<table>
<thead>
<tr>
<th>PAGE #</th>
<th>REV. DATE</th>
<th>TITLE OR DESCRIPTION</th>
<th>CHANGE MADE BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/15/18</td>
<td>11/20/14</td>
<td>Change oral rod torque Spec to 6.5 in-lbs (0.75 Nm)</td>
<td>Aqua Lung USA</td>
</tr>
</tbody>
</table>
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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 Inflator and Over-Pressure valves should be rinsed in fresh water after each use, and should be disassembled and serviced annually. However, if at all unsure about the correct functioning of the Inflator, then it must be inspected immediately.

An Official Inspection consists of:

1. Check that all parts are assembled correctly and that no parts are loose.
2. Inspect for signs of corrosion, cracks, damage to sealing surfaces and check the general condition of the inflation assemblies.
3. Inspect ribbed hose for holes or tears and confirm that it is securely clamped on both ends.
4. Follow FINAL TESTING instructions located in this manual.

If a inflator fails any of the 4 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 product is disassembled, reusable components should be segregated and not allowed to intermix with nonreusable parts or parts from other units. Delicate parts, 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 or Apeks parts for the service of this product. DO NOT attempt to substitute an original 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.
7. In order to make the product compatible with nitrox up to 40% O2 (EAN40), the product must be properly cleaned, lubricated and assembled using genuine Aqua Lung or Apeks replacement parts. In addition, assembly must be carried out in a clean environment using powderless, latex gloves or equivalent. For more detailed information, be sure to read Procedure A: Cleaning and Lubricating.

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 counter-clockwise.
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-ring (7) from the crown (8)...”, the number 7 is the key number to the crown o-ring.
**DISASSEMBLY PROCEDURE**

1. Turn the retaining collar (1) and remove the upper valve from the manifold. Remove the gasket (39) from the BC manifold.

2. Lift off the QD fitting cover (13). Using a pair of side-cutters, carefully snip the clamp (12) at the buckle.

3. Pull the molded hose (9) off the inflator body (32). Press the pin (16) out from one side with a pin punch or similar tool to release the cable (10). Remove QD cover (13) from molded hose.

4. Firmly grasp the mouthpiece (31) and twist it off the body (32). Inspect the mouthpiece for any damage and replace if needed.

5. Using a pair of pliers, carefully grasp the tip of the QD fitting (24) and turn counter-clockwise to remove it from the body (32). Remove the o-ring (25) from the QD fitting.

6. Remove the inlet filter (26) from the body (32).

7. Using a 3/16" hex key, remove the valve core retainer (28) from the body (32). Remove the two o-rings (27/30) from the retainer.

8. Using a valve core tool (p/n 778700), gently remove the valve core (29) from the retainer.

---

**CAUTION:** Use only a plastic or brass o-ring removal tool 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. DO NOT use a dental pick or any other steel instrument.

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

**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 it’s replacement.

**NOTE:** Inspect and clean the inside clamping areas of the molded hose and the connection point on the inflator body.
9 Using the large end of the T-tool (p/n 42314), engage the pins into the hole on the inflator bezel (17). Loosen and remove the assembly. Slide off the screen (23).

10 While holding the inflator bezel (17), grab the push rod housing (20) and pull it straight away to separate the bezel. Separate the button cover (18) and button (19) from the bezel. Thoroughly inspect the button cover for any cuts or tears.

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

12 While holding the oral inflator button (35) depressed, insert a 5mm hex key through the upper barrel of the body (32) and carefully turn the oral poppet valve (14) counter-clockwise to remove.

13 Remove the o-ring (15) from the oral poppet valve (14).

14 Remove the oral inflator button (35) and the spring (33) from the body (32). Separate the gasket (34) from the button.

15 Using a small phillips screwdriver, remove the nut & screw from the clip (3). Remove the clip from the molded hose (9).

16 Separate the hose (9) from the elbow (2). Slide the collar (1) off the elbow.

17 Pull and keep slight tension on the cable (10). Use a 3mm hex key to push in the legs of the poppet guide (7) one at a time to release.
18. Pull down on the cable (10) to remove the poppet guide assembly (4-8) from the elbow (2). Once the poppet guide assembly is out, remove the poppet dump valve (4).

19. Remove the cable (10) from the inflator cable hook (8).

20. Use needle nose pliers to gently grip the end of the poppet stem (5). Separate the inflator cable hook (8), poppet stem, pull dump spring (6) and poppet guide (7).

NOTE: Before performing any reassembly, it is important to inspect all parts, both new and those that are being reused, to ensure that every part and component is perfectly clean and free of any dust, corrosion, or blemishes. Before dressing each o-ring with Christo-Lube®, check to ensure it is clean, supple, and free of any blemish.

WARNING: Use only genuine Aqua Lung/Apeks parts, subassemblies, and components whenever assembling any Aqua Lung/Apeks product. DO NOT attempt to substitute an Aqua Lung/Apeks part with another manufacturer’s, regardless of any similarity in shape, size or appearance. Doing so may render the product unsafe, and could result in serious injury or death.

1. Slide spring (6) onto poppet stem (5). Insert narrow end of poppet stem into poppet guide (7). Install dump valve poppet (4) onto poppet stem.

2. Compress poppet spring (6) and install the inflator cable hook (8) onto the poppet stem (5). The hook should be held at the single-looped end.

THIS CONCLUDES DISASSEMBLY

NOTE: Before beginning reassembly, perform parts cleaning and lubrication in accordance with Procedure A: Cleaning and Lubricating.
3 Install the cable (10) onto the hook (8) 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.

4 Install the poppet assembly into elbow (2). The cut-out on the poppet guide (7) faces the bottom of the elbow.

5 Squeeze the poppet guide (7) feet together and push into elbow (2). Confirm the poppet guide is locked into place and the poppet guide feet are seated flush with the elbow.

6 Pull on the upper cable (10) to confirm actuation of the pull dump. Install the collar (1) onto the elbow (2).

7 Install the cable (10) through the molded hose (9). Slide the molded hose onto the elbow (2).

8 Make sure to line up two notches on clip assembly (3) with grooves on elbow (2).

9 Tighten screw using small Phillips screwdriver. Check that clip is properly fitted.

10 Fit the oral inflator gasket (34) over the four guides of the oral inflator button (35) until it is evenly seated at the base of each guide. Set the button aside.

11 Install the o-ring (15) onto the oral poppet valve (14), into the groove around the base of the large end.
12 Stand the inflator body (32) with the mouthpiece end facing up, and place the large end of the oral inflator spring (33) inside the opening of the body. Place the oral inflator button (35) 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.

13 Use a 5mm hex key to guide the oral poppet valve (14) through the open barrel of the inflator body (32) and into the oral inflator button (35). 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.

14 Apply an in-lbs torque wrench with a 5mm hex key adapter to tighten the oral poppet valve (14) to a torque measurement of 6.5 in-lbs (0.75 Nm). Do not overtighten.

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

16 Place the inflator button (19) inside the top of the push rod housing (20), 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.

17 Fit the o-ring (21) over the narrow end of the push rod housing (20) so that it rests flush against the seating shoulder. Slide the cylindrical screen (23) over the narrow end of the push rod housing until it rests against the base.

18 Insert the push rod housing (20) into its opening in the body (32), and press firmly against the button (19) to ensure the o-ring (21) seats evenly between the body (32) and the housing.

19 Fit the button cover (18) over the inflator button so that it seats flush against the shoulder of the push rod housing. Fit the inflator bezel (17) over the button cover 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.
20 Using the large end of the T-Tool (p/n 42314), insert the pins into the two opposing holes in the inflator bezel (17). 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 (18) to ensure that it is seated evenly on all sides, and does not appear to be crimped or partially unseated.

21 Install the larger o-ring (27) onto the valve core retainer (28), in the groove below the base of the threads. Install the smaller o-ring (30) over the small end of the retainer, so that it rests against the seating shoulder.

22 Insert the valve core (29) with the threaded portion facing up into the valve core retainer (28). Using a valve core tool (p/n 778700), turn the valve core clockwise to engage the threads of the retainer. Tighten further only until it is snug while being careful to avoid cross-threading or overtightening.

23 Insert the narrow end of the valve core retainer (28) into the threaded opening of the body (32). Turn clockwise to engage the threads. Using a 3/16” hex key, tighten the retainer until snug or until the end of the valve retainer is flush with the surrounding surface of the body. DO NOT overtighten.

24 Place the inlet filter (26) inside the opening for the quick disconnect fitting (24). Check to ensure that it is seated evenly below the threads.

25 Install the o-ring (25) onto the quick disconnect fitting (24). Insert the quick disconnect fitting into the body (32) and turn clockwise by hand until it is completely threaded into the body. Apply a small pair of pliers padded with neoprene or cloth to tighten the fitting until snug. "Do Not Overtighten".

26 Fit the mouthpiece (31) onto the inflator body (32), so that it is securely seated at the base. Slide the QD cover (13) up the molded hose (9).

27 Insert the cable retaining pin (16) partly through one of the holes of the inflator barrel of the body (32). Pull back the molded hose (9) to expose the crimped retainer of the cable (10), 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.
28 Fit the molded hose (9) over the inflator barrel (32) until it is mated flush at the base of the barrel. Lightly fasten a clamp (12) 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 INFLATOR

2 Install a new gasket (39) flat inside the connection manifold. Mate the upper valve directly over the manifold. Gently turn the collar (1) clockwise to engage the threads, being careful to avoid cross-threading. Hold the airway in the desired position while tightening the retaining collar by hand until snug.

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

3 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.

FINAL TESTING

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

1 While holding the upper-valve secure, firmly grasp the inflator and pull it in a straight line directly away from the upper valve. Confirm the rapid exhaust valve opens. Then check the attachment points of the airway tube at both the upper valve connection and the inflator connection. If any signs of damage or decay can be detected, it is important to replace the airway tube before proceeding any further.
Depress the inflator button 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 and correct the problem as needed before proceeding.

Hold the inflator button depressed to fully inflate the B.C. until an over-pressure relief valve opens to release excess pressure inside the bladder of the B.C.

Press the deflation button briefly 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.

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, 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 OF THE POWERLINE INFLATOR

CAUTION: Before performing this test, confirm the B.C. has functioning over-pressure relief valves. Failure to do this could cause permanent damage to the bladder that will require replacement of the entire B.C.

NOTE: The Powerline inflator does not have a built in over-pressure valve.

NOTE: Before performing this test, confirm the B.C. has functioning over-pressure relief valves. Failure to do this could cause permanent damage to the bladder that will require replacement of the entire B.C.

NOTE: The Powerline inflator does not have a built in over-pressure valve.
**TABLE 1: TROUBLESHOOTING GUIDE**

<table>
<thead>
<tr>
<th>SYMPTOM</th>
<th>POSSIBLE CAUSE</th>
<th>TREATMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restricted airflow or BC inflate slowly (with full tank, stable MP)</td>
<td>1. MP hose (36) is obstructed</td>
<td>1. Clean or replace hose</td>
</tr>
<tr>
<td></td>
<td>2. Filter (26) is clogged or obstructed</td>
<td>2. Replace filter</td>
</tr>
<tr>
<td></td>
<td>3. Valve core (29) is clogged or corroded</td>
<td>3. Replace valve core</td>
</tr>
<tr>
<td></td>
<td>4. Dirt/salt deposits are present within the inflator assembly</td>
<td>4. Flush with warm fresh water</td>
</tr>
<tr>
<td>Air does not vent when rapid exhaust valve cable is pulled</td>
<td>1. Rapid exhaust cable (10) is not properly connected to the inflator or elbow, or is damaged</td>
<td>1. Check condition and connections of cable, and correct as needed</td>
</tr>
<tr>
<td></td>
<td>2. Incorrect rapid exhaust valve cable (10) installed (to long)</td>
<td>2. Replace cable</td>
</tr>
<tr>
<td>Air leaks continuously from Upper-Valve when BC is inflated</td>
<td>1. Dump plug (4) is worn or damaged</td>
<td>1. Replace dump plug</td>
</tr>
<tr>
<td></td>
<td>2. Dump plug spring (6) is damaged</td>
<td>2. Replace spring</td>
</tr>
<tr>
<td></td>
<td>3. Incorrect rapid exhaust valve cable (10) installed (to short)</td>
<td>3. Replace cable</td>
</tr>
<tr>
<td>External air leakage from inflator</td>
<td>1. O-ring (15/21/25/27) is damaged</td>
<td>1. Replace faulty o-ring</td>
</tr>
<tr>
<td></td>
<td>2. Inflator button cover (18) is damaged or incorrectly installed</td>
<td>2. Disassemble and correct as needed</td>
</tr>
<tr>
<td></td>
<td>3. Push rod (22) is damaged</td>
<td>3. Replace push rod</td>
</tr>
<tr>
<td></td>
<td>4. Inflator body (32) is damaged</td>
<td>4. Replace body</td>
</tr>
<tr>
<td>Internal leakage from inflator</td>
<td>1. Valve core (29) corroded or damaged</td>
<td>1. Replace valve core</td>
</tr>
<tr>
<td></td>
<td>2. O-ring (27) damaged or worn</td>
<td>2. Replace o-ring</td>
</tr>
<tr>
<td></td>
<td>3. Valve core retainer (29) damaged or worn</td>
<td>3. Replace valve core retainer</td>
</tr>
<tr>
<td></td>
<td>4. Inflator body (32) is damaged</td>
<td>4. Replace body</td>
</tr>
<tr>
<td>Cannot orally inflate the buoyance cell</td>
<td>1. Dirt/salt deposits are present on internal sealing surfaces</td>
<td>1. Flush with warm fresh water</td>
</tr>
<tr>
<td></td>
<td>2. Internal parts of oral inflator worn or damaged</td>
<td>2. Replace lower inflator assembly</td>
</tr>
<tr>
<td></td>
<td>3. Tear/hole in molded hose (9)</td>
<td>3. Replace molded hose</td>
</tr>
<tr>
<td></td>
<td>4. Collar (1) not tightened properly</td>
<td>4. Remove collar from aircell &amp; reinstall</td>
</tr>
<tr>
<td></td>
<td>5. Gasket (39) is missing or damaged</td>
<td>5. Replace gasket</td>
</tr>
</tbody>
</table>

**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: TOOL LIST & SERVICE KITS

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>DESCRIPTION</th>
<th>APPLICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>Side Cutters</td>
<td>Removal &amp; trimming of panduit clamps</td>
</tr>
<tr>
<td>944022</td>
<td>Brass O-ring Tool Kit</td>
<td>Removal of o-rings</td>
</tr>
<tr>
<td>103102</td>
<td>Plastic O-ring Tool</td>
<td></td>
</tr>
<tr>
<td>42314</td>
<td>T-Tool</td>
<td>Removing &amp; installing bezel (17)</td>
</tr>
<tr>
<td>N/A</td>
<td>Hex Key (3/16&quot;, 5mm)</td>
<td>Loosen/tighten/adjust parts</td>
</tr>
<tr>
<td>N/A</td>
<td>Torque Wrench</td>
<td>Apply torque to parts listed in <strong>Table 3:</strong></td>
</tr>
<tr>
<td></td>
<td>[Torque Specification]**</td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td>Hex Key Adapter (5mm)</td>
<td>Apply torque to parts listed in <strong>Table 3:</strong></td>
</tr>
<tr>
<td></td>
<td>[Torque Specification]**</td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td>Phillips Screwdriver (small)</td>
<td>Removing and installing upper hose clip (3)</td>
</tr>
<tr>
<td>N/A</td>
<td>Pliers (small)</td>
<td>Removing and installing QD stem (24)</td>
</tr>
<tr>
<td>N/A</td>
<td>Needle Nose Pliers</td>
<td>Removing and installing parts</td>
</tr>
<tr>
<td>N/A</td>
<td>Small Punch</td>
<td>Removing and installing cable pin (16)</td>
</tr>
<tr>
<td>778700</td>
<td>Valve Core Tool, Dual Side</td>
<td>Removing and installing valve core (29)</td>
</tr>
<tr>
<td>N/A</td>
<td>Christo-Lube</td>
<td>Lubrication of o-rings</td>
</tr>
<tr>
<td>N/A</td>
<td>Magnifier with illumination</td>
<td>Sealing surface inspection</td>
</tr>
<tr>
<td>N/A</td>
<td>Ultrasonic cleaner</td>
<td>Brass and stainless steel parts cleaning</td>
</tr>
</tbody>
</table>
### TABLE 3: CHECKING SPECIFICATIONS

<table>
<thead>
<tr>
<th>TEST</th>
<th>SPECIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leak Test</td>
<td>No Leaks Permitted</td>
</tr>
</tbody>
</table>

### TABLE 4: TORQUE SPECIFICATIONS

<table>
<thead>
<tr>
<th>PART #</th>
<th>DESCRIPTION/KEY ITEM #</th>
<th>TORQUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>15736</td>
<td>Oral Poppet Valve (14)</td>
<td>6.5 in-lbs (0.75 Nm)</td>
</tr>
<tr>
<td>LUBRICANT/CLEANER</td>
<td>APPLICATION</td>
<td>SOURCE</td>
</tr>
<tr>
<td>-----------------------------------------</td>
<td>--------------------------------------------------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>Christo-Lube® MCG 111</td>
<td>Lubricant for all o-rings</td>
<td>Aqua Lung, PN 820466, or Lubrication Technologies 310 Morton Street Jackson, OH 45640 (800) 477-8704</td>
</tr>
<tr>
<td>PerflouroLube 20/1</td>
<td></td>
<td>Performance Fluids Ste 101 Lomeshaye Business Park Turner Road Nelson Lancashire BBP 7DR</td>
</tr>
<tr>
<td>CAUTION: 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.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White distilled vinegar (diluted with water)</td>
<td>Bath for reusable stainless steel and brass parts.</td>
<td>“Household” grade</td>
</tr>
<tr>
<td>CAUTION: 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.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oxygen Compatible Solution</td>
<td></td>
<td>As Per Training</td>
</tr>
<tr>
<td>Promoclean TP108</td>
<td>Nitrox/O2 Cleaning</td>
<td>INVENTEC PERFORMANCE CHEMICALS SA. 20, Rue de bourgogne BP 211 69802 SAINT-PRIEST cedex</td>
</tr>
<tr>
<td>Janitol Plus</td>
<td></td>
<td>JOHN LAWSON DIST. SCOTCHAW BROOK HOUSE BRANCH ROAD LOWER DARWEN LANCASHIRE BB3 0PR</td>
</tr>
<tr>
<td>CAUTION: 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.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquid Dishwashing Detergent</td>
<td>Degreaser for brass and stainless steel parts; general cleaning solution for plastic and rubber</td>
<td>“Household” grade</td>
</tr>
<tr>
<td>(diluted with warm water)</td>
<td></td>
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</tbody>
</table>
PROCEDURE A: CLEANING & LUBRICATING

AQUA LUNG AND APEXS REGULATORS AND NITROX

When it comes to issues of nitrox safety and compatibility, the concerns lie primarily with the regulator’s 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 hyperfiltered compressed gas (hydrocarbons < 0.1 mg/m³). 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 components are not exposed to high pressure EAN, Aqua Lung and Apeks recommend 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 soft nylon bristle 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 contact with acid solutions. This could alter their physical properties and cause degradation and premature breakdown.

Cleaning MP Hoses (Air use Only)

Follow Hose Inspection & Cleaning Guidelines for more detailed information

1. Hose fittings: Ultrasonically clean with soapy water; Use soft nylon bristle brush. If corrosion is evident, use a brass bristle brush.
2. Run water through hose if needed
3. Thoroughly rinse with fresh water
4. Blow out hose before installing

CAUTION: Do not place complete hose length in contact with acid solutions. This could alter their physical properties and cause degradation and premature breakdown.

Lubrication and Dressing

Wear powderless, latex gloves when handling and lubricating o-rings. Keeping internal parts free from skin oils and other contaminates 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**

<table>
<thead>
<tr>
<th>Key # Part #</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>42609</td>
<td>Service Kit, Powerline Inflator</td>
</tr>
<tr>
<td>42810</td>
<td>Powerline Airway, Charcoal, Complete</td>
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<tr>
<td>42820</td>
<td>Powerline Airway, Black, Complete, Apeks</td>
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<td>15280</td>
<td>Powerline, Lower Unit, Charcoal</td>
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<td>15763</td>
<td>Collar</td>
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<td>15161</td>
<td>Elbow</td>
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<td>15281</td>
<td>Clip, Nut &amp; Screw, Charcoal</td>
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<td>15159</td>
<td>Clip, Nut &amp; Screw, Black, Apeks</td>
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<td>778559</td>
<td>Poppet, Dump Valve</td>
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<td>15164</td>
<td>Poppet Stem</td>
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<td>15215</td>
<td>Spring</td>
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<td>15162</td>
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<td>15178</td>
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<td>QD Fitting Cover</td>
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<td>Bezel</td>
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<td>Button</td>
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<td>Push Rod Housing</td>
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<td>Quick Disconnect Plug w/ O-ring</td>
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<td>O-ring (25 pk)</td>
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<td>Mouthpiece</td>
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<td>15709</td>
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<td>Gasket</td>
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<td>15309</td>
<td>Gasket (not included in Service Kit)</td>
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</table>
POWERLINE

AUTHORIZED TECHNICIAN
TECHNICAL MAINTENANCE MANUAL
POWERLINE INFLATOR

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