

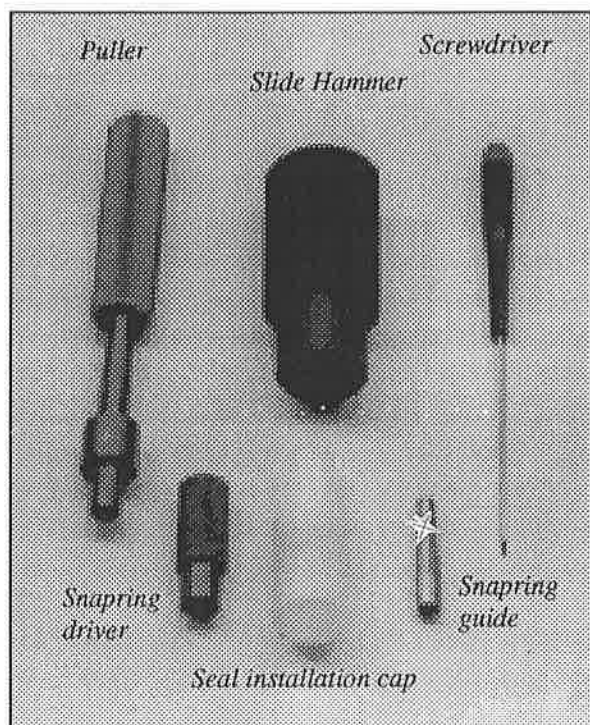
TREK SUSPENSION SERVICE MANUAL

1994 MOGUL BLACK DIAMOND and MOGUL EXTREME SUSPENSION FORK

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Please Note: Fork oil should be handled with care. Do not take internally. Avoid contact with skin and always follow safety precautions, such as the use of protective eye wear. Fork oil may stain many materials. Dispose of used fork oil properly by following local, state, and federal guidelines. Please recycle.



Tools Required (plus 4 and 5 mm allen)

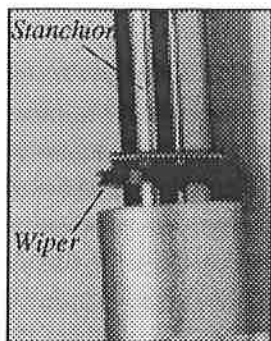


Fig. 11

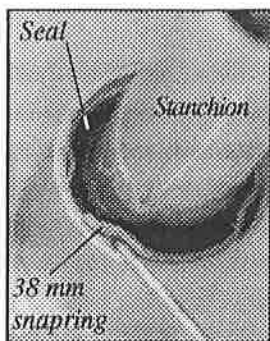


Fig. 12

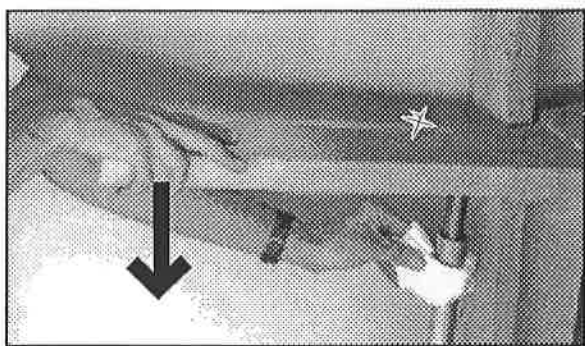


Fig. 13

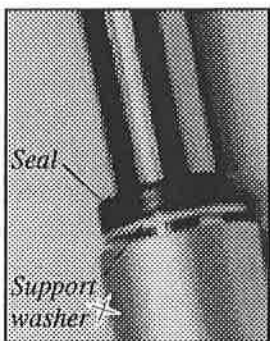


Fig. 14

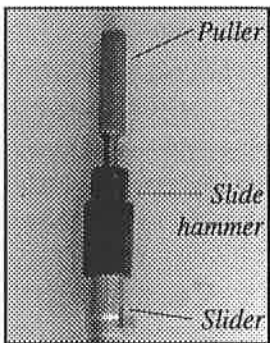


Fig. 15

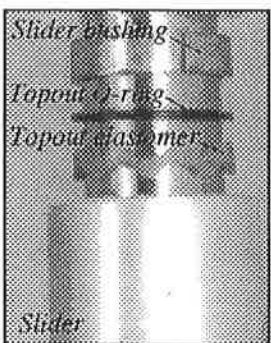


Fig. 16



Fig. 17

16. Remove any air left in the stanchion by depressing the schraeder valve while slowly compressing the fork leg. Stop when oil shows at the schraeder valve.
17. Remove the wiper (Fig. 11).
18. Remove the 38 mm snapping from above the seal (Fig. 12).
19. Stand the fork on the floor over absorbent material such as a shop rag. Apply some light-weight penetrating lube (TriFlow, Trek chain lube, etc.) to the outside of the seal to help it come loose.
20. Wrap the area around the seal with an absorbent cloth. Use a lever to press the stanchion into the slider (Fig. 13). This can take a lot of force. As soon as the seal lifts, stop pushing on the stanchion to prevent excess oil from escaping the fork. Be careful not to damage the fork tip or stanchion top when pressing with the lever.
21. Remove the seal (Fig. 14).

REMOVE THE OIL

22. Remove the stanchion snapping again. Do not compress the fork leg because oil will exit the fork.
23. Attach the puller to the schraeder valve and remove the air seal and damping adjuster assembly.
24. Wrap the absorbent cloth around the seal area again. Turn the fork leg upside down and drain the oil from the stanchion into a container.
25. Pump the slider up and down on the stanchion to drain any remaining oil out of the fork. Remove the support washer (Fig. 14).

REMOVE STANCHION

26. Insert the puller into the stanchion, making sure that the adjusting axle is inside the puller. Place the stanchion snapping over the shoulder of the puller. Slide the broad end of the slide hammer over the puller and stanchion (Fig. 15).
27. Hold the puller to support the stanchion. Use the slide hammer to drive the slider off the stanchion. Caution: Keep your fingers away from the sliding tools. Do not drop the fork parts.
28. Remove the snapping and puller from the stanchion.
29. Remove the topout O-ring, topout elastomer, and slider bushing (Fig. 16).
30. Remove the stanchion bushing snapping and the stanchion bushing (Fig. 17).

Mogul Black Diamond / Extreme Assembly

CLEAN ALL PARTS

1. Clean each part thoroughly. Do not use solvents or chemicals which break down fork oil. Avoid shop towels or any material that may leave lint which could cause leakage of the seals.

It is recommended to always use new parts such as O-rings, seals, and snaprings. Used parts may allow oil leakage or air to escape the fork.

INSTALL STANCHION

2. Install a new stanchion bushing on the stanchion. Install a new stanchion bushing snapring.
3. Lubricate the stanchion bushing with fork oil and slide the stanchion into the slider. Slide a new topout elastomer and topout O-ring (Fig. 19) over the stanchion and into the slider.
4. Slide a new slider bushing over the stanchion. Lightly grease the outside of the bushing with Teflon grease. Make sure that the slot in the slider bushing is pointing to either side (Fig. 20), but not to the front or back of the slider.

CAUTION - *If placed incorrectly, the bushing may scratch the stanchion under heavy loads.*

5. Drive the bushing into the slider with the narrow end of the slide hammer (Fig. 21). The correct bushing insertion will not be flush, but will extend above the inside of the slider about 1/8 inch (3 mm).
6. Slide the support washer onto the stanchion.

INSTALL SEAL

7. Apply Teflon grease to the inner lip of the seal. Place the installation cap over the stanchion to cover the minimum insertion tape on the stanchion. This prevents scratching of the seal. Slide the seal over the installation cap (Fig. 22).
Note: The bottom of the seal has a small spring visible.
8. Apply Teflon grease to the outside of the seal. Press the seal into the slider with the narrow end of the slide hammer.
9. Install the 38 mm snapring into the slider. Make sure the circlip is in the deep groove several millimeters inside the slider, and not only under the wiper attachment lip (Fig. 23).
10. Install the wiper (Fig. 24).

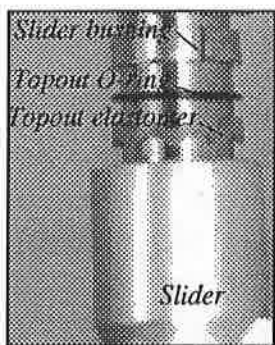


Fig. 19

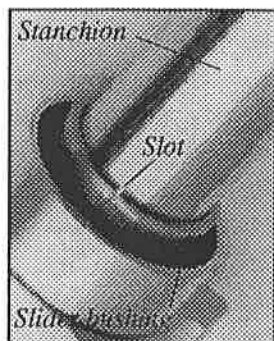


Fig. 20

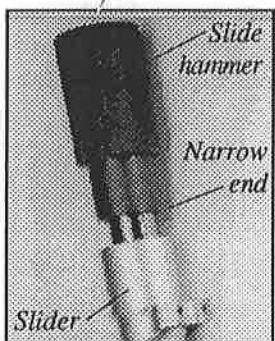


Fig. 21

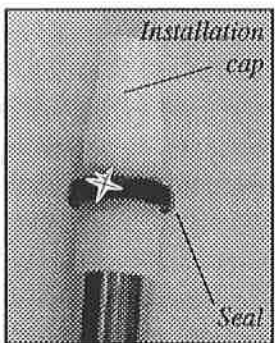


Fig. 22

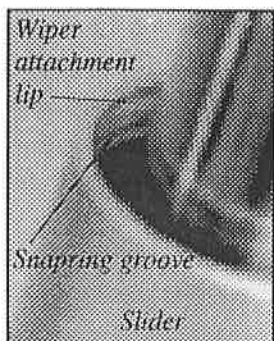


Fig. 23

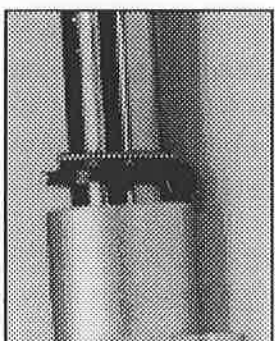


Fig. 24

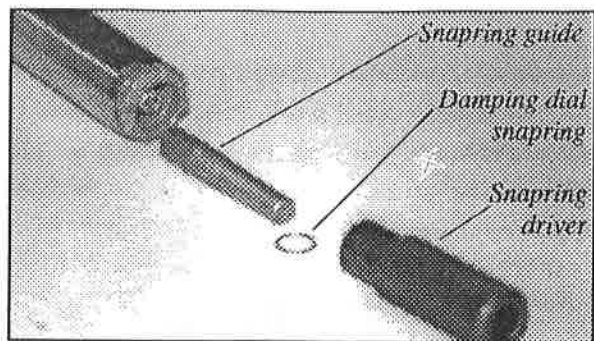


Fig. 28



Fig. 29

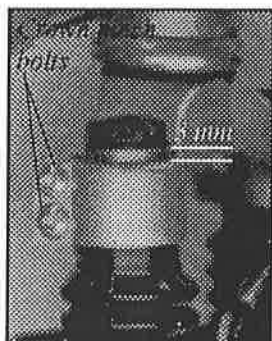


Fig. 30

21. Insert one spring and then one ball into each hole in the top of the air seal assembly.
22. Slide the damping dial into the stanchion, aligning the flats of the dial with the corresponding flats of the damping adjuster.
23. Place the snapping guide over the schraeder valve (Fig. 28). Use the narrow end of the snapping driver to install a new snapping.
24. Ensure that the damping dial is held firmly in place.

INSTALL BRAKE ARCH

25. Clean the brake arch attachment bolts (Fig. 29) and crown pinch bolts (Fig. 30). Apply LocTite 242 to the threads.
26. Rotate the sliders so that they face forward and install the brake arch attachment bolts and crown pinch bolts, but do not tighten them yet.

INSTALL FORK LEGS

27. Make sure that the stanchions are inserted an equal distance into the fork crown. The stanchions should be even, and should not extend more than 1/8 inch (3 mm) above the fork crown (Fig. 30).
28. Turn the damping dial fully counter-clockwise. Then rotate the damping dial clockwise until you reach the second click. Align the "2" on the damping dial with the stanchion slot in the fork crown.
29. Tighten the crown pinch bolts to 78-96 lb•in (90-110 kgf•cm). After tightening all the bolts, recheck each bolt for correct torque.
30. Tighten the brake arch attachment bolts to 90-110 lb•in (104-127 kgf•cm).

INFLATE THE FORK

31. Adjust the air pressure and damping as described in the Trek Owner's Manual or Suspension Fork Supplement.
32. Install the air valve caps.

Mogul Black Diamond and Extreme Parts List

1994 Black Diamond and Mogul Extreme Parts List

- 53014 1 1/8 in, threaded Cro-Moly, 150 mm length
- 53015 1 1/8 in, threaded Cro-Moly, 171 mm length
- 53016 1 1/8 in, threaded Cro-Moly, 206 mm length
- 53017 1 1/8 in, threaded Cro-Moly, 210 mm length
- 53018 1 1/8 in, non-threaded Cro-Moly, 255 mm length (for AheadSet)
- 53015 1 1/8 in, non-threaded aluminum, 255 mm length (for AheadSet)
- 53096 Crown pinch bolt (20 per pkg)

Brake bridge

- 53187 Brake bridge, carbon
- 53097 Brake stud
- 53098 Brake arch attachment bolt

Accessories

- 53092 Boots, short, clear, pair
- 51109 Inflator

Fork leg, complete

- ? Mogul Black Diamond, left
- ? Mogul Black Diamond, right
- ? Mogul Extreme, left
- ? Mogul Extreme, right

Fork leg parts

- 51995 Master parts kit

- ? 1994 Overhaul kit:

- Wiper (2 ea.)
- Damping dial snapring (2 ea.)
- Detent springs and balls (4 ea.)
- Stanchion circlip (2 ea.)
- O-ring, Air seal assembly (2 ea.)
- Seal, Damping adjuster (2 ea.)
- Seal (2 ea.)
- Slider bushing (2 ea.)
- Topout elastomer (2 ea.)
- Stanchion bushing (2 ea.)
- Stanchion bushing snapring (2 ea.)

Note: This kit does not include the 1994 damping adjuster seal.

- ? 1994 Oil change kit:

- O-ring, Air seal assembly. (2 ea.)
- Seal, Damping adjuster (2 ea.)
- Stanchion snapring (2 ea.)
- Damping dial snapring (2 ea.)

- 51108 Air valve cap
- 53105 Damping dial (5 per pkg, includes springs and balls, 2 ea. per adjuster)
- 51999 Wiper (10 per pkg)
- 53099 38 mm snapring (10 per pkg)
- ? Support washer (10 per pkg)
- 53107 Air seal assembly (includes air seal assembly O-ring)
- 53108 Damping adjuster assembly (includes damping adjuster seal)

Mogul Black Diamond / Extreme Disassembly

REMOVE BRAKES AND BRAKE ARCH

1. Remove the brakes and brake arch attachment bolts (Fig. 1). Remove the brake arch.

REMOVE FORK LEGS

2. Remove the crown pinch bolts (Fig 1).
3. Grasp the sliders with both hands and pull downwards while pushing and pulling the fork legs (Fig. 2).

REMOVE AIR VALVE ASSEMBLY

4. Make sure the air is at the top of each fork leg by compressing and rebounding the fork leg while in an upright position.
5. Remove the air valve cap (Fig 3).
6. Set the damping dial at maximum (4).
7. Press down on the top of the damping dial and remove the small snapping at the base of the schraeder valve (Fig. 4).
8. Pull the damping dial out of the stanchion. Remove the 2 small balls and 2 springs (Fig. 5).
9. Release all the air from the stanchion.
10. Place the wide end of the damping dial snapping driver on the outer ring surrounding the schraeder valve (Fig. 5). Push down about 1/8 inch (3 mm) into the stanchion, just until the snapping is visible (Fig. 6). There is an adjusting axle underneath which will not allow pushing any farther (Fig. 7).
11. Remove the stanchion snapping (Fig. 8).
12. Thread the puller onto the schraeder valve and pull the assembly out of the stanchion (Fig. 9).

REMOVE THE SEAL

13. Fully extend the fork leg. Fill the stanchion with oil to 1 3/8 inch (35 mm) below the top of the stanchion.
14. Push the air valve through the air seal assembly with your fingers to remove the damping adjuster (Fig. 10). Also note the thin washer between the air seal assembly and damping adjuster. Install the damping adjuster into the stanchion, making sure the small pin inside the damping adjuster (Fig. 10) lines up with the "D" shape of the adjusting axle (Fig. 7). Press the air seal assembly over the damping adjuster. Re-install the stanchion snapping to hold the air seal assembly in place.
15. Re-seat the air seal assembly against the snapping by compressing the fork leg.

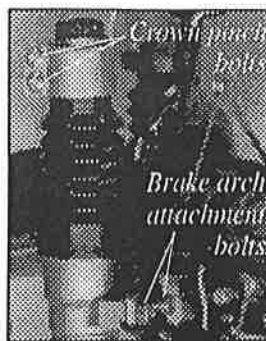


Fig. 1

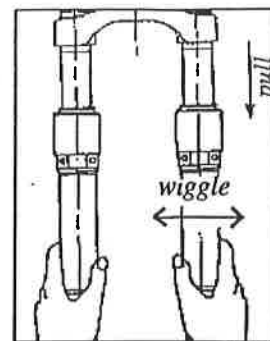


Fig. 2

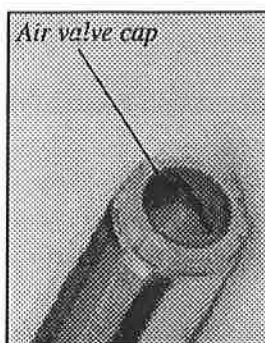


Fig. 3

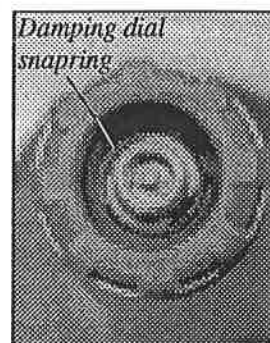


Fig. 4

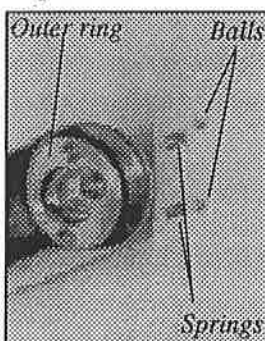


Fig. 5

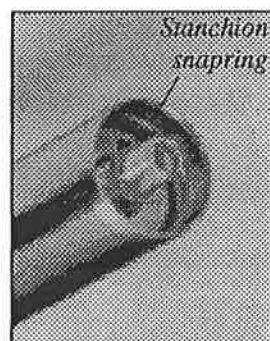


Fig. 6

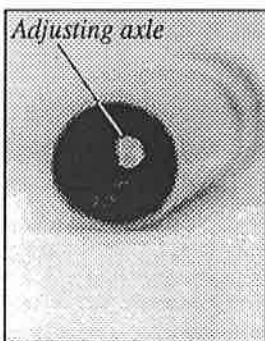


Fig. 7

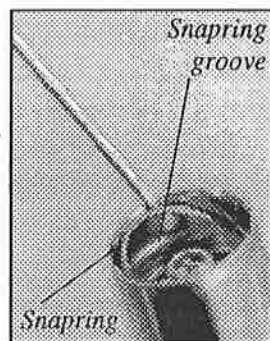


Fig. 8

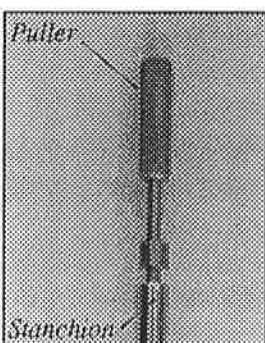


Fig. 9

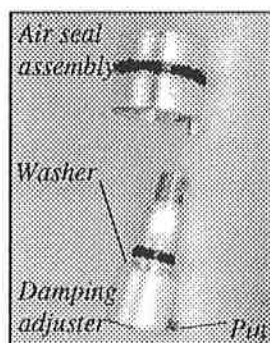


Fig. 10