hose and fittings. If there was a cable dump attached to the SS1, fully inflate the BCD and pull the corrugated hose to check for proper operation. Lastly, check the breathing operation of the SS1 regulator.

## DIVE OPERATION

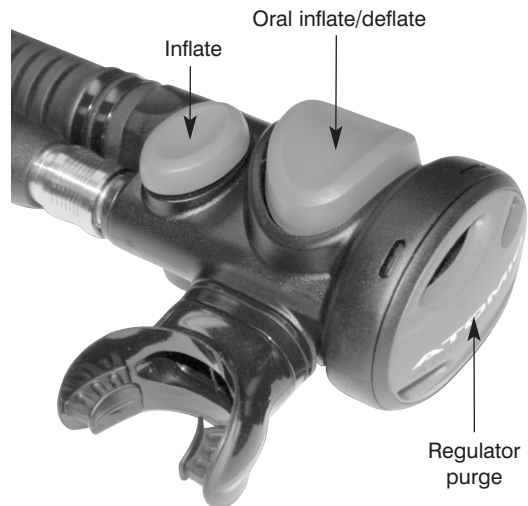


FIGURE 9: SS1 CONTROLS

Operation of the SS1 is the same as any conventional inflator. Pneumatic inflation is done by depressing the smaller, oval shaped inflation button. Deflation is done by holding the SS1 overhead and partially depressing the larger deflation button. The SS1 can be manually (orally) inflated by fully depressing the deflation button and exhaling air into the mouthpiece. Fully depressing the button seals off the regulator exhaust valve and directs the exhaled air into the BCD to inflate it. Release the deflation button to keep the air in the BCD (Fig. 9).

If your BCD is fitted with a cable type dump, it should function the same as your old inflator.

## Back-up Breathing

The SS1 breathes like any conventional second stage. Clear the SS1 of water by first exhaling or using the purge button (front cover), then breathe normally through the mouthpiece. The SS1 is designed primarily for back up emergency breathing in the event of a second stage malfunction or air sharing. Be aware that if the SS1 is installed on your primary first stage regulator, it will not function in the event of first stage failure or out of air condition.

### **WARNING!**

In the event of air sharing with another diver, it is important that the SS1 is used by the donor and not given to the person out of air. The person out of air is given the donors' primary regulator. The corrugated BCD hose is too short to allow proper use of the SS1 by another diver, and the donor would be left without control of the inflator for control of his BCD. It is strongly recommended that these skills be mastered and performed under supervision of an instructor before attempting in open water.

### **CAUTION** **Do's and Don'ts**

Do set up your equipment carefully before each dive and check your entire system for signs of damage, loose hose fittings, or air leaks. Make sure the yoke knob or DIN connection on your first stage is hand tight before turning your air supply on. Check your inflator for proper inflation and deflation. Purge the regulator and take a test breath before entering the water.

Don't use your SS1 if you notice any problems or malfunctions. Return it to the factory or authorized dealer to have it checked or repaired.

Don't pick up your tank by the hoses. You may damage them or work loose a connection that could lead to loss of air.

## Post Dive Care

A simple fresh water rinse after every dive to clean the SS1 of salt, sand or dirt is all that is required. Rinse around the buttons through the mouthpiece. If the SS1 is soaked, it should be pressurized, the inflation valve operated, and the regulator purged to blow out any accumulated water before storage.

Store the regulator out of the sun to prevent fading and deterioration of the rubber and plastic parts, away from excessive heat, humidity or insects.

The SS1 can be easily removed from the BCD for storage with your primary regulator by unscrewing the adapter and separating it from the BCD hose.

## Required Maintenance

The major service interval for the SS1 is semi-annual (2 years). We recommend that you take your SS1 to an authorized Atomic Aquatics dealer annually for a safety inspection. At this time, they will inspect and check for proper operation, and advise if a major service is required. The major service will include replacement of all seals, seats and o-rings. The labor charges for this service will vary with the individual dealer. Parts replacement will be in accordance to the terms of the limited lifetime warranty in this manual. Factory service is also available.

### CAUTION

Do not attempt any disassembly or repair of the SS1. Disassembly and service of the SS1 must only be performed by an authorized, factory trained scuba repair technician or by the factory.

## SPECIFICATIONS: SS1

Description: Combination inflator and high performance downstream second stage regulator.

### Materials:

Inflation/Deflation stems  
Quick disconnect  
Demand valve body  
Orifice  
Lever  
Springs  
Diaphragm  
Mouthpiece  
Body

### (SS1 Stainless)

316 Stainless  
316 Stainless/Brass  
316 Stainless/Brass  
316 Stainless  
Titanium  
Stainless  
Silicone rubber  
Silicone rubber  
Fiberglass Reinforced Nylon

### (SS1 Titanium)

Titanium  
Titanium/316Stainless/Brass  
Titanium  
316 Stainless  
Titanium  
Stainless  
Silicone Rubber  
Silicone rubber  
Fiberglass Reinforced Nylon

### Weights and dimensions:

SS1 w/o hose 200g (7 oz.)  
LP hose/w disconnect 200g (7oz.)  
LP hose length (all) 71 cm (28")  
Pressure rating (all) 8.6-10 bar (125-145 psi)

180g (6.3 oz.)  
190g (6.7 oz.)

## WARRANTY

Atomic Aquatics warrants the SS1 safe second/inflator against defects in materials and workmanship for the lifetime of the original owner with the exception of mouthpieces, hoses, o-rings, or valve seats, which are warranted for 2 years.

Atomic Aquatics will at its option repair or replace any components it finds defective.

This warranty does not cover any SS1 purchased from other than authorized Atomic Aquatics dealers, or purchased via Internet or mail order sources. To activate this warranty you must complete and return the warranty registration card within 30 days of purchase. Warranty registration is also available at [www.atomicaquatics.com](http://www.atomicaquatics.com).

All titanium or stainless steel components are warranted for the lifetime of the original owner against the effects of corrosion. Chromed or plated brass components are subject to corrosion and require as a minimum reasonable maintenance fresh water rinsing after use in salt water and proper storage as described in this manual.

This warranty is not contingent upon proof of service and will maintain in effect for the lifetime of the original owner. It is recommended however that maintenance include an annual safety inspection to be performed by an authorized Atomic Aquatics dealer or by the factory. Factory or authorized dealer servicing is required at intervals of 300 dive hours or 2 years, whichever occurs first. This service will include disassembly, cleaning, replacement and lubrication of all o-rings and seals, and safety check.

To obtain warranty service, you must deliver the SS1 to Atomic Aquatics or one of its authorized repair facilities. If you send the SS1 to the factory, you must pay the

shipping charges to the factory. If the SS1 is returned to the factory and it is determined that the problem is due to material or manufacturing defect, there will be no charge for parts, labor or return shipping within the continental USA.

This warranty does not cover damage or defect due to neglect, misuse, alteration, or attempted repairs by someone other than an authorized dealer.

Atomic Aquatics shall not be liable for loss of use of this product or incidental or consequential costs or damages incurred with the use of this SS1. Some states do not allow this exclusion so the above may not apply to you.

This warranty gives you specific legal rights and you may have other rights, which vary from state to state.