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S120/S90/E100 50-hour Service

Creation Date	Last Mod Date	Model	Year	Drawings	Estimated Time
5/22/2009	6/15/2009	S120/S90/E100	2008-2010		60 min.



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Note: The S120 is not available for model year 2010, and will be replaced by the S140TA. Service for the S140TA will be available soon. The following procedure can be performed on any S120, S90 and E100 regardless of model year.

Background

This procedure is the 50-hour Dealer service for the S120, S90 and E100 FutureShock forks. The same procedure applies to all three forks. This procedure can be performed as often as needed with no noticeable degradation of fork performance or durability. Consult the [owner's manual](#) for basic service intervals.

A [Basic Maintenance](#) can also be performed in between 50-hour services.

Tools Required

Bike stand	Ratchet wrench
Torque wrench	10mm wrench (preferably 6-point style)
12mm deep socket or wrench (preferably 6-point style)	26mm socket (preferably 6-point style)
Dental picks	Needle nose pliers
Rubber mallet	Safety glasses
Nitrile gloves	Scott-brand lint-free shop towels
High pressure shock pump	Oil drain pan
Waster oil container	Soap and warm water
Rubbing alcohol (Acetone)	Assembly grease soluble in oil (e.g., Slickoleum, Slick Honey, Silkolene RG2)
Beaker with cc measurement	7 wt. suspension oil (20cc). Torco 7 wt. recommended

Before You Start

- Place the bike in a bike stand.
- Remove the front brake caliper from the fork.
- Remove the front wheel.



4. Clean the external surfaces of the fork with soap and warm water or isopropyl alcohol. Use a rag to dry the surfaces off.



5. Take note of all user settings by counting the number of clicks from full clockwise or counterclockwise. Do this with the rebound and compression knobs.



6. Check the fork's air pressure setting. After doing so, completely release all air from the cartridge.



7. Turn the bike upside down to better access the bottom of the fork. Remove the rubber cap from the compression knob, then use a couple of picks to remove the circlip, which keeps the knob in place. This is a finicky clip, so take your time.



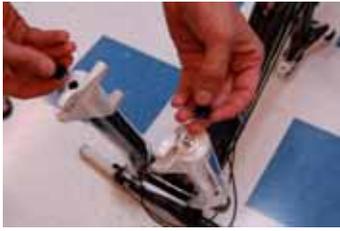
8. Use a 12mm socket and wrench to loosen the bottom nut bolt on both sides of the bottom of the fork. **Do not remove them just yet.**



9. Make sure each bottom nut is threaded in at least 3 full turns from the top. Use a mallet to firmly tap the top of each bottom nut. This dislodges the cartridge and dead side device from the bottom of the lowers.



10. Remove the bottom nut and washer from each side of the fork.



11. Turn the bike right side up and secure it in a bike stand. Aim the bottom of the fork into a oil pan or bucket, as suspension fluid will leak out. Be sure to clean up any fluid that may have accidentally onto the floor around your work area.



12. After completely draining the fluid, slowly pull the lowers down and off the upper tubes.



13. Using a 26mm socket wrench, remove the topcap. Lift the damper up slightly to expose the underside of the topcap assembly.



14. Using a 10mm open-end wrench, hold the damper shaft steady as you loosen and then remove the topcap with a 26mm socket wrench.



15. Use shop towels to clean the exposed upper tubes. Note the user's negative air spring setting. The default setting is 50mm , but could have been set differently during a previous service.



16. Use a pair of picks to remove the retaining clip on the bottom of the right upper tube. Use care not to scratch any exposed surfaces.



17. Carefully remove the cartridge through the bottom of the right upper tube.





22. If you are re-using the foam rings, squeeze out the suspension fluid.



Note: You do **not** have to replace dust wipers for a lower leg cleaning. Remove them only if you are replacing them.

Indented Procedure: If you are not replacing the dust wipers, go to step #27.

23. Use an open-end wrench (such as a 19mm) to remove the dust wipers. It's okay to damage them during removal as you will be replacing them anyway. Just be careful not to scratch the inside surfaces of the lower leg assembly. You may want to place the lowers onto a soft rubberized surface to help keep the lower legs steady as you pry the dust wipers from the lower legs.



24. Place new dust wipers onto the dust wiper installation tool).



25. Insert the opening of the lower into the lower leg stabilizer tool. Insert the same side in which you're installing the dust wiper on.



26. Insert the tool into the top of the lower leg, and then firmly strike the tool with a plastic mallet until the dust wiper is firmly seated into the lower leg.



27. With the new or the original foam rings, dip them in suspension fluid until they are fully soaked.



28. Insert both foam rings back into the lower leg assembly. To facilitate insertion, you might want to squeeze them into a "taco" and then slide them into their slot.



29. Use a shop towel to clean away suspension fluid from the dust wiper area. Leaving suspension fluid in this area can degrade the grease applied in the next step.



30. Grease the dust wiper assemblies.



31. Grease all seals and threads on the cartridge.



32. Set the negative air spring to 50mm, unless it has been set to a different user specification, as noted in step #16. Use your finger to keep the negative air spring setting in place as you maneuver the cartridge.
Default setting: 50mm / Default women's setting: 55mm / Max lightweight rider setting: 60mm / Max heavyweight rider setting: 30mm.



33. Slide the cartridge in through the bottom of the right fork leg while keeping the negative air spring setting with your finger. Once the majority of the cartridge has been pushed up through the upper tube, you can safely remove your finger from holding the negative air spring setting steady.



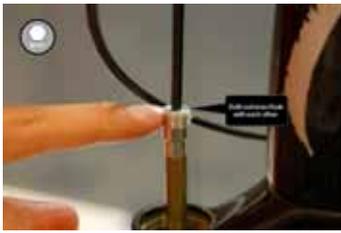
34. Use care and patience to install the clip back into the bottom of the right upper tube. Be careful not to scratch any surfaces with the pick. The second photo shows a profile of the clip; it's semi-coiled—a detail that may help in its insertion.



35. Grease the threads on the topcap assembly.



36. Using a 2mm hex wrench, turn the rebound adjuster screw in the shaft rebound insert until the two top surfaces are flush with each other, as shown.



37. Use a 10mm open-end wrench to hold the shaft rebound insert while you screw the topcap assembly on.



38. Tighten the topcap assembly with a 26mm socket wrench.



39. Torque the topcap assembly to **120Kgf-cm** using a torque wrench.



40. Use a high-pressure shock pump to inflate the damper cartridge just enough so the damper cartridge will hold its position as you slide the lower leg assembly on in the next step.



Note: Don't forget to slide the travel o-ring onto the left upper tube before continuing.

41. Slide the lower leg assembly onto the upper tubes. It helps to put them on at an angle to prevent the dust wipers from caving in.



42. Place **20 mL** of suspension fluid into a syringe.



43. Place **10 mL** of suspension fluid in each leg. To access the lower leg hole on the dead side, use a hex key wrench to pull up on the dead side plunger. You can place the bottom nut onto the wrench beforehand to facilitate its installation.



44. Once again, use a hex key wrench to pull up on the dead side plunger.



45. Slide the bottom nut down and screw the bottom nut while holding the hex wrench, to prevent the plunger from spinning.



46. Screw the damper side bottom nut onto the damper cartridge.



47. Use a 12mm socket wrench to tighten **both** bottom nuts to 50 in-lbs. using a torque wrench.



48. Install the compression knob onto the right side bottom nut. Use picks to install the circlip into the inside diameter of the knob.





49. Place the plastic cap onto the compression knob.



50. Use a high-pressure shock and inflate the main air spring to the user's settings. If the pressure needs to be changed, consult the fork [owner's manual](#).



51. Screw the aircap back on.



52. Adjust the rebound and compression settings back to the user's preferences.



53. Clean the fork with soap and water or isopropyl alcohol.



54. Install the front brakes and front wheel back onto the bicycle.

55. Instruct customer to slay some singletrack immediately.

// End



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