

AQUA LUNG®

TECHNICAL MAINTENANCE MANUAL



TITAN FIRST STAGE

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Copyright Notice

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Titan First Stage Technical Maintenance Manual

Introduction

This manual provides factory prescribed procedures for the correct service and repair of the Aqua Lung or Apeks regulator products 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

If the regulator is subjected to less than 50 dives per year, it is permissible to overhaul it every other year with an inspection procedure being performed on the "off" years. For example:

Year #1 : Inspection

Year #2 : Overhaul

Year #3 : Inspection

Year #4 : Overhaul, and so on.

Both Inspections and Overhauls need to be documented in the Annual Service & Inspection Record in the back of the Owner's Manual to keep the Limited Lifetime Warranty in effect. If a regulator is subjected to more than 50 dives per year, it should receive the complete overhaul.



NOTE: A unit that receives heavy or frequent use, such as rental, instruction, or commercial applications, should be serviced at least twice a year - or more often - depending on the conditions of use and the manner in which it is maintained. (Refer to the care and maintenance procedures outlined in the Regulator Owner's Manual.)

An Official Inspection consists of:

1. A pressurized immersion test of the entire unit to check for air leakage.
2. Checking for stable medium pressure that is within the acceptable range.
3. Checking for opening effort that is within the acceptable range.
4. Checking for smooth operation of the control knob and venturi switch.
5. A visual inspection of the filter for debris or discoloration.
6. A visual inspection of the exhaust valve to see that it is in good shape and that it's resting against a clean surface.
7. A visual inspection of the mouthpiece looking for tears or holes.
8. Pulling back hose protectors and checking that the hoses are secure in the hose crimps.

If a regulator fails item #1,2,3 or 4, the entire regulator should be overhauled. If a regulator fails #5,6,7 or 8, it will be up to the technician's discretion whether or not a full overhaul is required.

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 regulator 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.
7. In order to make the regulator compatible with nitrox up to 40% O₂ (EAN40), the regulator 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 Lubrication** at the back of this manual.

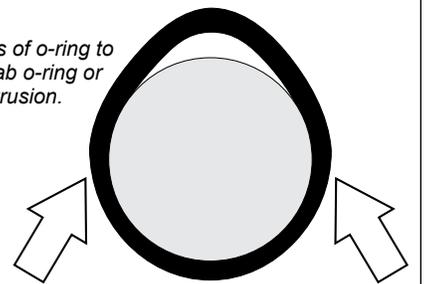
General Conventions

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-ring (7) from the crown (8)...", the number 7 is the key number to the crown o-ring.

DISASSEMBLY PROCEDURE

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.

1 Using a 9/16" open-end wrench, remove the MP hose from the first stage. Remove the o-ring from the male end of the MP hose. Slide back the hose protector and inspect the hose crimp for any damage or looseness. Replace the hose if necessary.



2 Use a 4mm hex key to remove the HP (21) and MP (23) port plugs. Use an o-ring tool to remove all port plug o-rings (20,22) from the port plugs.



3 Install the vise mount tool (PN 5116230) into an MP port on the 3-port side of the body (10).



Disassembly (Yoke)

4 Remove the yoke screw (28) and dust cap (27).



a Secure the vise mount tool and first stage into a bench vise with the yoke (26) facing up.



b Using a 8mm hex key, turn the inlet fitting (25) counter-clockwise and then lift off the yoke assembly. Remove the inlet fitting from the yoke.



c Use the blunt end of the seat extraction tool (PN 109437), to push the filter (24) and the o-ring (22) out the back of the inlet fitting (25).



Disassembly (DIN)

5 Remove the DIN cap (32) from the DIN adapter.



a Secure the vise mount tool and first stage into a bench vise with the DIN adapter facing up.



b Using a 6mm hex key, turn the DIN fitting (30) counter-clockwise to loosen and then lift the DIN adapter off the body (10). Separate the DIN fitting from the DIN handwheel (29).



c Use the pointed end of the seat extraction tool (PN 109437) to carefully push the filter (24) and o-ring (22) out of the DIN fitting (30). Remove the face o-ring (31) from the DIN fitting.



6 Reposition the body in the vise so that the MP side is facing up. Using an 8mm hex key, turn the adjustment screw (2) counter-clockwise to loosen and remove it from the spring retainer (6).



7 Using your fingers, remove the washer (3) and the spring (4).



8 Carefully lift the protector (1) using a small bladed screwdriver.



9 Using a large, adjustable wrench turn the spring retainer (6) counter-clockwise and remove it from the body (10).



NOTE: Diaphragm (7) and spring pad (5) will come away with the spring retainer (6).

10 Lift the spring pad (5) out of the spring retainer (6). Using your finger, push the diaphragm (7) out from the top side of the spring retainer.



11 Rotate the body (10) in the vise so that the HP side is facing up. This will allow the pin support (8) and the pin (9) to fall into your hand. Separate the pin and pin support.



12 Using an 8mm hex key, turn the HP plug (18) counter-clockwise to loosen and remove it from the body (10).



13 Rotate the body (10) and allow the spring (14) and HP seat (13) to fall out. Remove the body from the vise.



NOTE: Leave the vise mounting tool in the body for the next step. This will aid in removing the protective cover.

14 Confirm the vise mount tool is installed in a MP port on the 3-port side of the body (10). Peel the protective cover (19) off the body starting from the side opposite the vise mount tool.



15 Use a small dowel to carefully push the crown (12) out of the body (10).



CAUTION: Perform this step over a padded surface. Any damage to the crown orifice can cause a HP leak to result.

16 Carefully remove the o-ring (11) from the crown (12). Inspect the crown sealing surfaces for any signs of damage. Replace the crown if any damage is found.



CAUTION: Care must be taken not to scratch the sealing surfaces of the crown orifice or a HP leak could result. Use brass or plastic o-ring tools only.

17 Use an o-ring tool to remove the outer o-ring (17) from the HP plug (18).



18 Using an o-ring tool, carefully remove the o-ring (15) and the back-up ring (16) from the balancing chamber inside the HP plug (18).



CAUTION: Care must be taken not to scratch the inside wall of the balance chamber or a HP leak could result. Use brass or plastic o-ring tools only.

THIS CONCLUDES DISASSEMBLY

NOTE: Before beginning reassembly, perform parts cleaning and lubrication in accordance with **Procedure A: Cleaning and Lubricating (p. 15)**.

REASSEMBLY PROCEDURE

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® parts, subassemblies, and components whenever assembling any Aqua Lung® product. DO NOT attempt to substitute an Aqua Lung® 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 Install a well lubricated o-ring (11), onto the crown (12).



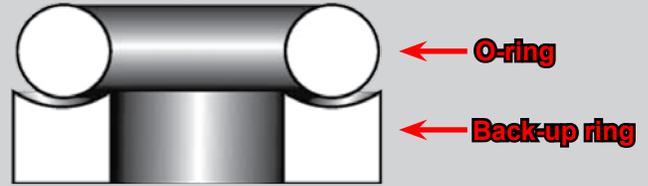
2 Using the seat installation tool (PN 109437), place the raised area of the crown (12) against the plastic handle. Push the crown into the HP side of the body (10). Make sure the crown is seated evenly inside the body.



3 Install the HP seat (13) so that the blue side rests against the sealing edge of the crown (12). Place the spring (14) over the HP seat.



NOTE: Before continuing, closely examine the back-up ring (16). You will note that it has a flat side and a concave side. For correct assembly, the concave side should be against the o-ring (15), as shown in the picture below.



4 Install the back up ring (16) into the HP plug (18) with the concave side facing out. Place a well lubricated o-ring (15) into the HP plug so that it sits evenly on top of the back up ring.



5 Install the HP plug o-ring (17) on the HP plug (18).



6 Place the HP plug (18) into the body (10). Using an 8mm hex key, compress and turn the HP plug clockwise until snug.



7 Install the vise mount tool (PN 5116230) into an MP port on the body (10). Position the body in a vise so that the HP side is facing up. Using a torque wrench and an 8mm hex key adapter, torque the HP plug (18) clockwise to 45 in-lbs (4.9 Nm).



8 Rotate the body (10) so that the MP side is facing up. Insert the pin (9) into the center hole. Place the pin support (8) onto the pin. Push down on the pin support and you should feel spring tension.



9 Press a new diaphragm (7) into the spring retainer (6). Make sure the diaphragm is seated evenly in the spring retainer.



10 Install the spring retainer (6) onto the body (10). Turn the spring retainer clockwise by hand until snug.



11 Using torque wrench with the spring retainer socket (PN 122152), torque the spring retainer (6) clockwise to 18 ft-lbs (25.4 Nm)



12 Press the protective cover (1) onto the spring retainer (6).



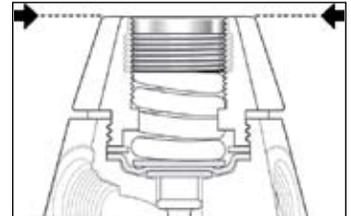
13 Place the spring pad (5) with the raised edge facing up, into the spring retainer (6). Place the spring (4) over the raised edge of the spring pad.



14 Place the washer (3) directly on the top of the spring (4). Put the adjustment screw (2) over top of the washer and spring.



15 Using an 8mm hex key, turn the adjustment screw (2) clockwise until it is flush with the top of the protective cover (1).



16 Remove the body (10) and vise mount tool from the vise. Unthread the vise mount tool. Stand the body on the MP side and install the body protector (19), starting on the side with the two MP ports. Reinstall the vise mount tool.



Reassembly (Yoke)

17 Place the filter (24) into the back side of the inlet fitting (25). Install an **“UNLUBRICATED”** o-ring (22) into the groove around the filter.



a Insert the inlet fitting (25) through the yoke (26) being careful not to dislodge the o-ring (22) and filter (24). Hold the inlet area of the body (10) facing down, thread the inlet fitting clockwise up into the body by hand until snug.



CAUTION: Preliminary installation of the inlet fitting requires the filter/o-ring side be facing up; keeping the filter/o-ring from dislodging and becoming damaged. Damage to the filter or o-ring can result in a HP leak.

b Secure the vise mount tool and first stage into a bench vise with the yoke (26) facing up. Using a torque wrench with an 8mm hex key adapter, tighten the inlet fitting (25) clockwise to 18 ft-lbs (24.5 Nm).



c Remove the first stage from the vise. Unthread the vise mount tool. Install the yoke screw (28) and the dust cap (27).



Reassembly (DIN)

18 Place an **“UNLUBRICATED”** o-ring (31) into the face of the DIN fitting (30).



a Place the filter (24) into the back side of the DIN fitting (30). Install an **“UNLUBRICATED”** o-ring (22) into the groove around the filter.



b Place the DIN fitting (30) through the DIN handwheel (29) being careful not to dislodge the o-ring (22) and filter (24). Hold the inlet area of the body (10) facing down, thread the DIN adapter clockwise up into the body by hand until snug.



CAUTION: Preliminary installation of the DIN fitting requires that the filter side to be facing up; keeping the o-ring and filter from dislodging and becoming damaged. Damage to the filter or o-ring can result in a HP leak.

c Secure the vise mount tool and first stage into a bench vise with the DIN adapter facing up. Using a torque wrench with a 6mm hex key adapter, tighten the DIN fitting (30) clockwise to 18 ft-lbs (24.5 Nm).



d Remove the first stage from the vise. Unthread the vise mount tool. Replace the protective DIN cap (32).

19 Install o-rings (20 & 22) onto port plugs (21 & 23). Using a 4mm hex key, turn the port plugs clockwise until snug. Leave one MP port open for testing.



THIS CONCLUDES REASSEMBLY

ADJUSTING

Adjusting Medium Pressure (MP)

1 Install the MP gauge (PN 111610) to a MP hose and thread the hose into the open MP port. Next, open the bleed valve. If your test gauge does not have a bleed valve, then it is vital that a properly adjusted second stage is attached to the first stage to act as an overpressure relief valve in the event of a HP leak.



WARNING: Be certain not to install a MP hose into the HP port via an adapter. Doing so may cause the hose to rupture when pressurized, and could result in serious personal injury.

2 Attach the first stage to a fully charged 3000 psi (206 bar) cylinder. While closely monitoring the MP test gauge, slowly open the cylinder valve to pressurize the regulator. Then slowly turn the knob of the bleed valve clockwise until it is completely shut.



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 test gauge or the MP hose.

WARNING: If the pressure gauge rapidly exceeds 145 psi (10 bar), there is a HP leak. Quickly close the cylinder valve and purge the second stage, or reopen the bleed valve of the test gauge and close the cylinder. Failure to do so may cause a rupture to the MP hose and/or MP gauge, which in turn can lead to personal injury. Refer to *Table 1: Troubleshooting Guide, p. 12* for the causes of high or unstable MP.

3 If no leaks are detected, use a 8mm hex key to adjust the MP by turning the adjustment screw: Turning the adjustment screw clockwise increases the MP; turning the adjustment screw counter-clockwise decreases the MP. Turn the adjustment screw in 1/8th turn increments and cycle the bleed valve or second stage purge button several times after each adjustment. Set the MP to 130-145 psi (9-10 bar). After cycling, watch the gauge needle. The first stage MP should “lock-up” and be stable at the desired setting. Make any further adjustments as necessary. Leave the regulator under pressure for several minutes and check that the MP remains stable. If the MP rises more than 5 psi (0.3 bar), this indicates a leak. Refer to *Table 1: Troubleshooting Guide, p. 12*, for possible causes.



FINAL TESTING

Immersion Test

1 With the Titan still pressurized, submerge unit in a tub of water. Observe for leaks; troubleshoot accordingly.



NOTE: Do not confuse bubbles from trapped air with a true leak. If there is an air leak, bubbles will come out in a constant stream.

THIS CONCLUDES SERVICING OF THE TITAN FIRST STAGE

Table 1: Troubleshooting Guide

SYMPTOM	POSSIBLE CAUSE	TREATMENT
High or Unstable MP	1. The HP seat (13) is worn or damaged.	1. Replace the HP seat
	2. The crown (12) is damaged.	2. Replace the crown
	3. The crown o-ring (11) is worn or damaged.	3. Replace the o-ring
	4. The body to crown sealing surface is damaged.	4. Replace the body
	5. The HP spring (14) is weakened or damaged.	5. Replace the spring
	6. The first stage is improperly adjusted.	6. Readjust the adjustment screw (2)
External Air Leak	1. The port plug o-rings (20 & 22) are worn or damaged.	1. Replace the o-rings
	2. The diaphragm (7) is worn or damaged.	2. Replace the diaphragm
	3. The diaphragm sealing surface is damaged.	3. Replace the body
	4. Spring retainer is loose.	4. Retorque the spring retainer
	5. Inlet/DIN fitting o-ring (22) is worn or damaged.	5. Replace the o-ring
Restricted air flow or high inhalation resistance through entire system	1. The cylinder valve is not completely open	1. Open the valve and check cylinder pressure
	2. The cylinder valve needs service.	2. Try another cylinder
	3. The filter (24) is clogged.	3. Replace the filter



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

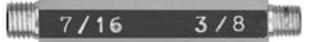
PART #	DESCRIPTION	APPLICATION
111610	MP Gauge 0-400 psi 	MP testing
944022	Brass O-ring Tool Set 	Removal and installation of o-rings
103102	O-ring Tool (Plastic) 	
N/A	Small Dowel 	Crown (12) removal
109437	Seat Extraction Tool 	Crown (12) installation
5116230	Vise Mounting Tool 	Holding first stage body (10) in vise.
N/A	Large Adjustable Wrench 	Loosen/Tighten/Adjust parts
N/A	Torque Wrench (in-lb & ft-lb) 	Apply torque to parts listed in Table 3: Torque Specifications
122152	Spring Retainer Socket 	Apply torque to parts listed in Table 3: Torque Specifications
N/A	Hex Key Adapter (6mm & 8mm long) 	Apply torque to parts listed in Table 3: Torque Specifications
N/A	9/16" Open End Wrench 	Loosen/Tighten/Adjust parts
N/A	Small Bladed Screwdriver 	Retainer Cover (1) removal
N/A	Hex Key (4mm,6mm,8mm) 	Loosen/Tighten/Adjust parts
N/A	Magnifier w/ Light 	Inspection of small parts
N/A	Bench Vise	Disassembly/Reassembly
N/A	Ultrasonic Cleaner	Brass and stainless steel parts cleaning
N/A	Powderless Latex Gloves or Finger Cots	Keep finger oils off of parts
N/A	Magnehelic or Test Bench	For testing
900014	Titan First Stage Service Kit	

Table 3: Torque Specifications

PART #	DESCRIPTION/KEY ITEM #	TORQUE
128113	Spring Retainer (6)	18 ft-lbs (24.5 Nm)
127801	DIN Fitting (30)	18 ft-lbs (24.5 Nm)
128633	Inlet Fitting (25)	18 ft-lbs (24.5 Nm)
129120	HP Plug (18)	45 in-lbs (4.9 Nm)

Table 4: 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
<p>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.</p>		
Oakite #31	Acid bath for reusable stainless steel and brass parts	Oakite Products, Inc. 50 Valley Road Berkeley Heights, NJ 07922
<p>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.</p>		
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 5: Test Bench Specifications

Titan

TEST	CONDITION	SPECIFICATION
Leak Test	Inlet 3000 psi (206 bar)	No leaks allowed
MP	Inlet 3000 psi (206 bar)	130-145 psi (9-10 bar)
MP creep	Inlet 3000 psi (206 bar) MP 130-145 psi (9-10 bar)	5 psi (0.3 bar) max between 5 to 15 seconds after cycling reg. (purge)



Procedure A: Cleaning and Lubricating

Aqua Lung and Apeks Regulators 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 the second stage will only see MP levels of (10 bar) or less 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/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 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

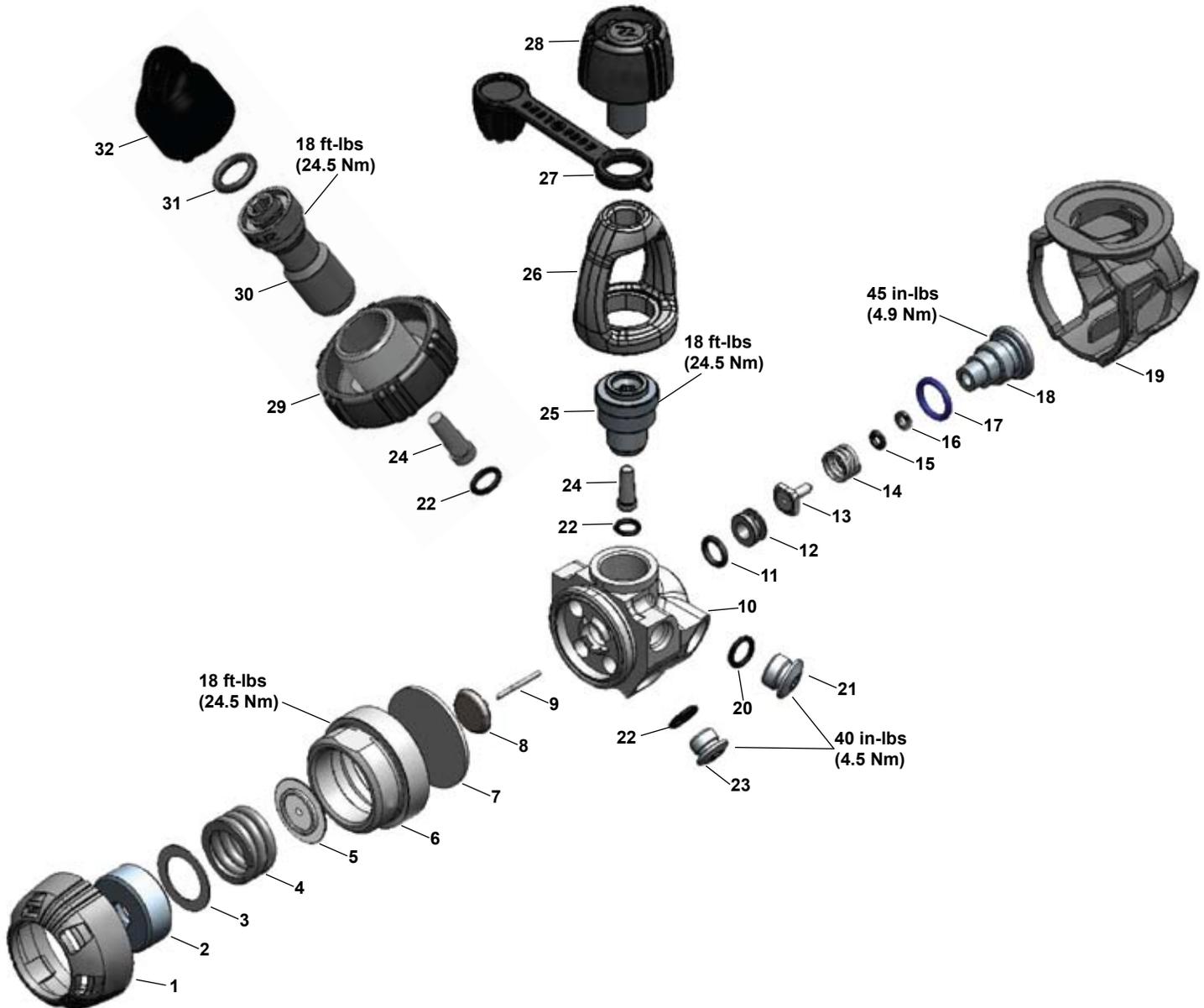
Lubrication and Dressing

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.

Maintenance Notes

Titan



Key #	Part #	Description
----	128520	First Stage, Titan, Yoke
----	127865	DIN Adapter Kit
----	128142	DIN ACD Conversion Kit
----	128143	Supreme/Dry Kit
----	900014	Overhaul Parts Kit, (Yoke and DIN)
1----	128634	Retainer Cover
2----	128117	Adjustment Screw
3----	127568	Washer
4----	127567	Spring
5----	127565	Spring Pad
6----	128113	Spring Retainer
7----	119159	Diaphragm
8----	127563	Pin Support
9----	127564	Pin
10----	127844	Body
11----	820038P	O-ring (20 pk)
12----	127585	Crown
13----	105940	HP Seat
14----	122244	Spring
15----	820080P	O-ring (25 pk)

Key #	Part #	Description
16----	119129	Back-up Ring
17----	824407P	O-ring (20 pk)
18----	129120	Plug
19----	128111	Protector, Body
20----	820072P	O-ring (20 pk)
21----	103137	Plug, HP Port, 7/16"
22----	820011P	O-ring (25 pk)
23----	103133	Plug, MP Port, 3/8"
24----	129151	Filter
25----	128633	Inlet Fitting
26----	124611	Yoke
27----	124555	Dust Cap
28----	128631	Yoke Screw
29----	128632	DIN Handwheel
30----	127801	DIN Fitting
31----	820094P	O-ring (20 pk)
32----	124665	DIN Cap

Part numbers in **BOLD ITALICS** indicate standard overhaul replacement part.



Authorized Technician
TECHNICAL MAINTENANCE MANUAL
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