

For exploded diagram and part number information, refer to the 2003 Spare Parts Catalog, P/N 950-007563-00. Contact your local distributor or visit the RockShox website at www.rockshox.com for ordering information.

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2003
Duke SL Air and U-Turn
Service Guide

TOOLS NEEDED

- Clean work area
- 5mm and 2.5mm Hex Wrench
- Snap ring pliers
- Plastic Mallet
- Lint Free Rag
- Red Rum
- Isopropyl Alcohol (Spray Bottle)
- Safety Glasses
- 24mm Socket Tool and Wrench
- Dental Pick, or sharp pick
- 300psi Shock Pump (part# 120-004873-00)
- Bike Work Stand
- Oil Pan
- RockShox 5wt or 15wt SL oil
- Torque Wrench

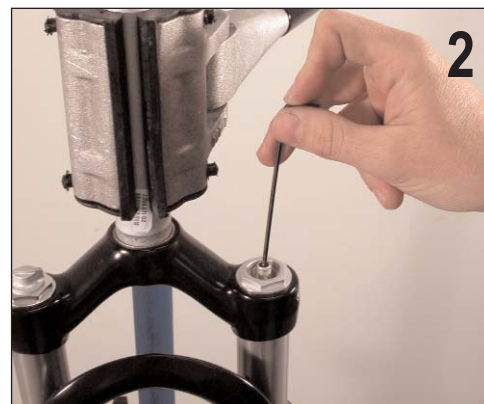
NOTE: RIGHT SIDE EQUALS RIDER'S RIGHT. LEFT SIDE EQUALS RIDER'S LEFT.

THIS SERVICE MAY ALSO BE PERFORMED WHILE THE FORK IS INSTALLED ON THE BICYCLE.

NOTE: THOROUGHLY READ THIS GUIDE BEFORE PERFORMING SERVICE ON YOUR PRODUCT. NOTE WHAT KIND OF KITS/PARTS YOU MAY NEED TO REPLACE. SEE THE 2003 SPARE PARTS CATALOG FOR A COMPLETE LIST OF PART #S AND EXPLODED VIEWS. ALWAYS WEAR SAFETY GLASSES WHEN YOU ARE WORKING ON YOUR FORK!

REMOVE THE LOWER LEGS

1. Remove the air caps from both top caps (Hydra Air positive spring and Pure DeLite air chamber).
2. Press the schrader valves to release air pressure from both air chambers. Fork should be completely deflated before disassembly (fig. 2).
3. Remove the rebound adjuster knob by pulling it from the rebound shaft bolt (fig. 3)
4. Place and oil pan below the fork.
5. Using a 5mm hex wrench, loosen the rebound damper shaft bolt (right side) about 3 turns (fig. 4), or half way. Do the same on the air spring/U-Turn shaft bolt (left side). Do not remove the bolts yet.



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6. Using a plastic mallet, firmly tap the rebound damper shaft bolt and air/U-Turn spring shaft bolt until both shafts are free from lower leg. You will feel the shafts release from the lower leg press-fit. See Fig 5. With the oil pan below the fork, remove both shaft bolts.



7. Firmly pull lower legs down. You may need to tap the top of the brake arch lightly with a rubber mallet to release the shafts from the lower leg. Oil will drain into the oil pan. Using a lint-free rag and isopropyl alcohol, wipe the upper tubes clean of oil and contamination. Inspect the upper tubes for wear. If anodization is worn from upper tubes, the crown/steerer/upper tube assembly should be replaced (fig. 7).

NOTE: SET THE LOWER LEG ASSEMBLY RIGHT SIDE UP IN AN OIL PAN TO ALLOW THE EXCESS OIL BATH TO DRAIN.



REMOVING THE HYDRA AIR SPRING ASSEMBLY

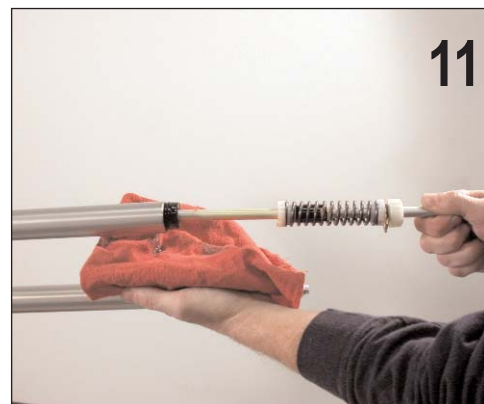
8. Using a 24mm socket wrench, loosen and remove the air top cap (left side). To remove the U-Turn spring assembly go to step 18. Inspect the top cap o-ring for wear. Replace if worn or cut. Clean the underside of the top cap with isopropyl alcohol (fig. 8)
9. You may find removal of the snap ring easier by positioning the fork horizontally.



10. Remove the snap ring from the upper tube: the white spring assembly base plate is spring-loaded with a wavy washer against the snap ring. Press the white base plate in toward the upper tube with a flat hex wrench or flat head screwdriver to allow the snap ring to be removed. Press against the white base plate while removing the snap ring (fig. 10).



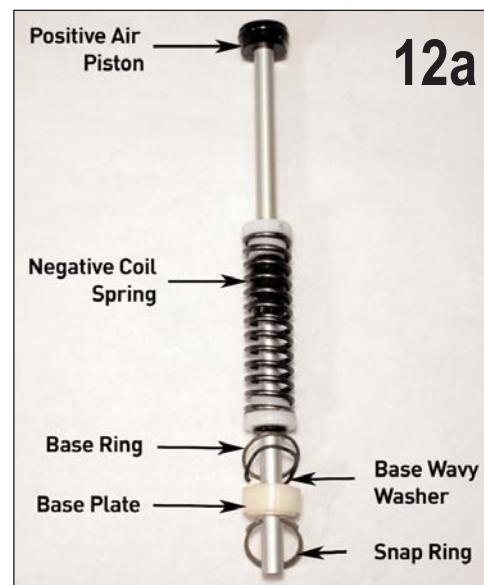
11. Pull the shaft and remove the Hydra Air spring assembly from the upper tube (fig. 11)



12. The Hydra Air spring assembly includes the positive air piston, air seal o-ring and negative coil spring (fig. 12a). Inspect the air seal o-ring for wear and tear. Remove and replace if needed.

NOTE: REPLACE THE AIR SEAL O-RING USING KIT #110-006297-00 (02-03 DUKE AIR O-RING SERVICE KIT)

13. Inspect the inner diameter or surface of the upper tube for wear. Clean with isopropyl alcohol and a lint-free rag. You may need to wrap the clean rag around a long dowel. Allow cleaned tube to dry.



INSTALLATION OF THE HYDRA AIR SPRING ASSEMBLY

14. **VERY IMPORTANT!** After the air seal o-ring has been replaced, apply a light coating of RockShox 15 wt. oil or RedRum to the o-ring air seal (aids installation). Proper lubrication of the air seal decreases heat friction, wear and tear, and extends the life of the seal.

15. Carefully insert the Hydra Air spring assembly into the bottom of the upper tube. Be sure to push the air piston straight into the upper tube. Use care not to damage the o-ring on the upper tube machining (Fig. 11).

16. Insert the flat copper colored base ring and wavy washer into the upper tube base-plate step. Next insert the white base plate over the shaft and into the upper tube. Press firmly against white base plate with a flat hex wrench or flat head screwdriver to preload the wavy washer spring, and insert the snap ring (sharp end out) with snap ring pliers. Using a flat head screwdriver, press each side of the snap ring until it clicks into place (fig. 10).



17. Rotate fork in bike stand to the vertical, upright position. Add 3 cc of 15wt oil or RockShox RedRum into the positive air chamber (fig. 17). This lubricates the positive air seal o-ring and protects it from heat friction and wear. Install the air top cap with a 24mm socket to 50 in-lb.



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REMOVAL AND INSTALLATION OF THE U-TURN SPRING ASSEMBLY

18. Using a 2.5mm hex wrench, loosen and remove the U-Turn adjuster knob screw (fig. 18).
19. Gently lift the knob straight up from the top cap hex fitting and remove.



20. Under the knob are three 3/32 ball bearings, each resting on top of a top cap detent spring (fig. 20a). Remove the ball bearings and springs (fig. 20b).

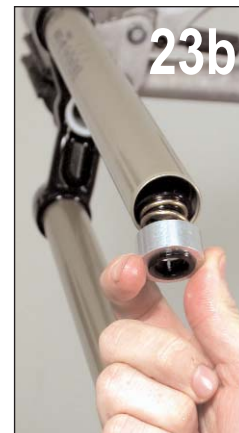
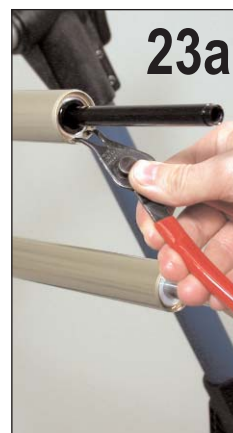
NOTE: A PEN MAGNET MAY ALSO BE USED TO REMOVE THE BALL BEARINGS AND SPRINGS.



22. Using a 24mm socket wrench, loosen the U-Turn spring top cap, turning counterclockwise. Unthread completely and pull up on top cap/spring to remove spring assembly from the upper tube (fig. 22)



23. **Removal of U-Turn base plate assembly:** Position fork to horizontal position in bike stand. Using snap ring pliers, remove the base plate snap ring. The U-Turn base plate assembly will slide out of upper tube. Inspect for damage. See Fig 23a and 23b.



INSTALLATION OF THE U-TURN SPRING ASSEMBLY

24. Install the base plate assembly and secure with the snap ring, (sharp-side facing) out of the upper tube (fig. 24).
25. Clean and lubricate the pink spring isolator and U-Turn coil spring with a light coating of Judy Butter. Insert the spring assembly back into the top of the crown/upper tube (fig. 22).
26. Press down firmly and hand-thread the U-Turn top cap into the upper tube. Using a 24mm socket wrench, tighten to 50 in-lb (fig. 26).
27. Insert the small detent springs into the top cap, leaving two detent holes in between each spring. Gently place a ball bearing onto the top of each detent spring (fig 20a).
28. Gently place the U-Turn adjuster knob onto the hex shaft in the center of the U-Turn spring assembly top cap. Using a 2.5mm hex wrench torque the adjuster knob screw to 12 in-lb (fig. 18). Do not over-torque, the knob may become damaged.
29. Test the U-Turn adjuster knob for proper installation. The knob should click as it is turned for proper indexing.



SERVICING THE PURE DeLiTE REBOUND DAMPER (DUKE SL AIR AND U-TURN)

30. Press the schrader valve on the Pure DeLite air top cap and release any air pressure (fig. 1).
31. Using a 24mm socket tool, loosen and remove the Pure DeLite air top cap from the crown. Remove the DeLite air top cap by pulling out of the Pure damper tube. Inspect top cap o-rings for wear, knicks or cuts. Replace as necessary (fig. 31).



32. Using snap ring pliers, remove the Pure DeLite damper base plate snap ring (see fig 32).



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33. Slide the Pure DeLite damper tube assembly from the bottom of the upper tube (fig. 33).



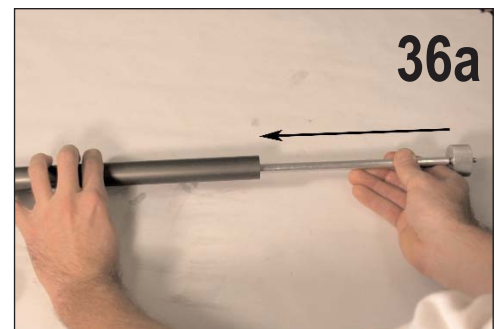
REMOVAL OF THE INTERNAL FLOATING PISTON (IFP)

34. Invert the damper and gently but firmly pull the rebound damper seal head from the Pure tube (The seal head is pressed firmly into the Pure tube and sealed with an o-ring). You may want to hold a rag around the end of the Pure tube and the seal head to catch any oil that spills. Turn the Pure tube over and drain the oil into the oil pan (see fig. 34).



35. To remove the internal floating piston (IFP) hold the Pure tube over a lint-free rag with one end up. The IFP is located inside the Pure damper tube in the center of the tube. The IFP is the seal that separates the oil from the air in the Delite air chamber.

36. Using a long plastic rod, insert the rod into the Pure tube until the rod touches the underside of the IFP. Make sure the rod engages only the pocketed side of the IFP. This ensures that you do not damage the inside of the Pure tube with the rod. Press firmly on the rod only when it is engaged safely into the IFP (fig. 36a). Push firmly down to release the IFP from the Pure tube (fig. 36b). The IFP will appear at the end of the tube and on the rag below. (See Fig 36c). Pull the rod out gently without scratching the inside of the Pure tube.



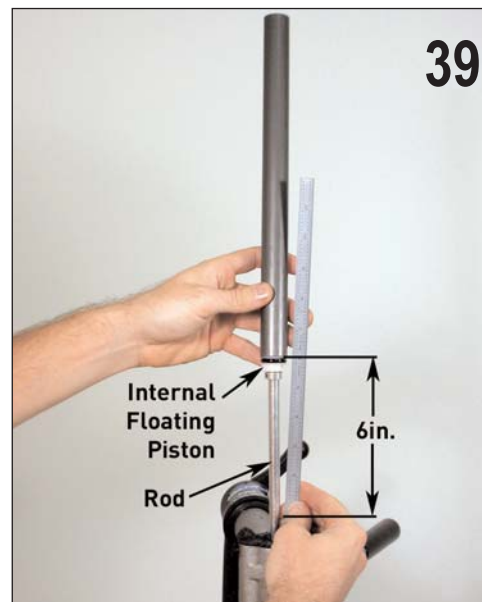
37. Using isopropyl alcohol clean the inside of the Pure tube with a lint-free rag wrapped around the rod. Allow to dry.

38. Inspect the IFP o-ring seal for wear and replace as necessary (fig. 39) (110-007425-00 Pure DeLite Internal Floating Piston, or 110-006245-00 Pure Damper Service Kit).



ASSEMBLING THE PURE DeLiTE DAMPER: SETTING THE IFP DEPTH INSIDE THE PURE TUBE

39. To assemble the Pure Delite damper, the IFP must first be set to a 6-inch depth inside the Pure tube. Mount a thin rod or dowel into the bicycle stand clamp or bench vice with 6 inches of exposed rod (fig. 39). The width of the end of the rod should be a maximum of 8mm.



40. Apply a light coating of 15wt fork oil to the IFP o-ring for lubrication. Place the IFP on the end of the rod/dowel, with the pocketed side down (fig. 49). This allows the IFP to be set to a depth of 6 inches inside of the Pure tube. Place one end of the Pure tube onto the IFP piston o-ring, and press firmly down until the IFP is seated inside the tube (fig. 40). Be careful, the Pure tube ends are sharp! Use a lint-free rag to protect your hands.



41. Press down until the Pure tube end is flat against the vice or bicycle stand clamp (fig. 41). Pull the Pure tube up and off of the rod/dowel. The IFP is now seated firmly inside the tube at a 6-inch depth.

42. Before installing the Pure rebound damper assembly, remove the white seal head assembly from the rebound damper shaft. The seal head includes an outer o-ring oil seal and an inner shaft o-ring oil seal. Inspect and replace if damaged or worn using the Pure Damper o-ring service kit (part# 110-006245-00). Reinstall the seal head by sliding it over the rebound damper shaft.



NOTE: LUBRICATE THE INNER REBOUND SHAFT O-RING WITH A SMALL AMOUNT OF OIL BEFORE INSTALLATION.

43. Holding the Pure tube over an oil pan, with the pocketed side of the IFP facing down (rounded side facing up), fill the tube until completely full with 15wt RockShox fork oil.

TIP: FOR QUICKER REBOUND, OR IN COLDER WEATHER, YOU MAY SUBSTITUTE 15WT OIL FOR 10 OR 5 WT. LIGHTER WEIGHT DAMPING OIL WILL DECREASE THE AMOUNT OF COMPRESSION DAMPING.

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44. Gently insert the rebound damper piston head into the oil-filled Pure tube. The oil will slowly fill the damper valves. Allow enough oil to fill the cavities and top-off the oil volume until completely full. Gently press down on the white seal head until it snaps into the Pure tube securely. Your damper is now sealed. (44a and b).

NOTE: PISTON SEAL HEAD MUST BE TOPPED AGAINST REBOUND PISTON. REBOUND DAMPING SETTING MUST BE OPEN (FULL COUNTERCLOCKWISE).

NOTE: DO NOT CYCLE THE DAMPER SHAFT UNTIL THE DELITE AIR TOP CAP HAS BEEN INSTALLED AND PRESSURIZED!

45. Slide your Pure Delite oil-filled damper unit into the bottom of the upper (right side from rider's perspective).



46. Add 3cc/ml of 15wt RockShox fork oil to the top chamber of the Pure Delite damper (fig. 46). This will lubricate the IFP o-ring. Install the Delite air top cap with a 24mm socket tool to 50 in-lb and pressurize the chamber 20 to 60 psi with your shock pump. The IFP is now pressure-set and your damper is sealed.

IMPORTANT: 60 PSI IS THE MAXIMUM AIR PRESSURE!



47. **IMPORTANT!** Insert a 2.5mm hex wrench into the rebound damper shaft end through the lower leg bolt hole and engage the hex wrench into the inner adjuster rod hex fitting (fig. 47). Turn clockwise until damper is in the full closed position. This step will protect the internal damper rod when installing the shaft bolt.



INSTALLING THE LOWER LEGS

48. Clean and inspect the dust seals and foam rings. Replace if necessary (Part# 110-007250-00). For bushing removal and installation, refer to the Bushing Service Guide available at www.rockshox.com
49. Saturate the foam rings with 5wt or 15wt fork oil. This will provide lubrication to the resi wiper and upper tubes when the fork is in use.
50. Gently, slide the lower leg assembly back onto the upper tubes. Be sure the dust seals do not fold over! Slide the lower leg assembly up just until you feel the lower bushing touch the bottom of each upper tube. The shaft rods should not be visible through the shaft bolt holes of the lower leg.
51. Invert the fork in the bicycle stand (90 degrees) with the dropouts facing up. Using an oil syringe, add 10cc of 5wt RockShox fork oil to the bottom of the fork, through each of the bolt holes (fig. 51).
52. Slide the lower leg assembly up the fork upper tubes until both the rebound and air/U-Turn shafts seat through the bolt holes. You may need to use a small hex wrench to align the shaft ends with the lower leg shaft boltholes. Wipe the bottom of lower leg ends with a clean rag to remove any excess oil or debris.
53. Clean each black nylon crush washer, inspect for wear and replace if necessary (110-005552-00 Crush Washer Kit)(fig. 53). Insert and tighten the clean hollow rebound damper and solid air/U-Turn shaft bolts. Hand-thread the bolts and tighten with a 5mm hex wrench to 60 in/lb. See Fig 4.
54. Insert the rebound damper external adjuster knob. Adjust to full-close position, and back off one turn for standard rebound setting. Adjust as necessary to preferred rebound rate. Cycle the fork to test rebound function.
55. AIR FORKS ONLY: Inflate the positive air chamber to the desired pressure. Install and tighten the air top cap.



POSITIVE AIR PRESSURE GUIDELINES

<u>Rider Weight (lb)</u>	<u>Air Pressure</u>
<140 (63 kg)	80-115 psi
140-160 (63-72 kg)	115-130 psi
160-180 (72-81 kg)	130-145 psi
180-200 (81-90 kg)	145-160 psi
>220 (99 kg)	180 psi

NOTE: MAXIMUM AIR PRESSURE IS 180 PSI.

56. Spray a light coat of isopropyl alcohol on the entire fork, and wipe down with a clean rag.

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WARRANTY

RockShox, Inc. warrants its products for a period of two years from original date of purchase to be free from defects in materials or workmanship. RockShox USA, or an authorized RockShox Agent must inspect all RockShox products. If a product is found by RockShox or its authorized agent to be defective in materials or workmanship, replacement or repair is at the option of RockShox. This warranty is the sole and exclusive remedy. RockShox shall not be held liable for any indirect, special, or consequential damages.

Exclusions of Warranty

This warranty does not apply to products which have not been properly installed and adjusted according to RockShox installation instructions. The warranty does not cover any product that has been subject to misuse or whose serial number has been altered, defaced or removed. This warranty does not apply to damage to the product caused by a crash, impact, abuse of the product, non-compliance with manufacturer's specifications, or any other circumstances in which the product has been subjected to forces or loads beyond its design. This warranty does not cover paint damage or modifications to the product.

Original proof of purchase is required. Warranty repair/replacement is only valid upon presentation of proof of purchase, directly submitted to RockShox at the time of warranty evaluation. Warranty repair or replacement is at the discretion of RockShox or its authorized agent, upon physical product evaluation and proof of purchase.

This warranty does not include or cover common 'wear and tear' parts which are subject to damage as a result of normal use, failure to service product according to RockShox recommendations, wet conditions, racing, use of disc brakes, rider weight, riding or installation in conditions or applications other than recommended.

'Wear and Tear' parts are identified as: External dust seals, bushings, foam rings, rubber moving parts (such as air sealing o-rings and glide rings), stripped threaded shafts or bolts, upper tubes (stanchions), rear shock mounting hardware and springs, and fork drop outs.

Pioneer Support Program

In the event parts are unavailable at the time of your repair, at the option of RockShox or its authorized agent, a replacement fork may be provided at a determined discount price.

Warranty Expenses Incurred

The RockShox warranty policy excludes expenses incurred as a result of transportation of product from a RockShox dealer to RockShox USA, or its authorized distributor, labor performed by a RockShox dealer for removal of RockShox product, or warranty repair work performed by a RockShox dealer. Warranty work performed by a RockShox dealer is voluntary.

Warranty Repair

If for any reason it should be necessary to have warranty work done, return the product to a RockShox dealer. In the USA, dealers are required to call for a Return Authorization number (RA#) prior to returning product. Outside the USA, dealers are required to call an authorized RockShox Distributor.

For more technical information, visit our website at www.rockshox.com. For toll-free technical support in the USA, call 1.800.677.7177. Dealers outside the USA must contact their local dealer or distributor. For a complete list of Authorized Distributors outside the USA, visit www.rockshox.com.