apeks

Authorized Technician

TECHNICAL MAINTENANCE MANUAL

ATX 200 FIRST STAGE

Rev. 9/2002

Contents

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INTRODUCTION

This manual provides factory prescribed procedures for the correct service and repair of the Apeks ATX 200 first-stage regulator. 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 Apeks Service & Repair Seminar. If you do not completely understand all of the procedures outlined in this manual, contact Aqua Lung America 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.

An Official Inspection consists of:

1. A pressurized immersion test of the entire unit to check for air leakage.
2. Checking for stable intermediate 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 4,5,6 or 7 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 first-stage, 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. The regulator body will need to be secured in a vise when removing certain threaded parts, including the yoke clamp connector (21) and diaphragm clamp (6). NEVER SECURE THE REGULATOR BODY DIRECTLY IN A VISE. Instead, install a vise mounting tool (PN 100395) into the high pressure port, then secure the vise mounting tool in the vise. If you do not have a vise mounting tool, use an EXPIRED CO_2 cartridge attached to a high pressure adapter (3/8" female to 7/16" male). Never screw a CO_2 directly into a low pressure port in case the neck of the CO_2 cartridge breaks off, leaving the threads stuck in the regulator.
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 Apeks parts provided in the first-stage overhaul parts kit (PN AP0241/AA). DO NOT attempt to substitute an Apeks part with another manufacturer’s, regardless of any similarity in shape or size.

5. Do not attempt to reuse mandatory replacement parts under any circumstances, regardless of the amount of use the product has received since it was manufactured or last serviced.
6. When reassembling, it is important to follow every torque specification prescribed in this manual, using a calibrated torque wrench. Most parts are made of either marine brass or plastic, and can be permanently damaged by undue stress.

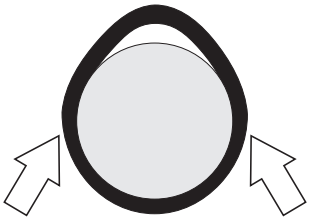
GENERAL CONVENTIONS

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

1. When instructed to *remove*, *unscrew*, or *loosen* a threaded part, turn the part counterclockwise.
2. When instructed to *install*, *screw in,* or *tighten* a threaded part, turn the part clockwise.
3. When instructed to remove an o-ring, use the pinch method (see 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 protrusion. Grab o-ring or insert o-ring tool at protrusion to remove.



4. The following acronyms are used throughout the manual: MP is Medium Pressure; HP is High Pressure; IP is Intermediate Pressure.
5. Numbers in parentheses reference the key numbers on the exploded parts schematics. For example, in the statement, "...remove the o-ring (17) from the...", the number 17 is the key number to the HP plug o-ring.

DISASSEMBLY PROCEDURES

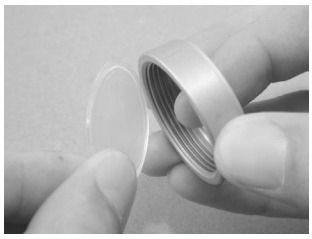
Note: *Before performing any disassembly, refer to the exploded parts drawing, which references all mandatory replacement parts. These parts should be replaced with new, and must not be reused under any circumstances - regardless of the age of the regulator or how much use it has received since it was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

CAUTION: Use only a plastic or brass o-ring removal tool (PN 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. Remove the hoses from the first stage using the appropriate sized wrenches. Install spare HP and MP port plugs into the empty ports, except for one MP port and one HP port.

2. Using a face spanner wrench, unscrew the end cap (1).

3. With your finger, remove the secondary diaphragm (2) from the end cap. Turn the first stage over so the piston (4) falls out into your hand.

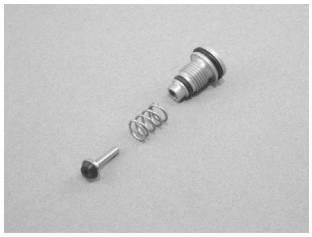


4. Using an 6mm hex wrench, unscrew and remove the adjustment screw (5). Lift out the main spring (7).

5. Install the vise mounting tool (pn 100395) into one of the HP ports. Secure the vise mounting tool in a bench vise with the diaphragm clamp (6) facing upward. Using a face spanner wrench, unscrew the diaphragm clamp from the body. Lift out the spring pad (8). Remove the first-stage from the vise.


7. To remove the diaphragm (9), insert a low pressure air nozzle into the open MP port. While holding your thumb over the diaphragm, inject a small blast of air into the MP port to pop out the diaphragm. Lift out the valve lifter (10).

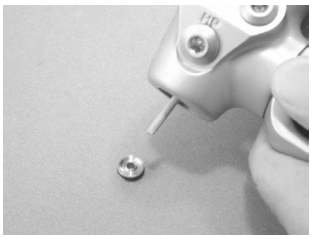

8. Using an 6mm hex wrench, unscrew the HP plug (18). Separate the HP seat (14) and spring (15) from the HP plug.

9. Remove the o-rings (12 and 17) from the HP plug (18). Using a brass o-ring tool, remove the o-ring (16) from inside the HP plug.


CAUTION: Before proceeding, make sure you are working over a padded work surface; otherwise, the crown (9) may be damaged during removal.

10. Insert a 1/8" wooden dowel into the center hole on the low pressure side (diaphragm side) of the first stage body. While keeping the dowel slightly tilted, press on the inside edge of the crown. While pressing the crown out of the body, prevent the crown from tilting by pressing evenly around the perimeter of the crown. If the crown tilts, insert the wooden dowel into the HP side and straighten the crown. Once the crown is out, remove the o-ring (12) from the crown.

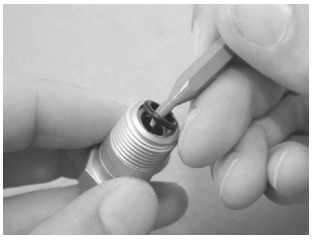

If the first-stage has a yoke, go to step 11A; if it has a DIN connector, go to step 11B.

11A. Removing the Yoke

i. Secure the vise mounting tool into a bench vise with the yoke facing upward. Unscrew the yoke screw (24) and remove the dust cap (22) from the yoke. Using a 3/4" box-end wrench, unscrew the yoke connector (20). Loosen the vise and remove the first stage. Remove the vise mounting tool from HP port.



ii. Remove the o-ring (12) from the bottom of the inlet fitting.



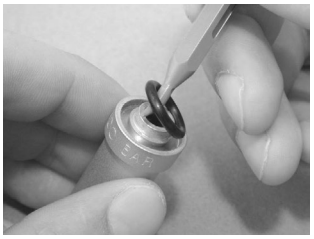
iii. Go to step 12 for instructions on removing the filter.

11B. Remove the DIN fitting

i. Secure the vise mounting tool into a bench vise with the DIN adapter facing upward. Remove the protective DIN cap (32). Using a 6mm hex wrench, unscrew the DIN connector (34). Remove the handwheel (35).

ii. Using an 1/8" wooden dowel or similar sized tool, push the filter (36) out of the DIN connector. Remove the filter o-ring (12).

iii. Remove the o-ring (33) from the face of the DIN connector.



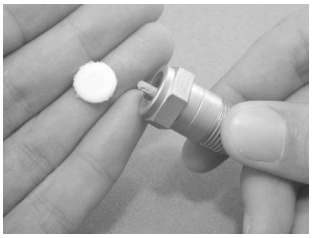
12. Removing the filter

NOTE: Up until September 2002, Apeks used a white disc filter, known as the Porvair filter (p/n AP1406), in its first stages that utilized a yoke connector. While Porvair was an excellent filter for air, it was determined that it was not the best material for use with enriched air nitrox (EAN). Since Apeks preferred all of its models to be EAN40 compatible new, out of the box, the Porvair filter was discontinued. Apeks' standard conical filter, p/n AP1472, (as used with the DIN connection) was substituted. Please note that where the Porvair filter was loaded into the front of the yoke connector, the conical filter gets loaded from the back of the connector. See "Reassembly Procedures" for details. To enhance the cosmetics of a regulator inlet that had a conical filter, a new filter guard (AP1406/1) was designed to install into the front of the connector. Do not mistake the filter guard as a filter. It is to be used only in conjunction with the conical filter.

Use the following pictures in steps A & B to determine which filter is installed. If the yoke connector (20) has a porvair filter go to step 12A; if it has a conical filter (36) and filter guard (21), go to step 12B.

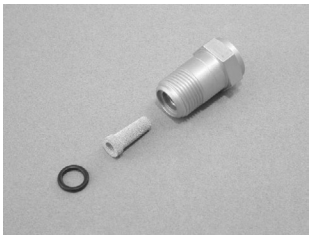
A. Removing the Porvair filter

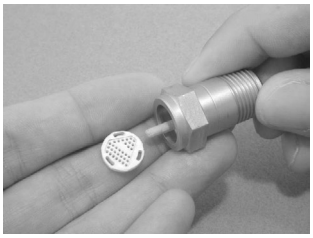
Insert a dowel through the open end of the yoke clamp connector (21) and push out the filter.



B. Removing the Conical Filter and Filter Guard

Remove the filter (36) and filter o-ring (12). Using an 1/8" wooden dowel or similar sized tool, push the filter guard (21) out of the connector.





13. Using a 5mm" hex wrench, remove all the port plugs (27, 30, 31) and their o-rings (28, 12, 29).

This Ends Disassembly

Before starting reassembly, perform parts cleaning and lubrication according to the procedures outlined in Procedure A, titled Cleaning & Lubrication, on page 13.

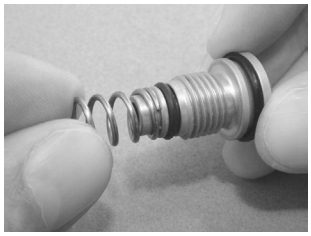
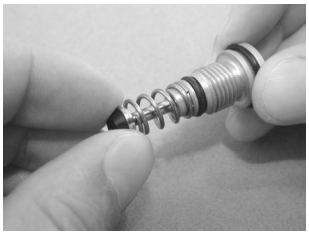
REASSEMBLY PROCEDURES

1. Install a new, lubricated o-ring (12) onto the crown (13). Slide the crown onto the seat installation tool with the sealing edge against the plastic handle. Insert the crown into the body and press it into place. Use the blunt end of the seat installation tool to make sure the crown is properly seated.



2. Install a new, lubricated o-ring (16) into the end of the HP plug (18). Install new, lubricated o-rings (12 & 17) on the HP plug.


3. Press the spring (15) onto the end of the HP plug (18). Pass the stem of the HP seat (14) through the spring and press it into the HP plug. Insert this assembly into the body (11) and tighten the HP plug to 12 ft-lbs using a 6mm hex key attached to a torque wrench.

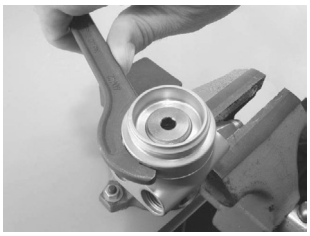
4. Turn the regulator over so the medium pressure side is facing upward. Drop the valve lifter (10) through the center hole. Press on the pin support several times. It should feel like a spring-loaded button.


5. Press a new diaphragm (9) into the first stage body. Run your finger around the edge of the diaphragm to make sure it is properly seated.

6. Place the spring pad (8), flat side down, in the center of the diaphragm. Set the main spring (7) on the spring pad.


7. Thread the diaphragm clamp (6) onto the body until hand tight. Thread the adjustment screw (5) into the diaphragm clamp until the first two threads are still visible.


8. Screw a vise mounting tool into the open HP port and secure it in a vise with the diaphragm clamp facing upward. Using the face spanner wrench, tighten the diaphragm clamp until it stops (metal meets metal).



If the first-stage has a yoke, go to step 9A; if it has a DIN connector, go to step 9B.

9A. Installing the Yoke:

i. Insert the conical end of the filter (36) into the threaded end of the yoke connector (20). Install a new, lubricated o-ring (12) into the end of the connector, around the filter.

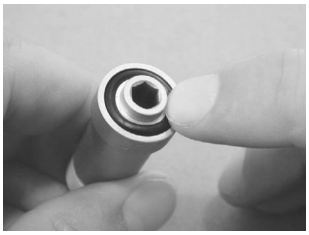
ii. Press the filter shield (21), raised tabs facing outward, into the end of the yoke connector (20).

iii. Remove the first-stage from the vise. Hold the first-stage with the inlet opening facing downward. Pass the yoke connector (20) through the yoke (19) and screw it into the first stage body until finger tight. Secure the first-stage back in the vise with the yoke facing upward. Attach a 3/4" box wrench adapter to a foot-pound torque wrench. Tighten the yoke connector to 12 foot-pounds.

iv. With the logo side facing outward, attach the dust cap (22) by stretching it over the flange located at the top of the yoke. Thread the yoke screw (24) into the yoke. Remove the first stage from the vise and remove the vise mounting tool.

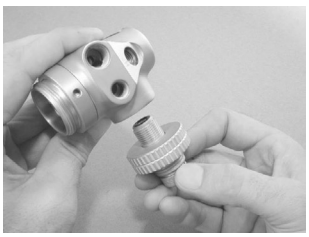
9B. Installing the DIN Adapter

i. Install a new o-ring (33) into the face of the DIN connector.



ii. Insert the conical end of the filter (36) into the threaded end of the DIN connector (34). Install a new, lubricated o-ring (12) into the end of the DIN connector, around the filter.

iii. Remove the first-stage from the vise. Hold the first-stage with the inlet opening facing downward. Insert the threaded end of the DIN connector through the threaded side of the handwheel (35) and screw it into the first stage body until finger tight. Secure the first-stage back in the vise with the DIN connector facing upward. Attach a 6mm hex key to a foot-pound torque wrench. Tighten the DIN connector to 12 foot-pounds. Remove the first stage from the vise and remove the vise mounting tool.



ADJUSTING THE FIRST STAGE

1. Attach the first stage (with no port plugs installed) to a fully charged (2500 to 3000 psi) cylinder. Slowly open the cylinder valve and blow through the first stage to remove any particles or contaminates.

2. Install new, lubricated o-rings (28, 29, 12) on all the port plugs (27, 30, 31). Install the port plugs using a 5mm" hex wrench.

Note: The primary MP port is 1/2". When adjusting the regulator, install either a 1/2" blanking plug (30) or a 1/2" hose with a properly adjusted second stage. Alternatively, you may use a 3/8" female to 1/2" male adapter attached to the LP test gauge, as long as the test gauge has a built in pressure relief.

3 Attach a MP test gauge (0 to 400 psig) to a medium pressure hose and thread the hose into an open MP port. If your test gauge does not have an over-pressure relief valve, you must also attached a properly adjusted second-stage to the first stage to act as the relief valve in case of a HP leak. Make sure port plugs are installed in any open ports.

CAUTION: If the pressure gauge rapidly exceeds 160 psi, then there is a HP leak. Quickly close the cylinder valve and purge the regulator. Refer to the troubleshooting table for the causes of HP leaks.

4. Assuming there are no leaks, adjust the medium pressure by turning the adjustment screw: Turning in the adjustment screw increases the MP; turning out the adjustment screw decreases the MP. Turn the adjustment screw in 1/ th turn increments and cycle the relief valve several times after each adjustment. When the MP is 135 psi, cycle the gauge relief valve on and off 10-15 times. After cycling, watch the gauge needle. The first stage MP should "lock-up" at 135 psi. Make any adjustments as necessary. Allow the first-stage to stay pressurized for several minutes and check the MP again to make sure it remains "locked-up" at 135 psi. If the MP creeps upward more than 3 psi, then there is a leak. Refer to the troubleshooting table for possible causes.

5. Close the cylinder valve and depressurize the regulator by opening the gauge relief valve or by pressing the second stage purge button. Close the gauge relief valve and repressurize the system. The MP should still read 135 psi. If the pressure reading is different than the original setting, repeat steps 3 and 4 until the MP is stable.

FINAL ASSEMBLY

1. With the regulator still pressurized, insert the piston (4) into the dry chamber. Press the secondary diaphragm (2) into the end cap (1).

2. Thread the end cap (1) onto the dry chamber until hand tight. Using the face spanner wrench, tighten the end cap until snug. Recheck the medium pressure to make sure it is still at 135 psig.

3. Close the cylinder valve and depressurize the regulator. Remove the test gauge and reinstall the port plug(s).

This Ends Resassembly

Table 1 - Troubleshooting Guide

SYMPTOM	POSSIBLE CAUSE	TREATMENT
High pressure creep (also causes second-stage leaks)	1. HP Seat (14) is worn or damaged	1. Replace HP seat
	2. Crown (13) damaged.	2. Replace crown
	3. Crown O-ring (12) damaged or worn.	3. Replace O-ring
	4. HP plug (18) internal wall damaged	4. Replace HP plug
	5. HP O-ring (16) damaged or worn	5. Replace O-ring
	6. HP Plug O-ring (12) damaged or worn	6. Replace O-ring
External air leakage -0r- Secondary diaphragm distended or burst	1. Port plug o-rings (12, 28, 29) worn or damaged	1. Replace o-rings
	2. Diaphragm (9) worn or damaged	2. Replace diaphragm
	3. Diaphragm (2) worn or damaged	3. Replace diaphragm
	4. Diaphragm seating surface damaged	4. Replace body
	5. Diaphragm Clamp (6) loose	5. Tighten spring retainer
	6. Connector O-ring (37) worn or damaged	6. Replace o-ring
	7. HP Plug o-ring (17) worn or damaged	7. Replace o-ring
Restricted air flow or high inhalation resistance through entire system	1. Cylinder valve not completely open	1. Open valve; check fill pressure
	2. Cylinder valve needs service	2. Switch to different cylinder
	3. Filter (36) is clogged	3. Replace filter

Table 2 - Recommended Tool List

PART NO.	DESCRIPTION	APPLICATION
111610	I.P. test gauge	Intermediate pressure testing
944022	O-ring tool, set	O-ring removal and installation
AT30	Pin Spanner Wrench	Diaphragm clamp, end cap
109436	Seat extract/install tool	HP seat removal
100395	Vise mounting tool	Mounting first-stage into vise
n/a	5/8" open-end wrench	Hose removal
n/a	Torque wrench, foot-pound	Inlet fitting, HP plug
n/a	3/4" box wrench	Connector (removal)
n/a	3/4" box wrench adapter	Connector (installation w/torque wrench)
n/a	5mm hex wrench	Port plugs
n/a	6mm hex key	HP plug, DIN connector (removal)
n/a	6mm hex key adapter	HP Plug, DIN connector (installation w/torque wrench)
n/a	1/8" wooden dowel	Crown, Filter (removal)

Table 3 - 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
Oakite #31	Acid bath for reusable stainless steel and brass parts.	Oakite Products, Inc. 50 Valley Road Berkeley Heights, NJ 07922
White distilled vinegar (100 gr.)	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

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.

CAUTION: DO NOT use muriatic acid for the cleaning of any parts. Muriatic acid, even when strongly diluted, can harm chrome plating, and may leave a residue that is harmful to O-ring seals and other parts.

Procedure A
Cleaning & Lubrication
(All Aqua Lung Regulators)

The ATX200 First Stage and Nitrox

This first stage, when properly cleaned and assembled, is authorized for use with enriched air nitrox (EAN) that does not exceed 40% (EAN 40). This model is authorized for nitrox use because it has undergone adiabatic compression testing and the authroized 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/'m^3). Ordinarry 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.

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 my alter the physical properties of the component, causing it to prematurely degrade and/or break.

Cleaning Hoses

If buildup of corrosion is severe, it is permissible to soak only the hose fittings in the ultrasonic cleaner as needed, and not allow any solution to enter the hose. Rinse in fresh water and allow to dry with the cleaned ends hanging down. Blow filtered air through them prior to installing onto the regulator.

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 4 - Torque Specifications

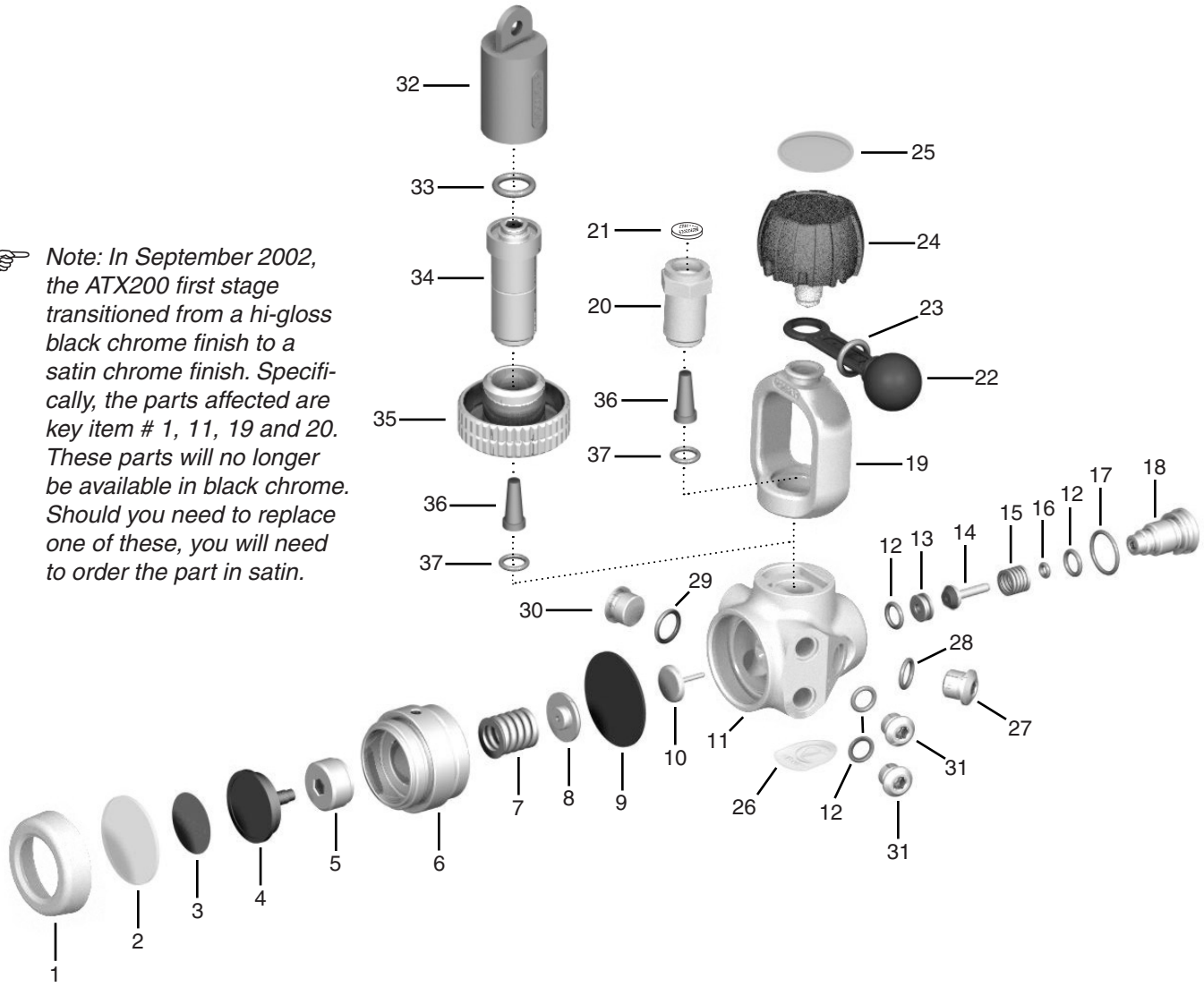
PART NUMBER	DESCRIPTION (KEY NUMBER)	TORQUE
AP1407/BK or AP1407/S	Yoke Connector (20)	12 foot-lbs
AP1471/S	DIN Connector (34)	12 foot-lbs
AP5309	HP Plug (18)	12 foot-lbs
AP1413, AP1408	HP Port Plug (27), LP Port Plug (31)	16-18 inch-pounds

Table 5 - Test Bench Specifications

TEST	CONDITION	ACCEPTABLE RANGE
Leak Test	Inlet 2,500-3,000 (±100) psig	No leaks allowed
Medium Pressure	Inlet 2,500-3,000 (±100) psig	130 to 145 psi
Medium Pressure Creep	Inlet 2,500-3,000 (±100) psig	5 psi max between 5 to 15 seconds after cycling (purging) regulator

Exploded Parts Drawing

Note: In September 2002, the ATX200 first stage transitioned from a hi-gloss black chrome finish to a satin chrome finish. Specifically, the parts affected are key item # 1, 11, 19 and 20. These parts will no longer be available in black chrome. Should you need to replace one of these, you will need to order the part in satin.



Key #	Part #	Description
------	AA0210	1st Stage only, w/Yoke
------	AP0211/S	DIN Kit
------	AP0241/AA	Service Kit, Diaphragm First Stage
1 -----	AP1484/S	Environmental End Cap
2 -----	AP1482	Hydrostatic Diaphragm
3 -----	AP5724	Decal
4 -----	AP1483	Hydrostatic Transmitter
5 -----	AP1474	Spring Adjuster
6 -----	AP1473	Diaphragm Clamp
7 -----	AP1475	Spring
8 -----	AP1476	Spring Carrier
9 -----	AP1478	Diaphragm
10 ----	AP5722	Valve Lifter
11 ----	AP5720/S	Valve Body
12 ---- AP1409		***O-ring***
13 ----	AP5721	Removable H.P. Valve Seat (Crown)
14 ---- AP1419		***H.P Valve***
15 ----	AP1415	Spring
16 ---- AP1299		***O-ring***
17 ---- AP1300		***O-ring***
18 ----	AP5309	H.P. Balance Plug
19 ----	AP1403/S	Yoke Clamp
20 ----	AP1407/S	Yoke Connector

Key #	Part #	Description
21 ----	AP1406/1	Filter Guard
22 ----	AP1404	Protective Cap
23 ---- AP1166		***O-ring***
24 ----	AP1400	Yoke Clamp Screw
25 ----	AP5015	Decal
26 ----	AP5723	Decal
27 ----	AP1413	7/16" Blanking Plug
28 ---- AP1445		***O-ring***
29 ---- AP1410		***O-ring***
30 ----	AP1487	1/2" Blanking Plug
31 ----	AP1408	3/8" Blanking Plug
32 ----	AP1264	Protective Cap, DIN
33 ---- AP1166		***O-ring***
34 ----	AP1471/S	Handwheel Connector, Satin
35 ----	AP1470/S	Handwheel, 300 Bar, Satin
36 ---- AP1472		***Conical Filter***
37 ---- AP1409		***O-ring***

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

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