

OWNERS MANUAL FOR

DH < 3



DOWNHILL

WHITE BROTHERS CYCLING
A DIVISION OF EKO SPORT, INC.
580 NORTH WESTGATE DR.
GRAND JUNCTION, CO 81505
WWW.WHITEBROTHERSCYCLING.COM

Owners Name: _____

Address: _____

Phone: _____

Purchase Date: _____

Purchase Location: _____

Serial # _____

(Located on the backside of the 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 FORK 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 YOUR FORK. RETURN IT 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 FORK'S LIFE AND PERFORMANCE.

5.) WHITE BROTHERS RECOMMENDS THAT YOU WEAR PROPER SAFETY EQUIPMENT EVERY TIME YOU RIDE, INCLUDING AN 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.**

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 DH-3 fork features lightweight, dual rate coil springs, air/oil separated damping system, externally adjustable rebound damping, and piggyback design air charged reservoir with compression damping external adjuster. This technology is borrowed from motorcycling and offers the best possible suspension action. Steering accuracy is improved over conventional MTB forks by utilizing dual billet aluminum steering crowns, oversized 31.75mm fork tubes, inverted stanchion/slider design and large 20mm axle. Fork travel has been set at 7.28" (185mm) to offer the best performance for downhill racing terrain. A combination coil spring and high-cushion bottom bumper is used to minimize hard bottoming.

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

White Brothers Forks are designed for offroad use only. They are not equipped with proper reflectors for road use. If you are going to use your fork on the road, 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 fork 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 ensure the future of our sport.

WB recommends that installation and service should be carried out by experienced shop mechanics or qualified service personnel.

All numbers in the detailed service procedures refer to the parts listed in the exploded view.

Building the Wheel

The DH-3 fork is designed in 120mm hub width specification, this is to allow the strongest possible spoke configuration. Even if you use 110mm specification hub the spoke angles are more even, resulting in a stronger wheel. If you are using a 110mm hub, supply your wheel builder with the 10mm spacer and inform them that they must use the spacer for correct alignment.

Installing on a New Frame

- 1.) Install head set cups in frame per the manufacturers instructions.
- 2.) Remove the fork from the box, loosen the crown bolts and remove the leg assemblies.
- 3.) Install the lower bearing race on the WB steerer tube pressing it down until it firmly contacts the lower crown.
- 4.) Install the lower crown on the frame, then place the upper head set assembly onto the steerer tube. Next install the upper crown onto the steerer tube, push the top crown down firmly while holding the lower crown up to ensure they are fully seated in position then tighten the center clamp bolt slightly to temporarily hold everything in place. *Note: it is unlikely you will need to place spacers between the top head set bearing and the upper crown.* Your WB fork is designed for a compact fitment and will allow the most geometry adjustment with the crowns closer together.
- 5.) If your head tube is too long (too deep) then the tire can contact the crown, this is very dangerous. If your head tube is in excess of 5.5" (140mm) then you should perform the following test to determine whether you can mount the forks on your frame. Mount the leg assemblies into the crowns and align the top of the outer tube flush with the top of the top crown, this is the highest the forks can be set at. Next: install the front wheel. *Note: it isn't necessary to mount the brake and tighten the axle etc at this time.* Please also note that your DH-3 fork has up to 3/4" (19mm) negative travel so it's necessary to pull up on the bike while you hold the wheel down to achieve maximum travel. Now measure the distance from the bottom of the lower crown to the highest knob on the tire, you should have a distance of 7 7/16" (190mm). If not, you may want to try changing to a smaller tire size. If you are already using a small diameter tire your options are quite limited. Consult your local WB service center or distributor for options or return the fork to the place you purchased it from. **If you have adequate clearance, you can continue with the installation.** *Note, this is a good time to check how far you can slide the forks up in the crowns to tune steering characteristics. Assuming that you have a distance greater than 190mm you will have adjustment possibilities. For example: When measuring the distance you read 200mm, this means you can adjust your fork up through the crowns 10mm. It's a good idea to make a note of this dimension.* If you change to a different tire always recheck this dimension before riding.

Never ride the bicycle with less than 190mm of tire clearance the tire could come in contact with the lower crown causing you to lose control of the bicycle resulting in possible injury or death.

Installing handlebar mounting system and Cutting steerer Tube

- A) **Using Moto Mounts** Mark the steerer tube at the top of the crown with a scribe or sharp instrument. Proceed to number 6.
- B) **Using Steering Stem** Mount the stem per the manufacturers instructions. You may wish to include stem spacers at this point, before you cut the steerer stem. This will allow some vertical adjustment later. Proceed to number 6.
- 6.) Remove the crowns from the frame.
- 7.) Mark or scribe a second line 1/8" (3mm) further down on the steerer tube. *Note, some head set caps have a larger shoulder and you may need to remove slightly more tube or add a short steerer tube spacer for the head set cap to clear.*
- 8.) Next cut the steerer tube at the second mark (lower) and remove any inside and outside burrs on the steerer tube, then clean away any filings etc.
- 9.) Install the star nut in the steerer tube. *Note, WB highly recommends installing the star nut with the appropriate special tool, if the star nut is not inserted correctly it can destroy the nut rendering it useless. You will then need to drive it all the way through and out the bottom of the steerer tube and obtain a new part and attempt the installation again.*
- 10.) Lightly grease the bearing area and reinstall the lower crown in the head tube.
- 11.) Install the upper head set assembly per the manufacturers

Installing the dual crowns

- 12.) Clean and de-grease the steer tube in the area where the upper crown will clamp. *Note: as a general rule clamping areas should be grease free, any area that rotates should be greased. Sometimes, as in this case items have rotating and clamping areas, careful preparation ensures the design will function correctly.*
- 13.) Mount the upper crown, and install the leg assemblies. Please see "Steering Clearance" note below. Lightly clamp some of the crown bolts then adjust the height of the leg assemblies. *Note: WB recommends adjusting your legs to the middle of the adjustment range that you calculated earlier.*
- 14.) Now that you have the crowns pre-assembled you need to adjust the headset bearing per the manufacturers instructions. Torque the upper crown bolts only to 8 ft lb (11Nm). Next, adjust the head set center cap bolt to adjust free play and/or tension on the headset. Then torque the steerer tube clamp bolt to 8 ft lb (11Nm) and finally torque the 6 lower crown bolts to 8 ft lb (11Nm). *Note: all crown to leg assembly bolts should be tightened in sequence (first one then the other and back again).*

Steering Clearance

Because the WB DH-3 fork is a dual crown design, and there are no industry standards for lock-to-lock stops, the fork tubes are likely to come in contact with the bicycle frame with no protective stops mounted. To eliminate the chance of damage to the fork or frame a cushion stop must be fabricated to eliminate metal-to-metal contact. WB has seen many innovative adaptations of twist shift grips, elastomer and automotive exhaust mounting rings used. Normally sliding a rubber ring over the outer legs and adjusting them to a position where they contact the frame first when the steering is tuned is the most effective method.

Installing on a Used Frame

- 1.) Remove your old forks.
- 2.) If you plan to reuse the same headset, inspect the bearings, seals and/or o-rings. WB recommends servicing the head set per the manufacturers instructions before remounting the head set on the frame. If you deem it necessary to replace the head set with the exact same model then mark and cut your steerer tube as described in the previous section. If you plan on changing the headset to a different type then proceed with installing the fork as if it were a new frame and please ignore the following instruction.
- 3.) If you are mounting the fork with the same steerer stem parts you can use the old steerer tube as a length gauge to cut the new one. You must add 0.63" (16mm) to the length of the old tube. It's very important that the steerer tube is cut straight and even to ensure maximum clamping in the crown area.
- 4.) Continue installation as if it were a new fork starting at section 8.

These instructions cover installation of the WB fork using a cassette type head set bearing assembly. WB urges you to read the head set manufacturers instructions in case your bearing assembly is not installed in this manner.

Mounting the wheel and front brake

The 20mm axle system is designed to provide maximum rigidity; the 3-bolt clamp and axle thread system utilizes the center spacer in the hub as an extra torque stiffener. The method on installing the wheel is as follows.

- 1.) Slide the axle an inch or so into the RH axle clamp. If you are using a 110mm spec hub then place the 10mm axle spacer over the axle so the spacer is just flush with the axle clamp, if you are using a 120mm spec hub, the spacer is not required. You should now have the axle engaged in the axle clamp and hanging out the right side of the fork.
- 2.) Pick up the wheel, hold it up to the axle and slide the axle into the hub through the RH wheel spacer and out through the LH spacer slightly.
- 3.) Start the axle in the left hand axle clamp. At this point it's necessary to compress the RH leg slightly to make it the same length as the LH side, once it is the same level the axle should slide through easily with a little jiggling around. *Note, it should not be necessary to force the axle in place. It sometimes helps to rotate the axle with a 11/16" (17mm) wrench as you push it through the wheel and into the axle clamp.*

4.) Once the axle is in place in both axle clamps, tighten the axle, then tighten the clamp bolt on the left side only.

5.) Next you need to align the RH leg assembly, Hold the RH axle clamp in your left hand and slide it back and forward on the axle, you will feel the resistance is greater at the extremes (in and out). Reduce the amount you are sliding the clamp until it is in the middle of the extremes. You should now be able to move it freely and feel the fork leg centering in a relaxed position. Once you have the fork leg assemblies aligned tighten the RH clamp bolts.

6.) If you are mounting the brake caliper for the first time, please refer to the brake manufacturers specifications and installation instructions. All the major brake manufacturers have disc brakes that mount onto the WB upside down forks with no fork modifications necessary. *Note: The DH-2 and DH-3 models use the original industry specification for 20mm axle mounting. Most brake systems are a direct fit however Hayes and Formula both require adapter brackets. Consult the manufacturer for caliper identification and for the correct adapter if you are having fitment problems.*

7.) After mounting the brakes per the manufacturers instructions, remove the bike from the work stand and stroke the suspension up and down to check that the brake hose doesn't foul the tire and/or wheel. If it does, you must reposition the hose route so there is no chance of contact. WB recommends that you use the WB Cable/Hose Guide Part#97-899 to allow for proper routing and clearance. **Never ride the bicycle with a possibility of the brake hose coming in contact with the wheel; it could cause you to loose control of the bicycle resulting in possible injury or death.**

As with all service and maintenance operations, always wear safety glasses and protect your clothing from oil contamination.

Tuning

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 the spring preload and hydraulic damper may be beneficial to achieve the best possible fork performance for your weight and riding style.

Tuning Your Springs

There are various ways to adjust your forks. The first is by changing the spring for a completely different rate. The spring basically controls the quality of the ride. A stiff spring handles major obstacles and dropoffs better, but doesn't give as smooth of ride over braking bumps and other small obstacles. Your White Brothers Fork comes with a medium rate spring installed. For the majority of riders, this should give a compliant ride, yet remain resistant to bottoming. If forks are too stiff or too soft with the medium spring supplied, WB offers an optional soft (pn 97-3518) and heavy (pn 97-3508) spring. Contact your WB dealer to order these.

A fine tuning adjustment for you fork is spring preload. As delivered, the spring preload is correct for most riders. Spring preload is the amount of pressure that the spring has against it at the full extended position (spacers are used to adjust spring preload, see items #3 on the exploded view page 8). With the correct preload on the spring, with no load on the bike, the forks should come within 3/4" to 1" of returning to full extension after being compressed. Too much sag, add (1) 3mm spacer. Too little sag, remove (1) 3mm spacer. *Note if your fork has an excess of stiction, complete basic service first before preload adjustment.*

Tuning Your Rebound Damping

Adjusting the rebound damping should only be done after you are completely happy with your spring choice, and the proper spring preload has been set.

Your White Brothers DH-3 fork comes with the rebound damping adjusted in the middle of its range. The standard setting is 3 turns out from all the way in (clockwise). Use the following guidelines to determine if further adjustment is needed.

A) If your forks rebound too slowly, turn the adjustment screw on the top of the right fork leg one turn counter-clockwise (6 turns out is the maximum)(figure 3). 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, turn the adjustment screw on the top of the right fork leg clockwise 1/2 turn at a time. A sign of too fast rebound is if the forks deflect and the bicycle is hard to hold in lines. The front wheel will also bounce and appear "busy" ie. you get an additional bounce after landing from a drop. *NOTE: If a stiffer spring is installed, your standard setting should be 1 turn stiffer (clockwise). A light rider that has installed a softer spring will usually be most satisfied with the damping set at a lighter setting (4 to 6 turns out).*

Tuning Your Compression Damping

Your White Brothers DH-3 fork comes with the compression damping adjusted in the middle of its range. The standard setting is 2 turns out from all the way in (clockwise). Use the following guidelines to determine if further adjustment is needed.

A) If your forks ride far into the travel and/or feel soft in certain situations, turn the adjustment screw located on the side of the piggyback reservoir located on the right lower fork leg one turn clockwise (All the way in clockwise is the maximum)(figure 4). The forks should feel plush but should not stroke rapidly through the travel and bottom hard. If you have to adjust the compression adjuster all the way in to stop bottoming, you may consider substituting a stiffer fork spring.

B) If your forks feel stiff and do not absorb small bumps and terrain irregularities well, turn the adjustment screw counter-clockwise (4 Turns out is the maximum). The forks should feel plush and suck up the small bumps well. If you have adjusted the compression adjuster to the full soft position and the forks still feel stiff, consider substituting a softer fork spring and/or servicing your fork if stiction is present.

C) Tuning air pressure. The fork is set a 50 psi. The minimum air pressure is 40 psi. At this setting, the fork is very plush. To get a stiffer feel, as well as faster rebound, add pressure up to a maximum of 120 psi. If rebound is too fast, turn damper adjuster clockwise

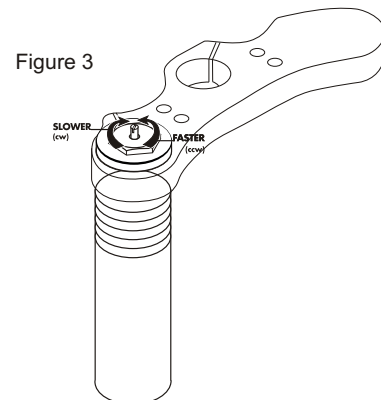


Figure 3

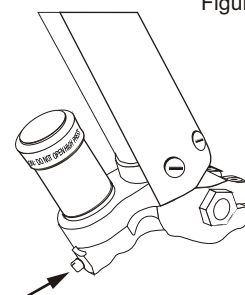


Figure 4

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 settles too far into its travel
Cause:	This is normally caused by a lack of spring preload
Solution:	Increase the spring preload
Problem:	The fork returns to it’s full height too aggressively, feels like an air fork or “tops out”
Cause:	Too much spring preload or (or the hydraulic damper needs service)
Solution:	Reduce the spring preload or (service hydraulic damper)
Problem:	The fork bottoms too easily
Cause:	Incorrect spring choice and/or compression damping is too soft
Solution:	Install stiffer option spring and/or re-adjust compression damper setting
Problem:	The fork doesn’t use its full travel
Cause:	Incorrect spring choice and/or re-adjust compression damper setting
Solution:	Install softer option spring and/or re-adjust damper setting
Problem:	The fork bounces up and down rapidly
Cause:	Insufficient rebound damping
Solution:	Increase damping by adjusting clockwise 1/4 turn at a time (or the hydraulic damper needs service)
Problem:	The fork has heavy feel, doesn’t return quick enough for consecutive bumps
Cause:	Too much rebound damping
Solution:	Decrease damping by adjusting counter clockwise 1/4 turn at a time

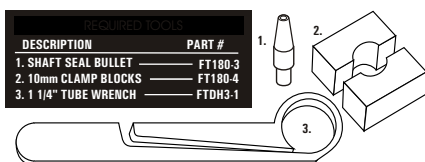
Maintenance

Your White Brothers Fork requires periodic maintenance to ensure 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 are water, mud and dust? 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 fork’s life. Internal build up of water and dirt, or a lack of lubrication will cause excessive wear to the forks. In harsh condition it is advisable to inspect the forks for dirt ingestion after each ride.

Basic service should include disassembly of the forks, cleaning and re-greasing all shafts and seals. At this time, the forks should be carefully inspected for wear and damage before reassembly. **NOTE:** Disassembly of the hydraulic damper should be left for a dealer who is familiar with servicing the WB hydraulic damper and has the special tools that are required.



Please Note, although every effort has been made to reduce the need for special tools etc. and general cleaning and lube service operations are quite easy, full rebuilding and repair off the DH-3 fork is definitely for an experienced mechanic or service technician. Special Tools are required and include, but are not limited to, air compressor, arbor press, cleaning and measuring equipment, wrenches etc.

As with all service and maintenance operations always wear safety glasses and protect your clothing from oil contamination.

Removal of the leg assemblies

- 1.) Remove the wheel and disconnect the brake from the left hand axle clamp.
- 2.) Before removing the leg assemblies from the crowns you can utilize the lower crown as a holding devise to slacken the top caps. Undo the 4 x M6 upper clamp bolts and slacken the top caps counterclockwise using a 25mm (1") wrench or socket, at this point 1/4 turn is sufficient.
- 3.) Slacken the lower clamp bolts and remove the legs from the crowns.

Disassembly of the spring leg assembly (LH)

- 4.) Unscrew the top cap from the outer leg.
- 5.) Place the axle clamp into a vise with soft jaws or some type of protection that will not harm the finish.
- 6.) Lower the outer tube so the wiper seal comes down in contact with the axle clamp.
- 7.) Pull down on the small spring to expose the 9/16" (15mm) jam nut. Hold the nut and unscrew the top cap counterclockwise from the shaft.
- 8.) Remove the small spring, jam nut, double sided spacer and main spring from the shaft.
- 9.) Remove the leg assembly from the vise and invert it over a drain pan, to tip out the excess oil. Pull the inner leg out of the outer leg. Note: more oil will drain at this time.
- 10.) Return the lower leg into the vise, and then undo the spring guide counterclockwise with a 19mm (3/4") wrench.
- 11.) Clean and inspect all the parts. Pay special attention to the following parts; bearings and seals in the outer leg, surface condition of the inner leg, rebound bumper. All these should be in good condition or be replaced. It is advisable to replace the seals each time the fork is serviced.
- 12.) Normally, it's unnecessary to remove the anti bottoming system from the inner leg, but it is a good idea to shine a flash light down inside to visually inspect the compression bumper. If that looks OK, you can precede to rebuilding the leg assembly. If it looks damaged invert the leg and tap it on a soft block of wood or plastic to remove it. *Note be careful with the threads as it is very easy to damage the inner leg.*

Disassembly of the damper side leg assembly (RH)

- 1.) Unscrew the top cap from the outer leg.
- 2.) Carefully clamp the shaft in the vise using the clamp block. *Note, you can easily damage the shaft by scratching or bending it, when you clamp, make sure the outer leg isn't touching the bench below the vise.*
- 3.) Unscrew the top cap counterclockwise from the shaft. *Note, there is a small spacer on all models that sometimes stays in the cap, but can fall out.*
- 4.) Remove outer leg.
- 5.) Place the axle clamp into a vise with soft jaws or some type of protection that will not harm the finish.
- 6.) Remove the Dust cap and depress the Schrader valve to depressurize the system.
- 7.) Unscrew the seal head counterclockwise with a pinwrench, or similar tool.
- 8.) Remove the seal head and damper shaft as one assembly.
- 9.) Unscrew the pressure cap counterclockwise and set it aside.
- 10.) Remove the leg and axle clamp from the vise and invert it over the drain pan to release the damper fluid. While the leg is in this position push the piston upwards with a blunt tool such as a socket extension to drain any remaining oil out of the reservoir.
- 11.) Use a 1/16 pin punch to remove pin that retains the compression screw. Remove the compression screw.
- 12.) Install in a vise with soft jaws. Reinstall seal head with shaft into the inner leg. Using a blowgun through the compression adjuster hole will remove the floating piston through the top of the cannister. Cover the top with your hand to prevent shooting the piston out. Remove the shaft assembly.

13.) Remove the shaft assembly.

14.) If there are no signs of leakage on the compression adjuster screw, it does not need to be removed. If there are signs of leakage, to remove the screw, you must first drive out the spring pin using a good quality 1/6" pin punch.

Damper installation

1) Replace the compression screw o-ring. When installing the screw, turn counter clockwise until it clicks and then turn clockwise. Install to 4 turns out from bottom.

2) Fill canister with 3.5wt fork oil. Repeat filling canister until the oil level is at the top.

3) Replace the floating piston o-ring. Grease piston and o-ring with suspension lube. Install piston with the hollow cavity facing up. Push the piston to the bottom of the canister.

4) Fill the le to the top with fork oil.

5) Remove the seal head and shaft from damper rod.

6) Replace the shaft seal in the seal head and the o-ring. Grease the seal where the shaft will run.

7) Replace the needle o-ring. Set aside.

8) Install the damper shaft with the seal head into the leg. Push down until the piston band is just under the oil and stop. With your other hand push the seal head onto the piston and insert into the oil. The seal head and piston need to go into the oil as one unit. The seal head has a small breather hole in it. Cover it with your hand so oil does not squirt on you.

9) Tighten the seal head with a pin spanner.

10) Install the needle. Turn in until the o-ring is in the shaft.

11) Remove the brass compression screw. Cover the hole with a rag. Push floating piston down with a socket until it is 1 3/4" from top of the canister to the top ledge of the piston.

12) Reinstall the compression screw to 3 turns out from bottom.

13) Install the air cap in the canister. Fill to 80psi.

14) Install the keeper pin for the compression screw.

15) Install outer leg after lubricating the bushing with suspension grease. Do not pour oil into the leg!

16) Install cap with the pacer in it. Use a axle vise to hold shaft. Turn rebound in so it does not bind in cap while installing.

17) Install cap in the leg. Push down on the fork to check for any "dead" spots from air pockets. If there is an air pocket you will have to do the process over. To check compression, screw the adjuster in to the bottom. The leg should "lock-out." Back screw out to 1 1/2 turns out.

Rebuilding the outer legs

1.) Thoroughly clean all the parts in a mild solvent.

2.) Check the condition of the wiper seal and the internal oil seal for cracks, abrasion and/or obvious signs of wear. *Note: replacing the wiper seals is always recommended, it helps to keep dirt out especially when riding in harsh conditions.*

3.) If you decide to replace the seals, they can be removed with a spoon style tire iron or something similar and can be reinstalled using a large socket as a driver to install them squarely into position. *Note: jamming the seals in at an angle can crush the steel case and the seal will no longer seal correctly and/or not stay in place.*

4.) Bearings are replaceable but a number of special tools are required. WB recommends that this task be carried out by a WB Authorized Service Center or qualified mechanic.

Rebuilding the spring leg subassembly (LH)

5.) Thoroughly clean all the parts in a mild solvent.

6.) Check the condition of the rebound bumper and replace if necessary.

7.) Rebuild the dummy shaft in the following order: 2 thin small spacers then the rebound bumper and another thin spacer then the rebound bumper spacer, finally, the rebound spring attached to the spring guide.

8.) Screw the spring guide and dummy shaft assembly into the inner leg and set it aside.

Rebuilding the damper shaft subassembly

9.) Thoroughly clean all the parts in a mild solvent.

10.) Inspect for obvious signs of damage. If any of the parts that have seals running on them show signs of damage they should be replaced. The main shaft seal is very durable and is likely to last for one average racing season, so it would normally not need to be replaced. Always replace the shaft sealing o-ring and the needle o-ring. The floating piston o-ring is the highest wear internal part in the fork and should always be replaced.

11.) Inspect the rebound shim, it should seat down flat against the piston, if not replace it.

12.) Inspect the check valve, it should slide smoothly up and down on it's guide, if not it may be possible to improve the action by sanding the guide slightly with a very fine wet/dry paper (1000 grit or finer).

13.) If you have 100 hours plus of riding time on the fork you may want to consider replacing the main shaft seal while you have the fork apart. Do not attempt to replace the seal from the top by pushing it past the threads as this damages the seal. Instead, clamp the damper shaft in a vise using the 10mm shaft blocks and remove the piston bolt *Note: keep the shim stack in the same order and the piston has compression and rebound sides, be careful to make a mental note of the order the parts are in.*

14.) Remove the seal head complete with the seal. Place the seal head upright on a work surface and push the seal down though with a suitable tool.

15.) Clean the seal head with a mild solvent and air-dry if possible. Install the new seal dry, with the sealing lips pointing away from the pin spanner holes. Press the seal all the way in so it is past the small bleed hole. Then set the seal head to one side. *Note: a suitably size deep socket works well for this job. Make sure you press the seal in square or leakage may occur.*

16.) Next, check the shaft condition including the internal thread for the needle. It should be free of damage.

17.) Replacing the seal without the 10mm seal bullet is a tricky operation and not recommended, Place the seal bullet in the end of the shaft, lightly grease the seal and gently rock the seal head down over the shaft.

18.) When you replace the piston bolt, lock it in place with thread lock and torque it to 85 in lb (9.6 Nm) *Note, only use a small amount of thread lock as excess can harden and disrupt the flow of oil.*

19.) After reinstalling the piston on the shaft, check fit the piston ring in the inner leg for smooth action. Install the piston ring on the piston, lightly grease and insert into the leg. Stroke the shaft up and down and if everything is OK. You may feel a slight resistance but it should move freely and smoothly.

20.) Replace the needle o-ring, lightly grease and test the fit by screwing it into the shaft. *Note: the o-ring should enter the shaft smoothly.*

Rebuilding the axle clamp subassembly

21.) Inspect the axle clamp for any damage that may hinder the rebuilding process. Damage may occur from extreme use, poor maintenance and/or from crashing. Any parts that show signs of cracking, thread damage and/or distortion should be viewed as dangerous and should be replaced. If you are in any doubt about the safety of the parts, please return them to an authorized service center for inspection.

22.) A special tool has been made to assist the removal of the reservoir. The tool will in most cases remove the tube, however this tool is designed to provide a limited amount of grip, so it gives some protection to the tube. The tube is also installed with thread lock and may need a little heat to remove it. This is definitely a task for the more experienced technician and WB recommends returning the unit to a service center for inspection and rebuild if you suspect it needs it.

23.) Inspect the condition of the threads for the compression adjuster, damper stack bolt, reservoir tube and the axle clamping bolts. If they are in good condition, replace the reservoir tube o-ring.

24.) Remove the o-ring from the floating piston and inspect the surface condition. Test fit the piston in the reservoir tube, it should slide up and down smoothly, if not replace it. *Note: Always replace the floating piston o-ring.*

25.) Inspect the surface condition of the compression piston. The surfaces that the shims sit on should be smooth and flat, if not the piston should be replaced.

26.) Place the compression shim stack on the shim stack bolt and insert into the compression piston. Check to see that the shims sit flat on the piston, if not it is necessary to replace some or all of the shims. Replace the piston o-ring then lightly grease it. *Note: failure to install the shims in the correct sequence will result in the adjustment range being reduced.*

27.) Carefully insert the piston into the reservoir while holding the bolt against the piston so the shims do not fall out.

- 28.) Next place the large shim over the shim stack bolt and down against piston followed by the small thin shim and next the thick pivot shim. Check to see if the large shim sits flat against the piston, if not replace it. *Note: the thick shim has one groundside and one stamped side. You must make sure the flat side is facing the thin shim and that the flat surfaces face up towards the piston.*
- 29.) Lightly grease the outside of the reservoir tube and invert it so the bolt faces upwards. Next apply a small amount of light thread lock to the threads and screw the reservoir tube up and into the upturned axle clamp while holding the bolt in place. After engaging the tube a few threads, you must start the compression stack bolt. Once the bolt is engaged you may screw the tube all the way in and tighten with the special tool
- 30.) Next screw the shim stack bolt all the way in and torque to 75 in lb (8.5Nm)
- 31.) Replace the o-ring on the compression adjuster screw, lightly grease and insert into the axle clamp. Screw the adjuster all the way in until it stops, then unscrew 2 turns.
- 32.) Place the axle clamp upright in a vise. Be sure to use soft jaws or some protection for the axle clamp.
- 33.) Replace the pressure cap o-ring on the reservoir pressure cap and put it to one side.
- 34.) Fill the reservoir with shock oil. *Note: You may have to top off the oil a few times while it finds its own level in the inner leg also.*
- 35.) Lightly grease the floating piston and place it down into the tube with the smooth side downwards. Gently rocking the piston from side to side helps the piston to easily enter the tube. *Note: initially tipping the piston to one side slightly expels air out from the tube. Also note, if you force the piston into the tube - you will damage the o-ring and the fork will not function correctly.*
- 36.) Once the piston is correctly inserted into the reservoir tube, push it all the way to the bottom until it touches the shim stack bolt.
- 37.) Top up the oil level in the inner leg to the top of the tube.
- 38.) Place the piston ring around the piston and insert the whole assembly gently down into the inner leg. *Note, place your finger over the needle hole so no oil can be expelled.*
- 39.) Keep your finger over the needle hole and slowly stroke the damper assembly up and down to expel the air trapped in the piston.
- 40.) After the bubbles stop rising, lightly grease the seal head thread, o-ring and inner leg threads and then lift the shaft assembly up until the piston is approximately 1" (25mm) below the surface of the oil.
- 41.) Next install the seal head down into the inner leg. *Note, it's necessary to gently ease the seal head o-ring down past the threads to avoid damaging the o-ring. Please also note that some oil will be expelled out of the bleed hole in the seal head, so don't point the hole towards your body or face.*
- 42.) Screw the seal head down into the inner leg leaving 1/8" (3mm) of thread showing. *Note, this gap is used later to preset the height of the floating piston in the reservoir.*
- 43.) Lightly grease the o-ring then insert the needle and screw in until the o-ring is just below the surface of the shaft, then screw one more full revolution.
- 44.) Reposition the axle clamp in the vise so the compression adjuster is pointing upwards.
- 45.) Remove the compression adjuster screw.
- 46.) Push the piston slowly in until it touches the shim stack bolt again. *Note: oil will be purged out of the compression adjuster hole, as with all service operations safety glasses are required.*
- 47.) Replace the compression adjuster screw and set at 2 turns out.
- 48.) Reposition the unit in the vise so it is now upright then tighten the seal head down against the inner tube.
- 49.) Replace the reservoir pressure cap.
- 50.) Re-pressurize the reservoir. *Note: your WB Factory fork is set at 50psi with Nitrogen. Nitrogen is an inert gas and is used because it does not expand when it gets hot, this keeps the damping rate more consistent. Air is satisfactory, but nitrogen is preferable if available.*
- 51.) Test the damper by pushing the shaft down. If the rebuild was done correctly you should have a damper with approximately 10" (255mm) or more stroke and it should return to full extension in a smooth controlled manner. Next, screw the compression adjuster in all the way in, stroke the damper in. You should feel that the damper is significantly stiffer, if so unscrew it exactly 2 turns and then screw the needle in all the way and stroke it again. You should now be able to see a significantly slower return, if so you have a successful rebuild, if not you have probably missed something and need to go over the process again. Unscrew the needle 3 turns.
- 52.) Replace the spring pin with a new one, rest the axle clamp on a flat surface and tap the pin into place using a small hammer. *Note: a small needle nose pliers holds the pin nicely while you tap it into place.*

Reinstalling the outer leg assemblies

- 1.) The method for reinstalling the outer legs on to the inner leg assemblies is very similar for right and left sides.
- 2.) Clamp the axle clamp in the vise with your soft jaws or protection.
- 3.) Fill the gap between the oil and wiper seals with WB suspension lube or non-lithium grease.
- 4.) Slide the outer leg over the end of the inner leg assembly taking care not to fold the lips of the seal under.
- 5.) Once you feel the seals and the lower bearings are engaged, pour in 10 - 20cc of 40W motor oil. *Note this method gets the oil in-between the bearings and provides a constant lube to reduce friction and wear.*
- 6.) After the lube is inserted, slide the outer tube all the way down until the wiper seal contacts the axle clamp.

Reinstalling the springs and LH top cap

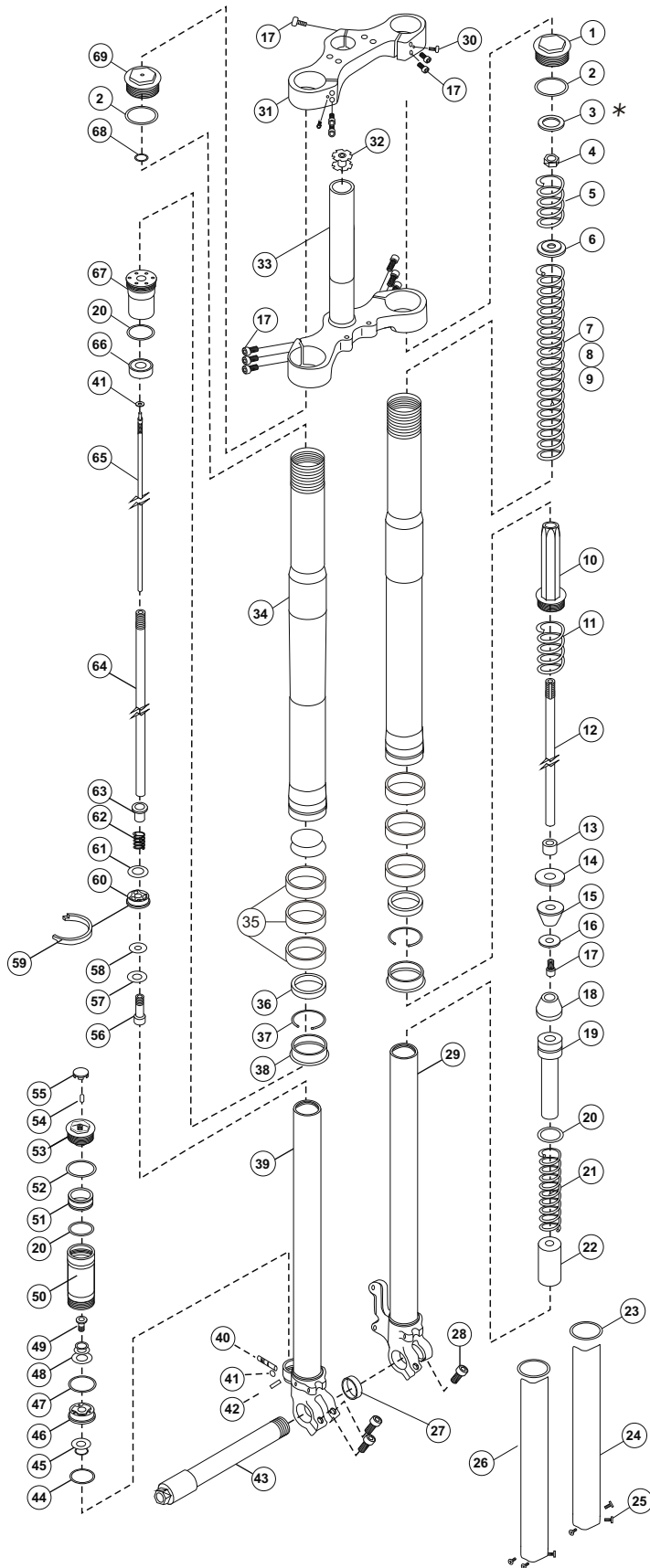
- 7.) Clamp the axle clamp in the vise with the soft jaws so it's lying over somewhere near level with the ground but not downward or the oil will run out.
- 8.) Pull the dummy rod out to its full extension.
- 9.) Coat one end of the main spring with grease and insert it into the outer leg.
- 10.) Install the double spring guide and then screw the jam nut on all the way until it bottoms at the end of its thread.
- 11.) Install the small spring and then screw the top cap down on to the dummy rod until it stops, then bring the jam nut up and lock the cap in place.
- 12.) Screw the top cap into the outer leg. *Note: a little more than hand tight is all that is necessary, as the cap remains tight when clamped by the upper crown.*

Reinstalling the RH top cap

- 13.) Screw the needle in clockwise until it stops.
- 14.) Install the small spacer in top cap if you removed it earlier.
- 15.) Carefully clamp the shaft in the vise using the clamp blocks. *Note: you can easily damage the shaft by scratching or bending it, when you clamp, make sure the outer leg isn't touching the bench below the vise.*
- 16.) Install the top cap down on to the damper rod until it stops, and tighten it.
- 17.) Remove the unit from the vise and screw the top cap into the outer leg. *Note: a little more than hand tight is all that is necessary, as the cap remains tight when clamped by the upper crown.*
- 18.) Readjust the needle to your preferred position or 3 turns out.

Exploded Views

The following illustration and parts table gives you the exploded view of the DH-3. The parts table lists the parts for the DH-3 fork and is the reference you will need if ordering replacement parts. See your local dealer to order the parts that you require.



Part#	Description	Quantity
-	97-737 OWNERS MANUAL	1
-	P0105/P0107 DECAL-0105 (RED LEGS),0107(BLUE)	2
69	P2348 FORK CAP	1
68	97-1416 O-RING, SHAFT	1
67	P2201 SEAL HEAD	1
66	97-1409 DAMPER SEAL	1
65	P2036 NEEDLE ASSEMBLY	1
64	P2028 DAMPER ROD	1
63	P2014 CHECK VALVE GUIDE	1
62	P2015 CHECK VALVE SPRING	1
61	P2004 CHECK VALVE 22 X 12 X 0.02	1
60	P2012 PISTON	1
59	P3000 PISTON RING	1
58	29-142 LOW SPD SHIM 22 X 8 X 0.20	1
57	P2005 HIGH SPD SHIM 22 X 10 X 0.15	1
56	P4010 BOLT, DAMPER	1
55	P4650 DUST CAP	1
54	P4016 VALVE CORE	1
53	P2353 RES. PRESSURE CAP	1
52	P3025-1 O-RING	1
51	P2010 FLOATING PISTON	1
50	P1515 RESERVIOR	1
49	P4011 VALVE ASSM. BOLT	1
48	29-126/127 (1) 29-126, (2) 29-127 SHIMS	3
47	P3028 COMPRESSION PISTON O-RING	1
46	P2016 COMPRESSION PISTON	1
45	29-136/P2001B (1)29-136, (1)P2001B SHIMS	1
44	P3026 O-RING	1
43	97-3677 AXLE, UD180	1
42	P4015 RETAINING PIN	1
41	97-1418 O-RING	2
40	P4004 COMPRESSION ADJ. SCREW	1
39	P1508 LEG ASSEMBLY, RH UD180	1
38	97-1351 WIPER SEAL	2
37	P4301 C-CLIP	2
36	P3060 OIL SEAL	2
35	97-986 DU BUSHING	6
34	P1562/P1562-1 OUTER LEG-1562-RED,1562-1-BLUE	2
33	P1159-1 LOWER CROWN ASSY	1
32	97-9300 STAR NUT, 1 1/8"	1
31	P1158-1 UPPER CROWN ASSY	1
30	P4006 NUMBER PLATE SCREW-2000 DH3	2
29	P1509-1 LEG ASSEMBLY, DH-3	1
28	97-9200 BOLT, AXLE CLAMP	3
27	97-3677-1 AXLE SPACER, UD180	1
26	98-406-2 RH STONE GUARD	1
25	P4005 SCREW NYLON GUARD GUIDE	6
24	98-406-1 LH STONE GUARD	1
23	P3027 O-RING GUARD GUIDE	2
22	P3307 BOTTOM SEAT	1
21	97-3500 SPRING, STD 70	1
20	P3021 O-RING S. HEAD / LIMITER	3
19	P3309 BOTTOM STOP DH<2/3	1
18	97-3341 COMPRESSION BUMPER	1
17	97-852 BOLT, M6	12
16	97-4110 WASHER, TOP-OUT	1
15	97-3342 REBOUND BUMPER	1
14	P3321 REBOUND BUMPER WASHER	1
13	P3322 REBOUND BUMPER SPACER	1
12	P2026 DUMMY ROD	1
11	P3208 NEGATIVE SPRING	1
10	P3304 SPRING GUIDE	1
9	97-3518 SPRING, UD180 (SOFT)	*
8	97-3508 3508 (HEAVY)	*
7	97-3507 SPRING, UD180 (STD)	1
6	P3300 SPRING GUIDE, DOUBLE	1
5	P3220 SPRING, AUX	1
4	97-4100 JAM NUT	1
3	P3312 PRELOAD SPACER	*
2	P3020 O-RING TOP CAP	3
1	P2349 FORK CAP	1

MAINTENANCE

DATE	SERVICE PERFORMED	DATE	SERVICE PERFORMED

WARRANTY

White Brothers forks are designed to enhance riding pleasure 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 fork by White Brothers, if they are found to be defective, White Brothers will determine whether to replace or repair the fork. 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. *A copy of your proof of purchase, including your name, address, phone number and fork serial number (located on lower left leg) must be returned within 30 days of purchase to activate and validate this warranty. 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:

Eko Sport, Inc.
C/O White Brothers Customer Service
580 North Westgate Dr.
Grand Junction, CO 81505
Phone (970) 241-3518
Fax (970) 241-3529
www.whitebrotherscycling.com

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