DVO SUSPENSION



Version 1.0

ONYX 38 FULL SERVICE GUIDE

⚠ WARNING!

Failure to comply with these warnings and instructions may cause SERIOUS INJURY, DEATH, or DAMAGE TO YOUR PRODUCT.

Be sure to read this manual carefully before using your DVO suspension. Throughout this manual, reference is made that “an accident” could occur. Any accident may cause damage to the product, SERIOUS INJURY, OR DEATH.

These instructions contain important information about the correct installation, guidelines for set-up, service and maintenance of your suspension. Nevertheless, please be informed that special knowledge and tools are essential to install, service and to maintain DVO Suspension. Common mechanical knowledge may not be sufficient to repair, service or maintain your suspension. Therefore we strongly recommend getting your suspension installed, serviced and/or maintained by a trained and qualified bicycle mechanic. Improper installation, service or maintenance can result in an accident.

Forks and rear shocks contain fluids and air under extreme pressure. DO NOT attempt to disassemble any portion of a DVO Suspension product unless instructed to do so by a DVO Suspension authorized technician.

Only use genuine DVO Suspension replacement parts. Modification, improper service, or the use of aftermarket replacement or spare parts may result in an accident and VOIDS the warranty of your product.

DVO Suspension forks and rear shocks are designed for the usage by a single rider only.

DO NOT use DVO Suspension products on any powered vehicle that is not a pedal-assist Class-1 or Class-3 e Bike.

Always be equipped with proper safety gear. This includes a properly fitted and fastened helmet. According to your riding style you should use additional safety protection. Make sure your equipment is in flawless condition.

Make sure you select the correct fork and rear shock according to your frame manufacturer specification. Installing suspension that does not match the geometry of your frame could result in a failure of the suspension itself and void the suspension warranty. Installing a fork or rear shock not designed for your frame will change the geometry and handling of your bike. Learn how to ride and train your skills. Know your limits and never ride beyond those.

Study all other manuals provided with your bicycle and make yourself familiar with all components mounted to your bike.

PRE-RIDE SAFETY CHECK

1. DO NOT ride your bicycle if any one of the following test criteria is not passed! Riding your bike without eliminating any defect or carrying out the necessary adjustments can result in an accident, SERIOUS INJURY OR DEATH.

2. Do you notice any cracks, dents, bent, or tarnished parts of your suspension fork or shock, or any other part of your bicycle? If so, please contact a trained and qualified bicycle mechanic to check your fork, shock, seat post, saddle, and complete bike.

3. Do you notice any oil leaking from your fork and/or shock? If so, please consult a trained and qualified bicycle mechanic to check your suspension and bike before riding.

4. Make sure your wheel is attached and centered properly in order to avoid any contact with the suspension fork or brake system.

5. Make sure your axle system is secure. There should be no play between the hub and fork lower.

6. Make sure your brakes are properly installed, adjusted, and work properly. This also applies to every other part of your bike like handlebars, pedals, cranks arms, seat post, saddle, etc.

7. Check the cable length and routing of your braking components. Make sure they do not interfere with your steering actions or full compression and extension of your suspension.

8. Check your shock hardware and ensure there is no play between the shock and mounting surfaces. Ensure your shock hardware is tightened to the bike manufacturer’s recommend torque before riding.

Service Overview

This manual will guide you step by step performing a full service to your Onyx 38. Please follow each instruction carefully to achieve the best and safest results.

*Always wear your safety gear while working on suspension products. We care about you, make sure you wear your safety glasses and protective gloves while servicing DVO Suspension Products.

⚠ WARNING!

ALWAYS WEAR SAFTY GEAR!

Tools Needed For Service

1. Vice
2. Adjustable Wrench
3. Rubber Mallet
4. Crescent Wrench
5. Needle-Nose Pliers
6. Torque Wrench
7. 1.5, 2, 5, 8mm Allen Keys
8. C-clip Pliers
9. 10 & 19mm Open Wrenches
10. 12, 23, 14, 18mm Sockets
11. 16 & 18mm Crows-foot Wrench
12. Cassette Removal Tool
13. Small Punch Set
14. Pick
15. 10, 26, & 29mm Shaft Clamps
16. 38mm Seal Press

Supplies Needed For Service

1. Safety Glasses
2. Gloves
3. Clean, Lint Free Rags
4. 3 Wt., 7.5 Wt. Suspension Oil (no maxima)
5. Suspension Cleaner or Alcohol
6. Shock Pump
7. Loctite 242 BLUE
8. Loctite 263 RED
9. Slickolium or similar marine grease

Recommended Service Interval

• Full Service .....100 Hours of Ride Time

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LUBRICANT	BRAND	WEIGHT
Fork Damper Oil	DVO, Motul, Motorex, Silkoline, R.S.P.	3
Fork Lower Bath	Golden Spectro, Motul, Motorex, Silkoline, R.S.P.	7.5

Do NOT use Rock Shox or Maxima powersports suspension fluids under any circumstances.
Permanent seal damage will occur.

LOCATION	VOLUME	WEIGHT
Damper	80 cc	3
Air / OTT side stanchion	5 cc	7.5
Damper side lower leg bath (OTT Model)	25cc	7.5
OTT side lower leg bath (OTT Model)	25cc	7.5
Damper side lower leg bath (SL Air Model)	20cc	7.5
SL Air side lower leg bath (SL Air Model)	20cc	7.5
Use marine grease on OTT spring / guide		

PART	TORQUE	NOTES
15mm Floating Axle	12 N.m	
Axle pinch-bolt	5 N.m	
Cable guide bolt	1 N.m	
Lower leg bleed nut assembly (2)	5 N.m	
Fender mount bolts	3 N.m	
OTT footnut	10 N.m	
SL Air footnut	10 N.m	
Air spring foot buffer	7 N.m	Loctite 263 Red
Rebound footnut	10 N.m	
Rebound adjust knob fixing bolt	3 N.m	
Top plug - Air side	20 N.m	Loctite 243 Blue
Top plug - Damper side	20 N.m	
Damper Bleed screw	3 N.m	
Compression adj. knob fixing bolt	1 N.m	
Top plug to compression loader	5 N.m.	
Comp loader shaft	5 N.m	Loctite 243 Blue
OTT Preload Guide Nut	10 N.m	
Piston rod to OTT preload guide	10 N.m	Loctite 243 Blue
Piston nut	5 N.m.	Loctite 263 Red
Top loader assembly fixing pins	2 N.m	
Rebound piston seat	7 N.m	Loctite 243 Blue
Rebound piston nut	5 N.m	Loctite 243 Blue
Damper sealhead	11 N.m.	Loctite 243 Blue
Valve core	.3 N.m	

Chassis Disassembly

1.

Before starting, wipe down and clean your fork, and prepare a clean work surface.



2.

Using a 2mm allen wrench, remove the compression knobs and set aside.





3.

Remove air cap and slightly loosen the valve core until you hear air releasing slowly. Set cap aside.





4.

Remove the rebound knob by pulling straight down and set aside.



5.

Using a 14mm socket, loosen the footnut on the damper side. Then use a 8mm allen wrench to loosen the footnut on the air spring side. DO NOT completely remove





6.

Using a rubber mallet, lightly tap the footnuts to break the upper assembly free from the lowers.





7.

Remove the footnuts from the air spring and damper side and set aside.





8.

Using a catch pain or basin, drain the oil from the lowers. Set the lowers safely aside.v





Chassis Disassembly (continued)

9.

Using a cassette tool, loosen both top caps.





10.

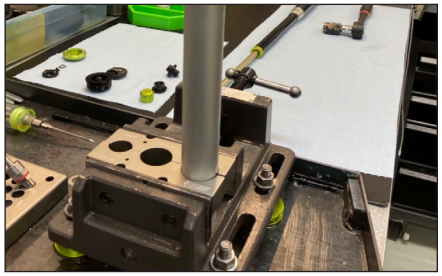
Unscrew and remove the damper cartridge and set aside, then unscrew and remove the air cap and set aside.





11.

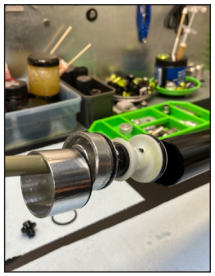
Using 30mm vice clamps, mount the steerer in the clamps as shown.



12.

Using snap-ring pliers, gently remove the snap-ring located at the bottom of the air spring leg. Grasping the airshaft, carefully remove the SL or OTT assembly and set aside.





13.

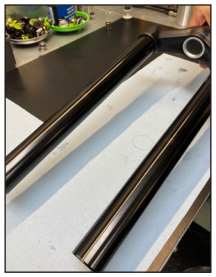
Lay all of the parts out on a clean work surface.

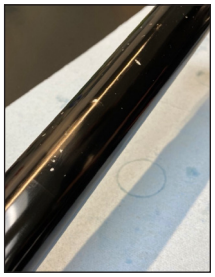


Inspection

14.

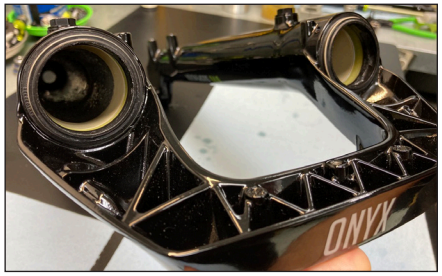
Wipe down the upper tubes and inspect to make sure they are free of abnormal wear, scratches, or dents. The photo on the right shows a stanchion that has been damaged and the upper ashould be replaced. If free from damage, set aside.





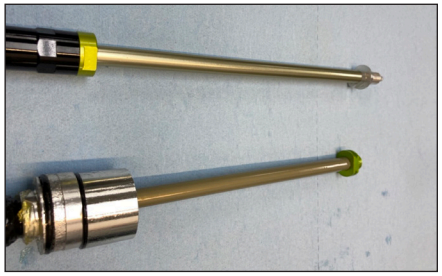
15.

Inspect the bushings in each leg, ensuring they are fully seated and there is no visible wear or damage.



16.

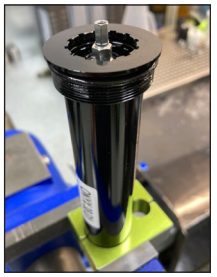
Wipe down and inspect the damper cartridge and air spring shafts.



Damper Service

17.

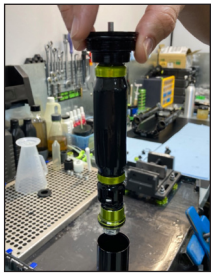
Gently clamp the damper cartridge into 29mm shaft clamps, using just enough force to keep it from rotating, but not enough force to compress and damage the cartridge.



18.

Using a cassette tool, loosen the top cap of the damper cartridge, unthread, and remove the damper unit from the cartridge body and set aside.





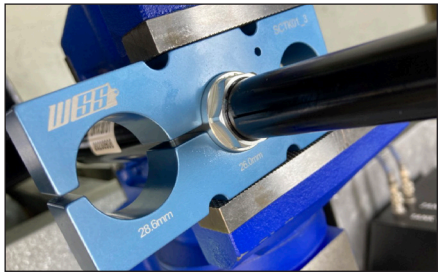
19.

Remove the cartridge from the clamps and dump the oil into a catch pan.



20.

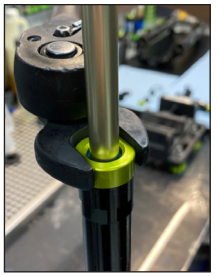
Invert the damper cartridge and gently clamp in vice using 26mm shaft clamps, again using just enough force to keep it from rotating.



Damper Service (continued)

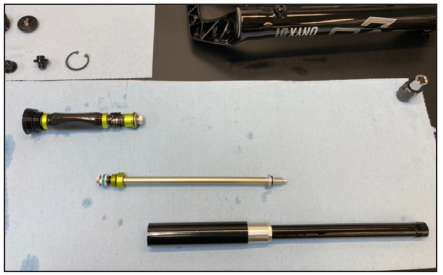
21.

Using a 18mm wrench, loosen the endcap and remove the shaft assembly from the cartridge and set aside.




22.

You should now have your cartridge body, rebound assembly, and compression assembly laid out on your workspace.
For D1 damper service, move to step 23.
For D2 damper service, proceed to page 43, step 131.



23.

Using a 1.5mm allen wrench, remove the two pins connecting the bladder to the compression assembly. Next, remove the compression assembly from the bladder assembly.




24.

Gently grasping the bladder assembly with one hand, use needle-nose pliers to grasp the compression shaft nut and pull the assembly from the bladder. Next, carefully remove the two washers and set aside.




25.

Pull the inner shaft out slightly to expose the ball bearing. Carefully remove the ball and spring and set aside, then completely remove the rebound shaft and set aside.





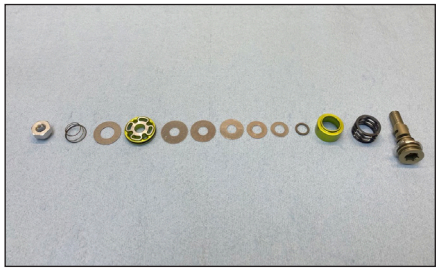
26.

Using an 8mm allen wrench and a 13mm wrench or socket, loosen and remove the piston nut. Remove and discard the piston o-ring.



27.

Disassemble, clean, and inspect the piston bolt group.



Damper Service (continued)

28.

Begin reassembly of the group by first installing the spring, followed by the high speed spacer.



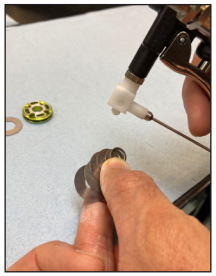

29.

Install the washer with the inner chamfer side facing down as shown.



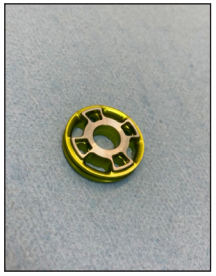

30.

Clean the shims thoroughly, then reinstall the shims in the reverse order they were removed.




31.

Install the piston in the direction as shown.



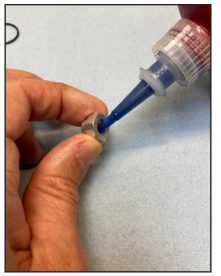

32.

Install the shim and spring.




33.

Apply a light coat of Loctite 243 Blue to the threads of the nut, and reinstall.



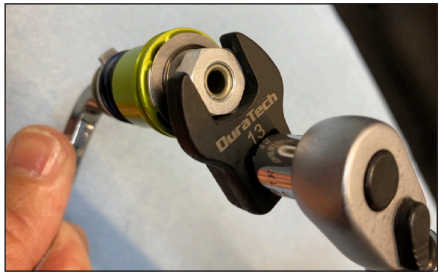

34.

Install new o-ring on piston. Using a small flathead screwdriver, carefully double-check that the shims are returning to position when lifted.




35.

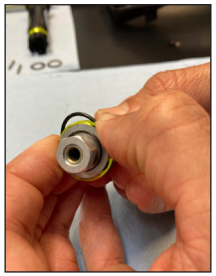
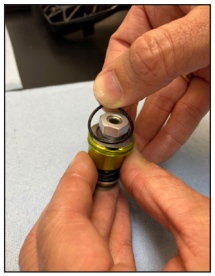
Using an 8mm allen wrench to hold the bolt, use a 13mm crows-foot wrench or socket and torque to 5Nm.



Damper Service (continued)

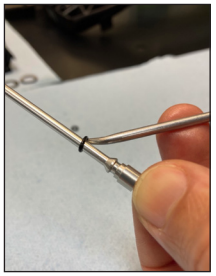
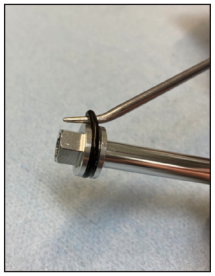
36.

Install a new o-ring on the damper piston by carefully stretching it over the nut.

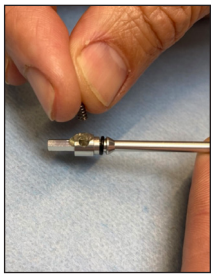
37.

Remove the o-rings on both ends of the rebound needle shaft. Apply a light coat of grease to the grooves and install the new o-rings, and then apply another light coat of grease to the o-rings.

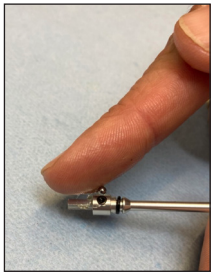
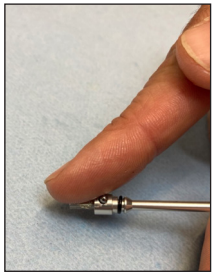
38.

Apply a small amount of grease to the spring cavity on the rebound needle, then insert the spring into the cavity.

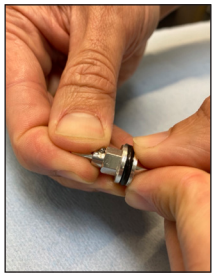
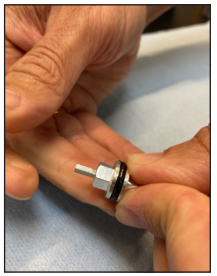
39.

Apply a small amount of grease to your finger and use it to “grab” the bearing, and gently place it on top of the spring. The grease will hold it in position.

40.

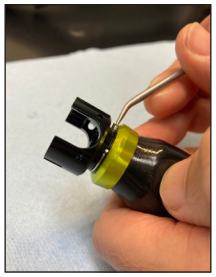
Reinstall the needle into the shaft, using your thumb to press the ball down allowing the needle to fully seat in the shaft.

Damper Service (continued)

41.

Using a small flathead screwdriver, carefully remove the bladder clip and set aside. Pull down on the topcap-side bladder and remove the second bladder clip.



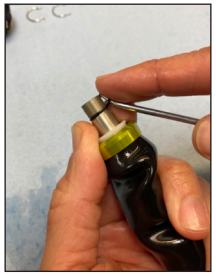

42.

Clamp an 8mm allen wrench in the vise as shown so that the bottom of the bladder unit is supported as shown. Using a cassette tool, loosen and remove the top cap from the bladder assembly.




43.

Use a pick to remove and discard the o-ring, then press the opposite end of the bladder ring down to break the seal.




44.

Remove the bladder from the shaft, then remove the green bladder ring and bladder coupler.



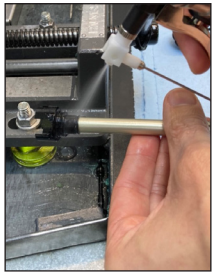

45.

Using a small flathead screwdriver, carefully remove the clip at the other end and set aside, then remove the seal unit and bladder coupler.



46.

Clean the shaft and end inside and out, then clean the bladder rings. Wipe down and dry to prepare for reassembly.



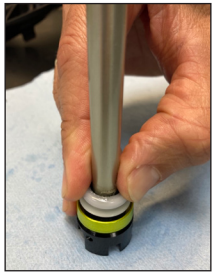
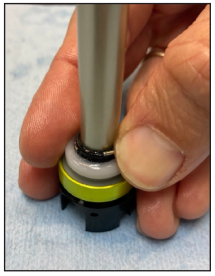

47.

Reinstall the base bladder ring and apply a light coat of grease at the base and shaft, then on the inner surfaces of the seal unit.




48.

Reinstall the bladder coupler, and then press the seal unit back onto the base and reinstall the retaining clip as shown.

Damper Service (continued)

49.

Lightly apply grease to the inside lip of the bladder, slide onto shaft assembly, and use your fingers to seat the bladder back onto the coupler.



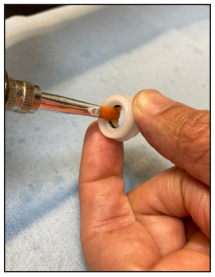

50.

Gently pull the bladder ring away from the end, and reinstall the bladder clip.




51.

Gently pull the opposite end of the bladder down to expose the shaft and apply a liberal coat of grease on the threads. Next, apply a light coat of grease on the inside of the bladder coupler.

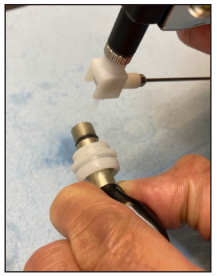
52.

Slide the coupler onto the shaft, and then install a new o-ring in the shaft groove.




53.

Using suspension cleaner, clean the grease off the threads of the shaft and wipe dry.



54.

Seat the bladder on the coupler, and apply a light coat of grease.




55.

Reinstall the bladder ring and retaining clip.




56.

Apply a light coat of Loctite 243 Blue to the shaft threads, then thread the topcap assembly back on.




Damper Service (continued)

57.

Place the assembly on the vice fixture, and use a cassette tool to tighten the topcap to 5Nm.



58.

Remove from vice and apply grease on the inside edges of XXXX, and then apply a light coat of grease on the compression shaft assembly.





59.

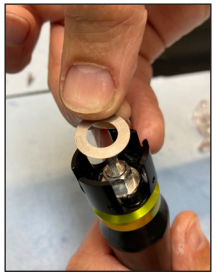
Reinstall the compression shaft into bladder assembly, then use your needle-nose pliers to press and seat the shaft unit completely.





60.

Reinstall the two washers.





61.

Place the compression loader assembly back onto the bladder assembly, and reinstall the pins using a 1.5mm allen wrench and torque to 2Nm.





62.

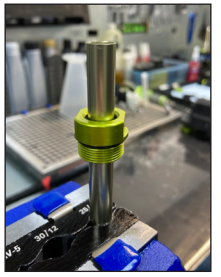
Clamp the rebound shaft in the clamps, and loosen the rebound foot buffer assembly using a 10mm wrench. Remove the rebound adjust unit and set aside.

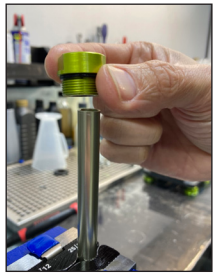




63.

Slide the endcap up and off the shaft and set aside.

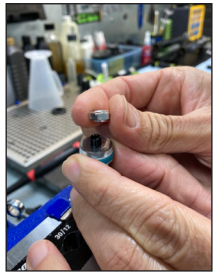




64.

Turn the shaft over in the clamps and remove the nut using a 10mm wrench.

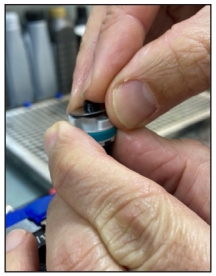
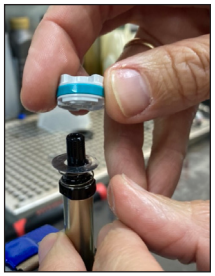




Damper Service (continued)

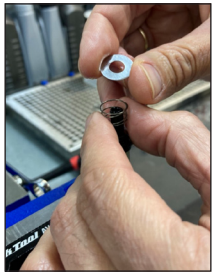
65.

Remove the shims and the piston and set aside.

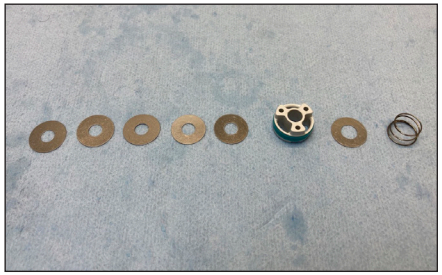
66.

Remove the shim and spring below the piston.




67.

Lay the shims, spring, and piston out for cleaning and inspection.



68.

Reinstall the spring on the piston seat, followed by the shim.
Note: The shim ID is 7mm. Do not mix with the 6mm ID shims.



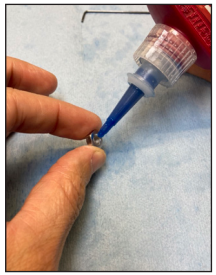
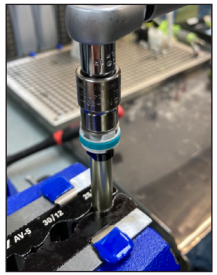

69.

Reinstall the piston and shims, ensuring the correct orientation.



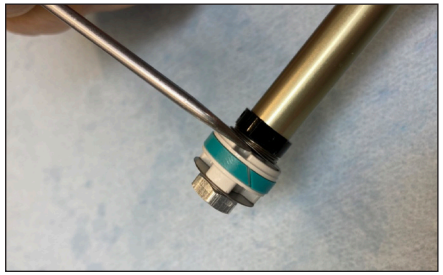

70.

Apply a light coat of Loctite 243 Blue to the inside of the nut and reinstall, then torque to 3Nm using a 10mm crows-foot wrench or socket.

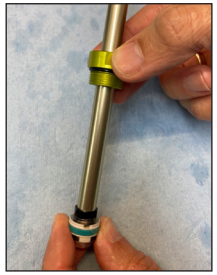
71.

Using a small flathead screwdriver, gently pull down and release the shim to ensure the spring is allowing the valve to open and close.



72.

Apply a light coat of grease to the inside of the end cap and reinstall on the shaft.

Damper Service (continued)

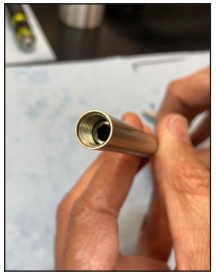
73.

Clean the rebound foot buffer assembly to ensure the threads are clean, then apply a light coat of Loctite 243 Blue to the threads that go into the shaft.



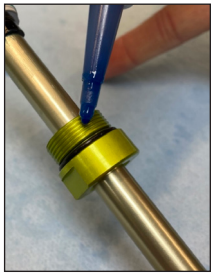

74.

Using an 4mm allen wrench, slowly rotate the inner unit until it stops. Reinstall the foot buffer assembly and torque to 7Nm with a 10mm crows-foot wrench.



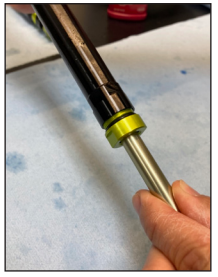
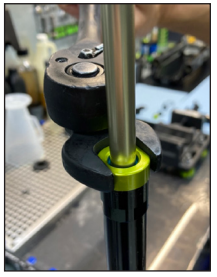

75.

Clean the inside of the damper cartridge thoroughly and wipe dry. Apply a coat of Loctite 243 Blue to the rebound endcap threads.

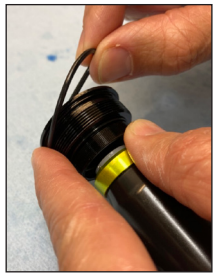
76.

Clamp the damper cartridge in shaft clamps and reinstall the rebound assembly into the cartridge. Torque the to 11Nm using an 18mm crows-foot wrench.

77.

Remove and replace the inner cartridge o-ring from the damper topcap. Remove and replace the larger main topcap o-ring.

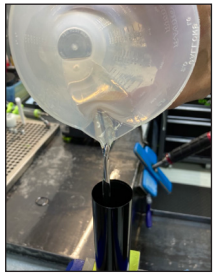
78.

Apply a generous coating of grease to the entire compression assembly, and then apply a light coating of grease to the inside of the upper cartridge tube using a long q-tip.



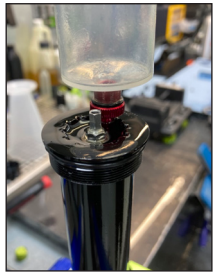

79.

Gently clamp the upper cartridge tube into shaft clamps, and fill with 3wt oil. Slowly insert the bladder assembly into the upper tube; oil will spill over so be sure you have a catch tray in place.




80.

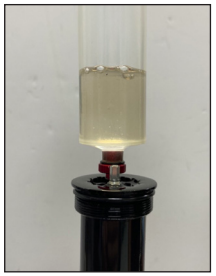
Thread the topcap back on the cartridge body and torque to 11Nm using a cassette tool. (IMPORTANT: ensure the inner tube o-ring doesn't get pinched in the process). Thread a bleed syringe into the topcap bleed port.

Damper Service (continued)

81.

Fill the bleed syringe with enough 3wt oil to allow the shaft to cycle without introducing bubbles into the system. Angle the cartridge so that the bleed port is at the highest point and cycle the shaft several times until no air bubbles escape the cartridge. Remove the bleed syringe.

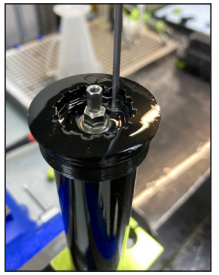




82.

Remove and replace the o-ring on the bleed screw, and reinstall the bleed screw in the cartridge. Tighten the bleed screw to 3Nm.





83.

Wipe and clean cartridge of excess oil then apply a light coat of grease to the cartridge threads. Insert cartridge back in upper tube.





84.

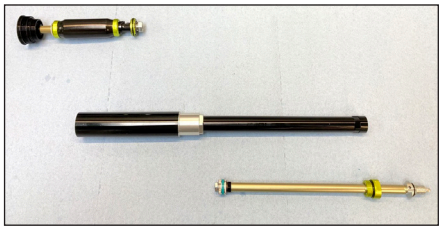
Using a cassette tool, torque the topcap to 20Nm.



D2 Damper Service

85.

You should now have your cartridge body, rebound assembly, and compression assembly laid out on your workspace.



86.

Clamp the cartridge using shaft clamps and loosen the piston bolt with a 13mm wrench while using a 11mm wrench to keep the assembly from rotating. Remove the piston nut and spring.





87.

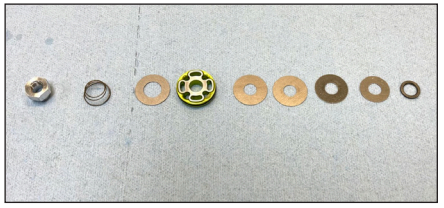
Remove the shims and surrounding shims.





88.

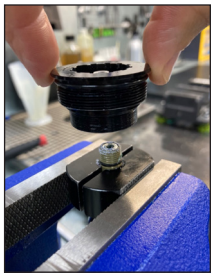
Lay the nut, spring, shims, piston, and washer out for cleaning and inspection.



D2 Damper Service (continued)

89.

Flip the cartridge over and re-clamp. Loosen and remove the top cap using a cassette tool, and then clean any debris from the threads.

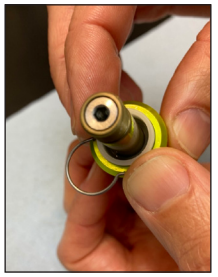
90.

Remove the o-ring using a pick.



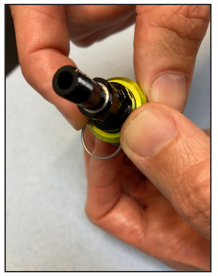

91.

Remove the retaining clip and bladder ring and set aside.




92.

Remove the clip at the opposite side, and press the bladder ring off of the coupler.



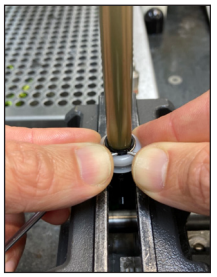

93.

Gently remove the bladder from the coupler and slide off of the shaft, then remove the coupler from the bladder.



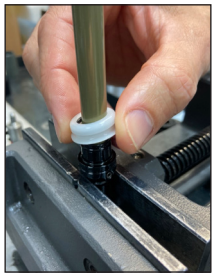

94.

Clamp the assembly in a vice, and then remove the retaining clip using a small flathead screwdriver or pick.

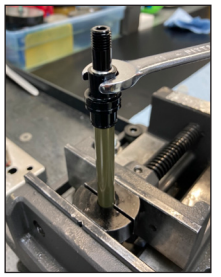
95.

Remove the coupler and set aside. Remove the shaft from the clamps and carefully remove the small set-screw from the spool and set aside.




96.

Reinstall the shaft in the shaft clamps, loosen the assembly using a 11mm open end wrench, and remove the inner shaft.




D2 Damper Service (continued)

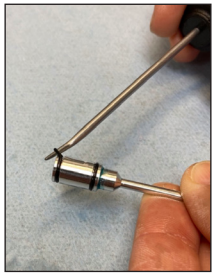
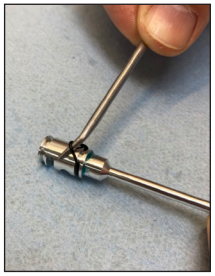
97.

Remove the compression adjust needle from the spool and remove the singular o-ring at one end.



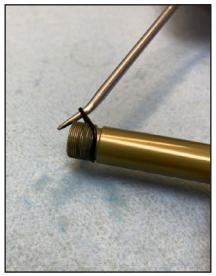
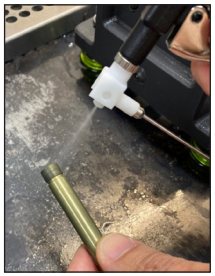

98.

Remove the two o-rings at the later end.

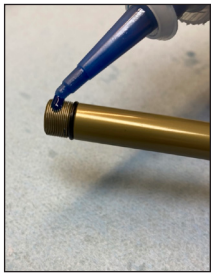
99.

Remove the o-ring from the shaft, and then clean the threads to remove all old thread lock.

100.

Install a new o-ring on the shaft. Install Locktite Blue 243 on the shaft threads and allow to cure.

101.

Install new o-rings on the larger end of the needle, and coat with a generous amount of grease.



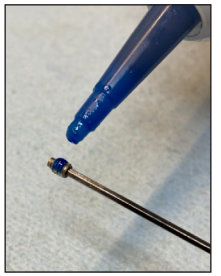

102.

Gently insert the greased end back into the spool unit, using extra care to not damage the o-rings. Make sure that the groove and set screw holes are properly aligned between the two parts.




103.

Apply Locktite 243 Blue to the set screw and allow to fully cure. After it has cured, reinstall the set screw into the spool using at 1.5mm allen wrench.




104.

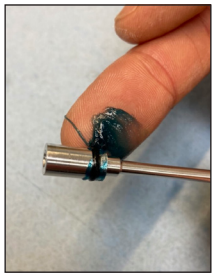
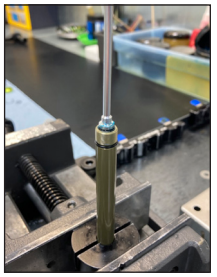
Be sure that the set screw is completely inserted and flush with the surface. Using cleaner, remove any excess grease from the assembly.




D2 Damper Service (continued)

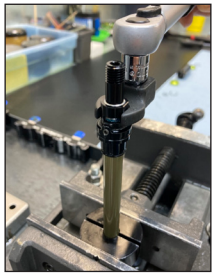
105.

Apply grease to the other end of the needle and reinstall into the shaft.

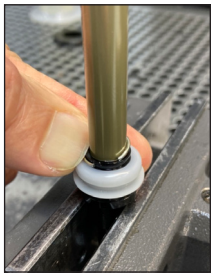
106.

After clamping the shaft back in the shaft clamps, use a crows-foot wrench to tighten the spool to 5Nm. Next, apply a light coat of grease to the base.




107.

Install the bladder coupler and retaining clip as shown and then remove from shaft clamps.

108.

Apply a light coat of grease to the inside lip of the bladder, press back onto the coupler, and then apply a light coat of grease on the outside edge.




109.

Reinstall the green bladder ring and firmly press the retaining clip back into place.




110.

Apply a light coat of grease on the inside edges of the remaining bladder coupler. Next apply a generous coat of grease to the thread area of the shaft.




111.

Gently ease the coupler on the shaft taking care not to damage the inner o-ring on the threads. Gently press the coupler into the bladder and coat the outside edge with grease.




112.

Reinstall the green bladder ring and ensure it is fully seated. Firmly press to ensure that it is fully seated on the coupler. Take care not to distort the bladder during this process.




D2 Damper Service (continued)

113.

Reinstall the retaining clip, and then clean all grease from the shaft threads.



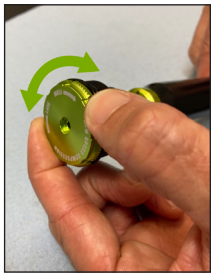

114.

After the threads are clean and dry, apply a coat of Loctite 243 Blue and allow to cure. After the threadlock has cured, thread the topcap unit on the shaft.




115.

Secure the base in a vice, and tighten the topcap to 5Nm. Take the LSC knob and place it back on the topcap and gently rotate to ensure proper end-to-end rotation before continuing. Set the topcap side and continue to the next step if no issues exist.

116.

Begin reassembling the shims and piston in the order they were removed. Ensure that the clamp shim is installed with the chamfer edge facing the spool, and the flat side facing the first shim.



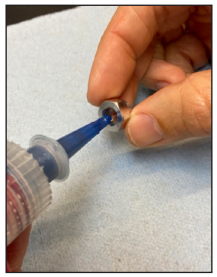

117.

Install the piston, followed by the shim and spring.




118.

Apply a coat of Loctite 243 Blue to the threads of the nut and allow to completely cure. After the thread lock is fully cured, reinstall the nut and ensure that the spring and shims move freely before proceeding.




119.

Using 11mm and 13mm wrenches, torque the nut to 5N.m. Set the damper unit aside until you are ready for final reassembly.

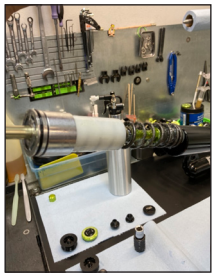



The D2 damper service is complete. Proceed to step 62 to continue.

OTT Service

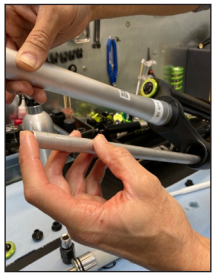
120.

Remove the OTT assembly from the stanchion tube and clean to remove the existing grease.




121.

Remove the air piston from the leg using a rod and gently pushing the piston from the top down. Clean the piston and set aside.




122.

After inspecting parts for wear, apply a generous amount of grease to the entire OTT assembly. Apply a coat of grease to the air piston.




123.

Insert the air piston back into the leg in the direction as shown, then insert the OTT assembly into the leg.



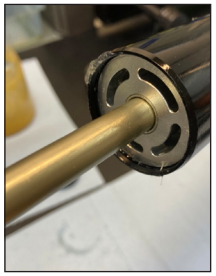

124.

Gently guide the air endcap support ring into the stanchion, followed by the OTT air plug.



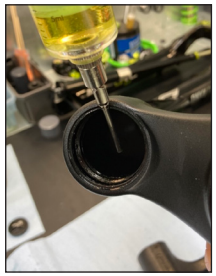

125.

Make sure the OTT air plug is fully seated, and then reinstall the retaining clip using snap-ring pliers.




126.

Add 5cc's of 7.5Wt of oil to the top of the air piston. Replace the topcap o-ring.




127.

Apply a coating of grease around the entire o-ring surface, and then hand-thread the topcap back into the upper tube.




OTT Service (continued)

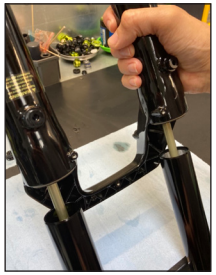
128.

Using a cassette tool, torque the topcap to 20Nm.



129.

Gently guide the lowers back onto the upper tubes, stopping before the foot buffers make contact with the bottom of the casting. Insert 25cc's of 7.5wt oil into each leg, and then completely seat the lowers to the buffers.





130.

Reinstall the OTT and rebound footnuts using 18 & 14mm sockets and torque to 10N.m. Using a 5mm allen wrench, rotate the OTT adjuster to ensure it rotates freely.





OTT Travel Change

131.

Pull the main spring down to expose the shaft and top out spring. Slide the top out spring and guide down.





132.

Snap the desired number on travel spacers onto the shaft, and then slide the top out spring and guide up to meet the spacer(s).



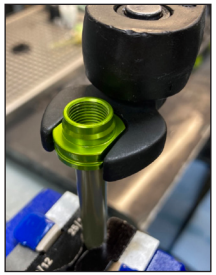


Follow steps 120-127 for final reassembly steps.

SL Air Service

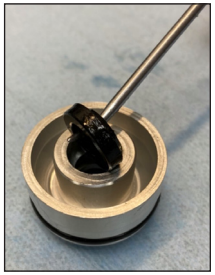
133.

Gently clamp the air spring shaft in the shaft clamps and use a 16mm wrench to loosen and remove the foot buffer.



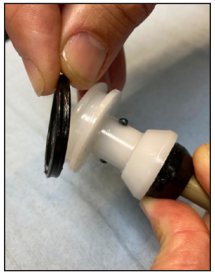

134.

Slide the SI end cap off the shaft and then remove and replace the inner o-ring. (Note: If you are using the SL Service Kit, the inner and outer o-rings will come pre-installed on the endcap).

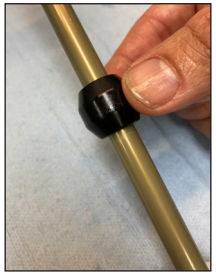
135.

Remove and replace the outer o-ring. Remove and replace the air piston x-ring.

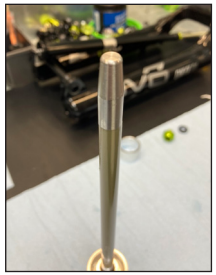
136.

Remove and then reinstall the SL top out bumper.



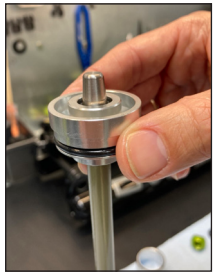

137.

Install the shaft bullet and apply a generous coat of grease.




138.

Gently slide the endcap back on the shaft. Remove and replace the o-ring on the endcap support ring and set aside.




139.

Remove the shaft bullet and clean the end to remove any grease from the inner threads. Apply a coat of Loctite 263 Red to the male threads of the foot buffer and allow to fully cure.




140.

After the Loctite has cured, reinstall the foot buffer on the shaft and torque to 7N.m. Next, clean the inside of the air stanchion thoroughly and wipe dry.




SL Air Service (continued)

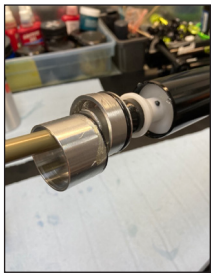
141.

Slide the air endcap support ring to meet the end cap as shown. Apply a generous coating of grease to all o-ring surfaces on the piston, end cap, and support ring.



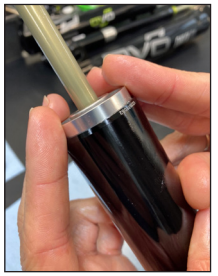
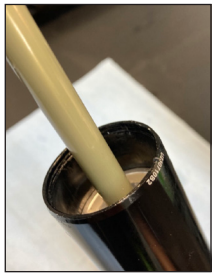

142.

Using a long q-tip, apply a light coat of grease to the inside of the stanchion tube. Insert the piston end of the SL air assembly into the stanchion.

143.

Gently press the end cap into the stanchion, allowing room for the support ring.

144.

Gently insert the support ring, making sure the o-ring stays correctly seated. Fully seat the support ring so that the groove in the stanchion is exposed.



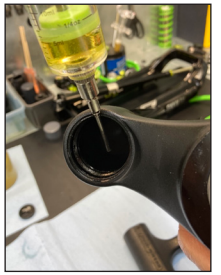
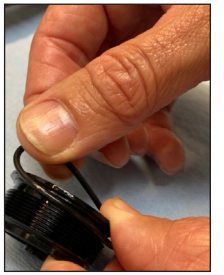

145.

Reinstall the c-clip using snap ring pliers.



146.

Add 5cc's of 7.5Wt of oil to the top of the air piston. Replace the topcap o-ring.

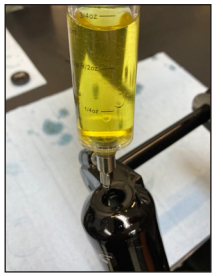
147.

Apply a coating of grease around the entire o-ring surface, and then hand-thread the topcap back into the upper tube. Using a cassette tool, torque the topcap to 20Nm.




148.

Gently guide the lowers back onto the upper tubes, stopping before the foot buffers make contact with the bottom of the casting. Insert 20cc's of 7.5wt oil into each leg, and then completely seat the lowers to the buffers.

SL Air Service (continued)

149.

Reinstall the SL footnut using a 8mm allen wrench and torque to 10Nm. Reinstall the rebound footnut using an 14mm socket and torque to 10Nm.





Lower Seal Service

150.

Using a pick, gently remove the foam rings from each leg and discard. Using a rag or soft protective cloth to protect the lowers, use a flathead screwdriver or wide ended tire lever to pry the seals from each leg.





151.

Remove and discard the old seals and spray clean and dry the inner leg surface. Using a pick, gently dislodge the bottom out bumper from the bottom of the air-spring leg.





152.

Remove the bottom out bumper, clean or replace, and apply a generous coat of grease and drop back into the leg. Double check that the bumper is flat at the bottom of the leg before proceeding. Gently use a long rod to seat flat if required.





153.

Soak the new foam rings in 7.5Wt oil.





Lower Seal Service (continued)

154.

Seat the new seals on a 38mm seal press.



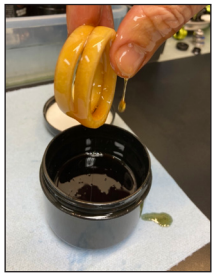

155.

Using a mallet, drive the seals into each leg. Carefully inspect each side to ensure the seals are completely seated.



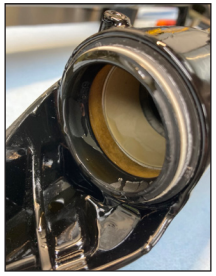

156.

Remove the foam rings from the oil bath, and gently place into the legs.




157.

Ensure that the foam rings are seated correctly above the bushings and below the seal, then wipe down the excess oil.




158.

Apply a generous coating of grease around the entire seal exterior surface, and fill the internal cavity of each seal.




Chassis Reassembly

159.

Gently guide the lowers back onto the upper tubes, stopping before the foot buffers make contact with the bottom of the casting.



160.

For **SL** models, insert **20cc's** of 7.5wt oil into each leg, and then completely seat the lowers to the buffers. For **OTT** models, insert **25cc's** of 7.5wt oil into each leg before seating the lowers to the buffers.



161.

Reinstall the SL footnut using a 8mm allen wrench and torque to 10N.m. Reinstall the rebound footnut using an 18mm socket and torque to 10Nm.





162.

Reinstall rebound knob by pressing firmly into place.



163.

Apply a light coat of grease to the damper side topcap surface, then install the LSC knob.





164.

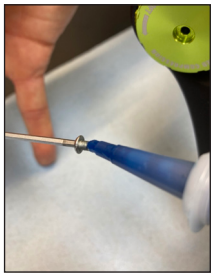
For the D1 damper, Install the washer, and then the HSC knob.

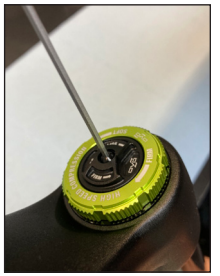




165.

Apply Loctite 243 Blue to the bolt and allow to cure, then install and torque to 1Nm.





166.

Install a shock pump and inflate to 75Psi, then reinstall the air cap.

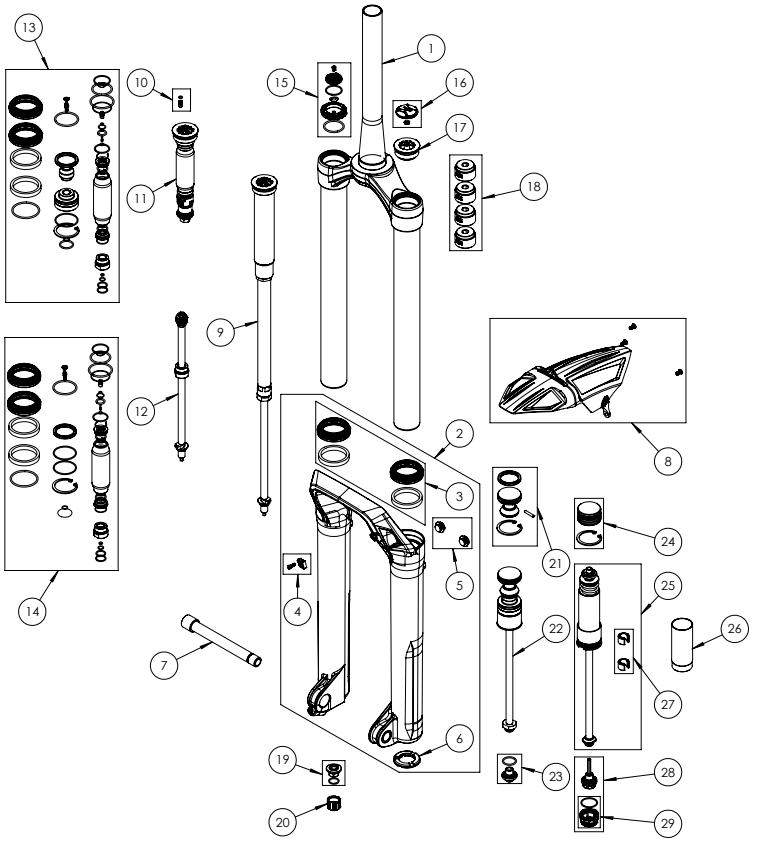




D1 SPARE PARTS

ITEM NO.	DESCRIPTION	QTY.
1	Upper Assembly Black - Onyx 38	1
2	Black Bottom Case Assembly - Onyx 38	1
2	Green Bottom Case Assembly - Onyx 38	1
2	Grey Bottom Case Assembly - Onyx 38	1
3	Seal Kit - Onyx 38	1
4	Cable Guide Kit - Onyx 38	1
5	Bleed Nut Assy - Onyx 38	1
6	Bottom Out Bumper - Onyx 38	1
7	Stepped Axle - Onyx 38	1
8	Fender Kit - Onyx 38	1
9	D1 Damper Cartridge - Onyx 38	1
10	Damper Plug Kit	1
11	D1 Compression Assembly - Onyx 38	1
12	Rebound Assembly - Onyx 38	1
13	D1 SL Service Kit - Onyx 38	1
14	D1 OTT Service Kit - Onyx 38	1
15	D1 Damper Compression Knobs Kit- Onyx 38	1

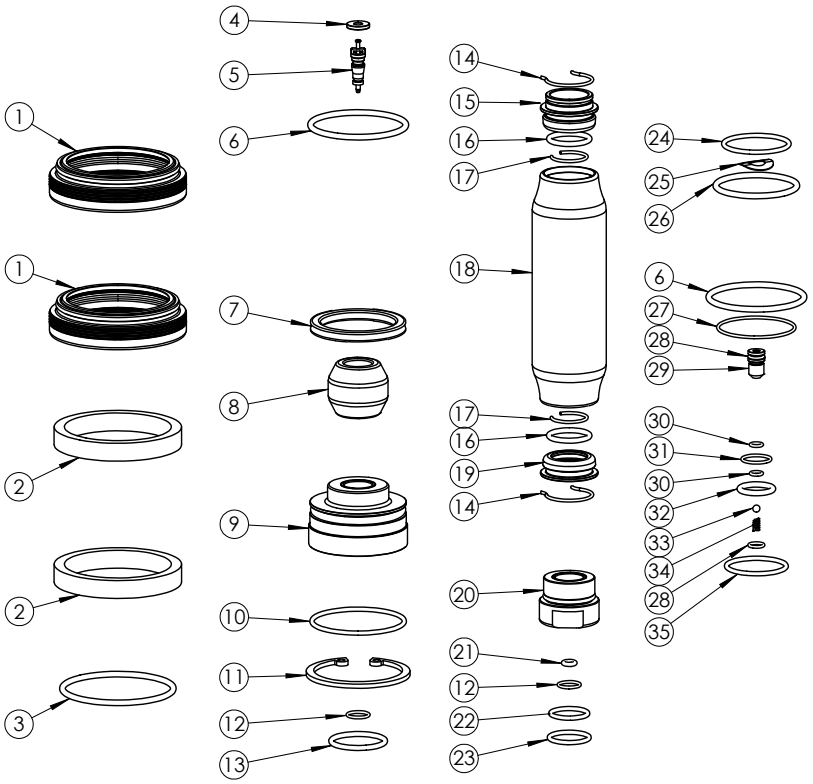
ITEM NO.	DESCRIPTION	QTY.
16	Air Cap Kit - Onyx 38	1
17	Air Top Cap Assy - Onyx 38	1
18	10 c.c. Air Volume Reducer Kit	1
19	Rebound Foot Nut - Onyx 38	1
20	Rebound Knob - Onyx 38	1
21	ONYX 38 SL AIR PISTON KIT	1
22	SL Air Assembly - 180mm - Onyx 38	1
22	SL Air Assembly - 170mm - Onyx 38	1
22	SL Air Assembly - 160mm - Onyx 38	1
23	SL Foot Nut - Onyx 38	1
24	OTT Piston Kit - Onyx 38	1
25	OTT Assembly Kit - Onyx 38	1
26	SPRING GUIDE KIT - ONYX	1
27	Travel Reduction Kit	1
28	OTT FOOT NUT AND OTT CAP - Onyx 38	1
29	OTT CAP ASSEMBLY	1



D1 SL SERVICE KIT

ITEM NO.	DESCRIPTION	QTY.
1	38 DUST SEAL	2
2	38 FOAM RING	2
3	38 TRAVEL INDICATOR O-RING	1
4	AIR VALVE WASHER	1
5	VALVE CORE	1
6	TOP CAP O-RING	2
7	AIR PISTON X-RING	1
8	SL TOP-OUT BUMPER	1
9	AIR SPRING END CAP	1
10	AIR PLUG O-RING	1
11	OCHIAI-RTW-34	1
12	FOOT BUFFER TO SHAFT O-RING	2
13	SL FOOTNUT O-RING	1
14	BLADDER CLIP	2
15	BLADDER RING	1
16	BLADDER RING O-RING	2
17	BLADDER CLIP 1	2
18	T4 OS BLADDER	1

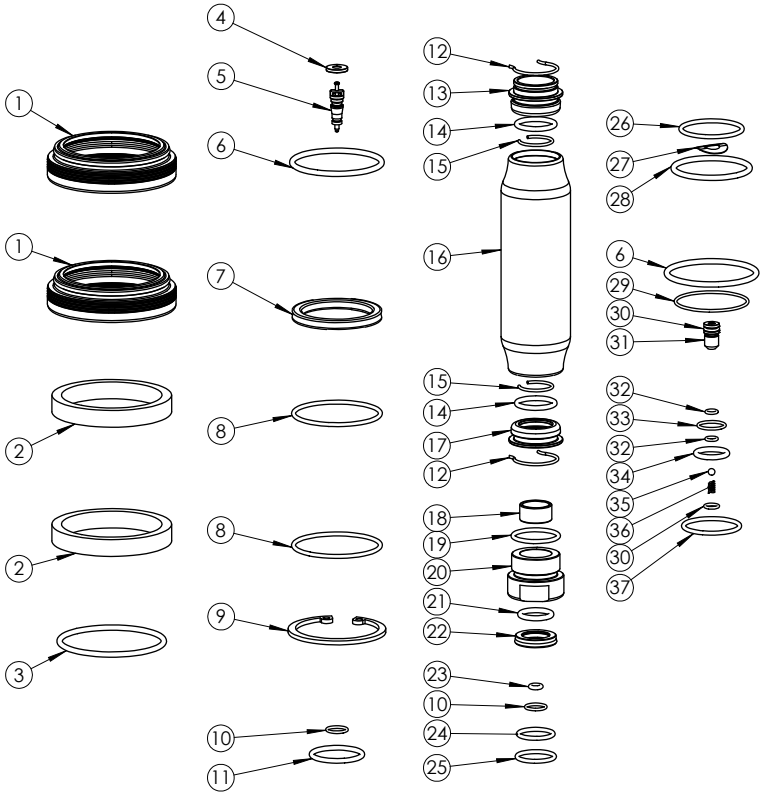
ITEM NO.	DESCRIPTION	QTY.
19	BLADDER RING	1
20	DAMPER ENDCAP ASSEMBLY	1
21	REB. NEEDLE O-RING	1
22	FOOT BUFFER O-RING	1
23	FOOT NUT TO KNOB O-RING	1
24	L.S. KNOB O-RING	1
25	SHIM 6x12x0.25 BENT	1
26	HS KNOB O-RING	1
27	DAMPER CARTRIDGE O-RING	1
28	DAMPER BODY PLUG O-RING	2
29	DAMPER BODY PLUG	1
30	L.S. COMP NEEDLE O-RING	2
31	COMP SHAFT UPPER O-RING	1
32	H.S. COMP NEEDLE O-RING	1
33	2.5MM BALL BEARING	1
34	2.5 DETENT SPRING-4.5mm	1
35	COMP PISTON O-RING	1



D1 OTT SERVICE KIT

ITEM NO.	DESCRIPTION	QTY.
1	38 DUST SEAL	2
2	38 FOAM RING	2
3	38 TRAVEL INDICATOR O-RING	1
4	AIR VALVE WASHER	1
5	VALVE CORE	1
6	SL TOP CAP O-RING	2
7	AIR PISTON X-RING	1
8	STANCHION PLUG O-RING	2
9	OCHIAI-RTW-34	1
10	FOOT BUFFER TO SHAFT O-RING	2
11	FOOT NUT O-RING	1
12	BLADDER CLIP	2
13	BLADDER RING	1
14	BLADDER RING O-RING	2
15	BLADDER CLIP 1	2
16	T4 OS BLADDER	1
17	BLADDER RING	1
18	Ø10x6mmBUSHING	1
19	DAMPER ENDCAP O.D. O-RING	1

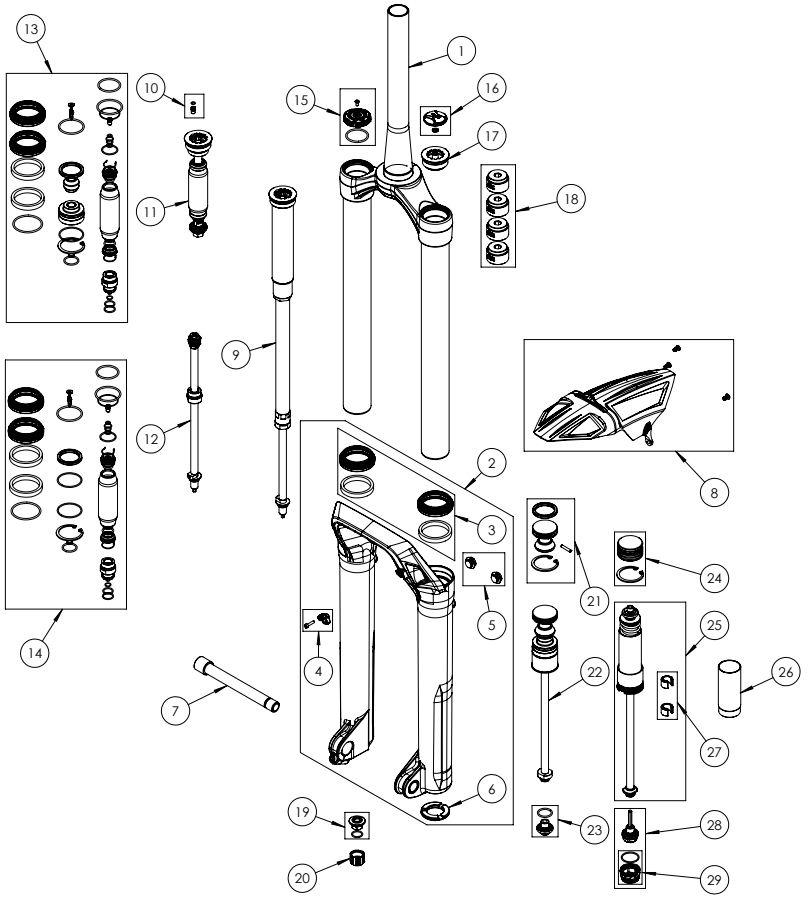
ITEM NO.	DESCRIPTION	QTY.
20	DAMPER END CAP	1
21	DAMPER ENDCAP I.D. O-RING	1
22	U-SEAL	1
23	REBOUND NEEDLE O-RING	1
24	REBOUND FOOT BUFFER O-RING	1
25	FOOT NUT TO KNOB O-RING	1
26	L.S. KNOB O-RING	1
27	SHIM 6x12x0.25 BENT	1
28	H.S. KNOB O-RING	1
29	DAMPER BODY O-RING	1
30	DAMPER BODY PLUG O-RING	2
31	DAMPER BODY PLUG	1
32	L.S. NEEDLE O-RING	2
33	COMP TO TOP CAP O-RING	1
34	H.S. NEEDLE O-RING	1
35	2.5MM BALL BEARING	1
36	2.5 DETENT SPRING-4.5mm	1
37	COMP PISTON O-RING	1



D2 SPARE PARTS

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	241-9001-SP	Upper Assembly Black - Onyx 38	1
2	243-SP03-YS728	D2 Black Bottom Case Assy - Onyx 38	1
2	243-SP03-TC704	D2 Green Bottom Case Assy -- Onyx 38	1
2	243-SP03-PPU25-01	D2 Grey Bottom Case Assy -- Onyx 38	1
3	241-SP01	Seal Kit - Onyx 38	1
4	241-1087-SP	Cable Guide Kit - Onyx 38	1
5	241-9013-SP	Bleed Nut Assy - Onyx 38	1
6	241-1081-SP	Bottom Out Bumper - Onyx 38	1
7	241-1003-SP	Stepped Axle - Onyx 38	1
8	241-9007-SP	Fender Kit - Onyx 38	1
9	243-9004-SP	D2 Damper Cartridge - Onyx 38	1
10	1569015	Damper Plug Kit	1
11	243-9002-SP	D2 Compression Assembly - Onyx 38	1
12	241-9003-SP	Rebound Assembly - Onyx 38	1
13	243-SP01	D2 SL Service Kit - Onyx 38	1
14	243-SP02	D2 OTT Service Kit - Onyx 38	1
15	243-9008-SP	D2 Damper Compression Knobs Kit- Onyx 38	1

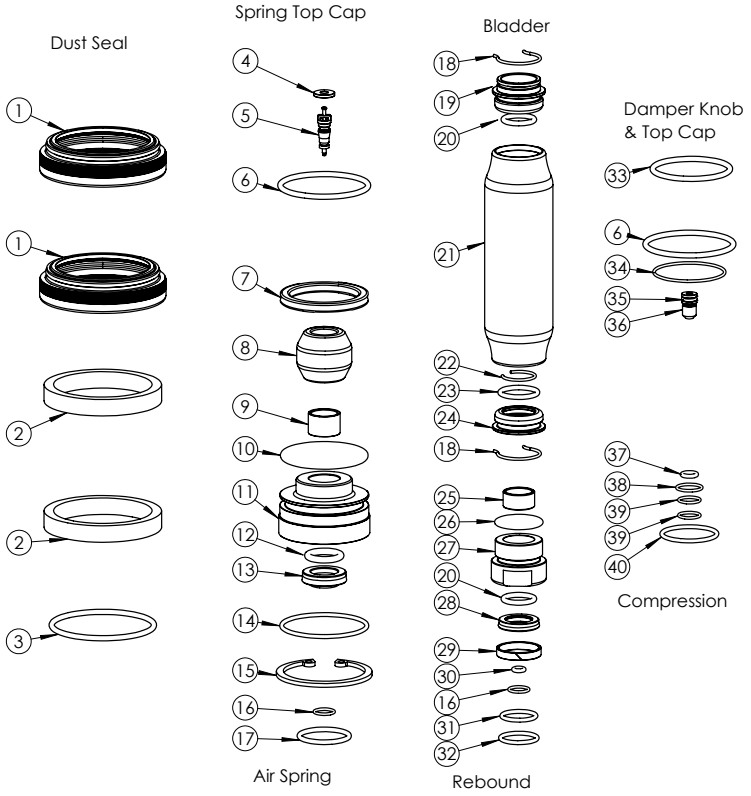
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
16	241-SP06	Air Cap Kit - Onyx 38	1
17	241-SP05	Air Top Cap Assy - Onyx 38	1
18	241-SP09	10 c.c. Air Volume Reducer Kit	1
19	241-SP03	Rebound Foot Nut - Onyx 38	1
20	241-1037-SP	Rebound Knob - Onyx 38	1
21	241-SP08	ONYX 38 SL AIR PISTON KIT	1
22	241-9010-180-SP	SL Air Assembly - 180mm - Onyx 38	1
22	241-9010-170-SP	SL Air Assembly - 170mm - Onyx 38	1
22	241-9010-160-SP	SL Air Assembly - 160mm - Onyx 38	1
23	241-SP04	SL Foot Nut - Onyx 38	1
24	242-9008-SP	OTT Piston Kit - Onyx 38	1
25	242-9007-SP	OTT Assembly Kit - Onyx 38	1
26	1669020	SPRING GUIDE KIT - ONYX	1
27	1439017	Travel Reduction Kit	1
28	242-SP03	OTT FOOT NUT AND OTT CAP - Onyx 38	1
29	242-SP01	OTT CAP ASSEMBLY	1



D2 SL SERVICE KIT

ITEM NO.	DESCRIPTION	QTY.
1	38 DUST SEAL	2
2	38 FOAM RING	2
3	38 TRAVEL INDICATOR O-RING	1
4	AIR VALVE WASHER	1
5	VALVE CORE	1
6	TOP CAP O-RING	2
7	AIR PISTON X-RING	1
8	SL TOP-OUT BUMPER	1
9	10MM BUSHING	1
10	STANCHION PLUG O-RING	1
11	ONYX SL D END CAP	1
12	SHAFT SEAL O-RING	1
13	WIPER	1
14	PLUG SLEEVE O-RING	1
15	OCHIAI-RTW-34	1
16	AIR SHAFT TO FOOT BUFFER O-RING	2
17	FOOT BUFFER O-RING	1
18	BLADDER CLIP	2
19	BLADDER RING	1
20	BLADDER O-RING	2

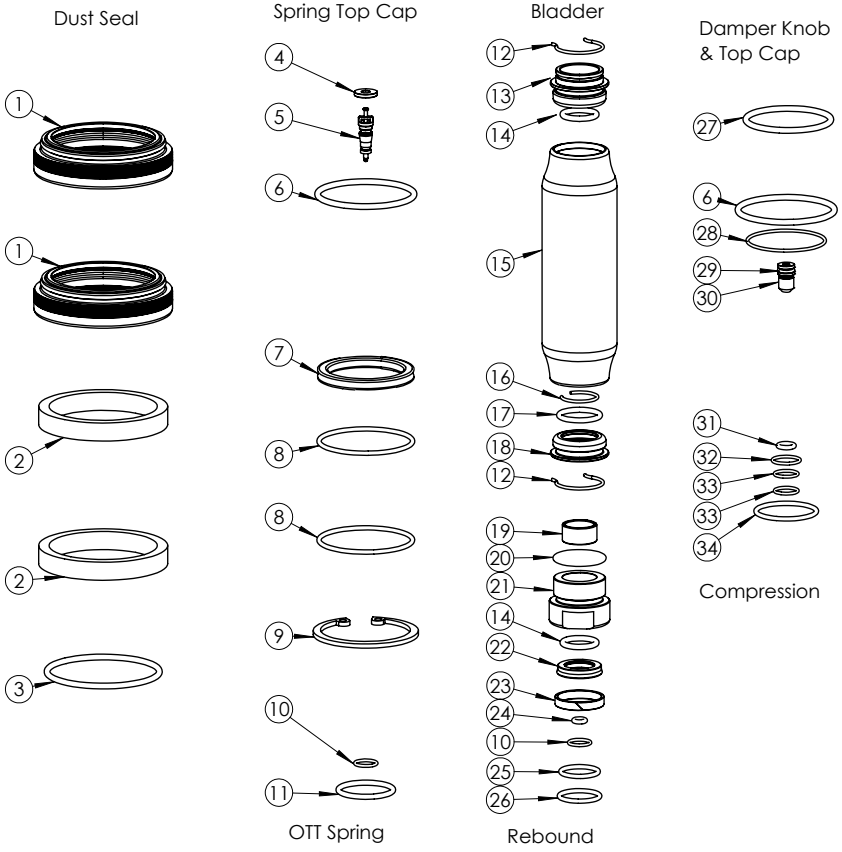
ITEM NO.	DESCRIPTION	QTY.
21	T4 OS BLADDER	1
22	BLADDER CLIP 1	1
23	BLADDER O-RING	1
24	BLADDER RING	1
25	Ø10x6mmBUSHING	1
26	REB ENDCAP O-RING	1
27	DAMPER END CAP	1
28	U-SEAL	1
29	15MM ID GLIDE RING	1
30	LS COMP NEEDLE O-RING	1
31	HS NEEDLE O-RING	1
32	NEEDLE O-RING	1
33	COMP TO CAP O-RING	1
34	COMP TO CAP O-RING	1
35	PLUG O-RING	1
36	DAMPER BODY PLUG	1
37	PLUG O-RING	1
38	COMP O-RING	1
39	COMP O-RING	2
40	PISTON O-RING	1



D2 OTT SERVICE KIT

ITEM NO.	DESCRIPTION	QTY.
1	38 DUST SEAL	2
2	38 FOAM RING	2
3	38 TRAVEL INDICATOR O-RING	1
4	AIR VALVE WASHER	1
5	VALVE CORE	1
6	TOP CAP O-RING	2
7	MAIN SEAL X-RING	1
8	PLUG SLEEVE O-RING	2
9	AIR SPRING LEG SNAP RING	1
10	AIR SHAFT TO FOOT BUFFER O-RING	2
11	FOOT BUFFER O-RING	1
12	BLADDER CLIP	2
13	BLADDER RING	1
14	BLADDER O-RING	2
15	T4 OS BLADDER	1
16	BLADDER CLIP 1	1
17	BLADDER O-RING	1

ITEM NO.	DESCRIPTION	QTY.
18	BLADDER RING	1
19	BUSHING	1
20	REB ENDCAP O-RING	1
21	DAMPER END CAP	1
22	U-SEAL	1
23	15MM ID GLIDE RING	1
24	LS COMP NEEDLE O-RING	1
25	NEEDLE O-RING	1
26	NEEDLE O-RING	1
27	COMP TO CAP O-RING	1
28	COMP TO CAP O-RING	1
29	4.00IDx1.0W O-RING	1
30	DAMPER BODY PLUG	1
31	PLUG O-RING	1
32	COMP O-RING	1
33	COMP O-RING	2
34	PISTON O-RING	1



Tuning Notes