A

Authorized Technician

TECHNICAL MAINTENANCE MANUAL

CALYPSO / TITAN / OCTOPUS SECOND STAGE

Contents

COPYRIGHT NOTICE....3
INTRODUCTION....3
WARNINGS, CAUTIONS, & NOTES....3
SCHEDULED SERVICE....3
GENERAL GUIDELINES....3
GENERAL CONVENTIONS....4
DISASSEMBLY PROCEDURES....4
REASSEMBLY PROCEDURES....7
FINAL TESTING....11
- Second Stage Airflow Test....11
- Second Stage Opening Effort Test....11
- Second Stage Purge Flow Test....11
- External Leak Test....11
- Subjective Breathing Test....12

TABLE 1 - SECOND-STAGE TROUBLESHOOTING GUIDE....13
TABLE 2 - RECOMMENDED TOOL LIST....14
TABLE 3 - STANDARD PARTS REPLACEMENT SCHEDULE....14
TABLE 4 - RECOMMENDED LUBRICANTS AND CLEANERS....15
PROCEDURE A - CLEANING AND LUBRICATION....16
TABLE 5 -TORQUE SPECIFICATIONS....17
TABLE 6 - TEST BENCH SPECIFICATIONS....17
EXPLODED PARTS DIAGRAM....19

s per year, it is
nection
e “off
ion
rhaul
ed to be documented in the
cord in the back of the Owner’s
Lifetime Warranty in effect.
to more than 50 dives per year, it
mplete overhaul.

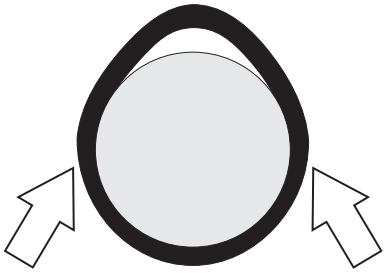
An Official
A pr
a

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 figure) 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 (8) from the venturi switch (9)...", the number 8 is the key number to the venturi switch o-ring.

DISASSEMBLY PROCEDURES

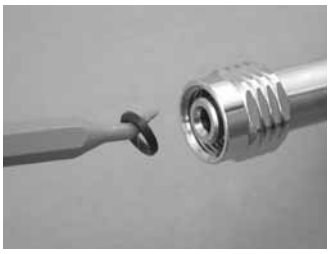
NOTE: *Before performing any disassembly, refer to the exploded parts drawing, which references all mandatory replacement parts. These parts should be replaced with new, and must not be reused under any circumstances - regardless of the age of the regulator or how much use it has received since it was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

CAUTION: Use only a plastic or brass o-ring removal tool (p/n 944022) 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.

1. While holding the inlet fitting (13) of the second stage secure with a ¾" (19mm) open end wrench, apply 11/16" (17mm) open-end wrench to the female fitting of the LP hose (25). Turn the fitting counter-clockwise to loosen and remove the hose from the second stage. Remove the O-rings (24&27) from the hose and discard. Set the hose aside.







2. Slide back the hose protector (26) and check that the crimps look good and that the hose is not pulling out. If the hose is torn or is pulling out of the crimps, it should be replaced.



3. To remove the mouthpiece clamp (5), simply lift the lever on the cam latch with a screwdriver or thumbnail. Pull the mouthpiece (6) off. Inspect the mouthpiece to ensure it is free of any tears or cuts that may cause leakage of water into the second stage or other discomfort. Discard the mouthpiece or set it aside to be reused, depending on its condition.





4. While holding the second stage secure, firmly grasp the collar of the front cover (1) which is seated over the venturi control switch (9), opposite of the inlet side. Stretch the collar over the venturi control switch, and lift the front cover off the box bottom (4) until the opposite collar can be removed from the inlet fitting (13). Closely examine the front cover to check for any tears, distortion, deterioration, or other signs of damage. Replace it if found, or set it aside if it is in reusable condition.





5. Lift out the sealing ring (2) and diaphragm (3) from the box bottom, and closely inspect the diaphragm to ensure that it is perfectly round and free of any tears, deterioration, or other damage. If deterioration or damage is found, discard the diaphragm and do not attempt to reuse.



6. Once the front cover (1) has been removed, the release latch for the exhaust valve cover (11) becomes exposed. Using your finger, lift the release latch and swing the exhaust valve cover off of the lugs on the box bottom (4).





7. Inspect the exhaust valve and its seating surface underneath. The valve should be clean and supple. It should be free of any tears, holes or defects of any kind. It should have well defined edges. If it is dirty or compromised in any way, it must get replaced. The seated surface underneath the valve must be clean.



8. Using your finger, reach into the box bottom (4) and remove the retaining clip (7) for the venturi switch.



9. Grasp the venturi switch (9) between your thumb and forefinger and pull it straight out of the box bottom (4).



10. Remove and discard the O-ring (8) from the venturi switch (9), and closely examine the O-ring groove of the venturi switch to check for any nicks or scratches. Discard if found, or set it aside if it is in reusable condition.

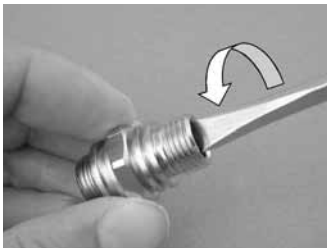


11. While holding the box bottom (4) secure, apply a 3/4" (19mm) open end wrench to the inlet fitting (13). While depressing the lever (18), carefully turn the fitting counter-clockwise to loosen and remove. Remove and discard the o-ring (12).





12. Apply a medium blade screwdriver to the slotted head of the crown (14) inside the inlet fitting (13), and hold the inlet fitting secure while turning the crown counter-clockwise to disengage the threads.



NOTE: *Because the crown is o-ring sealed, it will not freely exit the valve body after it has been disengaged. The following step must be performed correctly in order to remove the crown without damaging its delicate sealing surface.*

13. When the crown (14) has been unthreaded from the inlet fitting (13), carefully insert the pin of the extraction tool (P/N 109437) into the opposite end of the inlet fitting and through the center of the crown. Gently press the crown out onto a padded surface (see Fig. 1). Remove and discard the crown o-ring (15).





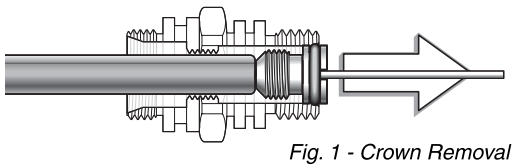


Fig. 1 - Crown Removal

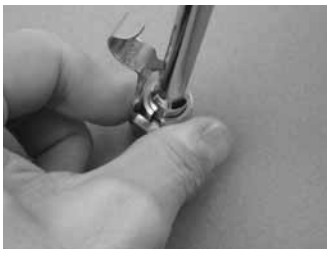
14. Closely examine the crown (14) with the use of magnifier to check for any scoring, nicks, or other damage to the polished sealing surface. If damage is found, discard the crown, and do not attempt to reuse. If it is in reusable condition, set it aside on a soft surface to prevent damage to the sealing edge.

15. Press the valve body (19) with lever assembly into the box bottom (4) by inserting a finger through the inlet opening. Gently lift the assembly out of the box bottom, being careful to avoid pulling or tugging on the lever (18).



WARNING: The components that make up the valve subassembly are under spring tension. Disassemble according to instructions found in the next step. Failure to wear proper eye protection could result in an eye injury should the components (16-23) eject out of the valve body (19).

16. Stand the valve assembly vertical on the head of the poppet (22), with the lever (18) facing up, and depress the valve body (19) to expose the locknut (16). While holding the valve body fully depressed, apply a 1/4" nut driver to turn the locknut counter-clockwise until it has disengaged from the threads of the poppet. Remove the locknut, washer (17), and lever, and slowly relax the valve body (19) to lift it off the poppet and spring (21). Discard the locknut, and do not attempt to reuse.

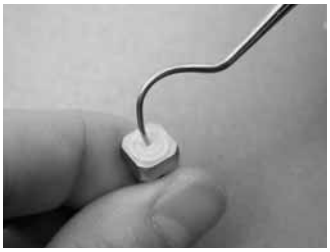




17. Closely inspect the shape and condition of the lever (18) to ensure it is not bent, corroded, or otherwise damaged. If any signs of damage or corrosion are found, discard the lever and do not reuse.

18. Closely examine the poppet spring (21) with a magnifier to ensure it is not damaged (bent) or corroded. If any signs of damage or corrosion are found, discard the spring and do not reuse.

19. Using a needle or sharp pick, stick the center of the LP seat (23) inside the head of the poppet (22) and lift the seat out, being very careful to avoid damaging the poppet. Set the seat aside to be used as an aid during reassembly, and inspect the head of the poppet to check for any nicks, scratches, or other signs of damage. The through-hole beneath the LP seat cavity should be clear and free of any obstructions. If any signs of damage are found, discard the poppet and do not attempt to reuse.



NOTE: *The used LP seat is an essential aid to the reassembly procedure for the valve body. Do not discard the seat until the reassembly and final adjustment procedures have both been performed, and the regulator is functioning satisfactorily.*

20. Place the handle of the extraction tool directly over the poppet bearing (20) in the top center of the valve body (19), and press downward until the poppet bearing has dropped out. Discard the poppet bearing, and do not reuse.





☞**NOTE:** *Aqua Lung no longer requires mandatory replacement of the exhaust valves. As long as the valves and their associated seating surfaces are clean and in good condition, they may be left in place.*

This Ends Disassembly

Before starting reassembly, perform parts cleaning and lubrication according to the procedures outlined in Procedure A, titled <u>Cleaning & Lubrication</u>, on page 16.

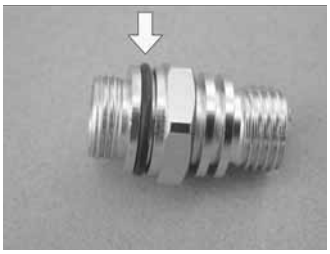
REASSEMBLY PROCEDURES

☞**NOTE**: *Before performing any reassembly, it is important to inspect all parts, both new and those that are being re-used, to ensure that every part and component is perfectly clean and free of any dust, corrosion, or blemishes. Check all o-rings to ensure they are clean and supple before dressing with Christo-Lube® MCG-111.*

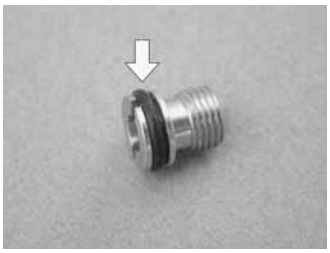
1. If you removed the exhaust valve (10) during disassembly, install the exhaust valve into the box bottom (4) by feeding the stem of the exhaust valve into the center hole of the valve in the box bottom. Gently pull the stem through the hole on the opposite side inside the box bottom, until the barb has passed through and is securely seated against the opposite side. If you are installing a new valve, carefully snip off the excess material of the stem with a small pair of scissors, leaving 5mm.



2. Install the o-ring (12) on the inlet fitting (13), securing it into the groove at the base of the threads, just above the hex feature.



3. Install the o-ring (15) onto the crown (14), and carefully insert the threaded end of the crown into the hose connection of the inlet fitting (13). Gently press it in further with the blunt end of the extraction tool (P/N 109437) until it stops (see Fig. 2).







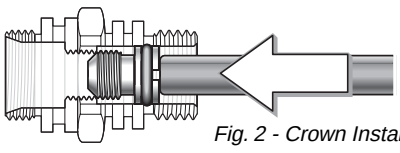
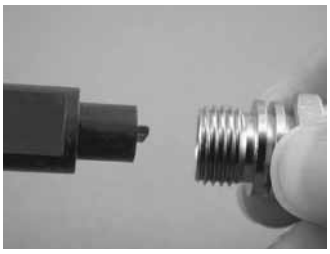


Fig. 2 - Crown Installation

4. Using tool p/n 125727, engage the slotted head of the crown (14) and drive it in clockwise as far as the tool will allow. If the tool is not available, use a medium flathead screwdriver to drive the crown in as far as it will go and then back it out 3 revolutions.



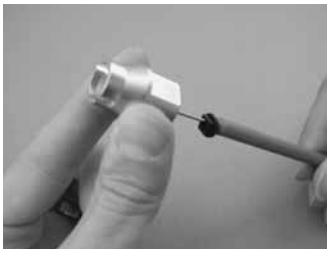


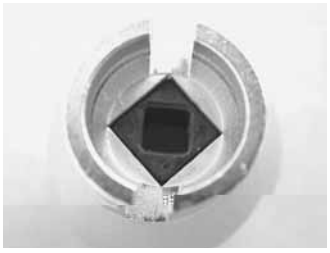
5. Stand the inlet fitting (13) vertical on a flat surface with the sealing edge of the crown (14) facing up inside. Lay the previously used LP seat (23) inside the inlet fitting, over the sealing edge of the crown.



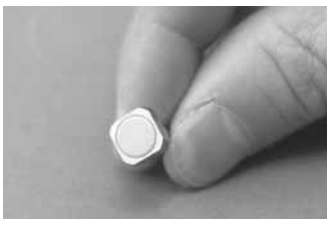
NOTE: *It is essential to use a spare LP seat in order to prevent damage to the new seat while performing the following steps of the reassembly procedure.*

6. Place the poppet bearing (20) over the pin of the extraction tool with the square feature facing up. Guide the pin of the tool into the open end of the valve body (19) and out through the square hole in its center. While sighting through the top of the valve body, rotate the tool as needed to align the square feature of the poppet bearing with the square hole, and press the tool upward to seat the bearing securely in place. When finished, check to ensure that the top of the poppet bearing is flush with the top of the valve body.





7. Press the new LP seat (23) into the cavity in the head of the poppet (22), with the smooth side facing out.



8. Stand the poppet (22) on its head inside the top of the inlet fitting (13) and on top of the old LP seat. Place the spring (21) over the poppet shaft.



9. Hold the inlet fitting (13) secure, and mate the valve body (19) with poppet bearing down over the poppet shaft (22). Press the valve body downward to compress the spring while turning it clockwise to engage the threads of the inlet fitting, and then continue turning it slowly until the threaded portion of the poppet shaft stands outside the poppet bearing (20).

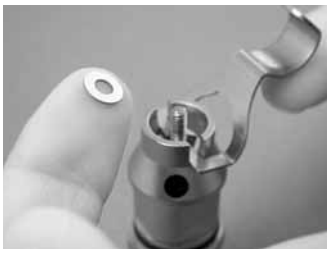


CAUTION: If resistance is felt, immediately stop and unscrew the valve body from the inlet fitting to check the alignment of the poppet shaft and poppet bearing. Excessive force and misalignment will otherwise result in damage to the poppet bearing, requiring its replacement.

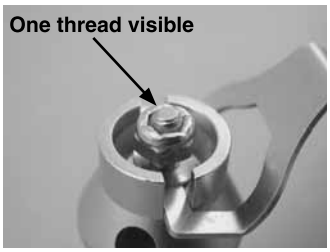
10. Lay the arms of the lever (18) inside the groove of the valve body (19), straddling the poppet shaft (22), so that the curved portion of the lever faces away from the air outlet hole.



11. Place the washer (17) over the poppet shaft (22), followed by the locknut (16), with the flat side facing down. Being careful to avoid disturbing the lever (18), turn the locknut clockwise by hand to engage the threads of the poppet, and then apply a 1/4" nut driver to turn it further; only until 1 thread of the poppet shaft is visible above the top of the locknut.







12. Hold the valve body (19) with lever (18) stationary and upright with one hand, and slowly unscrew the inlet fitting (13) counter-clockwise to loosen and remove from beneath it, while watching to ensure that the lever rises slightly as the poppet shaft extends from the valve body. Remove and discard the previously used LP seat from the inlet fitting.



13. Insert the valve and lever assembly (16-23) into the left side of the box bottom (4) as you face it.



14. While holding the valve assembly (16-23) securely inside the box bottom (4) and the lever (18) depressed, mate the shorter threaded end of the inlet fitting (13) through the inlet port and into the valve assembly (16-23). Turn the inlet fitting clockwise by hand until finger snug, and then apply a torque wrench with a ¾" (19mm) crow foot to tighten it to a torque measurement of 45 (±5) inch-pounds.





15. Install new o-rings (24&27) on either end of the M.P. hose. Thread the male fitting of the MP hose into the medium pressure port of the first stage and apply a torque wrench with a 9/16" crows foot to tighten to 40 (±2) in/lbs. Be certain that the first stage of the regulator is functioning properly and is delivering a medium pressure of 135 – 140 psi.





16. Attach the female fitting of the second stage medium pressure hose to the inlet fitting (13) of the second stage. Turn the swivel nut clockwise until finger snug.

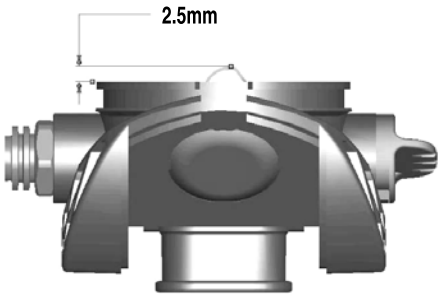
CAUTION: Prior to adjusting and testing the Calypso/Titan second stage regulator, the accompanying first stage must be correctly serviced, adjusted to a stable intermediate pressure of 135-140 psi, and fully tested. Refer to the appropriate first stage service manual before attempting to perform the adjustment and testing of the Calypso/Titan second stage.

Lever Height Adjustment

17. Pressurize the regulator

18. Slide the notch of the adjusting tool 125727 across the top of the box bottom (4) The top of the lever (18) should touch the tool without causing a leak. At this point, the lever should be 2.5 mm above the rim of the box bottom.





19. If the notch in the tool depresses the lever causing a leak, in other words, if the lever is too high, unscrew the locknut (16) with the ¼" nut driver to lower the lever (18) to the correct height.



If the lever does not touch the tool, in other words, the lever is too low, screw the locknut back in until the lever reaches the correct height.

20. Once the lever height has been set, turn off the air supply and purge the regulator. Remove the hose (25).

21. Install the o-ring on to the venturi switch (9).



22. Install the venturi assembly into the right side of the box bottom (4). Lock it in place by inserting the retaining clip (7). You should hear it "click" as it locks into place.

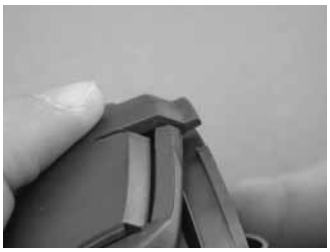






23. Install the exhaust valve cover (11) by positioning the two square holes in the cover over the mating two lugs on the box bottom (4). Swing it up into position and engage the latch. You should hear it "click" as it locks into place.





24. Fit the washer (2) on to the front of the diaphragm (3) and place the assembly into the box bottom (4).



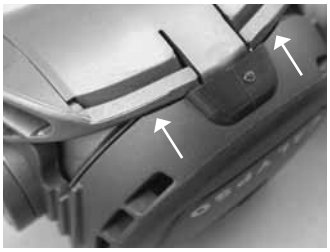


25. Fit the front cover (1) on to the box bottom (4) starting with hose side. Visually inspect the cover to ensure that it is seating evenly all the way around.





Make sure that the cover is seated evenly all the way around





☞ **NOTE:** *If your facility is equipped with a test bench, perform the tests before installing the mouthpiece. General instructions for performing bench tests are located in the next section, "Final Testing."*

26. If equipped with a Comfo-bite mouthpiece, make sure the 'bridge' of the mouthpiece (6) is facing upward. Stretch the mouthpiece over the second-stage mouthpiece boss. At the base of the mouthpiece is a groove for the reusable clamp (5). Wrap the clamp around the mouthpiece so that the cam buckle points toward the hose and the cam lever points downward. Mate the cam lever hook with the hook on the free end of the clamp. Press down on the cam lever until the buckle snaps closed.



27. Attach the MP hose (25) to the second stage. Using an 11/16" (17mm) crow's foot, apply a torque of 40 (± 3) in. lbs.



☞ **NOTE***: Before performing the following procedure, refer to Table 5, titled Test Bench Specifications – Calypso 2nd Stage.*

☞ **NOTE***: If an accurately calibrated airflow test bench is not available, proceed to the Subjective Tuning Procedures provided on the following page.*

This ends reassembly of the Calypso/Titan Second Stage

FINAL TESTING PROCEDURES

Second Stage Air Flow Test

1. Connect the first stage regulator to a calibrated test bench and pressurize the system to 3000 (±100) psi.

2. Place the second stage mouthpiece over the mouthpiece adapter. Slowly turn the flowmeter control knob until the flow reaches a minimum of 14 SCFM (400 liters per minute). The reading on the Magnahelic gauge (inhalation / exhalation effort gauge) should indicate no more than +6.O" H2O. If the reading exceeds +6.0" H2O, refer to Table 1 - Troubleshooting for corrective guidelines and specific procedures.

Second Stage Opening Effort Test

1. Turn the flowmeter control knob shut, and then slowly reopen while watching both the Magnahelic gauge and the intermediate pressure gauge.

2. When the intermediate pressure gauge begins to drop below the intermediate pressure "lockup," the Magnahelic gauge should indicate an opening effort of +0.8 to +1.4 inch of H2O for a primary second stage and +1.2 to +1.8 inch of H2O for the octopus. If the opening effort is not within this range, refer to Table 1 - Troubleshooting.

Second Stage Purge Flow Test

1. Turn off the flowmeter control knob. Next, while the second stage is still mounted on the mouthpiece adapter, watch the flowmeter gauge and depress the purge button until the second stage valve is completely open. The flowmeter gauge must indicate a minimum of +12 SCFM. If the purge flow is less than +12 SCFM, refer to Table 1 - Troubleshooting.

2. When purge flow is correct, remove the second-stage from the mouthpiece adapter on the flow test bench. Shut the valve of the test bench, and purge the second stage to depressurize the system. Remove the regulator.

External Leak Test

1. After disconnecting the regulator from the flow bench, connect it to a scuba cylinder filled to approximately 3,000 psi. Open the cylinder valve to pressurize the regulator, and submerge the entire system in a test tank of clean water.

2. Observe any bubbles arising from the submerged regulator over a one minute period. The recommended time is necessary due to slower bubble formation that occurs in smaller leaks. Bubbles indicate a leak, which requires that the system must be disassembled at the source to check sealing surfaces, assembly sequence and component positioning in order to correct the problem(s).



☞ **NOTE**: *Extremely small leaks may be better detected by applying a soap solution or Snoop™ to the leak area. Bubble streams will indicate the source of the leak. Before disassembling to correct any leaks, rinse the entire regulator thoroughly with fresh water and blow out all residual moisture with filtered, low-pressure (50 psi) air. Disassemble and remedy the problem, referring to Table 1 - Troubleshooting.*

Subjective Breathing Test

1. Depress the purge cover fully to ensure that an adequate volume of air needed to clear the second stage flows through the mouthpiece. Then, inhale slowly but deeply from the mouthpiece. A properly serviced and adjusted regulator should deliver air upon deep inhalation without excessive inhalation effort, freeflow, or “fluttering” of the second-stage diaphragm. When exhaling, there should be no fluttering or sticking of the exhalation valve. If any of these problems occur, refer to Table 1 - Troubleshooting.

This concludes annual service procedures for the Calypso/Titan Second Stage.

Troubleshooting Guide

SYMPTOM	CAUSE	TREATMENT
Leak or freeflo		1. Refer to First Stage Trouble-shooitng Guide
	rn or dam-	2. Replace the LP seat
	er-	3. Readjust the crown orifice
		Replace the lever
		rown orifice
		(16)
Insufficient pur breathing too h		
		ce the diaphragm
	d	3. Replace the valve
Water leak in 2r inhalation	(3) is not correctly ween the casing (4) and the sher (2)	4. Disassemble the cover and refit the assembly correctly
	5. The casing (4) is damaged	5. Check the sealing face of the exha-lation valve. Replace the casing.
	6. The o-ring (8) is damaged	6. Replace the o-ring

102510 Lockn 6

Table 4 - Recommended Lubricants & Cleaners

LUBRICANT / CLEANER	APPLICATION	SOURCE
Christo-Lube® MCG-111	All O-rings seals	Aqua Lung, PN 820466, or Lubrication Technologies 310 Morton Street Jackson, OH 45640 (800) 477-8704
	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.	
Oakite #31	Acid bath for reusable stainless steel and brass parts.	Oakite Products, Inc. 50 Valley Road Berkeley Heights, NJ 07922
White distilled vinegar	Acid bath for reusable stainless steel and brass parts.	"Household" grade
	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.	
Liquid dishwashing detergent (diluted with warm water)	Degreaser for brass and stainless steel parts; general cleaning solution for plastic and rubber	"Household" grade

Procedure A
Cleaning & Lubrication

Aqua Lung and Apeks 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 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 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.

Table 5 - Torque Specifications

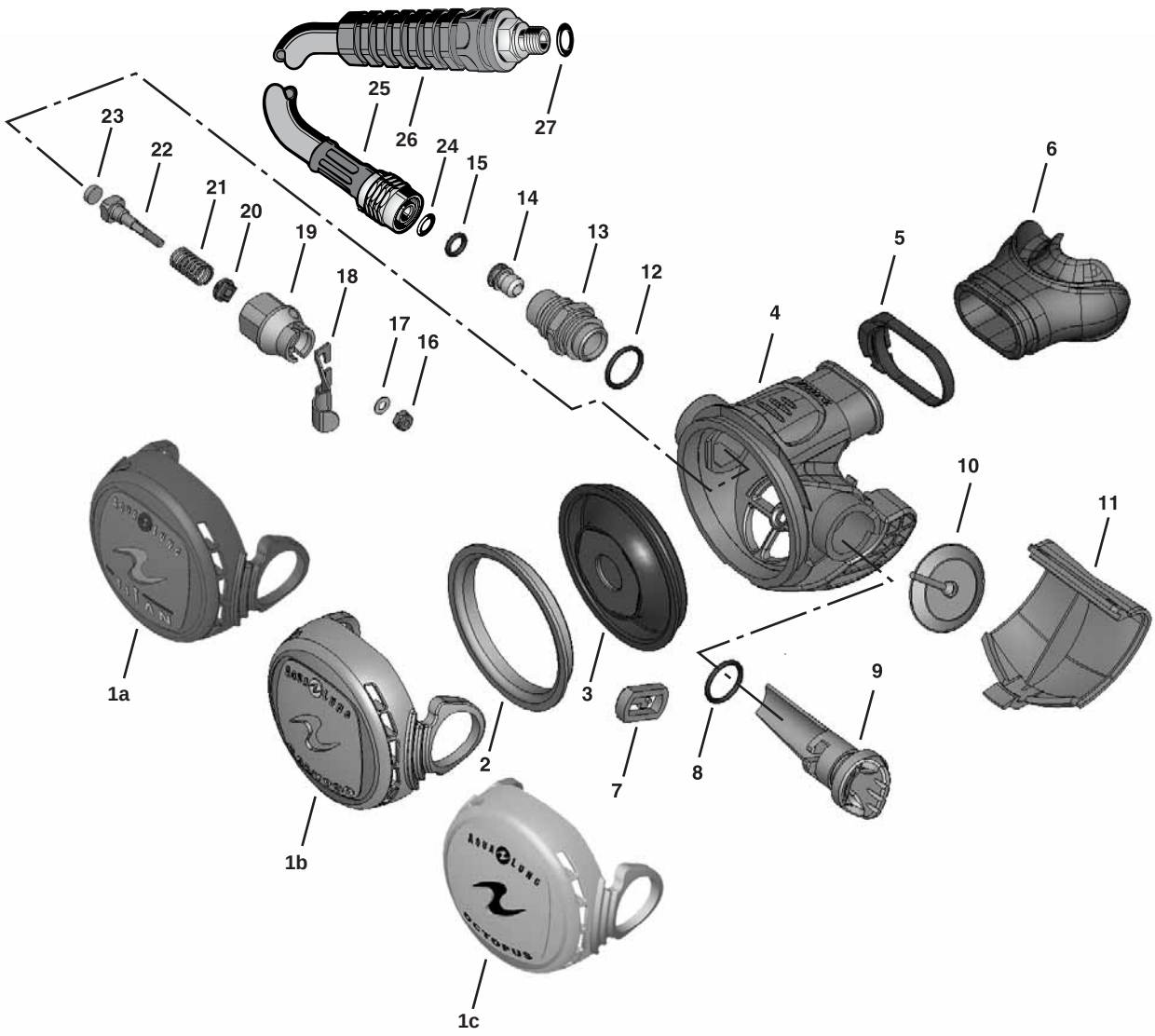
PART NUMBER	DESCRIPTION / KEY NUMBER	TORQUE
APF124563/APF124566	LP Hose Female Fitting (25)	40±3 inch-lbs
104106	Inlet Fitting (13)	45±5 inch-lbs

Table 6 - Test Bench Specifications

TEST	CONDITION	ACCEPTABLE RANGE
Leak Test	Inlet 2,500-3,000 (±100) psig	No leaks allowed
Opening Effort	Inlet 2,500-3,000 (±100) psig Intermediate pressure 135-140 psi	Calypso/Titan: +1.0 - 1.6 in. H_20 Octopus: +1.2 - 1.8 in. H_20
Flow effort	Intermediate pressure 135-140 psi at 14 SCFM	+6 in. H_20 (maximum)
Purge flow	Intermediate pressure 135-140 psi	12 SCFM flow rate

NOTES

Titan • Calypso • Octopus (2004 - present)
Exploded Parts Diagram



Key #	Part #	Description
n/a	125740	Calypso 2nd Stage only
n/a	125835	Titan 2nd Stage only
n/a	***900010***	***Service Kit***
1a	125732	Front cover, Titan
1b	125719	Front cover, Calypso
1c	125724	Front cover, Octopus
2	124509	Diaphragm washer
3	125705	Diaphragm
4	125721	Box bottom
5	129154	Mouthpiece clamp
6a	109438	Mouthpiece, Comfobite
6b	104138	Mouthpiece, Octopus
7	125707	Retaining clip, venturi switch
8	***820015***	***O-ring***
9	125706	Venturi switch
10	129174	Exhaust valve
11	125702	Exhaust valve cover
12	***820015***	***O-ring***

Key #	Part #	Description
13	124506	Inlet fitting
14	100128	Crown orifice
15	***820010***	***O-ring***
16	***102510***	***Locknut***
17	104129	Washer
18	125708	Lever
19	125709	Valve insert
20	***104134***	***Poppet bearing***
21	104127	Spring
22	104122	Poppet
23	***106738***	***LP seat***
24	***820010***	***O-ring***
25	APF124563	Hose, Black, 3/8” x 30”, w/ Protector
	APF124566	Hose, Octo, Yellow, 3/8” x 39”, w/ Protector
26	102067	Hose Protector, Black
	102068	Hose Protector, Yellow
27	***820011***	***O-ring***

Part numbers in ***BOLD ITALICS*** are included in the service kit.

AQUA LUNG®

Authorized Technician

TECHNICAL MAINTENANCE MANUAL
CALYPSO / TITAN / OCTOPUS SECOND STAGE

Aqua Lung America
2340 Cousteau Court, Vista CA 92081
Tel: 760-597-5000 / Web: www.aqualung.com