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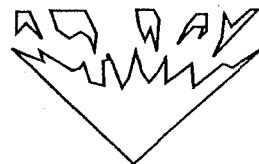
**WHITE
ROPER**
PROforx

No Compression
Grip Design



12/97 pn 97-720

SC 70, SC 90,
DC 90 & DC 118
Owners Manual



WHITE BROTHERS

PRO FORX FORK LOG:

WARRANTY RETURNS

Owners Name: _____

Address: _____

Phone: _____

Purchase Date: _____

Purchase Location: _____

Serial # : Located on backside of right upper fork leg

Fork Model: _____

Steer Tube Length: _____

Bike Brand: _____

Frame Size: _____

Safety

- 1.) NEVER REMOVE STEER TUBE FROM CROWN. THIS IS A PRESSED IN PART, REMOVING IT WILL RENDER BOTH CROWN AND STEERER INOPERABLE*. MAKE SURE YOUR FORK CAPS AND ALL FORK HARDWARE (brake studs, pinch bolts, etc.) ARE TIGHT
- 2.) DO NOT PERFORM ANY MODIFICATIONS OR ADJUSTMENTS THAT ARE NOT OUTLINED IN THIS MANUAL. SEE THE TUNING SECTION OF THE MANUAL FOR MORE DETAILS.
- 3.) INSPECT YOUR FORKS BEFORE EVERY RIDE. INSPECT THE CROWN, TUBES AND AXLE SEAT AREAS FOR ANY SIGNS OF FATIGUE, BENDING, CRACKING OR OTHER DAMAGE. IF YOU NOTICE ANY TYPE OF DAMAGE, DO NOT RIDE ON THEM. RETURN THEM TO YOUR DEALER FOR A COMPLETE INSPECTION AND NECESSARY REPAIR OR WARRANTY STEPS. PLEASE REFER TO THE WARRANTY SECTION OF THIS MANUAL.
- 4.) PERFORM ALL RECOMMENDED MAINTENANCE ACCORDING TO THE MAINTENANCE SECTION OF THIS MANUAL. FAILURE TO PERFORM MAINTENANCE COULD DRASTICALLY REDUCE YOUR FORKS LIFE AND PERFORMANCE.
- 5.) WHITE BROTHERS RECOMMENDS THAT YOU WEAR PROPER SAFETY EQUIPMENT EVERY TIME YOU RIDE, INCLUDING A SNELL APPROVED BICYCLE HELMET. NEVER RIDE AT NIGHT WITHOUT LIGHTS!

* IF SERVICE BECOMES NECESSARY OR REMOVAL OCCURS, PLEASE CALL WHITE BROTHERS CUSTOMER SERVICE FOR PRODUCT EVALUATION AND DIAGNOSIS.

White Brothers Pro Forx warrants its fork for a period of one year from the date of purchase. Warranty states that forks are free from defects in materials and workmanship. All forks must be returned to White Brothers for a complete inspection. If they are found to be defective White Brothers will determine replacement or repair of the forks. This warranty is the sole and exclusive remedy. White Brothers Pro Forx shall not be liable for any indirect, special or consequential damages.

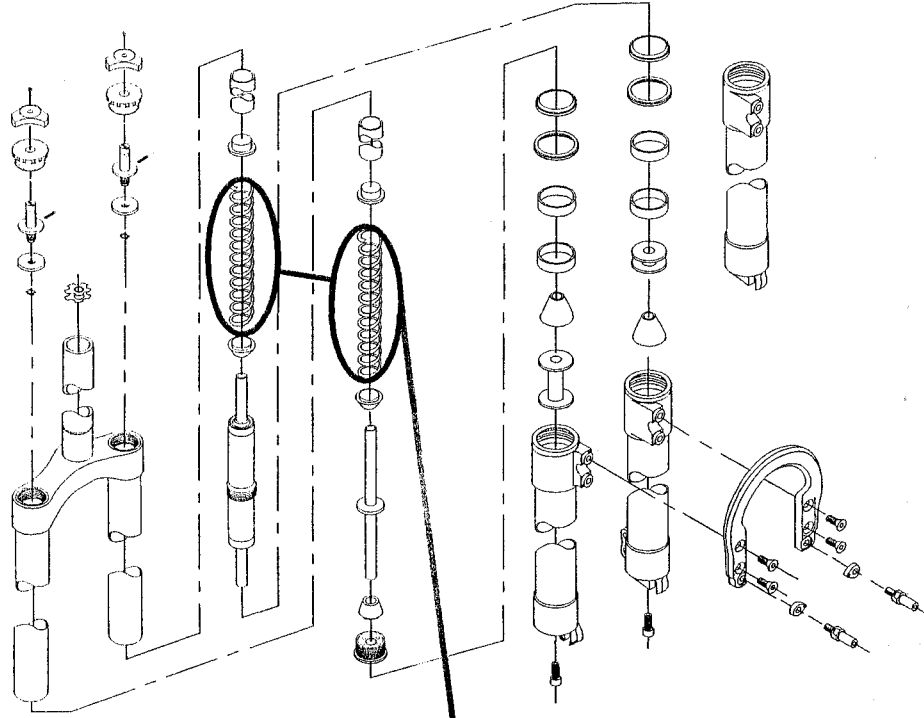
Warranty does not apply to any product that has been installed improperly or adjusted using methods not outlined in this manual. Warranty also does not cover forks that have been misused, or forks that are missing or have altered serial numbers (located on the backside of the right fork station). The forks are not warranted against damage in the appearance of the fork or for modifications not outlined in this manual. A copy of the proof of purchase must be included with all warranties.

Customers in the USA please contact your dealer for a Return Authorization Number (RA#) before returning the forks. All forks returned for inspection must be sent freight paid to:

WHITE BROTHERS

C/O Bicycle Customer Service
24845 Corbit Place
Yorba Linda, CA 92887
(714) 692-3404 Ext. 243
Fax (714) 692-3409

*Customers outside the USA please contact the dealer or distributor in your area



STANDARD Spring rate

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Your White Brothers Pro Forx have the standard rate (violet) springs already installed. Also included in this box is a pair of heavy rate (deep purple) springs. Other spring rates are available (see chart below). If you wish to change the spring rate of your forks, please consult an authorized dealer.

SPRING RATE CHART	
COLOR	RATE
White.....	SOFT
Violet.....	STANDARD
Deep Purple.....	HEAVY
Charcoal.....	EXTRA HEAVY

Applications

Thanks for purchasing your new White Brothers Pro Forx. You are in for the best ride of your life. Our forks are designed to give you the level of performance you need to ride at your absolute peak.

The White Brothers Pro Forx features lightweight coil springs and a sealed, externally adjustable cartridge damper. This technology is borrowed from motorcycling and offers the best possible suspension action. Steering accuracy is improved over conventional MTB forks by the utilization of superior materials and design. These include oversized 31.75mm fork tubes, a torsion box design steering crown with pressed-in tubes (for SC models only), a billet heavy duty brake bridge, and extra-thick billet machined drop-outs. Fork travel has been carefully chosen to offer the best performance for each model forks intended use. High-cushion bottom bumpers are used to minimize hard bottoming.

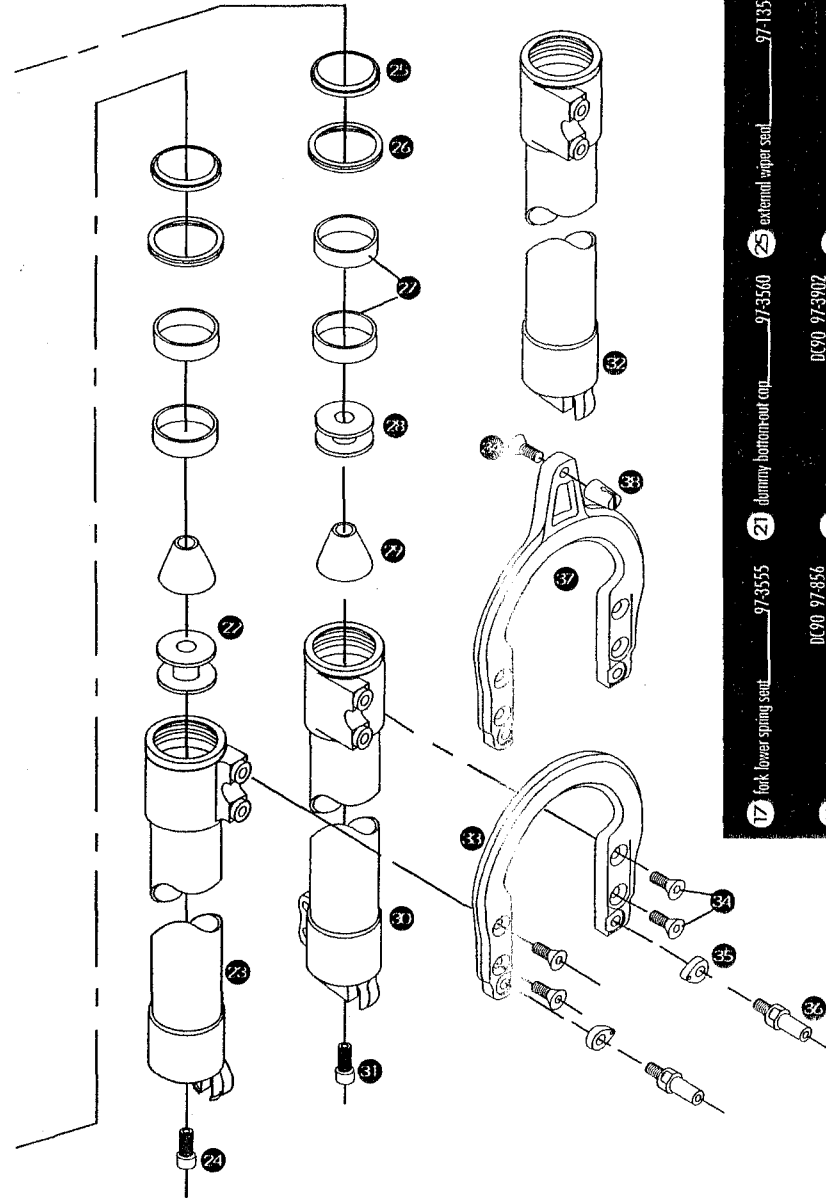
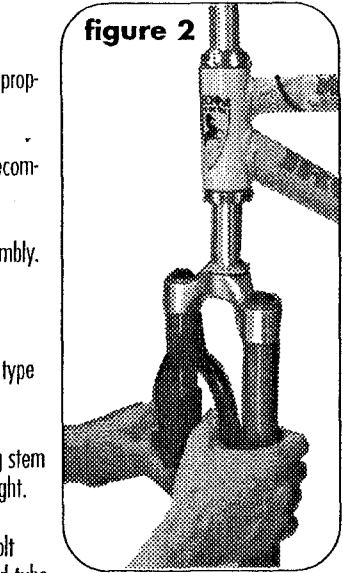
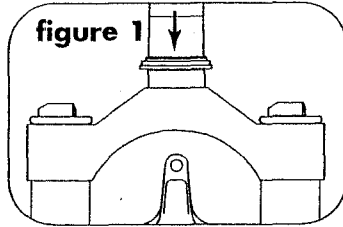
Every possible effort has been made to make the White Brothers Pro Forx very light in weight and perform at a level superior to other forks on the market. To insure peak performance, proper installation and periodic maintenance is required. Please read this manual in its entirety to familiarize yourself with the fork and insure your satisfaction with this product.

White Brothers Pro Forx are designed for offroad use only. They are not equipped with proper reflectors for on-road use. If you are going to use your forks for road use, have your dealer or mechanic install reflectors that meet the Consumer Product Safety Commission's (C.P.S.C.) requirements for bicycle standards. If you have any questions concerning C.P.S.C. Standards please talk to your dealer.

When using your forks on public land and trails, please respect the rights of other users and stay on established paths and trails. By mountain biking responsibly, you help to insure the future of our sport.

Fork Installation

White Brothers Pro Forks feature a 1 1/8" or 1 1/4" threadless steerer tube. If you have a threaded type fork on your bicycle, consult your dealer for the appropriate upgrade parts necessary to convert to a threadless steerer tube.



- 29 compression fork cap _____ 97-3341
- 30 LH fork leg w/ crown race _____ 97-3272
- 31 6MM x 16MM stem bolt w/ 20mm spacer _____ 97-850
- 32 LH fork leg _____ 97-3271
- 33 fork brace alloy 97-3657
Ti 97-9201
Steel 97-9202
- 34 fork brace bolt _____ 97-3663
- 35 spring retainer _____ 97-3663
- 36 brake stud _____ 97-3662
Steel 97-3665
- 37 optional brace _____ 97-3659C1
- 38 cable hanger _____ 97-3661
- 39 replacement steerer tube _____ 1 1/8" 97-3215
1 1/4" 97-3216
- 17 fork lower spring seat _____ 97-3555
- 18 cartridge DC90 97-3856
DC118 97-3857
- 19 dummy shaft DC90 97-3181
DC118 97-3182
- 20 rebound bumper _____ 97-3342
- 21 dummy bottom-out cap _____ 97-3560
- 22 RH bottom-out spacer DC118 97-3900
- 23 fork leg _____ 97-3220
- 24 6MM x 16MM allen bolt _____ 97-852
- 25 external upper seal _____ 97-1351
- 26 foam ring _____ 97-1358
- 27 DU bush _____ 97-986
- 28 LH bottom-out spacer _____ 97-3920

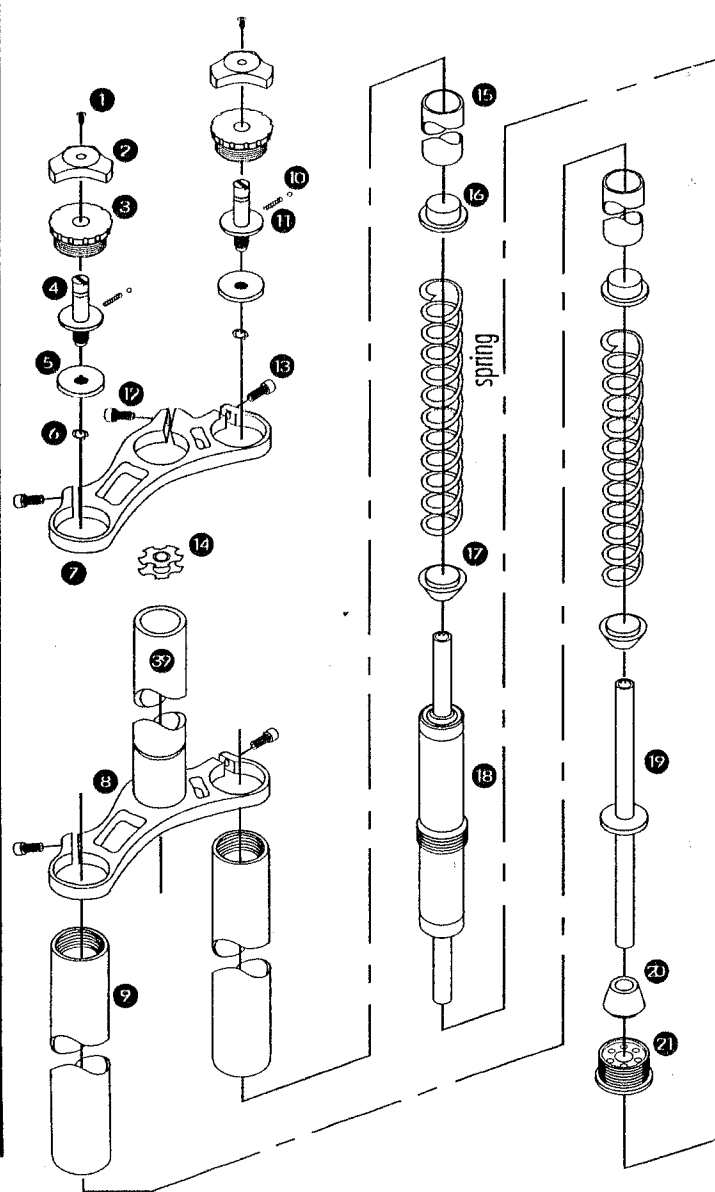
1. Remove old forks from the bicycle. See your bicycle's owners manual. Measure the diameter and length of your old fork's steerer tube to insure that the White Brothers Pro Forks steerer tube is the correct diameter and has sufficient length for the installation.
2. Remove the crown race from your old forks. **Note: Replace the bearings if there are any signs of wear or corrosion**
3. Press the crown race onto the steerer of your White Brothers Pro Forks fork (figure 1).
4. Preassemble headset by: Sliding fork steerer tube through headset bearings. Then install top headset, top crown (DC90/DC118 only), stem spacers (optional), and steering stem onto fork steerer tube. Refer to headset owners manual if you have any questions about this preassembly.
5. Mark steerer tube at top of steerer stem. Steerer must then be cut 3mm (1/8") below this mark. Consult a dealer or mechanic if you do not have the proper tools for cutting the steerer tube.
6. The special star fangled nut must now be installed into the steerer. We recommend dealer installation of this nut since a special tool is required.
7. Clean and grease all headset bearings and races to prepare them for assembly.
8. Now assemble headset as done in Step 4 (figure 2).
- 9A. (SC70 and 90 model forks only): Install the steering stem (threadless type is required) and handlebars. Set your bars to your desired height.
- 9B. (DC90/DC118 only): Install the top steering crown. Install the steering stem (threadless type is required) and handlebars. Set your bars to your desired height.
10. Install the threadless mounting cap. Tighten the top threadless stem bolt until there is no play in the fork tube. The forks should rotate freely in the head tube. Secure the pinch bolt(s) on the steering stem. Consult the installation instructions for your threadless bearing set to insure correct installation and tension of the headset.

DC90



DC118

- 1 fork adjuster knob screw _____ 97-9100
- 2 fork adjuster knob _____ 97-3934
- 3 fork cap _____ 97-3652
- 4 fork adjuster jock screw _____ 97-3952
- 5 fork jock screw washer _____ 97-3955
- 6 fork adjuster jock screw circlip _____ 97-9401
- 7 UPR crown assembly _____ (1 1/8") 97-3687 (1 1/4") 97-3691
- 8 lower crown assembly _____ (1 1/8") 97-3681 (1 1/4") 97-3679 for DC118s Dual bolt lower crown assembly _____ P1155
- 9 liner tube _____ 97-3955
- 10 detent ball _____ 97-3950
- 11 detent spring _____ 97-3951
- 12 top crown bolt (center) _____ 97-9205
- 13 crown bolt (sides) _____ 97-9200
- 14 shim out _____ (1 1/8") 97-9300 (1 1/4") 97-9301
- 15 spring spacer _____ 97-3912
- 16 top spring guide _____ 97-9205
- 16 (for rims installed) _____ 97-3556



11A. TIRE CLEARANCE (SC70 AND 90 model forks only): At full extension of the fork, a minimum of 2.95" (75mm) for SC70 fork and 3.75" (95mm) for SC90 fork must exist. **DANGER: Any less clearance than this will allow the tire to contact the bottom of the crown when the forks are fully compressed. If insufficient clearance exists, you must switch to a smaller diameter front tire.**

11B. TIRE CLEARANCE (DC90/DC118 model fork only): The fork tubes can be adjusted up or down in the fork crowns to adjust ride height and steering geometry. **NOTE: At full extension of the fork, a minimum of 4 1/2" (115mm) for DC118, and 3 3/4" (95mm) for DC90 clearance must exist between the tire and the bottom of the steering crown. DANGER: Any less clearance than this will allow the tire to contact the bottom of the crown when the forks are fully compressed.** Next check to make sure the top of the fork tubes fit all the way through the top steering crown. If insufficient clearance exists, you must switch to a smaller diameter front tire.

12. Install your front brakes and adjust following the manufacturers specifications.

13. For cantilever type brakes, route the brake cable to the White Brother Pro Forx brace cable mount. **Do not route the cable through the stem or any other mounts or cable stops!** (figure 3) The cable should make a direct route from the brake lever to the White Brothers Pro Forx brace cable mount and be able to move freely up and down through the full travel of the fork. It may be necessary to install a longer inner and outer cable. **NOTE: The distance between the brake cable hanger and the White Brothers Pro Forx brace cable stop mount must be a minimum of 12mm with the brakes on.** Note: Shimano® V-Brakes cable routing is direct from brake to brake lever.

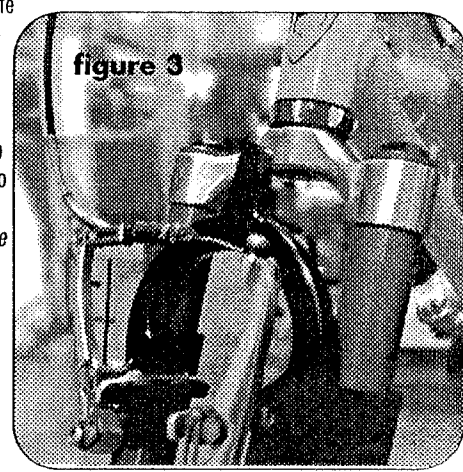


figure 3

13A. Latter model WB Pro Forx are intended for V-type brakes only. If cantilever brakes are used, you must order the optional fork brace with cable hanger (pn. 97-3659).

13B. V-brake cable routing is direct from brake to brake lever. Make sure forks move freely up and down without snagging cable through the full travel of the fork. It may be necessary to install a longer inner and outer cable.

14. Adjust quick release hub on your front tire to clear the secondary catches of the forks. The quick release must be tightened after it is properly seated into the dropout counter bore. Insure that there is sufficient thread engagement (5 or more threads with the release adjusted to lock) due to the thicker White Brothers Pro Forx dropouts. Install front wheel to bicycle per manufacturers specification.

15. Check to see that your brakes are adjusted and working.

16. STEERING CLEARANCE (DC90/DC118 Fork only): Due to the White Brothers Pro Forx double crown design, the fork tubes or fork steering crowns will contact the bicycle frame at full steering lock to the left and right. To eliminate the chance of damage to the fork or frame, a cushion stop must be fabricated to eliminate metal to metal contact. Fork bumpers, elastomers, thick pieces of rubber, or Grip Shift® rubbers (flangeless) will work fine. Secure in place to the frame or fork with zip tie or glue. WB now offers Fork Cushion Stops (pn 97-895) as a nice answer to this concern.

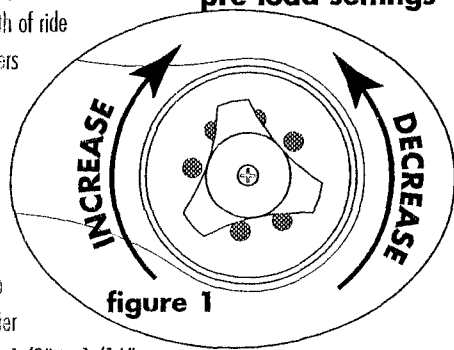
Tuning

To get the most from your White Brothers Pro Fork it is important that you tune the forks to fit your style of riding and the conditions you ride in.

Initial break-in period. Your new fork is designed to break-in over a period of 100 miles or more of riding. As all of the parts bed into each other, the stiction (friction) of the forks will reduce and the forks will absorb the bumps better. After this initial break-in, fine tuning the spring preload and cartridge damper may be beneficial to achieve the best possible fork performance for your weight and riding style.

Tuning Your Springs

There are two ways to adjust your forks. The first is by changing the spring pre-load or changing the springs for a completely different rate. The spring basically controls the quality of the ride. Stiff springs handle major obstacles and drops better, but don't give as smooth of ride over braking bumps and other small obstacles. Your White Brothers Pro Fork come with standard rate springs installed, with the pre-load adjusted at zero. **Note: Zero spring preload means the pre-load is just touching the spring, and the spring is under no tension (at full fork extension).** For the majority of riders this should give a compliant ride, yet remain resistant to bottoming. Pre-load should be adjusted and then left alone (figure 1). If you feel your forks are bottoming too easily, then switch to the heavier springs supplied with your forks. Your pre-load should be set with 1/8" to 1/16" of free sag. This means that with no load on the bike, the forks should just return to full extension after compressed. *If forks are too stiff or too soft with either of the spring sets supplied, WB offers optional Soft and X-Heavy Fork Springs (see Spring Rate Chart on page 12). Contact your WB dealer to order these.*

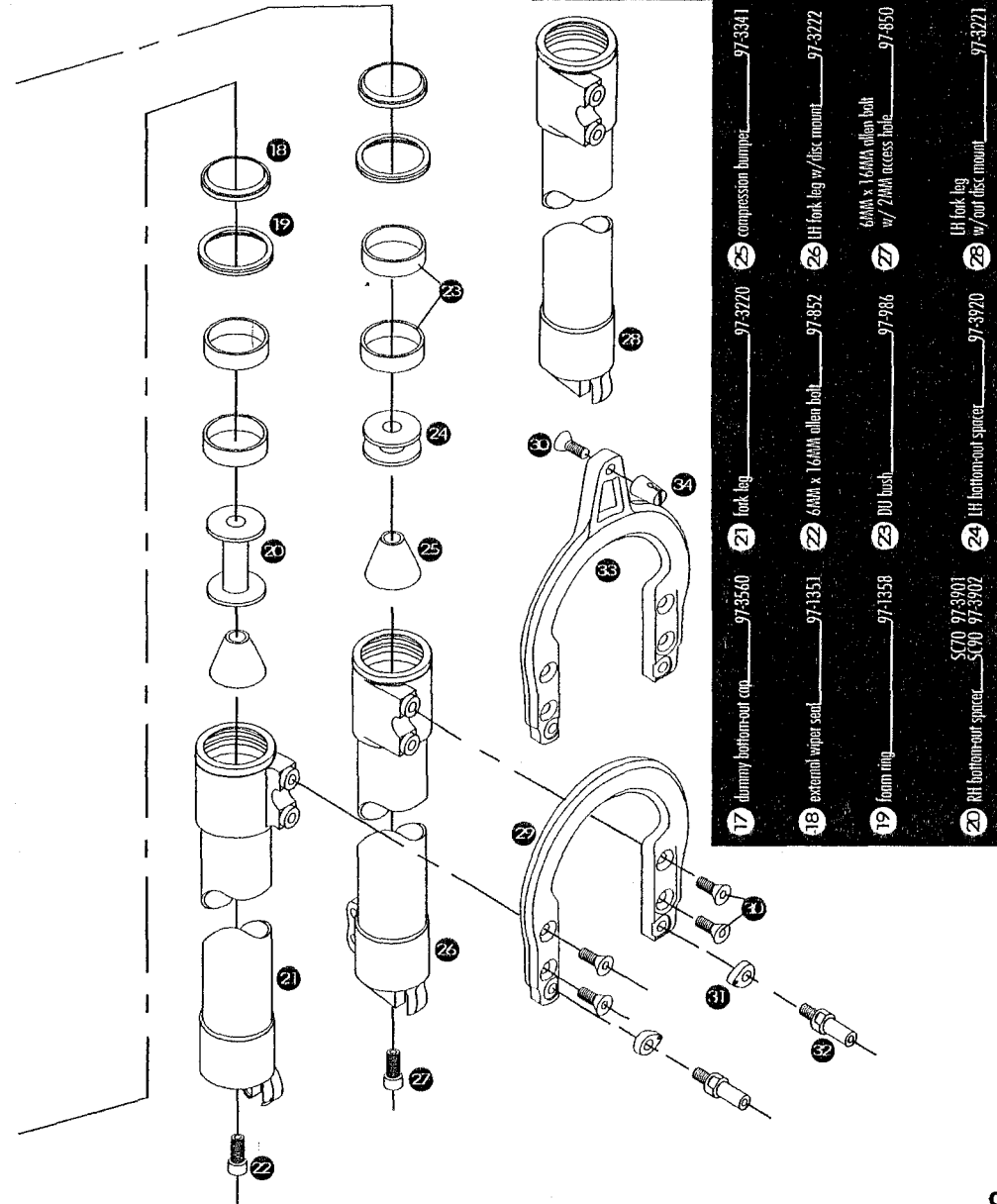


Tuning Your Cartridge

Because of your forks coil springs, you will notice the forks have far better action than other mountain bike forks you might have used. Adjusting the cartridge should only be done after you are completely happy with your spring choice, and the proper sag has been set.

Your White Brothers Pro Forks come with the cartridges adjusted in the middle of its' range. The standard setting is 2 turns out (SC70), 3 turns out (SC90 & DC90), and 4 turns out (DC118) from all the way in (clockwise). Use the following guide lines to determine if further adjustment is needed.

SC70 & SC90

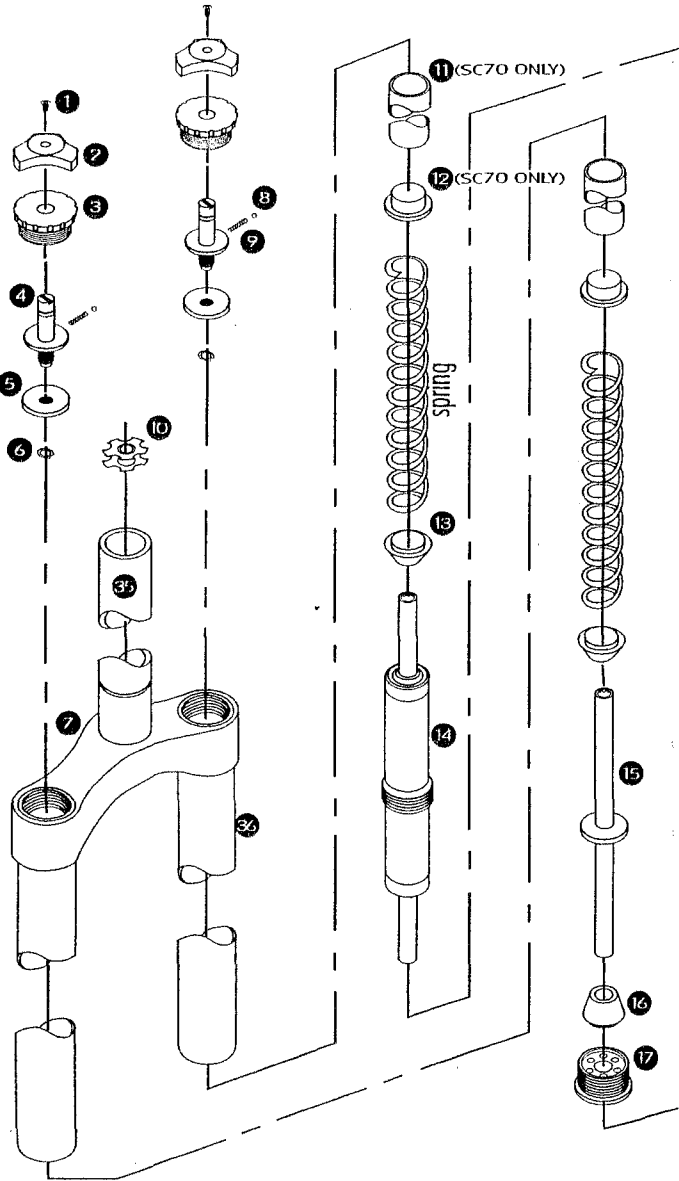


- 29 Billet Magnesium 97-3667
- 30 Billet Aluminum 97-3657
- 31 Ti 97-9201
- 32 Steel 97-9202
- 33 spring retainers 97-3663
- 34 Ti 97-3662
- 35 Steel 97-3665
- 36 optional brace 97-3659CL
- 37 cable hanger 97-3661
- 38 SC70 (1 1/8") 97-3213
- 39 SC70 (1 1/4") 97-3214
- 40 SC90 (1 1/8") 97-3208
- 41 SC90 (1 1/4") 97-3209
- 42 replacement steerer tube 97-3209
- 43 heavy duty inner leg P1147
- 17 dummy bottom-out cap 97-3560
- 18 external wiper seal 97-1351
- 19 foam ring 97-1358
- 20 LH bottom-out spacer 97-3902
- 21 fork leg 97-3270
- 22 6MM x 16MM allen bolt 97-852
- 23 LH fork leg w/ disc mount 97-3222
- 24 LH bottom-out spacer 97-3970
- 25 compression bumper 97-3341
- 26 6MM x 16MM allen bolt w/ 2MM access hole 97-850
- 27 DU bush 97-986
- 28 LH fork leg 97-3221
- 29 6MM x 16MM allen bolt 97-852
- 30 DU bush 97-986
- 31 LH bottom-out spacer 97-3970
- 32 compression bumper 97-3341
- 33 6MM x 16MM allen bolt w/ 2MM access hole 97-850
- 34 LH fork leg 97-3221
- 35 DU bush 97-986
- 36 LH bottom-out spacer 97-3970

Disassembly

The following illustration and parts table gives you the exploded view of each of our forks. The parts table lists the part number for each individual part in the fork and is the reference you will need if ordering replacement parts. See your local dealer to order the parts that you require.

- 1 fork adjuster knob screw _____ 97-9100
- 2 fork adjuster knob _____ 97-3954
- 3 fork cap _____ 97-3652
- 4 fork adjuster lock screw _____ 97-3952
- 5 fork lock screw washer _____ 97-3955
- 6 fork adjuster lock screw collar _____ 97-9401
- 7 crown assembly _____ SC70 (1 1/8") 97-3680
SC70 (1 1/4") 97-3684
SC90 (1 1/8") 97-3686
SC90 (1 1/4") 97-3688
- 8 dabent ball _____ 97-3950
- 9 dabent spring _____ 97-3955
- 10 star nut _____ (1 1/8") 97-9300
(1 1/4") 97-9301
- 11 spring spacer _____ SC70 only 97-3910
SC90 only 97-3181
- 12 top spring guide _____ SC70 only 97-3556
SC90 only 97-3342
- 13 fork lower spring seat _____ 97-3555
- 14 cartridge _____ SC70 97-955
SC90 97-856
- 15 dummy shaft _____ SC70 97-3180
SC90 97-3181
- 16 rebound bumpup _____ 97-3342



cartridge settings

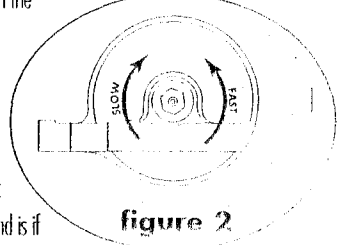


figure 2

A) If your forks rebounding are too slowly, use a 2mm allen and insert it through the adjusting hole on the bottom left fork leg of your fork. Turn the adjuster out, a 1/4 turn at a time and test it (figure 2). The forks should absorb and return fast enough to absorb the next major obstacle. A sign that your forks are rebounding too slowly is if they feel like they pack-up or continue to compress as you go through rough sections.

B) If your forks are rebounding too fast, adjust them by using the same method: by turning the adjuster in a 1/4 turn at a time and test (figure 2). A sign of too fast of rebound is if the forks deflect and the bicycle is hard to hold in lines. The front wheel will also bounce and appear "busy", i.e. you get an additional bounce after landing from a drop.

By following these simple tuning instruction you should be able to get maximum performance from your forks. The best rule of thumb is to always make just one change at a time, then test the result. By using this method you are assured that each adjustment is doing what you want it to do.

Trouble Shooting

- Problem:** The fork has "stiction" (moves up and down in jerky movements)
Cause: See Tuning sections for break in notes
Solution: This is normally caused by lack of lubrication or dirt in the seals and/or bearings, or forks are not sufficiently broken in
Clean and lubricate the fork as described in the maintenance section
- Problem:** The fork does not return to it's full extension
Cause: This is normally caused by a lack of spring preload
Solution: Adjust the spring preload clockwise until the fork just returns to it's full height
- Problem:** The fork returns to it's full height too aggressively, feels like an air fork or "tops out"
Cause: Too much spring preload
Solution: Adjust the preload adjusters counterclockwise until the fork just returns to it's full height
- Problem:** The fork bottoms too easily
Cause: Incorrect spring choice
Solution: Install stiffer option spring and re-adjust pre-load and damper settings
- Problem:** The fork doesn't use it's full travel
Cause: Incorrect spring choice
Solution: Install softer option spring and re-adjust pre-load and damper settings
- Problem:** The fork bounces up and down rapidly
Cause: Insufficient rebound damping
Solution: Increase damping by adjusting clockwise (in) 1/4 turn at a time
- Problem:** The fork has heavy feel, doesn't return quick enough for consecutive bumps
Cause: Too much rebound damping
Solution: Decrease damping by adjusting counterclockwise (out) 1/4 turn at a time

Maintenance

Your White Brothers Pro Forx requires periodic maintenance to insure peak performance and long life. Moisture and contamination may build up inside the fork. We suggest you remove the lower fork legs, inspect, clean and re-grease them after 30 hours of use. If the forks appear to be relatively clean you can probably go 40 hours between servicing. If the forks appear dirty you should service them every 20 hours. The three things that will most effect the service interval and performance of your forks is water, mud and dust. Depending on how much time you use your forks in those conditions will determine how much service they require.

NOTE: When cleaning the fork, it is not recommended to direct water spray at the seals.

NOTE: Neglecting proper fork maintenance will reduce the forks life. Internal build up of water and dirt, or a lack of lubrication will cause excessive wear to the forks. Periodically lift the wiper seal and inspect for cleanliness, and grease the foam ring.

Basic service should include removing the lower, outer fork tubes, cleaning and re-greasing all shafts and seals. At this time, the forks should be carefully inspected for wear and damage before reassembly.



***White Brothers recommends that you consult with a qualified technician before performing the following:**

Lower Fork Leg Service Instructions

- 1) Disconnect front brake and remove wheel as outlined in your bicycle's owners manual
- 2) Remove allen head bolts (left and right bottoms of fork) using a 5mm allen wrench (figure 1).
- 3) Slide the fork tubes off the end of the inner tubes. Be careful not to damage the seals as they come off the inner legs (figure 2).
- 4) At this point clean all parts with a clean, non-abrasive rag. Once cleaned, inspect seals for tears or cracks. If okay, re-grease them with White Brothers Suspension Lube or other suitable, non-lithium grease. If your seals are no longer serviceable, check the General Disassembly Parts Table section of this manual for the proper replacement part numbers. Your dealer will be able to order any replacement parts you might need.
- 5) Next, inspect the fork tubes for wear, nicks or scrapes. If there is noticeable play between fork legs and fork tubes, the DU bushes located inside the lower fork legs may require replacement. Consult your dealer for service options. Finally inspect the cartridge damper for any signs of leakage or scratches and wear on the protruding cartridge shaft. The cartridge damper is a sealed unit that is threaded into the left fork. It requires only occasional maintenance (oil and seal change every 80 to 120 hours of use). Consult White Brothers or your dealer if servicing or repair is necessary.
- 6) If everything is free of problems, coat all parts with a light coating of White

figure 1

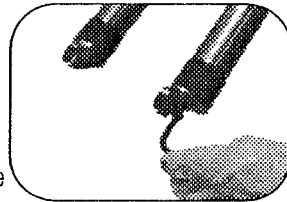
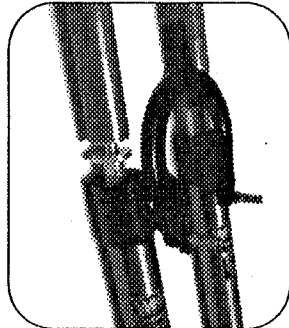


figure 2



Brothers Suspension Lube or other suitable, non-lithium grease. Also lube the DU bushings that are located inside the fork legs by dipping a socket extension in grease and applying the grease into the inside of the fork legs on the DU bushings. Prior to assembling the lower fork legs to the upper fork tubes, make sure the coned compression bumper and RH bottom-out spacer are installed on the dummy rod shaft and the coned compression bumper is installed onto the cartridge shaft.

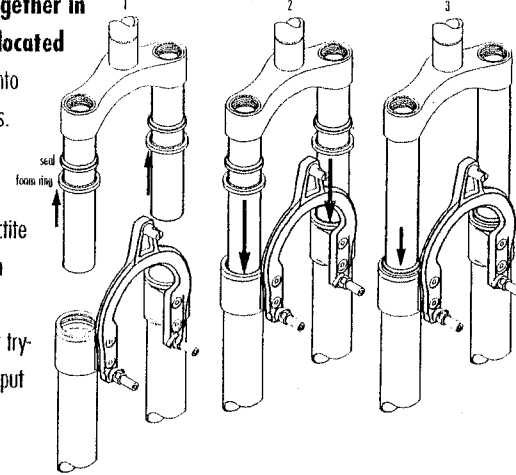
7) Re-assemble your forks first by sliding the seal and foam ring up onto the fork tubes (figure 3). **NOTE: The fork legs cannot be installed to the fork tubes with the seals and foam rings installed into the legs, the seal and the foam rings will be damaged and bind the forks.** Now fit the fork tubes carefully down into the fork legs. Slide them all the way together until the bolts at the bottom of the forks

can be installed. **NOTE: Do not beat the forks together in any way. This can dislodge the DU bushings located in the lower fork legs.**

Slide the foam ring down into the lower fork legs, carefully tucking them in on all sides. Next press into place the seals. Make sure outside of seals are clean and dry before sliding them into place.

8) Install the bottom 5mm head retaining bolts (use loctite or similar thread sealant) into the bottom legs (bolt with hole through center of it goes into left fork leg). Tighten full. If the cartridge or dummy rod shafts turn while your trying to tighten these bolts, compress the forks slightly to put added tension on the shafts.

figure 3



Maintenance Log

date	service performed	date	service performed

