TECHNICAL SUPPORT

# DST & UST FIRST STAGE REGULATOR



# MAINTENANCE MANUAL FOR AUTHORISED TECHNICIANS

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**DST & UST First Stage Maintenance Manual**

**(AP5824 Issue 3)**

## INTRODUCTION

This manual provides factory prescribed procedures for the correct maintenance and repair of the Apeks DST & UST first stage regulators. 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 authorised training through an Apeks Service & Repair Seminar. If you do not completely understand all of the procedures outlined in this manual, contact Apeks 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 emphasise important points, tips, and reminders.*

## SCHEDULED SERVICE

It is recommended that the Apeks DST & UST first stage regulators should be examined annually regardless of usage. A full serviced should be performed every two years.

However, If at all unsure about the correct functioning of the Apeks first stage, then it must be officially inspected immediately.

All service and inspection details need to be documented in the *Regulator Service Record* in the back of the Owner's Manual to keep the *Limited Lifetime Warranty* in effect.

### An Official Inspection consists of:

1. A pressurised 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 that all parts are tightly fastened together and that no parts are loose.
4. A visual inspection of the Environmental Diaphragm looking for tears or holes and checking the general condition.
5. A visual inspection of any filters for debris or discolouration.
6. Pulling back hose protectors and checking that the hoses are secure in the hose crimps.

If a regulator fails steps 1,2, or 3 the entire regulator should be serviced. If a regulator fails 4 or 5 it will be up to the technician's discretion whether or not a full service is required. Failure of step 6 requires replacement of the Hose.

## GENERAL GUIDELINES

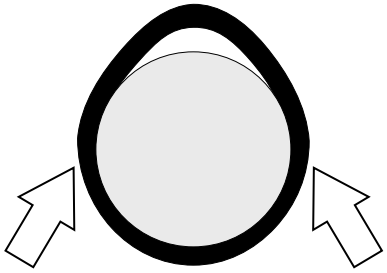
1. In order to correctly perform the procedures outlined in this manual, it is important to follow each step exactly in the order given. Read over the entire manual to become familiar with all procedures and to learn which specialty tools and replacement parts will be required before commencing disassembly. 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. During disassembly, reusable components should be segregated and not allowed to intermix with non-reusable parts or parts from other units. Delicate parts, including inlet fittings and valve seats 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 1st stage service kit (AP0241). DO NOT attempt to substitute an Apeks part with another manufacturer's, regardless of any

# 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 anti-clockwise.
2. When instructed to *install*, *screw in,* or *tighten* a threaded part, turn the part clockwise.
3. When instructed to remove an 'O' Ring, use the pinch method (see figure below) if possible, or use a brass, aluminium or plastic 'O' Ring removal tool. Avoid using hardened steel picks, as they may damage 'O' Ring sealing surfaces. 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; PN is Part Number.
5. Numbers in parentheses reference the key numbers on the exploded parts schematics. For example, in the statement, "...remove 'O' ring (4) from...", the number 4 is the key number to the Spring Carrier 'O' Ring.

# DISASSEMBLY PROCEDURES

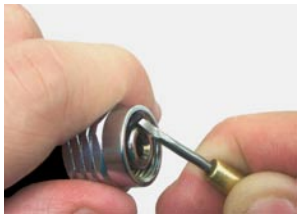
**NOTE:** *Before performing any disassembly, refer to the exploded parts drawing, which references all mandatory replacement parts. These parts should be replaced with new, and must not be reused under any circumstances - regardless of the age of the regulator or how much use it has received since it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

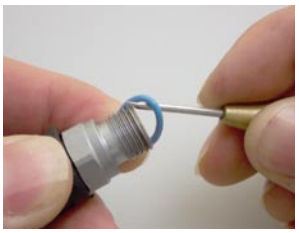
**CAUTION: Use only a plastic, brass or aluminium 'O' Ring removal tool (PN AT54) when removing 'O' Rings to prevent damage to the sealing surface. Even a small scratch across an 'O' Ring sealing surface could result in leakage. Once an 'O' Ring sealing surface has been damaged, the part must be replaced with new. DO NOT use a dental pick, or any other steel instrument.**

### Removal of hose

1. Using the appropriate spanners, remove all of the hoses from the first stage. Remove the 'O' ring from inside the Hose Swivel. Exercise caution not to scratch the 'O' ring groove. Remove the 'O' ring from the Hose Nut end of the Hose.







2. Pull back the two Hose Protectors and inspect the Hose Crimps. If either Crimp is damaged or the Hose is pulling out of the crimp then the Hose must be replaced.



### Removal of Blanking Plugs

3. Using a 5mm Allen key remove all of the MP and HP blanking plugs.



4. Remove all of the 'O' rings from the Blanking Plugs.



5. Using the First Stage Work Handle (PN AT48) clamp the regulator in a vice.



## Removal of Balance Plug Assembly

6. Using a 6mm Allen key unscrew the Turret Retaining Bolt (19) and withdraw the Balance Plug assembly.





7. Separate the Balance Plug assembly by pulling on each end. Remove the two 'O' rings from the Turret Retaining Bolt (19), taking care not to scratch the 'O' ring grooves.

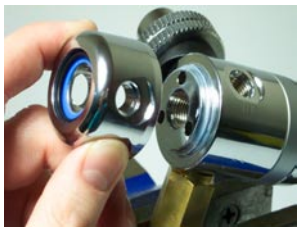






## Removal of Turret

9. Remove the Turret (10) by gently pulling it away from the Valve Body (7). Remove the two 'O' rings and the Thrust Washer (17) from the Turret (10).





## Removal of Dry Sealed System (DST)

10. Using a C Spanner (PN AT30) unscrew the Environmental End Cap (28). Remove the Load Transmitter (25) from inside the Diaphragm Clamp (23).





11. Using a C Spanner (PN AT30) unscrew the Diaphragm Clamp (23). This will remove the Spring Adjuster (24). Remove the Hydrostatic Diaphragm (27) from the Environmental End cap (28).







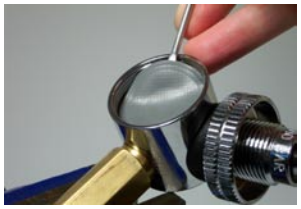
## Removal of Un-Sealed End Cap (UST)

12. Using a C Spanner (PN AT30) unscrew the Diaphragm Cap (2). This will remove the Spring Adjuster (1).



13. Remove the Spring Carrier (4) and using an 'O' ring removal tool carefully prise the Diaphragm (5) out.





☞ **NOTE:** *Take care when removing the Diaphragm so as not to damage the seating face of the Valve Body (7).*

14. Remove the Valve Lifter (6) from the Valve Body (7).



☞ **NOTE:** *If the First Stage has a Din Connection, go to step 15: if it has a Yoke Connection follow step 16.*

### Removal of DIN Connection

15. Using a 6mm Allen key, unscrew the DIN Connection Assembly and separate into four pieces. Remove the 'O' ring from the end of the Handwheel Connector (33).









### Removal of Yoke Connection

16. Unscrew the Yoke Clamp Screw (31) and remove the Protective Cap (30) from the Yoke Clamp (29). Using a 3/4" A/F spanner, loosen the Yoke Clamp Connector (35). Unscrew the Yoke Clamp Connector and Yoke Clamp. Remove the 'O' ring from the Yoke Clamp Connector (12).









17. Insert a dowel through the open end of the Yoke Clamp Connector (35) and push out the Disc Filter (34).



**This Ends Disassembly**

**Before starting reassembly, perform parts cleaning and lubrication according to the procedures outlined in 'Cleaning & Lubrication' on page 14.**

# REASSEMBLY PROCEDURES

### Assembling and fitting of Yoke Connection

1. Insert a new Disc Filter (34) with the smooth side out, into the Yoke Clamp Connector (35). Install a new lubricated 'O' ring (12) into the end of the Connector.




2. Insert the Yoke Clamp Connector (35) through the Yoke Clamp (29) and the Distance Piece (8). With the Valve Body held so that the inlet connection port points down, screw the Yoke Clamp Connector into the Valve Body (7) until finger tight.



**CAUTION: If the Yoke Clamp Assembly is not held vertically whilst it is screwed into the Valve Body, the 'O' ring in the end of the Yoke Clamp Connector may not remain in the correct position.**

3. Secure the Valve Body (7) back into the vice using the First Stage Work Handle (PN AT48). Tighten the Yoke Clamp Connector using a 3/4" A/F spanner. Install the Protective Cap (30) with the logo facing outwards, onto the Yoke Clamp (29). Screw the Yoke Clamp Screw (31) back into the Yoke Clamp (29), until the Protective Cap (30) is retained in place.





### Assembling and fitting of Din Connection

4. Install a new 'O' ring (33) into the face of the Handwheel Connector (37). Install a new lubricated 'O' ring (12) into the opposite end of the Connector. Install the Conical Filter (39) into the Connector, through the 'O' ring.





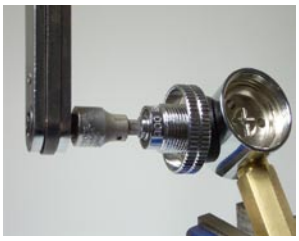
NOTE: *Ensure that the 'O' ring is retained in the Connector after the Conical Filter has been fitted.*

5. Insert the threaded end of the Handwheel Connector (37) through the threaded end of the Handwheel (38). Fit the Distance Piece (8) onto the Handwheel Connector. With the Valve Body held so that the inlet connection port points down, screw the Handwheel Connector into the Valve Body (7) until finger tight.



**CAUTION: If the Handwheel Connector Assembly is not held vertically whilst it is screwed into the Valve Body, the 'O' ring in the end of the Handwheel Connector may not remain in the correct position.**

6. Secure the Valve Body (7) back into the vice using the First Stage Work Handle (PN AT48). Tighten the Handwheel Connector (37) using a 6mm Allen key bit in a torque wrench to 20 Nm.



## Fitting of Dry Sealed Chamber

7. Drop the Valve Lifter (6) through the centre hole of the Valve Body (7). Press a new Diaphragm (5) into the Body. Run your finger around the edge of the Diaphragm to make sure it is properly seated.





8. Place the Spring Carrier (4), flat side down, in the centre of the diaphragm. Place the Spring (3) on the Spring Carrier. Thread the Diaphragm Clamp (23) onto the Valve Body (7), making sure that the Spring (3) remains on the Spring Carrier (4), until hand tight. Using a C Spanner (PN AT30) tighten the Diaphragm Clamp (23) until there is metal to metal contact.









## Fitting of Un-Sealed End Cap

9. Thread the Diaphragm Cap (2) onto the Valve Body (7), making sure that the Spring (3) remains on the Spring Carrier (4), until hand tight. Using a C Spanner (PN AT30) tighten the Diaphragm Cap (2) until there is metal to metal contact.





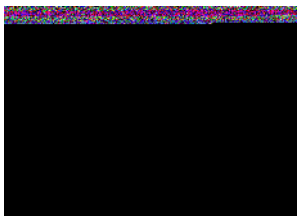
10. Fit a new Lubricated 'O' ring (16) onto the Turret Retaining Bolt (19). Install a new lubricated 'O' ring (15) into the end of the Turret Retaining Bolt (19).





11. Press the Spring (14) onto the end of the Turret Retaining Bolt (19). Carefully insert a new H.P. Valve (13) into the Valve Body (7) making sure that it slides onto the shaft of the Valve Lifter (6).





12. Insert the Thrust Washer (17) into the end of the Turret (10). Fit a new Lubricated 'O' ring (18) on to the top of the Thrust Washer (17).





13. Fit a new Lubricated 'O' ring (9) onto the Valve Body (7).



14. Carefully press the Turret (10) onto the Valve Body (7), ensuring the 'O' ring (9) remains in the correct position. Insert the Turret Retaining Bolt (19) into the Turret (10) and tighten using a 6mm Allen key bit in a torque wrench to to 8 Nm.







**WARNING: Compressed air can be highly explosive and is dangerous if misused. Ensure cylinder valve is opened slowly. Use Eye and Ear Personal Protective Equipment when performing any tests involving Compressed air.**

## Adjusting the First Stage

1. Attach the first stage (with no Blanking Plugs fitted) to a fully charged 232 or 300 bar cylinder. Slowly open the cylinder valve, this will remove any particles or contaminants from the first stage.

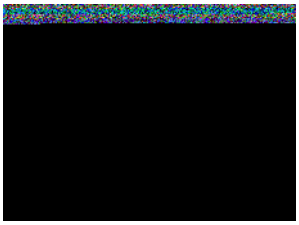


2. Install new lubricated 'O' rings (12,16,22) on all of the Blanking Plugs (11,20,21). Using a 5mm Allen key, install all of the Blanking Plugs into the Valve Body.



**WARNING: The primary MP port is 1/2" UNF. When adjusting the regulator, install either a 1/2" UNF Blanking Plug (20) or a 1/2" UNF hose with a properly adjusted second stage. Alternatively, you may use a 3/8" UNF female to 1/2" UNF 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 - 20 bar) to a medium pressure hose and thread the hose into a MP port. If your test gauge does not have an over pressure relief valve, you must also attach a proplery adjusted second stage to the first stage to act as the relief valve in case of a HP leak. Make sure Blanking Plugs are installed in any open ports.



**CAUTION: If the pressure gauge rapidly exceeds 11 bar, then there is a HP leak. Quickly close the cylinder valve and purge the regulator. Refer to the troubleshooting table for the causes of the leak.**

4. Assuming there are no leaks, close the cylinder valve and depressurise the regulator by opening the gauge relief valve or by pressing the purge button of the second stage regulator. Adjust the medium pressure by turning the Spring Adjuster (4,5): Turning in the Spring Adjuster increases the MP; Turning out the Spring Adjuster decreases the MP. Turn the Spring Adjuster in 1/8th turn increments and purge the relief valve several times after each adjustment. When the MP is between 9 and 10 bar, purge the relief valve on and off 10-15 times. After cycling, watch the gauge needle. The first stage MP should "lock-up" between 9 and 10 bar. Make any adjustments as necessary. Allow the first stage to stay pressurised for several minutes and check the MP again to make sure it remains "locked-up" between 9 and 10 bar. If the MP creeps upward more than 0.25 bar, then there is a leak. Refer to the troubleshooting table for possible causes.



## IMMERSION TEST

With the Blanking Plugs and at least one properly adjusted second stage installed, slowly open the cylinder valve and pressurise the first stage. Completely Submerge the first stage in fresh water and check for leaks.

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

Assuming that there are no leaks, close the cylinder valve and depressurise the regulator. Remove the first stage from the valve and secure the Protective Cap (30) in place with the Yoke Clamp Screw (31). If the regulator has a DIN connection replace the Protective DIN Cap (36).

If a leak is detected, note the source of the leak and refer to the troubleshooting table on page 11 for possible causes and corrective actions.

### This Ends Testing

# Table 1 - Troubleshooting Guide

| SYMPTOM | POSSIBLE CAUSE | TREATMENT |
|---|---|---|
| High Pressure Creep / High M.P. (also causes second stage leaks) | 1. HP Valve (13) is worn or damaged. | 1. Replace HP Valve. |
| | 2. HP Valve Seat in Valve Body (7) is worn or damaged. | 2. Replace Valve Body. |
| | 3. Turret Retaining bolt (19) internal wall damaged. | 3. Replace HP Balance Plug. |
| | 4. 'O' ring inside Turret Retaining bolt (15) is damaged or worn. | 4. Replace 'O' ring. |
| | 5. 'O' ring on Turret Retaining bolt (16) is damaged or worn. | 5. Replace 'O' ring. |
| | 6. Spring Adjuster (1,24) too far in. | 6. Unscrew Spring Adjuster (1,24) out. |
| External air leakage or Secondary diaphragm distended or burst | 1. Blanking Plug 'O' rings (12,16,22) are worn or damaged. | 1. Replace 'O' Ring. |
| | 2. Diaphragm (5) worn or damaged. | 2. Replace diaphragm. |
| | 3. 'O' ring between Turret and Valve Body (9) worn or damaged. | 3. Replace 'O' Ring. |
| | 4. Diaphragm seating surface damaged. | 4. Replace Valve Body. |
| | 5. Connector 'O' ring (12) worn or damaged. | 5. Replace 'O' Ring. |
| | 6. Diaphragm Clamp (23) loose. | 6. Tighten Diaphragm Clamp. |
| | 7. 'O' ring on Turret Retaining bolt (18) worn or damaged. | 7. Replace 'O' Ring. |
| Restrcted air flow or high inhalation resistance through entire system | 1. Cylinder valve not completely open. | 1. open valve, check fill pressure. |
| | 2. Cylinder valve requires servicing | 2. Switch to different cylinder. |
| | 3. Conical Filter (34) or Disc Filter (39) is clogged. | 3. Replace filter. |

# Table 2 - Recommended Tool List

| PART NO. | DESCRIPTION | APPLICATION |
|---|---|---|
| AP0430 | I.P. test gauge | Intermediate pressure testing |
| AT54 | 'O' Ring removal pick | 'O' Ring removal |
| AT30 | C spanner | Removal of Diaphragm Clamp & End Cap |
| AT48 | First Stage Work Handle | Clamping Valve Body in Vice |
| n/a | Torque wrench, Nm or lbf/ft | Installation of Balance Plug & DIN Connection |
| n/a | 6mm Allen key bit for torque wrench | Installation of Turret Bolt & DIN Connection |
| AT34 | 11/16" spanner | Hose Removal |
| AT37 | 5mm Allen key | Blanking Plugs |
| AT38 | 6mm Allen key | Removal of Turret Bolt, DIN Connection & Spring Adjuster |
| AT33 | 3/4" ring spanner | Removal of Yoke Clamp Connector |
| n/a | 232 or 300 bar Diving cylinder | Testing of regulator |

# Table 3 - Recommended Lubricants & Cleaners

| LUBRICANT / CLEANER | APPLICATION | SOURCE |
|---|---|---|
| Christo-Lube® MCG-111<br>(Lubricant) | All 'O' Ring seals | Apeks Marine Equipment Ltd<br>PN AP1495, or<br><br>Lubrication Technologies<br>310 Morton Street<br>Jackson, OH 45640, USA<br>(800) 477-8704 |
| **CAUTION:** Silicone rubber requires no lubrication or preservative treatment. DO NOT apply grease or spray to silicone rubber parts (eg. Diaphragm, Exhaust Valves.) Doing so may cause a chemical breakdown and premature deterioration of the material. | | |
| Biox<br>(Cleaning agent) | Biological immersion fluid for reusable stainless steel and brass parts. | Solent Divers Ltd<br>122-128 Lake Rd, Portsmouth,<br>Hants, PO1 4HH |
| White distilled vinegar (100 gr.)<br>(Cleaning agent) | 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<br>(Cleaning agent) | Degreaser for brass and stainless steel parts; general cleaning solution for plastic and rubber | "Household" grade |

# Cleaning & Lubrication Procedure

## General Cleaning of all Parts

1. Place all components in an ultrasonic cleaning bath containing an appropriate cleaning solution, such as Biox.
2. The components should be cleaned for 6 minutes, depending upon their condition. Longer cleaning times may used if required.
3. Rinse the components in warm fresh water.
4. The components should then be blown dry or left to dry naturally.

## Lubrication and Dressing

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.

## 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. As they leave the factory, standard Apeks regulators are suitable for use with oxygen enriched gases (i.e. nitrox, etc.) providing the oxygen content does NOT EXCEED 40% (EAN40).

Any Apeks regulator, when properly cleaned, lubricated and assembled, is authorised for use with enriched air nitrox (EAN) up to 100% (EAN100). It is authorised because it has undergone adiabatic compression testing and the authorised service kit components and lubricants are compatible in elevated oxygen environments. During cleaning, a mild detergent is used to remove condensed hydrocarbons (compressor oils) from the inside passageways of the first stage. For the first stage to remain EAN100 compatible, only use hyperfiltered compressed gas (hydrocarbons < 0.1 mg/m3). Ordinary compressed breathing air to BS EN 12021:1999 does not meet this criteria. Once ordinary breathing air is used, the first stage is no longer EAN100 compatible until it is cleaned and serviced again.

Although regulator second stage components are not exposed to high pressure EAN, Apeks 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.

**WARNING: Please check the regulations regarding Nitrox in your particular country as this may differ from Apeks standard policy.**

# Table 4 - Torque Specifications

| PART NUMBER | DESCRIPTION / KEY NUMBER | TORQUE |
|---|---|---|
| AP1471 | Handwheel Connector (37) | 20 Nm / 14.7 lbf/ft |
| AP5309 | Turret Retaining Bolt (19) | 8 Nm / 5.9 lbf/ft |

# Table 5 - Test Bench Specifications

| TEST | CONDITION | ACCEPTABLE RANGE |
|---|---|---|
| Leak Test | Inlet pressure 150 - 232 bar | No Leaks allowed |
| Medium Pressure | Inlet pressure 150 - 232 bar | 9 to 10 bar |
| Medium Pressure Creep | Inlet pressure 150 - 232 bar | 0.25 bar max for 15 seconds after purging regulator |

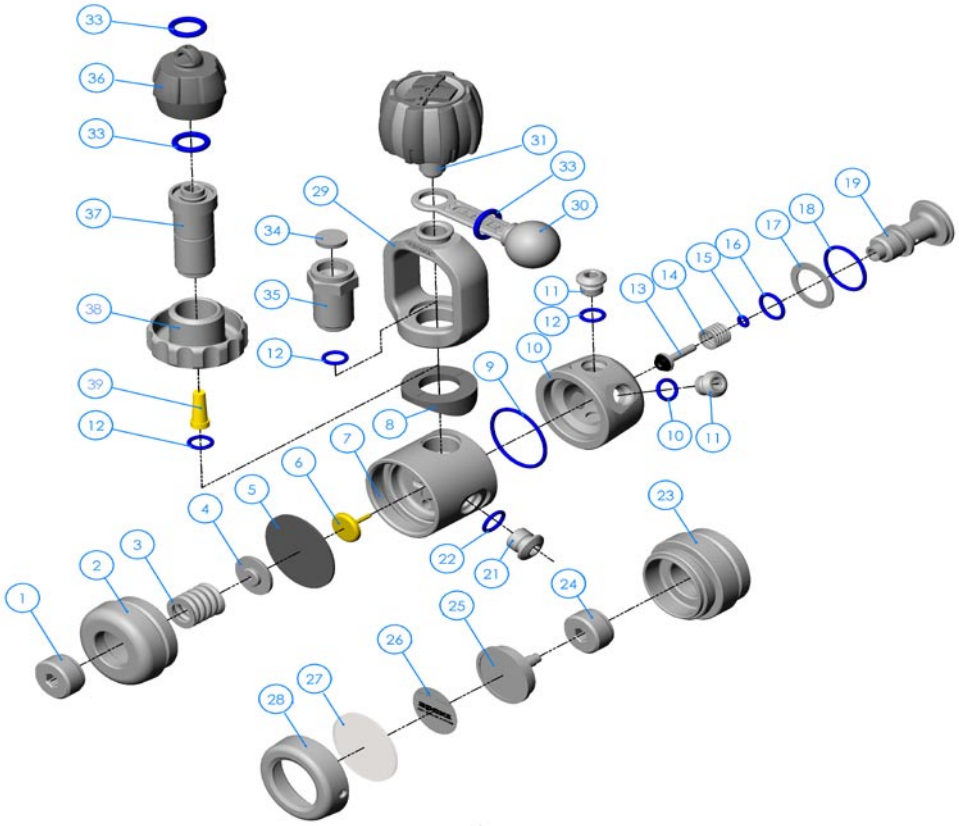
# DST & UST Exploded Parts Diaghram




***All items in bold italics to be replaced when servicing***

| | | | | | |
|---|---|---|---|---|---|
| 1 | AP1474/1 | Spring Adjuster | 21 | AP1413 | 7/16” UNF Blanking Plug |
| 2 | AP1485 | Diaphragm Cap | ***22*** | ***AP1445*** | ***‘O’ Ring*** |
| 3 | AP1475 | Spring | 23 | AP1473 | Diaphragm Clamp |
| 4 | AP1476 | Spring Carrier | 24 | AP1474 | Spring Adjuster |
| ***5*** | ***AP1478*** | ***Diaphragm*** | 25 | AP1483 | Hydrostatic Transmitter |
| 6 | AP1479 | Valve Lifter | 26 | AP1477 | Environmental Decal |
| 7 | AP1480 | Valve Body | ***27*** | ***AP1482*** | ***Hydrostatic Diaphragm*** |
| 8 | AP1446 | Distance Piece | 28 | AP1484 | Environmental End Cap |
| ***9*** | ***AP1420*** | ***‘O’ Ring*** | 29 | AP1407 | Yoke Clamp |
| 10 | AP1481 | Turret | 30 | AP1404 | Protective Cap |
| 11 | AP1408 | 3/8” UNF Blanking Plug | 31 | AP1400 | Yoke Clamp Screw |
| ***12*** | ***AP1409*** | ***‘O’ Ring*** | 32 | AP5004/3 | Decal |
| ***13*** | ***AP1419*** | ***H.P. Valve*** | ***33*** | ***AP1166*** | ***‘O’ Ring*** |
| 14 | AP1415 | Spring | ***34*** | ***AP1406*** | ***Disc Filter*** |
| ***15*** | ***AP1299*** | ***‘O’ Ring*** | 35 | AP1407 | Yoke Clamp Connector |
| ***16*** | ***AP1410*** | ***‘O’ Ring*** | 36 | AP1264 | Protective DIN Cap |
| 17 | AP1414 | Thrust Washer | 37 | AP1471 | Handwheel Connector |
| ***18*** | ***AP1438*** | ***‘O’ Ring*** | 38 | AP1470 | Handwheel 300 Bar |
| 19 | AP1486 | Turret Retaining Bolt | ***39*** | ***AP1472*** | ***Conical Filter*** |
| 20 | AP1487 | 1/2” UNF Blanking Plug | | | |

# XTX DST & UST Exploded Parts Diaghram



***All items in bold italics to be replaced when servicing***

| | | | | | |
|---|---|---|---|---|---|
| 1 | AP1474/1 | Spring Adjuster | 21 | AP1413 | 7/16” UNF Blanking Plug |
| 2 | AP1485 | Diaphragm Cap | ***22*** | ***AP1445*** | ***‘O’ Ring*** |
| 3 | AP1475 | Spring | 23 | AP1473 | Diaphragm Clamp |
| 4 | AP1476 | Spring Carrier | 24 | AP1474 | Spring Adjuster |
| ***5*** | ***AP1478*** | ***Diaphragm*** | 25 | AP1483 | Hydrostatic Transmitter |
| 6 | AP1479 | Valve Lifter | 26 | AP1477 | Environmental Decal |
| 7 | AP1480 | Valve Body | ***27*** | ***AP1482*** | ***Hydrostatic Diaphragm*** |
| 8 | AP1446 | Distance Piece | 28 | AP1484 | Environmental End Cap |
| ***9*** | ***AP1420*** | ***‘O’ Ring*** | 29 | AP1407 | Yoke Clamp |
| 10 | AP5103 | Turret | 30 | AP1404 | Protective Cap |
| 11 | AP1408 | 3/8” UNF Blanking Plug | 31 | AP1402/B | Yoke Clamp Screw |
| ***12*** | ***AP1409*** | ***‘O’ Ring*** | 32 | n/a | |
| ***13*** | ***AP1419*** | ***H.P. Valve*** | ***33*** | ***AP1166*** | ***‘O’ Ring*** |
| 14 | AP1415 | Spring | ***34*** | ***AP1406*** | ***Disc Filter*** |
| ***15*** | ***AP1299*** | ***‘O’ Ring*** | 35 | AP1407 | Yoke Clamp Connector |
| ***16*** | ***AP1410*** | ***‘O’ Ring*** | 36 | AP1264 | Protective DIN Cap |
| 17 | AP1414 | Thrust Washer | 37 | AP1471 | Handwheel Connector |
| ***18*** | ***AP1438*** | ***‘O’ Ring*** | 38 | AP1470 | Handwheel 300 Bar |
| 19 | AP1486 | Turret Retaining Bolt | ***39*** | ***AP1472*** | ***Conical Filter*** |
| 20 | n/a | | | | |

## Notes




# DST & FST FIRST STAGE REGULATOR

# MAINTENANCE MANUAL
# FOR
# AUTHORISED TECHNICIANS

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