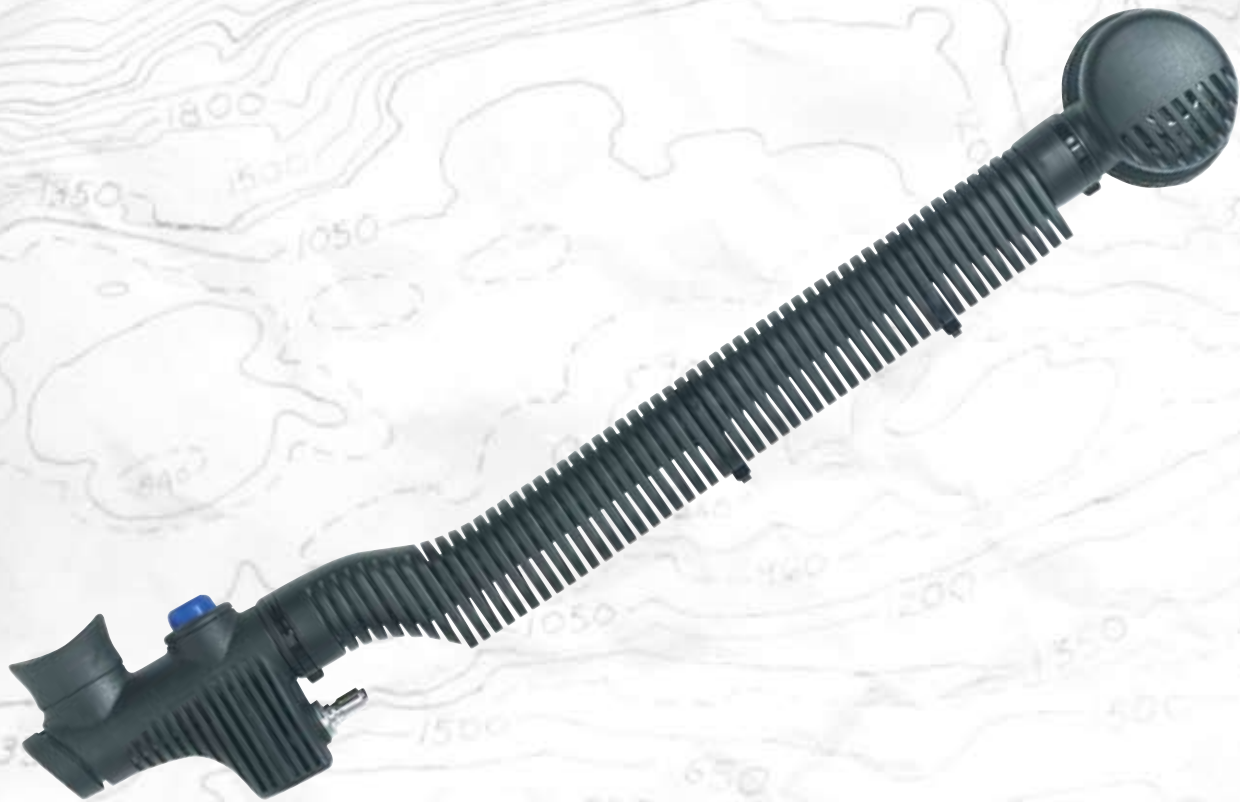


**AQUA LUNG®**

***TECHNICAL MAINTENANCE MANUAL***



***POWERLINE INFLATOR  
with DUAL-VALVE***

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Powerline Inflator Technical Maintenance Manual

## Introduction

This manual provides factory prescribed procedures for the correct service and repair of the Aqua Lung or Apeks product described in this manual. It is not intended to be used as an instructional manual for untrained personnel. The procedures outlined within this manual are to be performed only by personnel who have received Factory Authorized training through an Aqua Lung Service & Repair Seminar. If you do not completely understand all of the procedures outlined in this manual, contact Aqua Lung to speak directly with a Technical Advisor before proceeding any further.

## Warnings, Cautions, & Notes

Pay special attention to information provided in warnings, cautions and notes that are accompanied by one of these symbols:



**WARNINGS** indicate a procedure or situation that may result in serious injury or death if instructions are not followed correctly.



**CAUTIONS** indicate any situation or technique that will result in potential damage to the product, or render the product unsafe if instructions are not followed correctly.



**NOTES** are used to emphasize important points, tips and reminders.

## Scheduled Service

It is recommended that the Powerline Inflator should be rinsed in fresh water after use, and they should be stripped down and serviced annually.

However, if at all unsure about the correct functioning of the Powerline Inflator, then it must be officially inspected immediately.

## An Official Inspection consists of:

1. Testing instructions see page 11.
2. Checking that all parts are assembled correctly and that no parts are loose.
3. A visual inspection of the Powerline looking for cracks or damage to the sealing faces and checking the general condition of the Powerline.

If the Powerline fails any of the 3 steps it should be fully serviced.

## General Guidelines

1. In order to correctly perform the procedures outlined in this manual, it is important to follow each step exactly in the order given. Read over the entire manual to become familiar with all procedures before attempting to disassemble the product in this manual, and to learn which specialty tools and replacement parts will be required. Keep the manual open beside you for reference while performing each procedure. Do not rely on memory.
2. All service and repair should be carried out in a work area specifically set up and equipped for the task. Adequate lighting, cleanliness, and easy access to all required tools are essential for an efficient repair facility.

3. As the valve is disassembled, reusable components should be segregated and not allowed to intermix with nonreusable parts or parts from other units. Delicate parts, including inlet fittings and crowns which contain critical sealing surfaces, must be protected and isolated from other parts to prevent damage during the cleaning procedure.

4. Use only genuine Aqua Lung parts provided in the overhaul parts kit for this product. DO NOT attempt to substitute an Aqua Lung part with another manufacturer's, regardless of any similarity in shape or size.

5. Do not attempt to reuse mandatory replacement parts under any circumstances, regardless of the amount of use the product has received since it was manufactured or last serviced.

6. When reassembling, it is important to follow every torque specification prescribed in this manual, using a calibrated torque wrench. Most parts are made of either marine brass or plastic, and can be permanently damaged by undue stress.

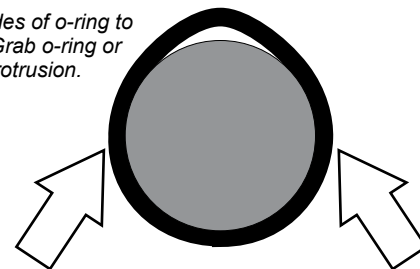
## General Conventions

Unless otherwise instructed, the following terminology and techniques are assumed:


1. When instructed to **remove**, **unscrew**, or **loosen** a threaded part, turn the part counterclockwise.
2. When instructed to **install**, **screw in**, or **tighten** a threaded part, turn the part clockwise.
3. When instructed to **remove** an o-ring, use the pinch method (see illustration below) if possible, or use a brass or plastic o-ring removal tool. Avoid using hardened steel picks, as they may damage the o-ring sealing surface. All o-rings that are removed are discarded and replaced with brand new o-rings.


### Pinch Method

Press upwards on sides of o-ring to create a protrusion. Grab o-ring or insert o-ring tool at protrusion.



4. The following acronyms are used throughout the manual: **MP** is Medium Pressure; **HP** is High Pressure; **LP** is Low Pressure.
5. Numbers in parentheses reference the key numbers on the exploded parts schematics. For example, in the statement, "...remove the o-rings (4) from the valve body (6)...", the number 4 is the key number to the o-rings.

 **NOTE:** Before performing any disassembly, refer to the exploded parts drawing, which references all mandatory replacement parts. These parts should be replaced with new, and must not be reused under any circumstances, regardless of the age of the regulator or how much use it has received since it was last serviced.

 **CAUTION:** Use only a plastic or brass o-ring removal tools when removing o-rings to prevent damage to the sealing surface. Even a small scratch across an o-ring sealing surface could result in leakage. Once an o-ring sealing surface has been damaged, the part must be replaced with new. DO NOT use a dental pick or any other steel instrument.

## POWERLINE INFLATOR

### Disassembly Procedures

- 1** Remove QD cover (42). Using side-cutters, carefully cut and remove the lower clamp (13).



- 2** Pull the ribbed hose (14) off the inflator body (31). Press the pin (18) out from one side with a pin punch or similar tool to release the cable (12). Remove QD cover (42) from ribbed hose.



- 3** Firmly grasp the mouthpiece (26) and twist it off the body. Inspect the mouthpiece for any damage and replace if needed.

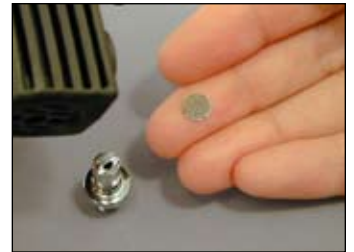


- 4** Using a small pair of pliers along with some padding, gently grip the stem of the QD fitting (38). Carefully loosen and remove. Remove o-ring (37) from the QD fitting



 **CAUTION:** Do not fasten pliers or a wrench onto the nipple of the QD fitting. Doing so may cause permanent damage to the part requiring its replacement.

- 5** Remove the inlet filter (36) from the body (31).



- 6** Using a 3/16" hex key, remove the valve core retainer (35) from the body (31). Remove the two o-rings (33/34) from the retainer.



- 7** Using a pair of needle nose pliers or large valve core tool, gently remove the valve core (32).



**8** Using the large end of the T-tool (pn 42314), engage the pins into the hole on the inflator bezel (25). Loosen and remove the bezel. Remove the screen (19).



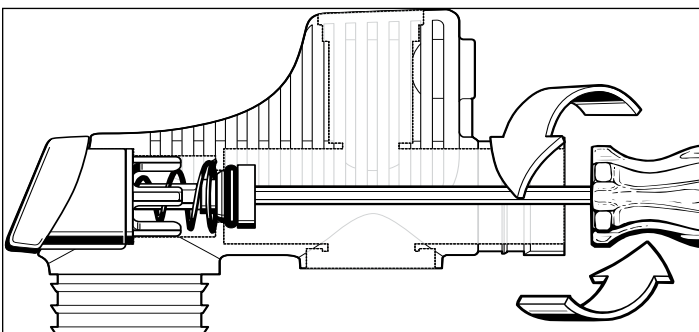
**9** While holding the inflator bezel (25), grab the push rod housing (22) and pull it straight away to separate the bezel. Separate the button cover (24) from the bezel (25). Thoroughly inspect the button cover for any cuts or tears.



**10** Turn the push-rod housing (22) over and allow the push-rod (20) to fall out. Remove the o-ring (21) from the housing.



**11** While holding the oral inflator button (28) depressed, insert a 3/16" hex key through the upper barrel of the body (31) and remove the oral poppet valve (16).



**12** Carefully remove the o-ring (17) from the oral poppet valve (16).



**13** Remove the oral inflator button (28) and the spring (30) from the body (31). Separate the gasket (29) from the button.



### This Ends Disassembly

Before starting reassembly, perform parts cleaning and lubrication in accordance with *Procedure A: Cleaning and Lubricating* (p. 16).

**NOTE:** Powerline reassembly begins on page 9.

## DUAL-VALVE

### Disassembly Procedures

**1** Turn the retaining collar and remove the Dual-Valve (5) from the manifold. Remove the gasket (6) from the BC manifold.



**2** Using side-cutters, carefully cut and remove the upper clamp (13). Slide the hose (14) off the Dual-Valve body (5).



**NOTE:** The outer cap is bonded to the body of the dual valve assembly with a non-permanent adhesive. It will be necessary to separate this bond prior to performing further disassembly by carefully following the procedure outlined below.

**3** Locate the seam that runs along the circumference between the dual valve body and the outer cap (1), where the cap is fastened to the body. Using the plastic handle of a medium size screwdriver, or similar lightweight blunt instrument, rap sharply against all points of the seam to break the adhesive bond.



**CAUTION:** Do not apply excessive force or use a hammer, mallet, or other heavy instrument.

**4** While holding the dual valve assembly secure, firmly grasp the outer cap and turn it counter-clockwise to loosen. While maintaining slight inward pressure to counteract the spring pressure inside, continue turning the cap until it has disengaged from the valve body, and remove the cap and the spring (2) beneath it. Closely examine the cap to check for any signs of thread damage, distortion, cracking, or chemical attack that may indicate the use of excessive force or incorrect adhesive during previous service.



**NOTE:** If the cap cannot be turned, repeat step 3 to break the adhesive bond.

**5** Remove the valve plate (3) with gasket (4) from the body, and remove the gasket from the valve plate. Discard the gasket, and set the valve plate aside.



**6** Locate the two holes on opposite sides of the barrel of the dual valve body which hold the arms of the poppet guide (10). To remove the poppet guide and exhaust valve assembly from the dual valve body, press the arms of the poppet guide inward by simultaneously inserting two small probes through the opposing holes in the barrel.



**7** When the arms of the poppet guide have disengaged from the body, firmly grasp the cable and pull the exhaust valve assembly straight out while holding the body secure. This will pull the poppet stem (8) out of the dump plug (7). Remove the dump plug and discard.



**8** Remove the cable (12) and then the cable hook (11) from from the poppet stem (8). Pull the poppet stem straight out of the poppet guide (10).



## This Ends Disassembly

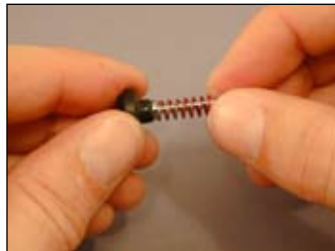
Before starting reassembly, perform parts cleaning and lubrication in accordance with **Procedure A: Cleaning and Lubricating** (p. 16).

## DUAL-VALVE

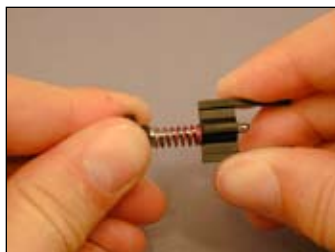
### Reassembly Procedures

**NOTE:** Prior to reassembly, it is important to perform a final inspection of each part. Do not assume that a part is in acceptable condition because it has been cleaned or is new. Check all metal parts for excessive wear or corrosion, and closely examine all sealing surfaces that make contact with o-rings for signs of contamination and/or imperfections that may cause leakage past the o-ring seal. Examine all chrome plated surfaces for any evidence of peeling or flaking of the chrome plating. Inspect all threads for galling, cross threading, excessive wear, or damage to the chrome plating. If any parts show damage or excessive wear, they must be replaced with new.

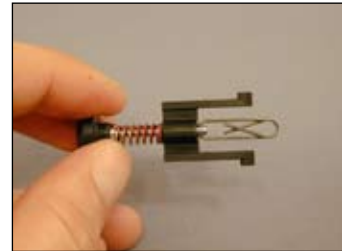
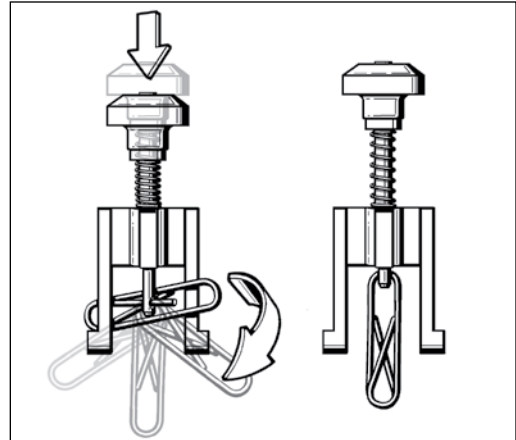
**1** Press the dump plug (7) securely onto the barbed tip of the poppet stem (8). Slide the spring (9) onto the stem.



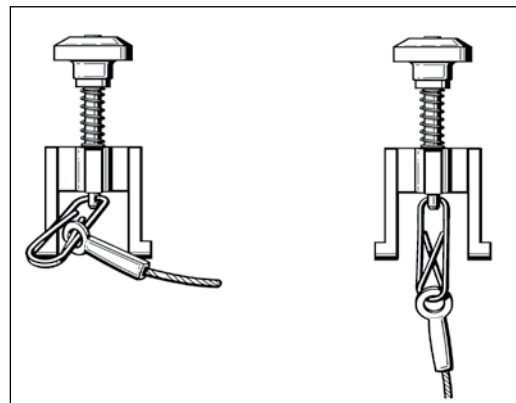
**2** Insert the poppet stem (8) through the flat end of the poppet guide (10).



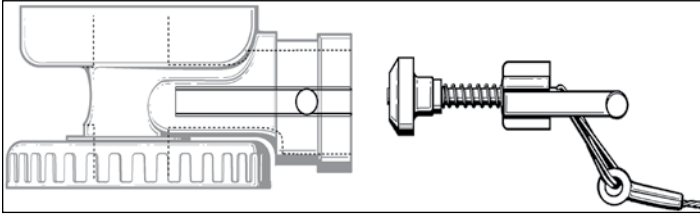
**3** Compress the poppet spring (9) and install the cable hook (11) onto the poppet stem (8) so that it is held inside the single-looped end.



**4** Install the cable (12) onto the hook (11) by first working it over one end, and then spread both ends apart to work it over the other. When correctly installed, the cable should be held inside the double-looped end.



**5** Position the poppet guide assembly so that the larger rib faces toward the open side of the body (5), away from the collar. Lubricate the dump plug with a small amount of water, and align the arms of the poppet guide with the grooves inside the barrel of the body. Insert the assembly into the barrel only until the ears of the poppet guide rest above the rim.



**6** Squeeze the arms of the poppet guide (10) so that the ears fit inside the barrel, and press the poppet guide completely inward until the ears snap into place inside their respective holes. Check to ensure that the dump plug (7) has passed through the top of the barrel and remains properly seated over the end of the poppet (8) inside the dual valve body (5).



**7** Install the gasket (4) onto the valve plate (3), and set the valve plate inside the dual valve body (5) with the gasket facing down.



**8** Place the overpressure spring (2) directly in the center of the valve plate (3), standing up.



**9** Carefully apply only one drop of Loctite® brand, 425 grade thread adhesive to the center thread of the outer cap (1). Position the cap directly over the spring and valve plate, and press down while turning clockwise to engage with the threads of the body. Continue turning clockwise by hand until snug.



**10** Fit the ribbed hose (14) over the cable assembly and onto the barrel of the dual valve body (5), until it is mated flush at the base of the barrel.



**11** Lightly fasten a clamp (13) over the ribbed hose (14) so that it is evenly seated inside the groove near the end. Position the end of the clamp to either side, where it will not interfere with the connection with the QD hose, and pull the end of the clamp sufficiently snug. Trim the excess length with a pair of diagonal side cutters.

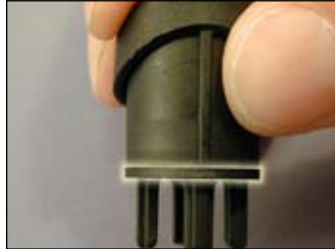


**This Concludes Reassembly Of The Dual-Valve**

## POWERLINE INFLATOR

### Reassembly Procedures

**1** Fit the oral inflator gasket (29) over the four guides of the oral inflator button (28) until it is evenly seated at the base of each guide. Set the button aside.



**2** Install the o-ring (17) onto the oral poppet valve (16), into the groove around the base of the large end.



**3** Stand the inflator body (31) with the mouthpiece end facing up, and place the large end of the oral inflator spring (30) inside the opening of the body. Place the oral inflator button (28) directly over the spring, and rotate the button as needed to align the indexing tab with the center groove of the body. Depress the oral inflator button, and hold it fully depressed.



**4** Use a 3/16" hex key to guide the oral poppet valve (16) through the open barrel of the inflator body (31) and into the oral inflator button (28). Slowly turn the valve clockwise to engage the threads of the oral inflator button. Tighten further until lightly snug. Be careful to avoid cross threading.



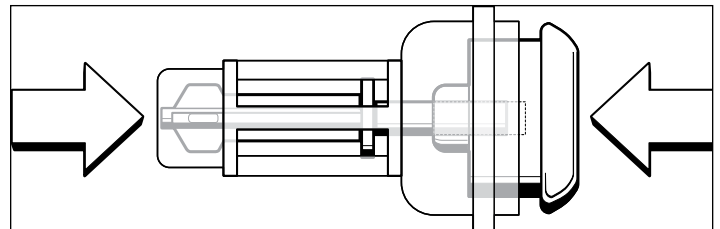
**5** Apply an inch-pounds torque wrench with a 3/16" hex key adapter to tighten the oral poppet valve (16) to a torque measurement of 8 in-lbs (0.9 Nm). Do not overtighten.



**6** Insert the narrow stem of the push rod (20) into the small end of the push rod housing (22), and hold it securely in place with the stem protruding from the opposite end.



**7** Place the inflator button (23) inside the top of the push rod housing (22), with the opening facing down over the push rod stem. Squeeze the push rod and inflator button between thumb and forefinger to fit them securely together.



**8** Fit the o-ring (21) over the narrow end of the push rod housing so that it rests flush against the seating shoulder. Slide the cylindrical screen (19) over the narrow end of the push rod housing until it rests against the base.



**9** Insert the push rod housing into its opening in the body, and press firmly against the button (23) to ensure the o-ring seats evenly between the body and the housing. Fit the button cover (24) over the inflator button so that it seats flush against the shoulder of the push rod housing.



**10** Carefully fit the inflator bezel (25) over the button cover assembly, and press down while rotating the bezel counter-clockwise until a click is felt. Then, turn the bezel clockwise to engage the threads and continue tightening by hand until finger snug. Be careful to avoid cross-threading.



**CAUTION:** It is important to rotate the bezel counter-clockwise, in order to properly seat the threads before tightening it into the body. Failure to correctly follow this step may cause permanent damage to the bezel and the body due to cross threading, which could result in leakage if both parts are not replaced.

**11** Mate both pins on the large end of the T-Tool (P/N 42314) into two opposing holes in the inflator bezel (25). While holding the tool securely engaged, turn the bezel clockwise until it is flush with the surface of the body. **DO NOT** overtighten. Closely inspect the button cover (24) to ensure that it is seated evenly on all sides, and does not appear to be crimped or partially unseated.



**12** Install the larger external o-ring (34) onto the valve core retainer (35), in the groove below the base of the threads. Install the smaller o-ring (33) over the small end of the retainer, so that it rests against the seating shoulder.



**13** Insert the valve core (32) into the open end of the valve core retainer (35), with the threaded portion facing up. Using a pair of needle nose pliers, turn the valve core clockwise to engage the threads of the retainer, and tighten further only until it is snug. Be careful to avoid cross-threading or overtightening.



**14** Mate the narrow end of the valve core retainer (35) into the threaded opening of the body (31), turn clockwise to engage the threads. Apply a 3/16" hex key to the center hole of the retainer and tighten until snug, or until the end of the valve retainer is flush with the surrounding surface of the body. **DO NOT** overtighten.



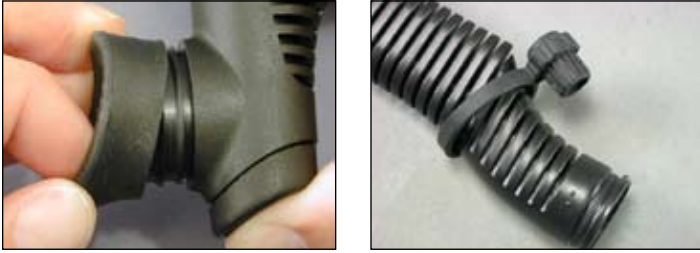
**15** Lay the inlet filter (36) inside the hole of the body which contains the quick disconnect fitting. Check to ensure that it is seated evenly below the threads, and reinstall if needed.



**16** Install the o-ring (37) onto the quick disconnect fitting (38) at the base of the threads. Mate the quick disconnect fitting into the inflator body (31), and turn clockwise by hand to engage the threads. Continue turning clockwise by hand until it is completely threaded into the body, then apply a small pair of pliers padded with neoprene or cloth to tighten the fitting until it is snugly seated against the body at the base. "Do Not Overtighten".



**17** Fit the mouthpiece (26) onto the inflator body (31), so that it is securely seated at the base. Slide the QD cover (42) up the ribbed hose (14).



**18** Insert the cable retaining pin (18) partly through one of the holes of the inflator barrel of the body (31). Pull back the ribbed hose (14) to expose the crimped retainer of the cable (12), and pass the retainer over the pin. Insert the pin through the opposite side of the inflator barrel, so that it is flush on both sides of the barrel.



**19** Fit the ribbed hose (14) over the inflator barrel (31) until it is mated flush at the base of the barrel. Lightly fasten a clamp (13) over the ribbed hose so that it is seated evenly inside the groove near the end. Tighten the clamp and trim the excess length with diagonal side cutters.



**This Concludes Reassembly Of The Powerline Lower Unit**

## FINAL ASSEMBLY AND TESTING

**! WARNING:** Protective eyewear must be worn at all times during testing.

**1** Lay the gasket (6) flat inside the connection manifold, and mate the retaining collar of the body assembly (5) directly over it, onto the manifold. Gently turn the collar clockwise to engage the threads, being careful to avoid cross-threading, and hold the airway in the desired position while tightening the retaining collar by hand until snug.



**! CAUTION:** Do not use tool to tighten the retaining collar onto the B.C. manifold. Doing so may result in over tightening and /or crossthreading, and could cause permanent damage that will require replacement of the entire B.C.

**2** While holding the dual-valve assembly secure, firmly grasp the inflator assembly and pull it in a straight line directly away from the dual-valve assembly. Check the attachment points of the airway tube at both the dual valve assembly and the inflator assembly. If any signs of damage or decay can be detected, it is important to replace the airway tube before proceeding any further.



**3** Immerse the inflator and surrounding area of the corrugated tube in fresh water to wet the lower portion of the airway assembly. Grasp the corrugated tube approximately six inches above the inflator assembly and pull the tube in a straight line away from the inflator with moderate force while holding the inflator secure. Check to ensure that no separation occurs at the attachment point, and the tube remains seated flush against the base of the inflator housing.



**4** Finally, bend the airway tube at a right angle to the inflator assembly, in the direction opposite of the quick disconnect stem. If the airway tube shows any sign of separating from the inflator assembly it is important to replace the clamp.



**5** Verify that the first stage regulator which the Powerline will be used with has been recently serviced and is adjusted to a stable MP of 130-145 psi (9-10 bar). Attach the first stage to a cylinder filled to 3000 psi (206 bar). Connect the Powerline to the first stage via the quick disconnect MP hose. Slowly open the valve of the supply cylinder to pressurize the regulator.



**CAUTION:** Before pressurizing the first stage, it is important to have a properly adjusted second stage attached to the first stage. This will provide a safety relief valve if the MP exceeds 145 psi (10 bar). Failure to relieve increasing MP may result in damage to the MP hose.

**6** Depress the inflator button (24) of the Powerline inflator several times to ensure that airflow is unobstructed. After releasing the button, listen carefully to ensure that the airflow has completely stopped. If internal leakage can be heard, refer to Table 1: Troubleshooting Guide on page 13 and correct the problem as needed before proceeding.



**7** Hold the inflator button (24) depressed to fully inflate the B.C. until the overpressure relief valve of the Dual Valve assembly opens to release excess pressure inside the bladder of the B.C. Check the operation of this relief valve by inflating the B.C. repeatedly to ensure that the valve opens to relieve excess pressure, yet closes immediately to allow the bladder of the B.C. to remain taut and fully inflated.



**8** Press the deflation button (28) and then pull the rapid exhaust cable to ensure a rapid and unobstructed exhaust using both methods of deflation. Fully inflate the B.C. once again, and disconnect the Powerline from the quick disconnect hose to listen closely for any signs of leakage.



**9** If any leakage is heard or if the B.C. has begun to deflate within one hour, fully inflate the B.C. once again with the Powerline inflator and hold the entire B.C. submerge in fresh water for at least one minute to determine the source of leakage. During this time carefully observe the Powerline for any signs of bubble formation indicating a leak, especially around the inflator buttons and B.C. connections. If a continuous leak is detected, the Powerline must be disassembled and examined for damage or contamination of the seals and seating surfaces. (Refer to Table 1: Troubleshooting Guide on page 13, and correct as needed.)

**NOTE:** If leakage is not immediately detected, allow the B.C. to stand for at least one hour to ensure that none exists.

**This concludes the service procedures for the Powerline Inflator.**

**Table 1: Troubleshooting Guide**

SYMPTOM	POSSIBLE CAUSE	TREATMENT
BC inflates slowly (with full tank, stable MP)	1. MP hose (39) is obstructed	1. Clean or replace hose
	2. Filter (36) is clogged or obstructed	2. Replace filter
	3. Valve core (32) is clogged or corroded	3. Replace valve core
Air does not vent when rapid exhaust valve cable is pulled	1. Rapid exhaust cable (12) is not properly connected to the inflator or dual-valve, or is damaged	1. Check condition and connections of cable, and correct as needed
	2. Incorrect rapid exhaust valve cable (12) installed (to long)	2. Replace cable
Air leaks continuously from Dual-Valve when BC is inflated	1. Dump plug (7) is worn or damaged	1. Replace dump plug
	2. Dump plug spring (9) is damaged	2. Replace spring
	3. OPRV gasket (4) is damaged	3. Replace gasket
	4. OPRV spring (2) is damaged	4. Replace spring
	5. Dual valve body (5) is damaged	5. Replace body
External air leakage from inflator	1. O-ring (36/33/20/16) is damaged	1. Replace faulty o-ring
	2. Inflator button cover (24) is damaged or incorrectly installed	2. Disassemble and correct as needed
	3. Push rod (20) is damaged	3. Replace push rod
	4. Inflator body (31) is damaged	4. Replace body
Internal leakage from inflator	1. Valve core (32) corroded or damaged	1. Replace valve core
	2. O-ring (34) damaged or worn	2. Replace o-ring
	3. Valve core retainer (35) scratched	3. Replace valve core retainer
	4. Inflator body (31) is damaged	4. Replace body

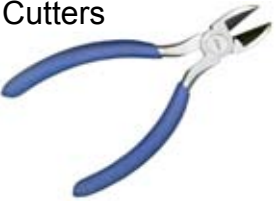



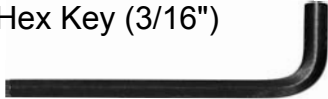








**NOTE:** This is a partial list of possible problems and recommended treatments. For more information, refer to the second-stage troubleshooting guide, or contact Aqua Lung Technical Service Department for assistance with problems not described here.





**CAUTION:** Recommended treatments which require disassembly of the regulator must be performed during a complete overhaul, according to the prescribed procedures for scheduled, annual service. Do not attempt to perform partial service.

Table 2: List of Tools and Service Kits

PART NO.	DESCRIPTION	APPLICATION
N/A	Side Cutters 	Removal of panduit clamps
944022	Brass O-ring Tool Kit 	Removal of circlip and o-rings
103102	Plastic O-ring Tool 	
42314	T-Tool 	Removing and installing bezel (25)
N/A	Hex Key (3/16") 	Loosen/tighten/adjust parts
N/A	Torque Wrench in-lbs	Apply torque to parts listed in <b>Table 3: Torque Specification, p.15</b>
N/A	Hex Key Adapter (3/16") 	Apply torque to parts listed in <b>Table 3: Torque Specification, p.15</b>
N/A	Medium Bladed Screwdriver 	Remove Dual-Valve cap (1)
N/A	Pliers (small) 	Removing and installing QD stem (38)
N/A	Needle Nose Pliers 	Removing and installing valve core (32)
N/A	Heavy Duty Valve Core Tool 	Removing and installing valve core (32)
N/A	Small Punch 	Removing and installing cable pin (18)
N/A	Loc-Tite # 425	Installing Dual-Valve cap (1)

**Table 3: Recommended Cleaners and Lubricants**

LUBRICANT/CLEANER	APPLICATION	SOURCE
Christo-Lube MCG 111	All o-rings	Aqua Lung, PN 820466, or Lubrication Technologies 310 Morton Street Jackson, OH 45640 (800) 477-8704
 <b>CAUTION:</b> Silicone rubber requires no lubrication or preservative treatment. DO NOT apply grease or spray to silicone rubber parts. Doing so may cause a chemical breakdown and premature deterioration of the material.		
Oakite #31	Acid bath for reusable stainless steel and brass parts.	Oakite Products, Inc. 50 Valley Road Berkeley Heights, NJ 07922
 <b>CAUTION:</b> Do not use muriatic acid for the cleaning of any parts. Even if strongly diluted, muriatic acid can harm chrome plating and may leave a residue that is harmful to o-ring seals and other parts.		
White distilled vinegar	Acid bath for reusable stainless steel and brass parts.	“Household” grade
Liquid dishwashing detergent (diluted with warm water)	Degreaser for brass and stainless steel parts; general cleaning solution for plastic and rubber	“Household” grade

**Table 4: Checking Specifications**

TEST	SPECIFICATION
Leak Test	No Leaks Permitted

**Table 5: Torque Specifications**

PART #	DESCRIPTION/KEY ITEM #	TORQUE
15736	Oral Poppet Valve (16)	8 in-lbs (0.9 Nm)

## Procedure A: Cleaning and Lubricating

### Aqua Lung and Apeks First Stages and Nitrox

When it comes to issues of nitrox safety and compatibility, the concerns lie primarily with the first stage as it is subjected to high inlet pressures. High inlet pressures lead to adiabatic compression or heating of the gas. The Aqua Lung or Apeks regulator product described in this manual, when properly cleaned and assembled, is authorized for use with enriched air nitrox (EAN) that does not exceed 40% (EAN 40). It is authorized because it has undergone adiabatic compression testing and the authorized service kit components and lubricants are compatible in elevated oxygen environments. During cleaning, a mild detergent must be used to remove condensed hydrocarbons (compressor oils) from the inside passageways of the first stage. For the first stage to remain EAN40 compatible, only use hyper filtered compressed gas (hydrocarbons < 0.1 mg/m<sup>3</sup>). Ordinary compressed breathing air (Grade E) usually does not meet this criterion. Once ordinary breathing air is used, the first stage is no longer EAN40 compatible until it is cleaned and serviced again.

Although regulator second stage and inflator components are not exposed to high pressure EAN, Aqua Lung recommends that the same cleaning procedures be followed for the complete regulator. This prevents the possibility of cross contamination and guarantees the cleanliness of the entire regulator.

### Cleaning Brass and Stainless Steel Parts

1. Preclean in warm, soapy water\* using a nylon bristle tooth brush.
2. Thoroughly clean parts in an ultrasonic cleaner filled with soapy water. If there are stubborn deposits, household white distilled vinegar (acetic acid) in an ultrasonic cleaner will work well. DO NOT place plastic, rubber, silicone or anodized aluminum parts in vinegar.
3. Remove parts from the ultrasonic cleaner and rinse with fresh water. If tap water is extremely "hard," place the parts in a bath of distilled water to prevent any mineral residue. Agitate lightly, and allow to soak for 5-10 minutes. Remove and blow dry with low pressure (25 psi) filtered air, and inspect closely to ensure proper cleaning and like-new condition.

### Cleaning Anodized Aluminum, Plastic & Rubber Parts

Anodized aluminum parts and parts made of plastic or rubber, such as box bottoms, box tops, dust caps, etc., may be soaked and cleaned in a solution of warm water mixed with mild dish soap. Use only a soft nylon toothbrush to scrub away any deposits. Rinse in fresh water and thoroughly blow dry, using low pressure filtered air.



**CAUTION:** Do not place plastic and rubber parts in acid solutions. Doing so may alter the physical properties of the component, causing it to prematurely degrade and/or break.

### Cleaning Hoses

1. Hose fittings: Ultrasonically clean with soapy water\*; vinegar OK on tough corrosion
2. Run soapy water through hose if needed
3. Thoroughly rinse with fresh water
4. Blow out hose before installing

### Lubrication and Dressing

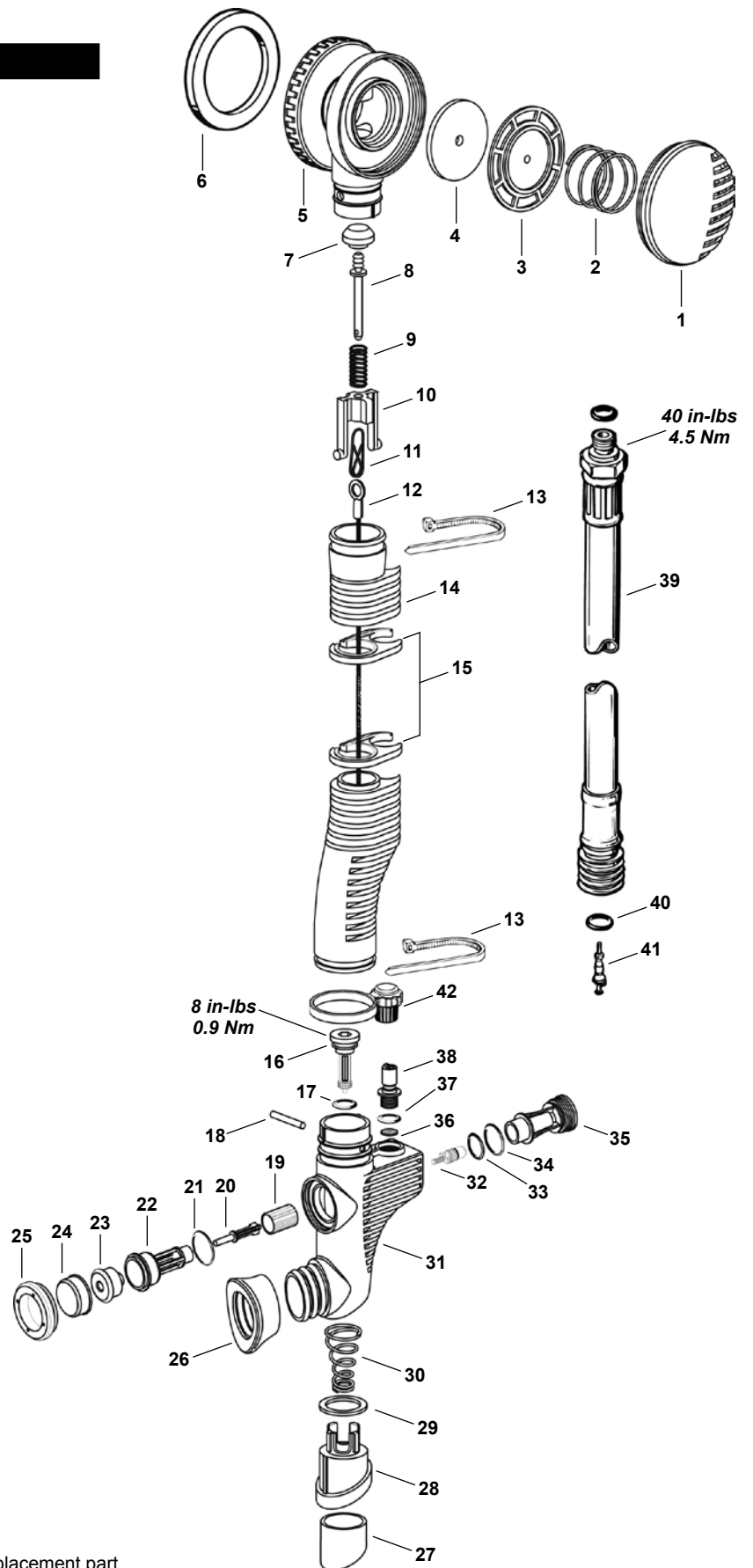
Wear powderless, latex gloves when handling and lubricating o-rings. Keeping internal parts free from skin oils and other contaminants is important when running enriched air nitrox through a first stage. All o-rings should be lubricated with Christo-Lube® MCG-111. Dress the o-rings with a very light film of grease, and remove any visible excess by running the o-ring between thumb and forefinger. Avoid applying excessive amounts of Christo-Lube grease, as this will attract particulate matter that may cause damage to the o-ring.

\*Soapy water is defined as "household" grade liquid dishwashing detergent diluted in warm water.

## Powerline Inflator w/ Dual Valve

Key #	Part #	Description
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-----	<b>42609</b>	<b>Service Kit, Pwr Inf. w/ Dual Valve</b>
1----	NLA	Cap
2----	NLA	Overpressure Spring
3----	NLA	Valve Plate
4----	<b>15714</b>	<b>Seal</b>
5----	NLA	Body, Dual Valve (Acme Thread)
-----	42744	Body, Dual Valve (Standard Thread)
6----	<b>15309</b>	<b>Gasket</b>
7----	<b>778559</b>	<b>Dump Plug</b>
8----	778558	Poppet Stem
9----	15901	Dump Spring
10----	15649	Poppet Guide
11----	15652	Cable Hook
12----	15724	Cable Assembly
13----	<b>15719</b>	<b>Clamp</b>
14----	NLA	Ribbed Hose
15----	15735	Hose Clip
16----	15736	Poppet, Oral Valve
17----	<b>820092</b>	<b>O-ring</b>
18----	15610	Cable Pin
19----	<b>15720</b>	<b>Filter Screen</b>
20----	15743	Push Rod
21----	<b>820016P</b>	<b>O-ring (10 pk)</b>
22----	15749	Push Rod Housing
23----	15747	Button
24----	15100	Button Cover, Gray
25----	15746	Bezel
26----	15741	Mouthpiece
27----	15745	Molded Insert
28----	15742	Oral Button
29----	<b>15718</b>	<b>Gasket</b>
30----	15709	Oral Valve Spring
31----	NLA	Body
32----	<b>15504</b>	<b>Valve Core</b>
33----	<b>957025</b>	<b>O-ring</b>
34----	<b>820014P</b>	<b>O-ring (25 pk)</b>
35----	15744	Valve Retainer
36----	<b>15628</b>	<b>Filter</b>
37----	<b>820011P</b>	<b>O-ring (25 pk)</b>
38----	090018	Quick Disconnect Plug w/ O-ring
39----	44822	LP Inflator Hose, 22"
-----	44825	LP Inflator Hose, 25"
-----	44827	LP Inflator Hose, 27"
-----	44833	LP Inflator Hose, 33"
40----	<b>820043P</b>	<b>O-ring (10 pk)</b>
41----	<b>778564</b>	<b>Valve Core</b>
42----	15029	QD Fitting Cover



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## Maintenance Notes



**Authorized Technician**  
**TECHNICAL MAINTENANCE MANUAL**  
**POWERLINE INFLATOR with DUAL-VALVE**

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