

# Service Procedure for rEvo DSV

By Jason Fisch



## Required Tools and Parts

Flat head screw driver  
4mm Allen Wrench  
Tribolube 71  
DSV Rebuild Kit PN# R214



## Disassembly Procedures

**Step 1:** Remove Hose Clamps with a flat head screw driver



\*some older models may be held in place with black zip ties. Carefully cut off the zip ties and replace with SS Hose Clamps rEvo PN# R705

**Step 2:** Remove both breathing hoses



**Step 3:** Using your fingers, pull remove inhale spider PN# R536 and exhale spider PN# R537 with flapper valves (no need to remove flapper valve) carefully inspect flapper valves for damage. Replace Flapper valves if necessary rEvo PN#R519



\*depending on when the DSV has been serviced last or old vs. new, you may have trouble getting the spiders out. Take 2 zip ties, bend the ends so there is a pretty descent curve. Feed the zip tie through the spider (do not puncture the flapper valves) and back out so the zip tie goes under 3 of the plastic veins. Lock the zip tie to there is a nice loop to grab onto. Repeat this step so you have 2 zip ties on each spider. Gently pull and remove the spider. If it's still really hard to remove, try soaking in warm water for a while.



**Step 4:** Open up the DSV (Dive Mode), Using a 4mm Allen wrench, insert the wrench through the mouthpiece and loosen the bolt while holding the thumb screw with the opposite hand. Try your best to hold the thumb screw still and only turn the wrench. This will help prevent the o-ring that is located under the thumb screw from being damaged.



**Step 5:** Be sure to take notice of how the barrel is positioned inside the DSV so when you put it back in you do it correctly. I will cover this in more precise detail later on during re assembly.



**Step 6:** Removing the barrel from the DSV, with both of your thumbs inserted in the exhale side, carefully push the barrel thru the DSV so it comes out the inhale side. There are 3 o-rings on the barrel Remove o-rings and discard. All of these o-rings are dynamic o-rings and should be replaced annually with PN# R214



## Cleaning Procedures

**Step 1:** Wash barrel and DSV with warm soapy water; you can use a tooth brush soap and water to thoroughly clean both pieces. Rinse with fresh water and dry with compressed air. If using a towel or paper towel, carefully inspect that both pieces are lint free.



**Step 2:** Inspect all sealing surfaces (grooves where o-rings reside) and make sure they are not damaged

## Assembly Procedures

**Step 1:** Open up your new DSV o-ring kit PN#R214, there should be 4 o-rings (some earlier kits may only have 3 o-rings, it's ok to reuse the o-ring for the thumb screw because it is a static o-ring, if it's damaged in anyway, do not reuse). Separate the o-rings. 2 of the 4 o-rings should be the same size; these are for the ends of the barrel.



**DO NOT Lubricate any of the o-rings prior to installing. This helps prevent the o-rings from coming out of their grooves when we slide the barrel back into the DSV later on. Remember to make sure all of the o-rings are free from hair and lint prior to installing.**

**Step 3:** Install the 2 o-rings that are the same size on each of the barrels ends.



**Step 3:** DO NOT Lube prior to installing. Install the 3<sup>rd</sup> o-ring on the barrel start by putting the o-ring in the groove facing one of the ends of the barrel (← here). Using your thumb and index finger hold the o-ring at the opposite end and twist the o-ring (roll in your finger tips) a quarter turn towards the part of the o-ring that is currently in the groove. Using your free hand carefully lay the o-ring down (both sides at the same time) in the grooves. As you get the o-ring in half way, allow the o-ring to slowly untwist in your fingers and seat it in the groove the rest of the way. If you do not follow this procedure, the o-ring may spring back and come out of the groove.



**Step 4:** Lubricate the entire inside of the DSV with Tribolube 71. This comes down to personal preference, some chose to lubricate after the barrel is in all of the way.



**Step 5:** DO NOT install the barrel yet this step is to ensure proper orientation of the barrel. Hold the DSV so that the mouthpiece is facing you and so you can see the Drager Flow Direction Arrow is pointed to the left. In your other hand, hold the barrel so you can see the opening for the mouthpiece and that the smooth side is facing up (grove below thumb lever should be on the bottom).



**Step 6:** DO NOT install the barrel yet keep reading. Rotate the barrel a ¼ turn so the opening for the mouthpiece is facing up and inline with the Drager Flow Direction Arrow (this is a critical step in preventing the center o-ring from coming out while inserting the barrel into the DSV)



**Step 7:** DO NOT use force! If it feels like it is stuck, it probable is. Its quite possible one of the 3 o-rings became dislodged. Gently insert the barrel into the DSV. With a slight twisting/wiggle motion to get the first o-ring into the DSV, thy to keep the barrel as level and square as possible to the DSV. Make sure the o-rings do not pop out of the grooves. Gently push the barrel in further so the center o-ring stays in its groove and finally push it the rest of the way so the barrel is completely inside the DSV. You can now rotate the barrel a ¼ turn down so you can see to opening fully.

### Commonly encountered problems when installing the barrel into the DSV

Sliding the barrel in too fast and damage the o-rings  
Not putting the barrel in level and having the o-rings extrude  
Not rotating the barrel a ¼ turn so the center o-ring is fully protected  
Using brute force and cutting the o-rings



**Step 8:** Make sure the mouthpiece is open. Put the bolt for the thumb lever on the tip of the 4mm Allen Wrench and insert it through the mouthpiece opening so it goes through the hole. Install o-ring on black thumb knob (no need to lube). Screw the thumb lever onto the bolt approx ¾ of the way. Push in on the thumb lever so it's flush against the barrel. While holding it in place, tighten down the bolt the rest of the way with the 4mm Allen Wrench.





Once the thumb lever is tightened down all the way, put the DSV in a padded vise and snug down another quarter turn **DO NOT OVERTIGHTEN!** If you don't have a padded vise, be creative 😊



**Step 9:** reinstall the spider valves (they can only go in one way). If you had to remove the flapper valves, you must double check at this time to insure you reinstalled them properly. The rEvo has right to left flow! There is also a directional marker on the top of the DSV that points in the direction of flow.



**Step 10:** Install the breathing hoses and SS Hose Clamps. Be sure the breathing hoses are pushed in all of the way before tightening the SS Hose Clamps. The hose clamps must be tight.



**Step 11:** Lubricating the Barrel, close the DSV and insert the Tribolube 71 Syringe through the mouthpiece and inject some lube along the edge and work the DSV all the way open and all of the way closed, repeat as necessary until the rEvo DSV is operating nice and smooth. Remove any excess Tribolube 71 from the mouthpiece with a paper towel.

## Final Testing of the DSV and breathing Hose Assembly

**Step 1:** Fill up a Bucket or sink with fresh water. Close the DSV and block off the end of the exhale hose with your hand.



**Step 2:** Submerge the DSV in water. Blow through the inhale hose and look for any leaks around the hoses and DSV. There should be NO BUBBLES. Great Job on rebuilding your rEvo DSV! Now go diving☺.

