



DIVE RITE®

XT4 Second Stage Service Manual

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Warning

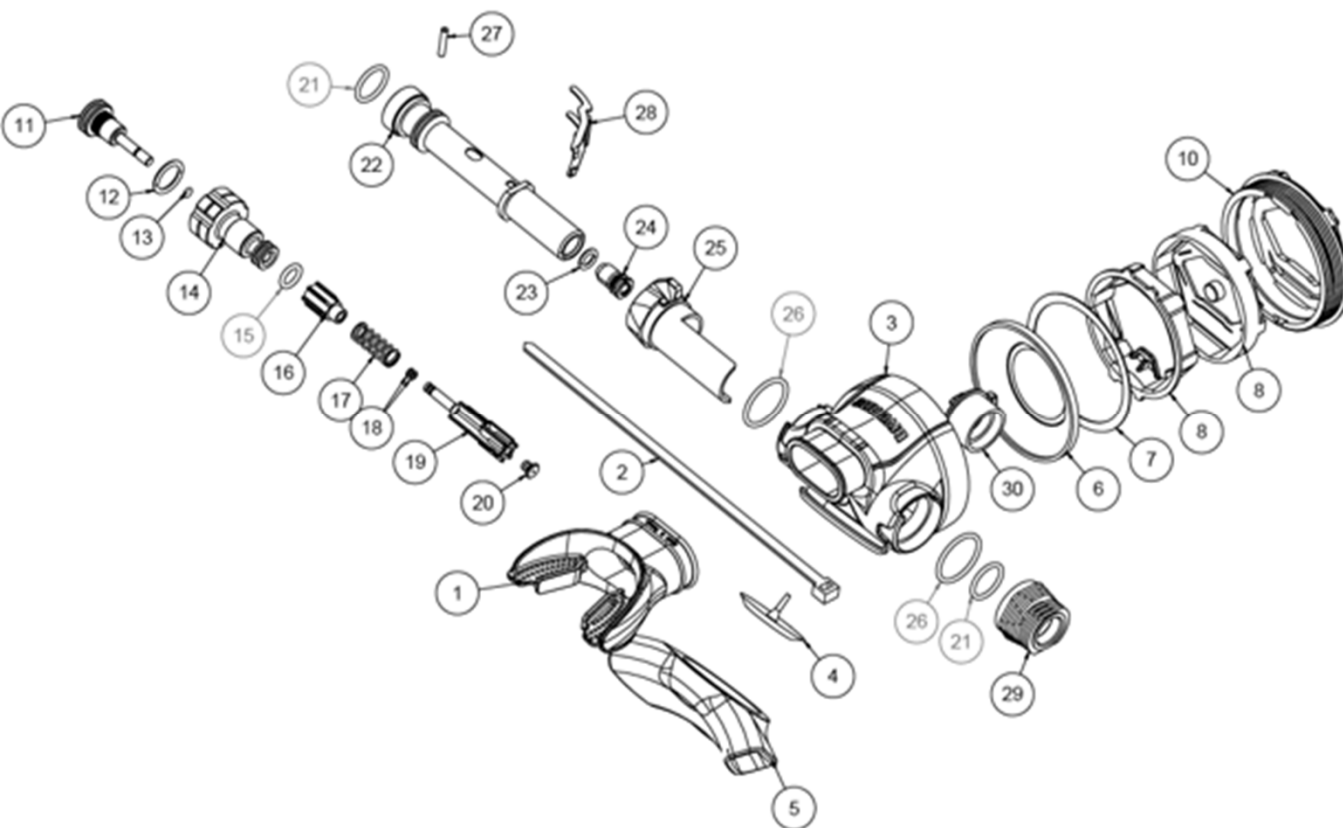
- *This manual is only to be used as a guide for trained regulator technicians. Possession of this guide does not qualify any individual in the service of Dive Rite Breathing Systems. Only qualified Dive Rite dealers can service Dive Rite Products. Improper servicing can lead to serious injury or death.*
- **Only Original Parts ordered from Dive Rite are to be used**

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Required Tools

- 11/16" wrench
- 3/4" wrench
- 5mm Hex Wrench
- Flat-blade screwdriver
- 1/4" wood or plastic dowel
- Inline adjustment tool (recommended)



*Highlighted items are included in service kit.

#	Part Number	Description
1	RG1426	MOUTHPIECE
2	RP9320	NYLON TIE
3	RG5903	MAIN HOUSING
4	RG5904	EXHAUST VALVE
5	RG5905	EXHAUST COVER
6	RG5906	DIAPHRAGM
7	RG5907	DIAPHRAGM WASHER
8	RG5901	PURGE COVER WITH RETAINER
10	RG5910	ALUMINUM RING
11	RG5911	SECONDARY ADJUSTMENT
12	RG5212	O-RING
13	RG5913	O-RING
14	RG5914	ADJUST KNOB
15	RG5915	O-RING
16	RG5916	BALANCE CYLINDER
17	RG5917	SPRING
18	RG5215	O-RING
19	RG5919	PISTON
20	RG5920	SEAT
21	RG1404	O-RING
22	RG5922	ADJUST TUBE
23	RG1411	O-RING
24	RG5924	ORIFICE
25	RG5925	DEFLECTOR KNOB
26	RG1428-SL	O-RING
27	RG5927	ADJUST PIN
28	RG5928	LEVER ARM
29	RG5929	BUSHING NUT
30	RG5930	INSERT

Disassembling the XT4 Second Stage



*You must use two wrenches to remove or install a hose onto the XT4 second stage. Damage to internal components may result from improper hose removal or installation.

1) One 3/4" wrench is used to hold the Bushing Nut (#29 – RG5929) in place while an 11/16" wrench is used to loosen and remove the hose

2) Unscrew the Aluminum Cover Ring (#10 - RG5910) and remove the Purge Cover with Retainer (#8 - RG5901), Diaphragm Washer (#7 - RG5907) and Diaphragm (#6 - RG5906)



3) Use a 3/4" wrench to loosen and remove the Bushing Nut (#29 - RG5929)



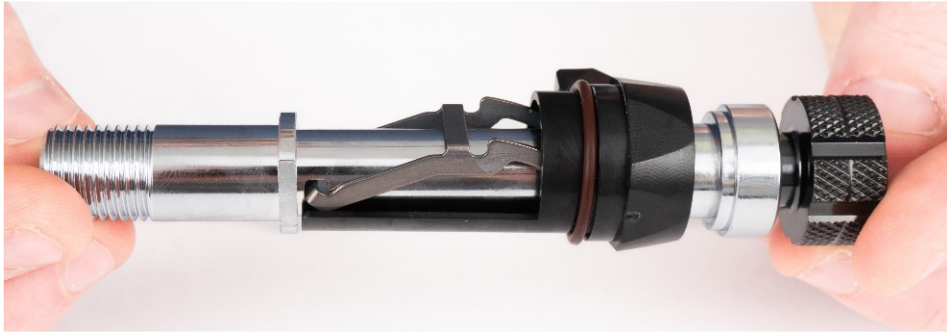


4) Depress the Lever Arm (#28 – RG5928) and pull on the Adjustment Knob (#14 – RG5914) to remove the adjustment tube assembly



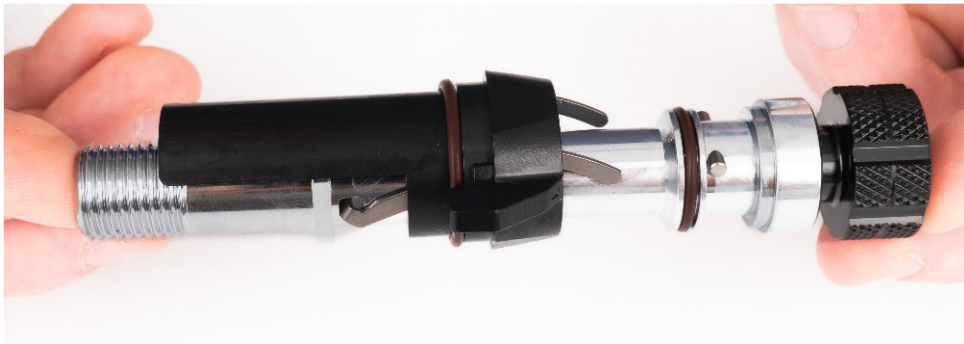
5) Remove the Body Insert (#30 – RG5930), and O-rings (#21 – RG1404 #26 – RG1428-SL)

*Note the orientation of the Body Insert before removal



6) Remove the Deflector Knob (#25 – RG5925).

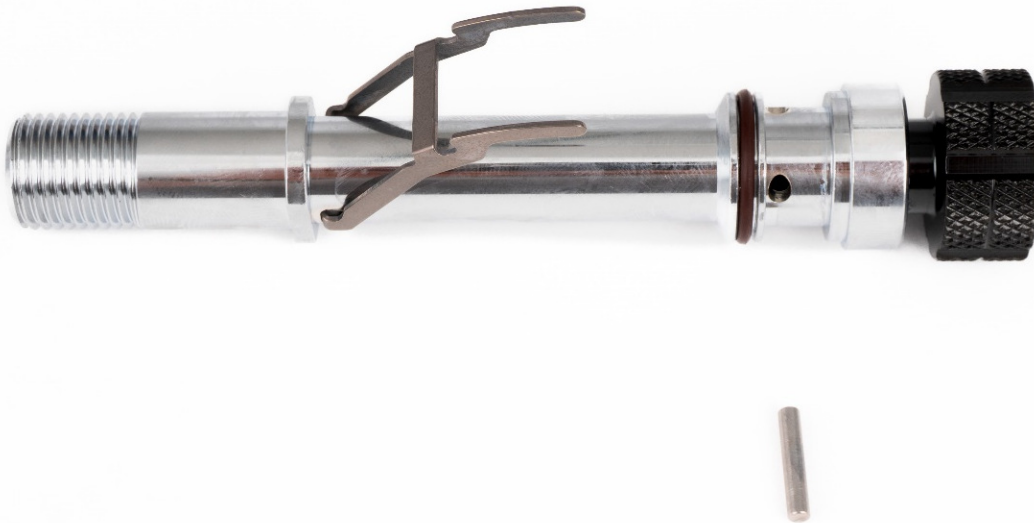
*Hold down the Lever (#28 – RG5928) and slide the Deflector Knob over the Lever until it stops. Rotate the Deflector Knob 180 degrees and slide it off the rest of the way.



7) Remove the O-ring (#26 – RG1428-SL) from the Deflector Knob (#25 – RG5925)

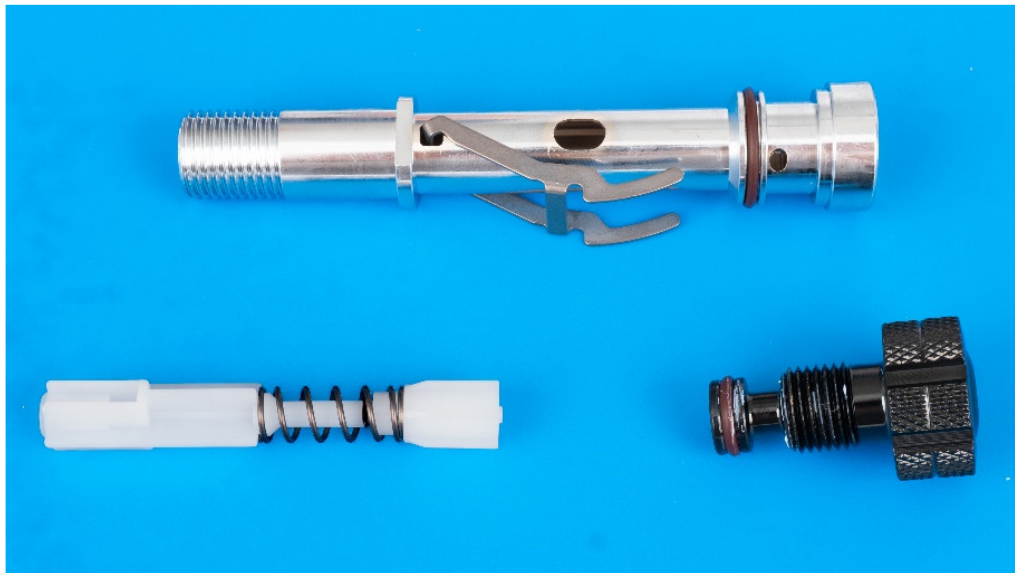


8) Remove the Adjustment Knob Pin (#27 – RG5927)



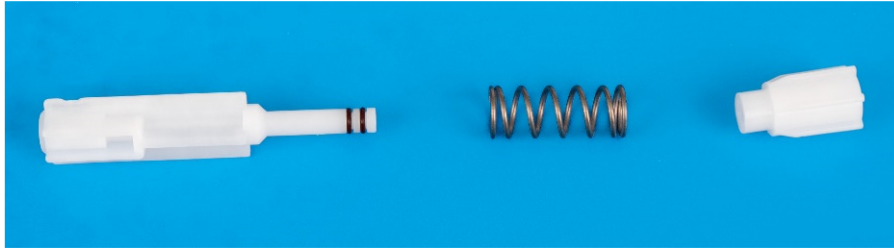
*If the Pin is tight rotate the Adjustment Knob (#14 – RG5914) so that it is in the middle of its adjustment range. The pin cannot be removed if the adjustment knob is turned all the way in either direction.

9) Remove the Adjustment Knob (#14 – RG5914), and the LP valve assembly.



*It may be necessary to push the valve assembly out by inserting a dowel or hex key through the inlet.

It is not necessary to remove the lever arm during service.

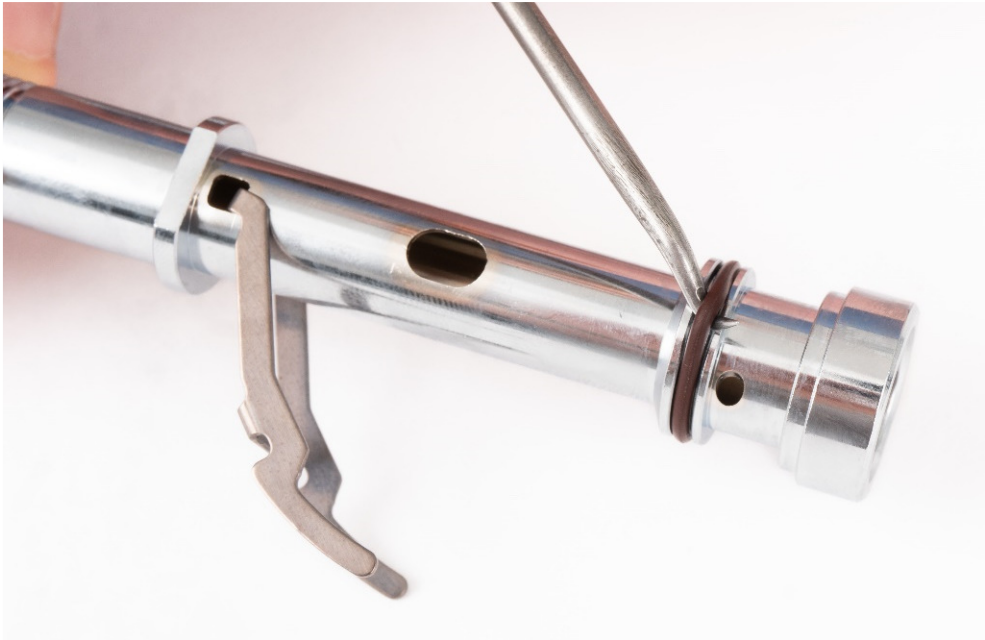


10) Gently separate the Balance Cylinder (#16 - RG5916) and Spring (#17 – RG5917) from the Piston (#19 – RG5919)



11) Remove the Seat (#20 – RG5920) and the O-rings (#18 – RG5215) from the Piston (#19 – RG5919)





12) Remove the O-rings (#21 – RG1404,
#15 – RG5212)





13) Use a 5mm hex key to unscrew the Secondary Adjustment (#11 – RG5911) counter-clockwise until it will not loosen any farther



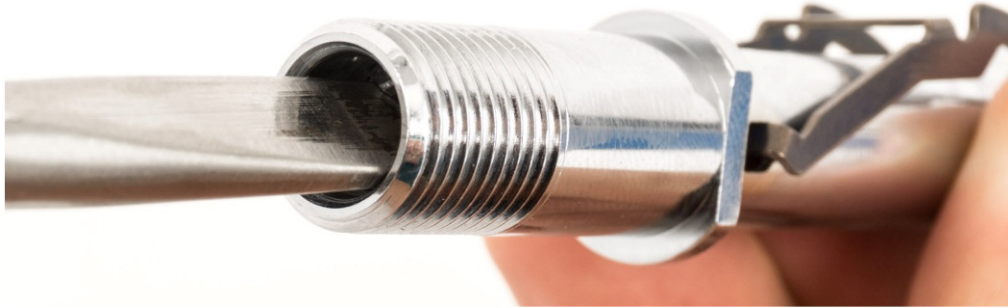
14) Using a pick or a small hex key, carefully push out the Secondary Adjustment (#11 – RG5911) from the inside. It will require some force to remove.





15) Remove O-rings (#12 – RG5912
and #13 – RG5913)





16) Use a flat-blade screwdriver to loosen the Orifice (#24 – RG5924) and then push it out with a wooden dowel



17) Remove the O-ring (#23 – RG1411)



18) Use a heat gun to heat the Exhaust Cover (#5 – RG5905). This will soften the material allowing it to be easily removed.



19) Remove and inspect the Exhaust Valve (#4 – RG5904) for damage.

*This part will be reused as long as it is not damaged.

This completes disassembly of the XT4 Second Stage

Warning!!! Only original Dive Rite parts are to be used

- Parts should be cleaned in a solution compatible with Oxygen use.
- All points of lubrication (O-rings, Etc.) require the use of an Oxygen compatible lubricant. I.E.
Tribolube 71

Assembling the XT4 Second Stage



1) Install the Exhaust Valve (#4 – RG5904)



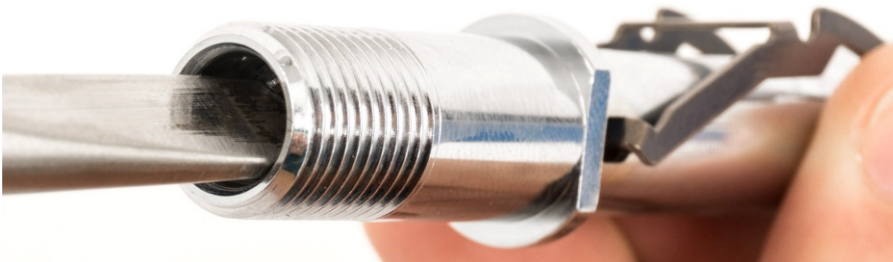
2) Use a heat gun to heat the Exhaust Cover (#5 – RG5905). This will soften the material allowing it to be easily installed



3) Install O-ring (#23 – RG1411)
onto the Orifice (#24 – RG5924)



4) Install Orifice (#24 – RG5924) into
the Adjustment tube (#22 – RG5922)
and tighten with a flat-blade screwdriver



*The Orifice should be screwed in until it
stops then unscrewed approximately
1.5 turns as a starting point for
adjustment



5) Install the new LP Seat (#20 – RG5920) and O-rings (#18 – RG5215) onto the Piston (#19 – RG5919)

*Apply a small amount of grease to the LP Seat stem to allow it to install fully.



6) Install the O-rings (#12 – RG5912, and #13 – RG5913) onto the Secondary Adjustment Knob (#11 – RG5911)

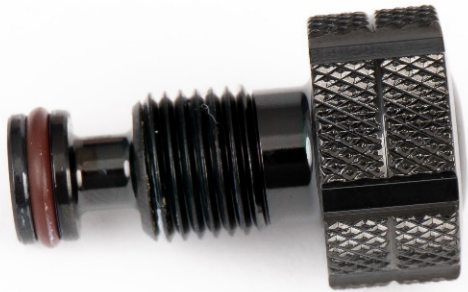


7) Install the Secondary Adjustment Knob (#11 – RG5911) into the Adjustment Knob (#14 – RG5914) by pressing it into place and then tightening with a 5mm hex key.

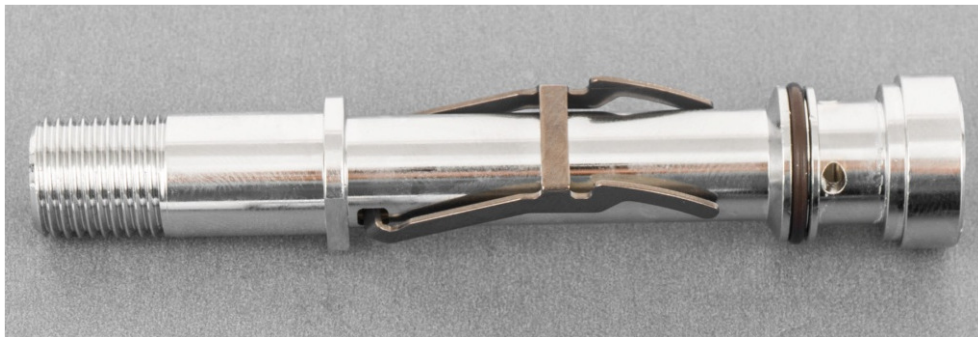
To set the initial adjustment, tighten it all the way until it lightly bottoms, then unscrew it 4-5 turns.



The end of the secondary adjustment post should be protruding slightly from the adjustment knob.



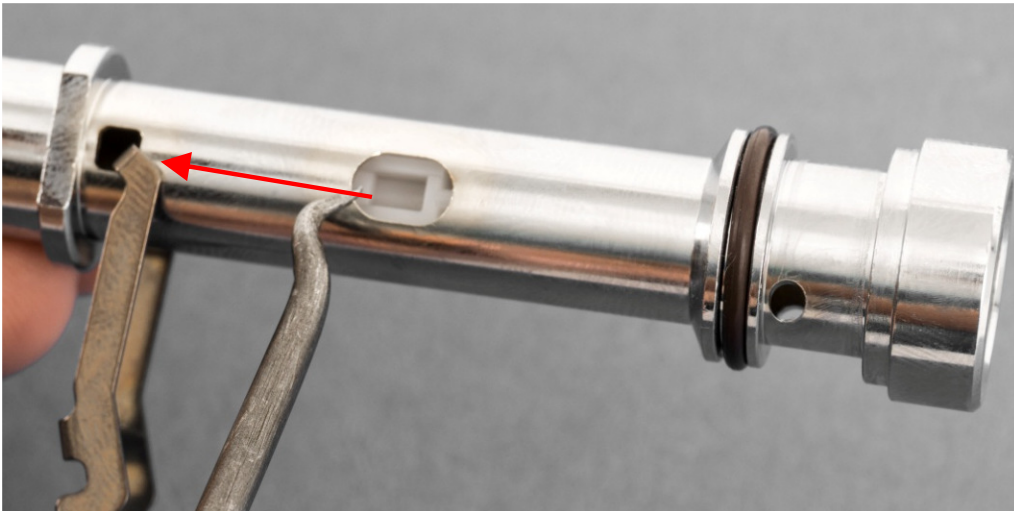
8) Install the O-ring (#15 – RG5212) onto the Adjustment Knob (#14 – RG5914)



9) Install O-ring (#21 – RG1404) onto Adjustment Tube (#22 – RG5922)



10) Install Piston (#19 – RG5919)
into the Adjustment Tube (#22 –
RG5922)



*The rectangular lever catch on
the Piston must be properly
aligned with the Lever legs



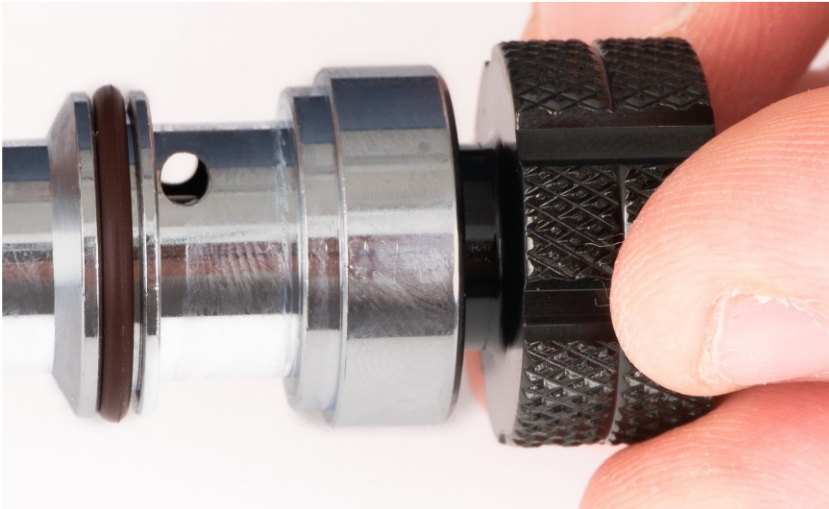
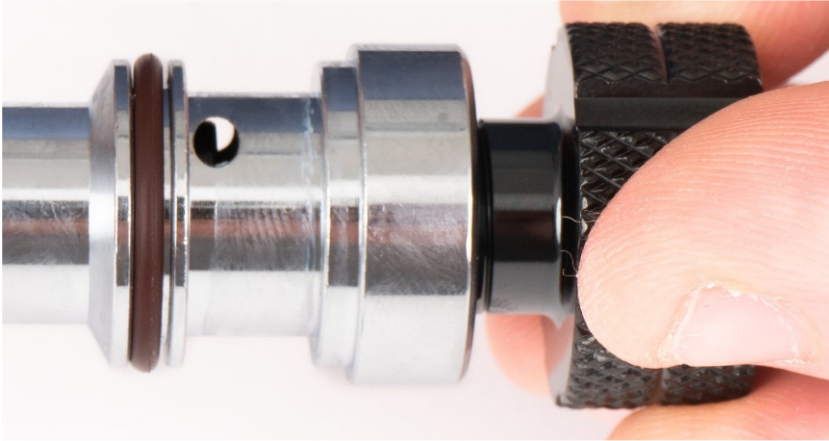
11) Install the Spring (#17 – RG5917) and Balance Cylinder (#16 – RG5916)

*Apply pressure to the back of the Balance Cylinder to ensure that the Piston is seated properly on the Lever

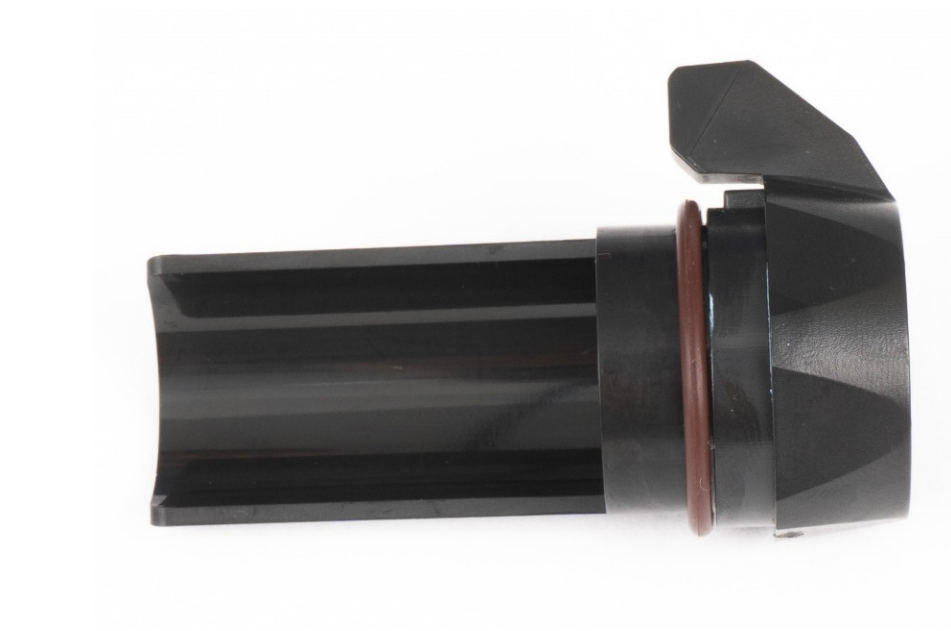


12) Install the Adjustment Knob (#14 – RG5914) onto the Adjustment Tube (#22 - RG5922)

*The Lever should be under spring tension



13) Turn the Adjustment Knob (#14 – RG5914) so that the it does not block the pin hole and install the Adjustment Knob Pin (#27 – RG5927). Center the pin, and tighten the Adjustment Knob to hold it in place.



14) Install the O-ring (#26 – RG1428-SL) onto the Deflector Knob (#25 – RG5925)



15) Install the Deflector Knob (#25 – RG5925)



*Slide the knob over the Lever (#28 – RG5928) until it stops. Rotate the knob 180 degrees and slide it on the rest of the way so that it covers the Adjustment Knob Pin (#27 – RG5927)



16) Install the Body Insert (#30
– RG5930)

*The insert must be oriented
properly and be fully seated



17) Install the adjustment tube assembly

*Ensure that the Lever (#28 – RG5928) is recessed properly into the Body Insert (#30 – RG5930)





18) Install O-rings (#21 – RG1404, #26 – RG1428-SL)



19) Install Bushing Nut (#29 – RG5929)



20) Tighten the nut to to 12-24 in-lb
(1.36-2.71 N-m)



21) Install the Diaphragm (#6 – RG5206) and Diaphragm Washer (#7 – RG5907)



22) Install the Purge Cover with Retainer (#8 – RG5901) into the Aluminum Cover Ring (#10 – RG5910) noting the orientation. The notch on the cover ring will point up.



23) Install the Cover (#8 – RG901) and Cover Ring (#10 - RG5910), and LP hose

*You must use two wrenches to remove or install a hose onto the XT4 second stage. Damage to internal components may result from improper hose removal or installation

This completes Assembly of the XT4 Second Stage

Reversing the Hose Routing of the XT4 Second Stage

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*You must use two wrenches to remove or install a hose onto the XT4 second stage. Damage to internal components may result from improper hose removal or installation.

1) One 3/4" wrench is used to hold the Bushing Nut (#29 – RG5929) in place while an 11/16" wrench is used to loosen and remove the hose



2) Unscrew the Aluminum Cover Ring (#10 - RG5910) and remove the Purge Cover with Retainer (#8 - RG5901), Diaphragm Washer (#7 - RG5907) and Diaphragm (#6 - RG5906)



3) Use a 3/4" wrench to loosen and remove the Bushing Nut (#29 - RG5929)

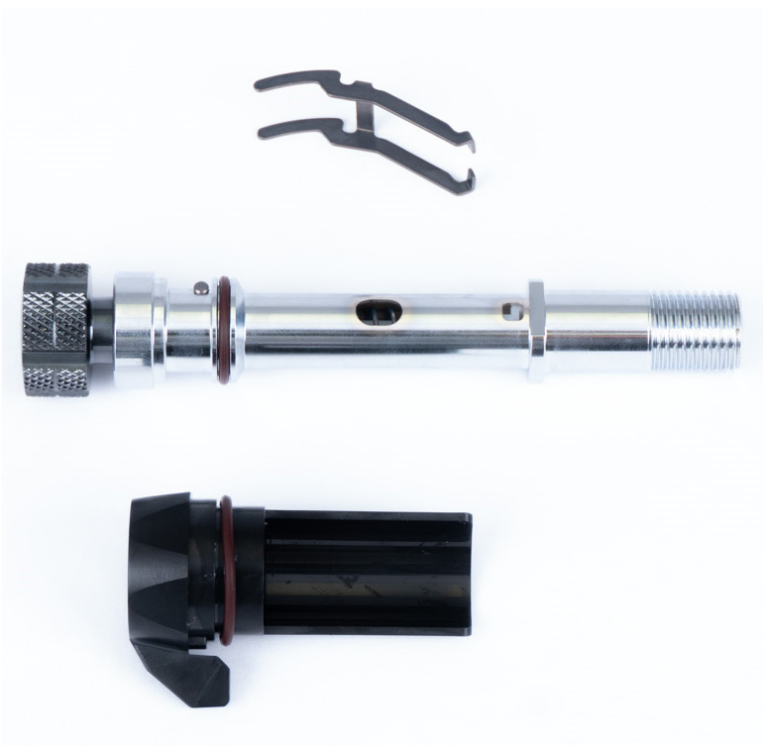


4) Depress the Lever Arm (#28 – RG5928) and pull on the Adjustment Knob (#14 – RG5914) to remove the adjustment tube assembly



5) Remove the Body Insert (#30 - RG5930), and O-rings (#21 – RG1404 #26 – RG1428-SL)

*Note the orientation of the Body Insert before removal



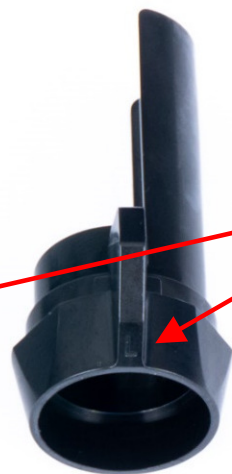
6) Remove the Lever (#28 – RG5928) and Deflector Knob (#24 – RG5224)



7) Identify the correct Deflector Knob (#25 – RG5125) for the desired hose routing



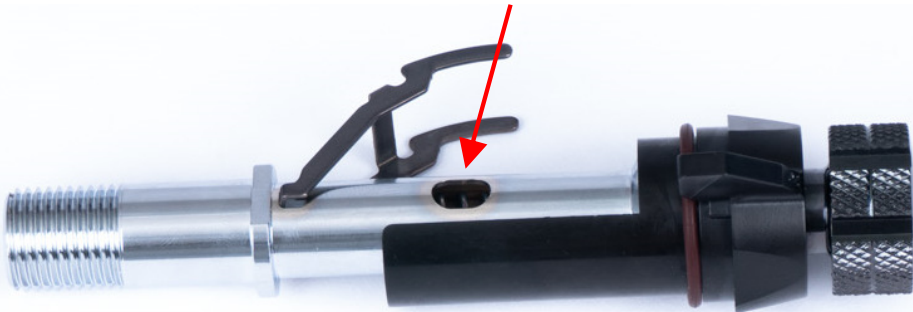
For Left-Handed
Regulator



For Standard
Right-Handed
Regulator

*Note that the XT4 deflectors are labeled according to which side of the regulator the deflector is on. This is the **opposite** side from the hose i.e. the deflector labeled “L” is used for a standard right-handed regulator (where the hose attaches to the right-hand side of the regulator as it sits in the diver’s mouth)

Outlet



8) Install the Deflector Knob (#24 – RG5224) and Lever (#21 – RG5928) in the correct orientation for the desired hose routing

*Oval shaped outlet hole must face **up** towards the mouthpiece opening when the adjustment tube assembly is installed. The deflector is on the diver's side, and the lever arm faces away from the diver, towards the front cover.



9) Install the Body Insert (#28 – RG5228) on the proper side for the desired hose routing

*The insert must be oriented properly and be fully seated



10) Install the adjustment tube assembly

*Ensure that the Lever (#28 – RG5928) is recessed properly into the Body Insert (#30 – RG5930)





11) Install O-rings (#21 – RG1404, #26 – RG1428-SL)



12) Install Bushing Nut (#29 – RG5929)



13) Tighten the nut to to 12-24 in-lb
(1.36-2.71 N-m)



14) Install the Diaphragm (#6 – RG5206) and Diaphragm Washer (#7 – RG5907)



15) Install the Purge Cover with Retainer (#8 – RG5901) into the Aluminum Cover Ring (#10 – RG5910) noting the orientation. The notch on the cover ring will point up.



16) Install the Cover (#8 – RG901) and Cover Ring (#10 - RG5910), and LP hose

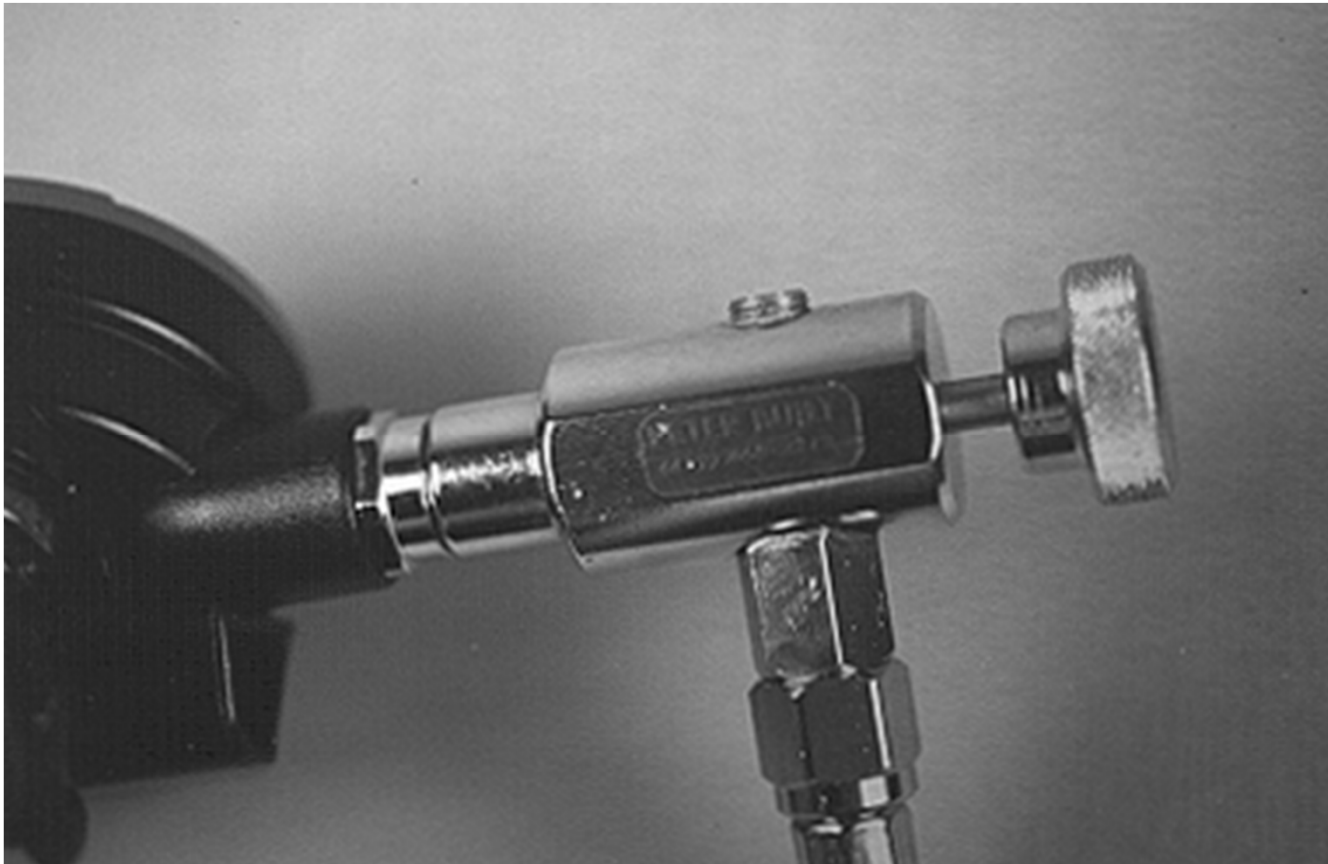
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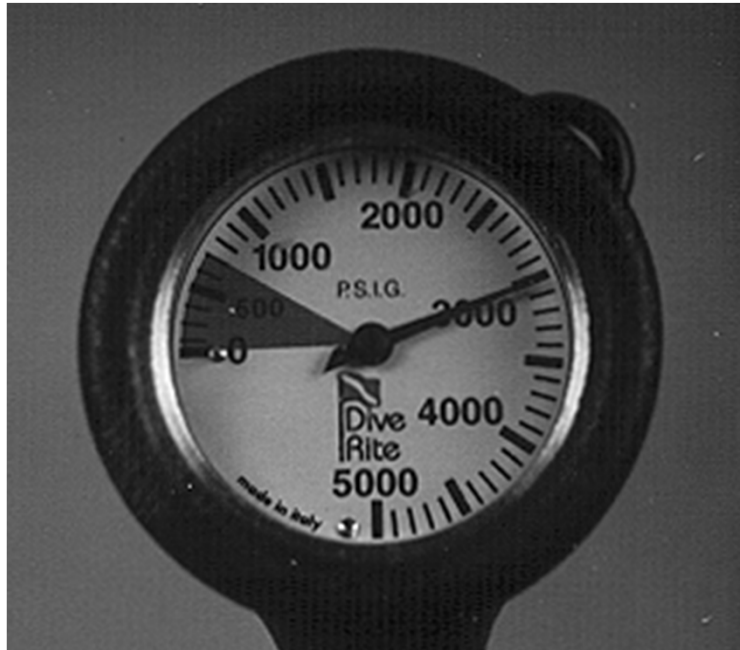
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Tuning and Adjusting Dive Rite Regulators

- 1) Attach a second stage adjusting tool between the second stage and the low-pressure hose.
The first stage can also be connected to an overpressure valve
- 2) Close all other open ports with the appropriate plugs.



- 3) Connect to a high pressure (3000 psi) breathing gas source.
- 4) Open the supply pressure slowly.
- 5) Adjust the intermediate pressure by moving the adjusting screw to increase or decrease tension on the intermediate pressure spring. (Purge the second stage after each adjustment.)
- 6) The Intermediate pressure should be adjusted to 140 psi +/- 5psi.



Supply Pressure



Intermediate Pressure

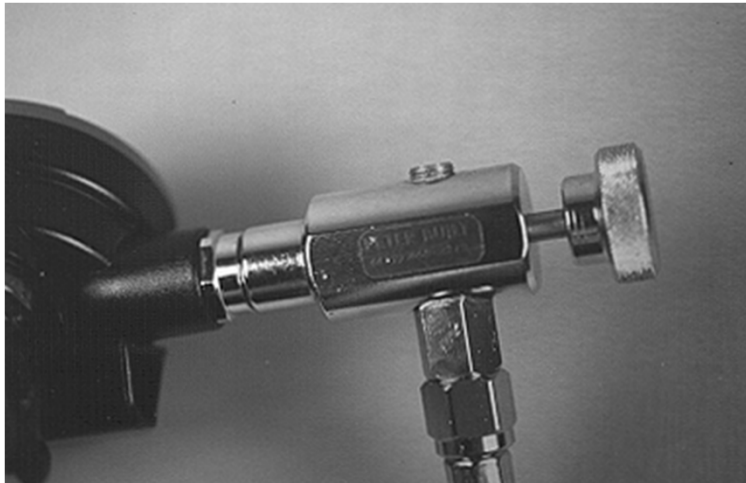
Note: it may be necessary to purge the regulator several times to allow the HP seat to “break in” and hold pressure.

Tuning the XT4 Second Stages



1) Turn the adjustment knob counterclockwise until it stops; this will set the second stage for the least resistance.

Note: By setting the adjustment knob to the easiest setting, the diver can increase breathing resistance to his/her preference. The regulator should NOT be set to FREEFLOW.



2) Using the second stage adjusting tool, loosen the adjustment (counterclockwise) until gas just starts to flow. Then tighten the adjustment back (clockwise) until the gas flow just stops, and then tighten an additional 1/16-1/8 of a turn.



3) Final adjustments will be made using the Secondary Adjustment. With the second stage connected to a magnehelic gauge, adjust the Secondary Adjustment using a 5mm hex wrench until the cracking pressure is between 1.1 and 1.2 inches of H₂O.

4) Purge the regulator and observe the intermediate pressure of the 1st stage.

An intermediate pressure drop of 2-8 psi is considered acceptable.