

**Owners Name:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**Phone:** \_\_\_\_\_

**Purchase Date:** \_\_\_\_\_

**Purchase Location:** \_\_\_\_\_

**Serial # :** *Located on backside of right axle clamp*

## 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 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.

## Maintenance Log

date	service performed	date	service performed

## WARRANTY CLAIMS

White Brothers forks are designed to enhance riding please and as such are warranted to be free from defects in materials and workmanship for a period of six months from the date of purchase. On receipt of the forks by White Brothers, 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 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 stanchion). The forks are not warranted against damage in the appearance of the fork or for modifications not outlined in this manual. This warranty does not cover breakage, bending, or damage that may result from crashes, falls or abuse. Normal wear (i.e. seals, bushings, slider finish, etc.) and wear and damage caused by lack of proper maintenance is not included. \* **The warranty registration card must be filled out and returned within 30 days of purchase to activate and validate this warranty.**

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

A division of EKO Sport Inc.

580 N. Westgate Dr.

Grand Junction, CO 81505

Phone (800) 999-8277

Fax (970) 241-3529

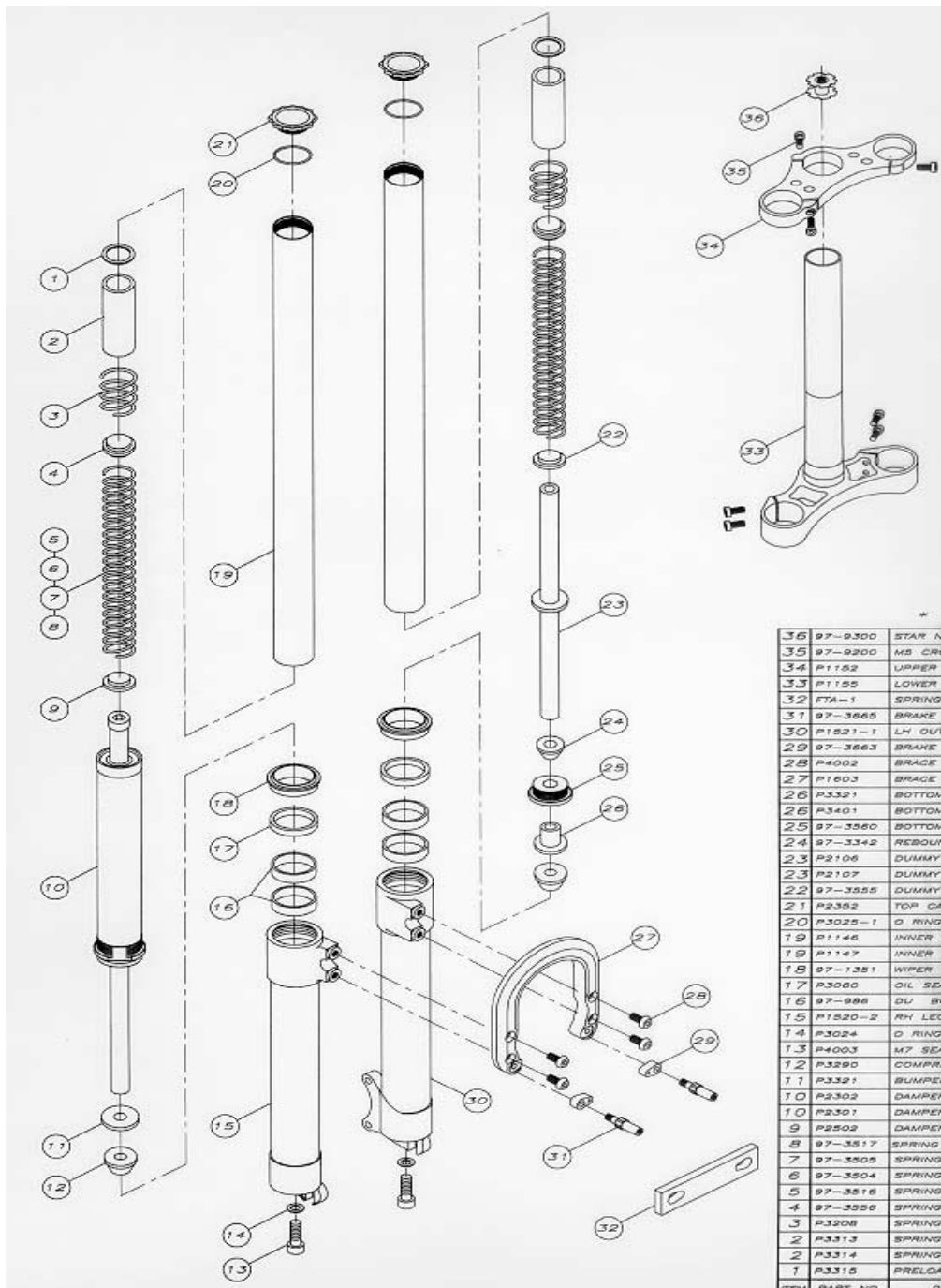
www.whitebrotherscycling.com

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



# Exploded Views

DS-3 & FR-3



ITEM	PART NO.	DESCRIPTION
36	97-9300	STAR NUT
35	97-9200	MS CRC
34	P1152	UPPER LEG
33	P1155	LOWER LEG
32	FTA-1	SPRING
31	97-3665	BRAKE BRIDGE
30	P1521-1	LH OUT
29	97-3663	BRAKE BRIDGE
28	P4002	BRACE
27	P1603	BRACE
26	P3321	BOTTOM BRACE
25	P3401	BOTTOM BRACE
24	97-3560	BOTTOM BRACE
23	97-3342	REBOUND SPRING
22	P2106	DUMMY SPRING
21	P2107	DUMMY SPRING
20	97-3555	DUMMY SPRING
19	P2352	TOP BRACE
18	P3025-1	O RING
17	P1146	INNER BRACE
16	P1147	INNER BRACE
15	97-1351	WIPER BRACE
14	P3060	OIL SEAL
13	97-988	DU BRACE
12	P1520-2	RH LEG
11	P3024	O RING
10	P4003	M7 SEAL
9	P3290	COMPRESSOR
8	P3321	DAMPER
7	P3302	DAMPER
6	P3301	DAMPER
5	P2502	DAMPER
4	97-3517	SPRING
3	97-3505	SPRING
2	97-3504	SPRING
1	97-3518	SPRING
	97-3556	SPRING
	P3208	SPRING
	P3313	SPRING
	P3314	SPRING
	P3315	PRELOAD SPRING

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## Applications

Thanks for purchasing your new White Brothers Fork. 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 Hardbody Series forks features lightweight coil springs and a oil filled cartridge damper. The medium rate springs and damping system that are installed will satisfy a wide range of riders weights and riding requirements. Additional tuning can be accomplished by changing spring rates to the optional light or heavy spring rates that are available. For very light or very heavy riders, the damper oil viscosity can also be changed to meet their requirements. 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 (XC/AT-3 models), a billet heavy duty brake bridge, and extra-thick machined drop-outs. The WB Forks bootless design allows considerable more slider/stanchion overlap than competitor forks and also attributes the forks steering accuracy. Fork travel has been chosen to offer the best performance possible for each forks intended use.

Every possible effort has been made to make the White Brothers Forks 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 Forks 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 mounting biking responsibly, you help to insure the future of our sport.

## Fork Installation

White Brothers Hardbody Series forks features a 1 1/8" 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 1 1/8" threadless steerer tube.

1.) Remove old forks from the bicycle. See your bicycle's owners manual. Measure the diameter and length of your old forks steerer tube to insure that the White Brothers fork steerer tube is the correct diameter and has sufficient length for the installation. NOTE: Add .50" (13mm) to length if you are upgrading from a single crown fork to the DS or FR-3 model dual crown fork.

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 fork (**figure 1**).

4.) Preassemble headset by: Sliding fork steerer tube through headset bearings. Then install top headset, top crown (DS & FR-3 only), stem spacer (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. **Note: The DS and FR-3 forks will not work on frames with head tubes longer than 5 1/2". See step 11 prior to cutting steering tube.**

6.) The special star fangled nut must now be installed into the steerer. We recommend dealer installation of this part since a special tool is required.

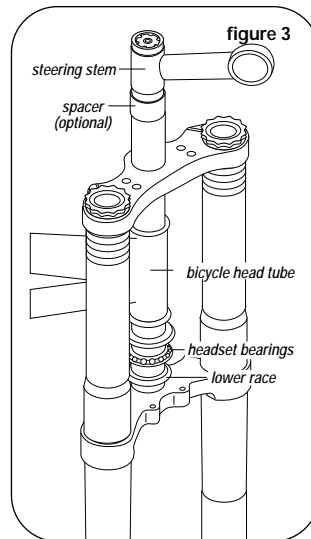
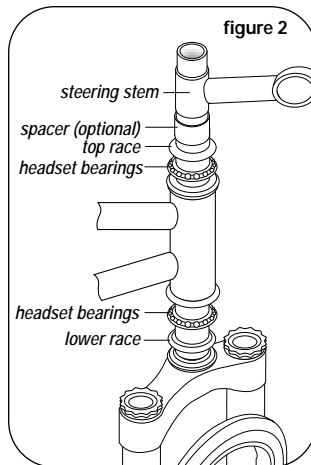
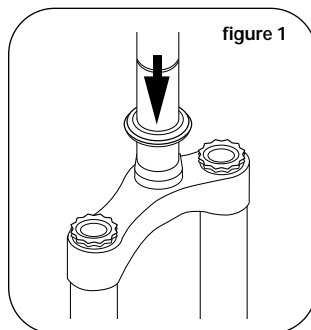
7.) Clean and grease all headset bearings and races to prepare them for assembly.

8.) Now assemble headset as done in Step 4 (**figure 2**). For DS and FR-3 models, make sure top crown is installed above top race (**figure 3**).

9.) Install the steering stem (threadless type is required) and handlebars. Set your bars to your desire height.

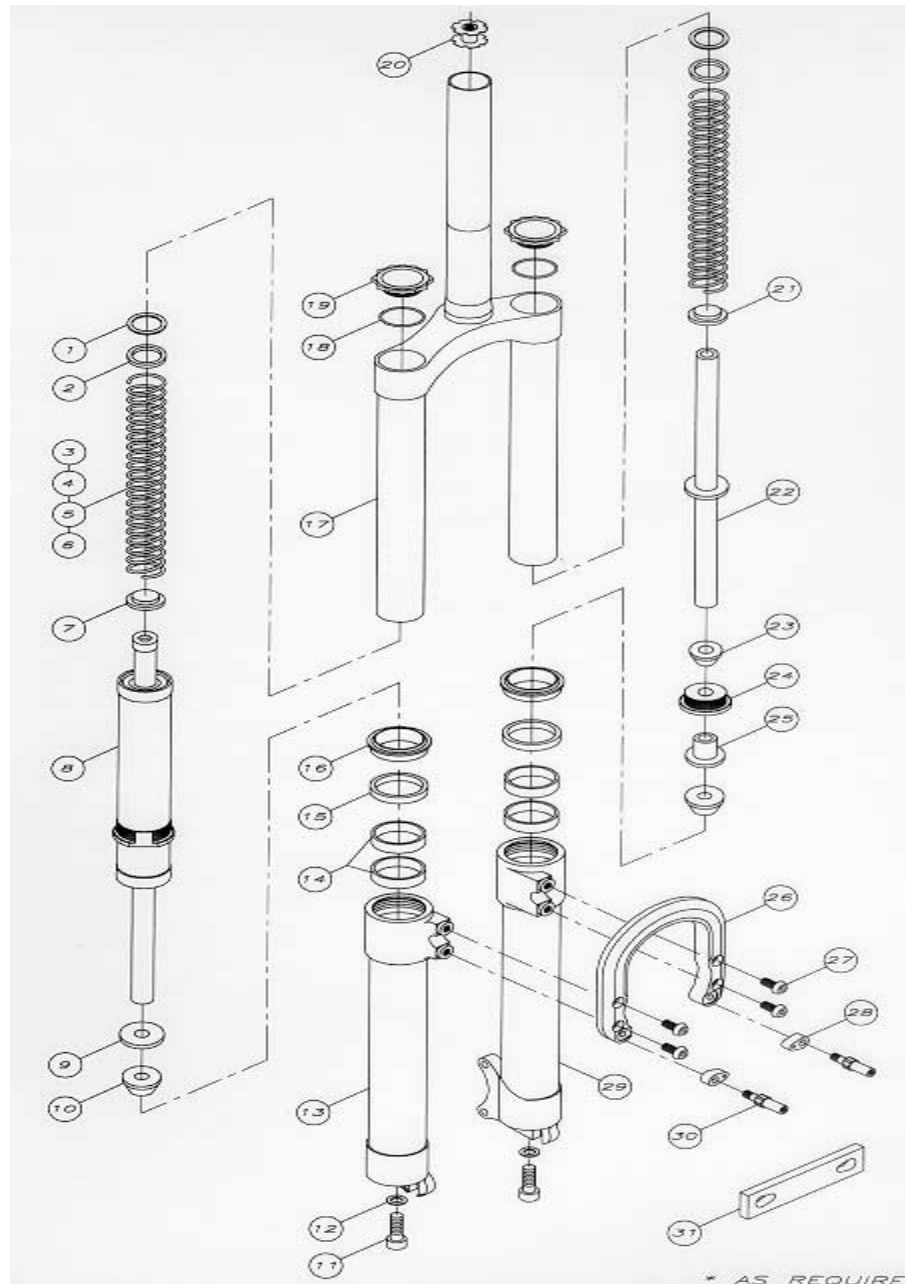
10.) Install the threadless mounting cap. Tighten the top threadless stem bolt until there is no play in the fork tube. The forks should rotate freely in the head tube. Secure the pinch bolts on the steering stem. Consult the installation instructions for your threadless bearing set to insure correct installation and tension of the headset.

11.) **TIRE CLEARANCE** (DS and FR-3 model forks 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 4.13" (105mm) for the DS-3 fork and 5.12" (130mm) for the FR-3 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. This could stop the wheel, which could result in throwing the rider and causing possible injury or death.** Next check to make sure the top of the fork tubes fit all the way through the top steering crown. If they do not, it will be necessary install a smaller diameter front tire. If after readjusting forks in crowns to achieve the minimum clearance recommendation, if forks still do not fit all the way through top steering crown, return forks to your dealer. They will not work on your bicycle.



## Exploded Views

The following illustration and parts table gives you the exploded view XC-3 & AT-3 White Brothers Hardbody series 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.



\* AS REQUIRE

## Maintenance cont.

5.) The damper cartridge is threaded into the left fork stanchion. It can be removed by using adjustable wrench and unthreaded counter clockwise from fork. Inspect it for visible leakage. If none, grasp shaft and operate back and forth to insure smooth action. If the cartridge has visible leakage and/or the damping feels inconsistent as it is stroked, return the cartridge to White Brothers or a dealer familiar with servicing the Hardbody cartridge damper for service. Make sure fork spring lower seat is sitting on top of damper cartridge rod and reassemble cartridge into left fork stanchion. Fully tighten.

6.) The dummy shaft is housed in the right fork stanchion. Normally, removal isn't recommended. Simple clean and grease exposed shaft prior to reinstalling fork lower legs.

7.) Next, inspect the fork stanchion tubes for wear, nicks or scrapes. If there is noticeable play between lower fork legs and fork stanchions, the DU bushes located inside the lower fork legs may require replacement. Consult your dealer for service options.

8.) If everything is free of problems, coat all parts with a light coating of White Brothers/Englund Suspension Lube or other suitable, non-lithium grease. Also lube the DU bushings that are located inside lower fork legs by dipping a socket extension in grease and applying the grease into the inside of the fork stanchion on the DU bushings.

## Basic Fork Assembly

9.) Upper fork crown and stanchion assembly should be mounted in a vise and clamps by the steerer tube. Stanchions should be parallel to the ground. Make sure travel limiter spacers and bottom bumpers have been installed over dummy and cartridge shafts (see Exploded views on page 7 & 8 for correct installation). Pour 15cc's of motor oil (approx. 1 ounce) between the upper and the lower bushings in the fork legs while holding fork legs parallel to ground (so oil doesn't pour out). Carefully install fork legs over fork stanchion tubes rocking legs slightly allowing fork stanchion tubes to engage DU bushings inside fork legs. Fully compress forks so that allen bolts can be installed into bottom fork legs and engage internal rods. **NOTE: Do not tap fork legs onto stanchions, DU bushings can be dislodged.** Fully tighten allen bolts in lower fork legs. **NOTE: Apply Loctite® (or similar product) threadlock on these bolts.**

10.) Make sure fork caps /are fully tightened into top of fork stanchion tubes. Connect front wheel and brakes as outlined in your bicycles owners manual.

11.) Compress your forks to make sure they work smoothly and brake cable doesn't foul on fork in anyway.

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

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

14.) Check to see that your brakes are adjusted and working. Make sure brake cable doesn't foul on any part of bicycle when fork is compressed and released.

15.) **STEERING CLEARANCE (DS and FR-3 model forks only):** Due to the dual crown design on the DS and FR-3 forks, 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. Optional Fork Cushion Stops are available from WB (pn 97-895 through 97-896). Thick pieces of rubber or Grip Shift(r) rubbers (flangeless) will work fine. Secure in place to the frame or fork with zip tie or glue.

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## Tuning

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To get the most from your White Brothers 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 10 hours 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 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 spring action. The first is by changing the spring preload and the second is changing the springs for a completely different rate. Your White Brothers forks come equipped with medium rate springs adjusted at zero preload. Zero preload means that at full extension of the fork, the fork caps just touch the top of the springs. This setting usually gives the best ride characteristics. Included with your White Brothers forks are (4) 2mm preload spacers. If you feel the initial movement of the fork is excessive, add (1) 2mm preload to each side of the fork (between the top of the spring and the fork cap). Never use more than the (2) 2mm preload spacers on each side of the fork; too much preload will cause the fork to top out.

Though the medium rate springs that are fitted in your White Brothers forks should satisfy most rider weights and conditions, for very light or very heavy riders, a spring change may be necessary. If you are a lightweight rider and feel you are not getting the full travel out of your forks, than ordering the optional light fork springs for your forks would be recommended. For heavier riders that feel they are constantly using too much of the fork travel, the optional heavy fork springs would be recommended. A good way to test the amount of travel you are using with your fork is to tie a zip tie around your fork stanchion and slide it down on top of the forks wiper seal. Go and ride a variety of conditions you normally experience, including some conditions that you feel should use the full fork travel. After the ride, inspect the position of the zip tie. Measure that position from the steering crown. Next, remove both fork caps and compress the forks firmly. If the zip tie moves more than 1/4" more, your springs are probably too stiff and a change to a softer spring may improve your ride. Very heavy riders may note that the zip tie slides up the fork stanchion quite far even over minor bumps, this could indicate the need for a heavy spring rate.

### Tuning Your Damper Cartridge

There are no exterior damping adjustments on the cartridge damper in your White Brothers fork. White Brothers has redesigned the Hardbody damper cartridge in your forks to perform well with much wider ranges of rider weights, spring rates and spring preload settings than in the past. We found by removing the damping adjust needle and altering the valve settings, that the cartridge damper was more sensitive to small bumps while still absorbing large bumps very well. Only in rare occurrences (extremely light or heavy riders) should a damping change be required. In the case you feel it does, damping can be altered by changing the fluid viscosity in the cartridge damper. We recommend this service be done by White Brothers or a dealer familiar with servicing the Hardbody damper cartridge.

#### Trouble Shooting

**Problem:** The fork has "stiction" (moves up and down in jerky movements). See Tuning section for break-in notes

**Cause:** This is normally caused by lack of lubrication or dirt in the seals and/or bearings, or forks are not sufficiently broken in

**Solution:** Clean and lubricate the fork as described in the maintenance section

**Problem:** The fork does not return to its full extension

**Cause:** This is normally caused by a lack of spring preload

**Solution:** Increase the spring preload

**Problem:** The fork returns to its full height too aggressively, feels like an air fork or "tops out"

**Cause:** Too much spring preload

**Solution:** Reduce the spring preload

**Problem:** The fork bottoms too easily

**Cause:** Incorrect spring choice

**Solution:** Install stiffer optional springs

**Problem:** The fork doesn't use its full travel

**Cause:** Incorrect spring choice

**Solution:** Install softer optional springs

**Problem:** The fork bounces up and down rapidly

**Cause:** Insufficient rebound damping or damper needs serviced

**Solution:** Service damper

**Problem:** The fork has heavy feel, doesn't return quick enough for consecutive bumps

**Cause:** Too much rebound damping

**Solution:** Service damper with lighter oil

Your White Brothers fork requires periodic maintenance to insure peak performance and long life. Moisture and contamination may build up inside the fork. We suggest you disassemble your forks, 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.**

Basic service should include removing the lower fork legs, 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:

#### Basic Fork Disassembly

1.) Disconnect front brake and remove wheel as outlined in your bicycle's owners manual.

2.) Remove allen head bolts at the bottom of the forks using a 6mm allen wrench (**figure 4**).

3.) Simply slide the lower fork legs off the end of the inner stanchion tubes. **NOTE:** Have pan under fork to catch small amount of oil that is in fork. Be careful not to damage the seals as they come off the inner legs (**figure 5**).

4.) At this point clean all parts with a clean, non-abrasive rag. A mild grease cutting cleaner or solvent might make this an easier task.

Once clean, inspect seals for tears or cracks. If okay, regrease 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. Also, check carefully the DU bushes for wear. This is done by looking at the color of the bushes. If they are dark grey, the bushes are okay. If they are bronze/gold in areas, they are worn and can cause fork stanchion damage. Your dealer will be able to order any replacement parts you might need. The DU bushes require special tools to remove and reinstall. If DU bushing replacement is necessary, send you complete fork to White Brothers or take it to a dealer that is experienced in this type of service on a White Brothers fork.

