

#### Features

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- 178 mm of positive travel
- 12 mm of negative travel
- Open bath hydraulic damping system
- Aluminum top cap with internal preload adjustment
- External rebound damping adjustment (right fork leg)
- External low speed compression damping adjustment (left fork leg)
- Internal high speed compression damping adjustment (left fork leg)
- 32mm diameter hard-anodized Easton upper tubes
- One-piece magnesium lower tube assembly
- 20 mm thru-axle dropouts
- Disc brake ready
- Removable V-Brake™ mounting system

#### STANDARD EQUIPMENT

- Yellow (2) Medium springs (20 in-lbs.) Preinstalled
- Different weight RockShox Oils
- (10) Preload spacers (4 preinstalled in each leg and 6 more packaged with the fork)
- Owner's Manual



Riding a bike is dangerous. Not properly maintaining or inspecting your bike is even more dangerous. It's also dangerous not to read these instructions.

- 1. Before riding the bicycle, be sure the brakes are properly installed and adjusted. If the brakes don't work properly, the rider could suffer serious and/or fatal injuries.
- 2. Forks with hangerless braces are only designed for 'V-type or hydraulic cantilever brakes. Do not use any cantilever brake other than those intended by the brake manufacturer to work with a hangerless brace. Do not route the front brake cable and/or cable housing through the stem or any other mounts or cable stops. Do not use a front brake cable leverage device mounted to the brace. Only mount disc brakes through the mounting holes provided on the lower tube. Do not use disc brakes or other devices that mount to other locations on the lower tube besides the mounts provided. The lower tubes were not designed to sustain the stresses such brakes or other devices could place on them, and structural failure to the fork may result, which may result in loss of control of the bicycle with possible serious and/or fatal injuries.
- 3. Use extreme caution not to tilt the bicycle to either side when mounting the bicycle to a carrier by the fork drop-outs (front wheel removed). The fork legs may suffer structural damage if the bicycle is tilted while the drop-outs are in the carrier. Make sure the fork is securely fastened down with a quick release. Make sure the rear wheel is fastened down when using ANY bike carrier that secures the fork's drop-outs. Not securing the rear wheel can allow the bike's mass to side-load the drop-outs, causing them to break or crack. If the bicycle tilts or falls out of its carrier, do not ride the bicycle until the fork is properly examined for possible damage. Return the fork to your dealer for inspection or call RockShox if there is any question of possible damage (See International Distributor List in the rear of this manual). A fork leg or drop-out failure could result in loss of control of the bicycle with possible serious and/or fatal injuries.
- 4. If the fork ever loses oil or if it makes sounds of excessive topping out, stop riding the bicycle immediately and have the fork inspected by a dealer or call RockShox. Continuing to ride with the fork in either of these conditions could result in loss of control of the bicycle with possible serious and/or fatal injuries.
- Always use genuine RockShox parts. Use of aftermarket replacement parts voids the warranty and could cause structural failure to the fork. Structural failure could result in loss of control of the bicycle with possible serious and/or fatal injuries.

Important: RockShox forks are designed for competitive off-road riding and do not come with the proper reflectors for on-road use. Your dealer should install proper reflectors to meet the Consumer Product Safety Commission's (CPSC) Requirements for Bicycle Standards if the fork is going to be used on public roads at any time.



Note: Fork Appearance May Vary.

#### Installation

It is extremely important that your Boxxer fork is installed correctly by a qualified technician with proper tools. Improperly installed forks are extremely dangerous and can result in severe and/or fatal injuries.

1. Remove the existing fork from the bicycle and the headset crown race from the fork. The RockShox steerer tube may need cutting to the proper length. On threadless steerers (Aheadset design), make sure there is sufficient length to properly clamp the stem (refer to stem manufacturer's instructions). Make sure to install upper crown when taking the steerer tube measurements. Use a short upper crown for head tube and headset stack heights of less than 160 mm, or a medium upper crown for stack heights 160 to 183 mm, and a tall upper crown for stack heights of more than 183 mm.

# Important: Do not add threads to RockShox steerers. The steerer tube crown assembly is a one time press fit. Replacement of the assembly must be done to change length. Do not remove or replace the steerer tube, because this could result in loss of control of the bicycle with possible serious and/or fatal injuries.

- 2. Install the headset crown race firmly against the top of the lower fork crown. Install the fork assembly on the bike. Adjust the headset so you feel no play or drag. **Do not exceed 160 mm of exposed upper tube above the lower crown.**
- 3. Install the brakes according to the manufacturer's instructions and adjust brake pads properly.
- 4. Forks with hangerless braces were designed for 'V-type, hydraulic cantilever, or disc brakes. Do not route the cable through the stem or any other mounts or cable stops. The cable should make a direct route from the brake lever to the brake and be able to freely move up and down with the suspension movement. It may be necessary to install a whole new cable.
- 5. Apply grease or anti-seize to the axle. Set the wheel in the recesses of the dropouts and insert 20mm axle. Torque the axle bolt to a maximum of 25 in-lb. Tighten clamp bolts to 40 to 60 in-lb.
- 6. Keep in mind tire clearance as you choose tires. Maximum tire size is 2.35" wide or 337mm radius. Be sure to check this radius whenever you change tires. To do this, remove the spring stack (per the instructions on the following pages), and compress the fork **completely** to verify at least 5 mm of clearance exists between the top of the tire and the bottom of the crown. Exceeding this maximum will cause the tire to jam against the crown when the fork is fully compressed. The upper tubes must always be fully engaged in the crown with no more than 160 mm of exposed upper tube above the lower crown.

#### Tuning

The Boxxer fork is designed as a high performance, world class downhill fork. Our forks are factory tuned for the 150-180 lbs. (65-85 kg.) downhill racer and can be tuned to many different rider weights or riding styles. You can tune this fork to benefit your needs by changing preload, internal coil springs, rebound damping, and low or high speed compression damping.

#### $C {\sf HANGING \ THE \ } S {\sf PRING \ } R {\sf ATE}$

If you are bottoming out too often or not using all the available travel then the overall spring rate should be changed. The standard spring rate (medium) is designed for the 150-180 lbs. (65-85 kg.) downhill racer. You may change the overall spring rate by changing the main coil spring in each leg with one that is softer or firmer than the standard spring. By changing the coil springs, you alter the overall spring rate.

RockShox has designed nine spring configurations for the Boxxer. By changing the springs in either one or both legs you can tune the bike to your specific needs. Below is a table that breaks down the spring rates into rider weight ranges. Use this table as a guide when choosing a different spring rate than the one provided in the fork.

Color	Spring Rate (lb-in.)
Silver	Extra Soft (10 lb-in.)
Orange	Soft (15 lb-in.)
Yellow	Medium (20 lb-in.) - Standard
Red	Firm (25 lb-in.)

The Boxxer is built standard with two medium springs (20 lb-in.). Also included in the package is one extra soft spring and one extra firm spring. These extra springs may help more closely meet your needs. The following is how these spring may be interchanged:

Rate	Rider Weight	Fork Leg #1	Fork Leg #2
Soft (17.5 lb.)	120 to 150 lb.	15 lb-in.	20 lb-in.
Standard (20 lb.)	150 to 180 lb.	20 lb-in.	20 lb-in.
Firm (22.5 lb.)	180 to 210 lb.	20 lb-in.	25 lb-in.

#### SETTING SAG

The Boxxer is designed to compress (sag) when you are sitting on the bike. This sag allows the front wheel to stay in contact with the ground when braking and cornering over rough and uneven terrain. Optimum sag is between 35 and 60 mm of total fork travel.

To measure sag, install a zip tie on the upper tube so that it is flush against the seal; sit on the bike in normal riding position; then step off the bike and measure from the bottom of the zip tie to the top of the wiper. This measurement is sag. Changing the preload alters the sag and firmness of the initial fork movement. A heavier, more aggressive riders need more spring preload to maintain proper ride height and allow more of the fork's travel to be used during bump impact.

The preload can be changed by adding or removing preload spacers into the main coil spring stack.

Important: No more than eight preload spacers should be added to either side of the fork. More than eight spacers can cause the spring to be damaged. If you can not achieve the proper preload, you may need to install softer or firmer coil springs.

TO CHANGE THE PRELOAD:

- 1. Remove the top caps with a 22mm six-point socket wrench.
- 2. Inspect the O-rings for damage and replace if necessary.
- 3. Slightly compress the fork to get access to the preload spacers, which sit on top of the spring stacks.
- 4. Add or remove preload spacers and/or springs as necessary.
- 5. Re-install top caps and torque to 30 to 40 in-lb.

#### External Rebound Adjustment

Rebound damping should be adjusted any time the spring rate or preload have been changed. The rebound adjuster is located in the lower right leg and is accessible with a 3mm Allen wrench inserted through the hollow shaft bolt. Clockwise rotation of the adjuster results in more rebound damping. Proper rebound depends on rider style, weight, preference and fork setup. This adjuster is indexed.

#### EXTERNAL LOW SPEED COMPRESSION ADJUSTMENT

Low speed compression damping controls pedal bob and fork sensitivity. The adjuster is located in the lower left leg and is accessible with a 3mm Allen wrench inserted through the hollow shaft bolt. Clockwise rotation of the adjuster results in more low speed compression damping. Compression damping should be adjusted any time the springs or preload have been changed. Proper compression damping depends on rider style, weight, preference and fork setup. This adjuster is **not** indexed.

#### INTERNAL HIGH SPEED COMPRESSION ADJUSTMENT

This adjuster controls high speed compression blow-off while leaving your low speed compression adjustment virtually unchanged. The high speed compression adjuster is located inside the left leg. To adjust the high speed compression adjuster, see the service section under "After Every 100 Hours or Riding." With the assembly removed, use a 5mm wrench, turn the compression nut clockwise to increase high speed compression damping and counterclockwise to decrease high speed compression damping (Fig. 1). Note the location of the low speed adjuster prior to making the high speed adjustment.

## Caution: Insure the end of the compression adjuster rod does not become recessed into the nut. The nut may become disengaged during operation if the adjuster is not fully threaded into the nut.

#### CHANGING LOW SPEED REBOUND CATCH

Changing the weight of oil in your fork can alter the low speed rebound catch. Your fork uses 20 wt. oil in the rebound leg and 10 wt. oil in the compression leg. If the rebound is too quick at low speed and too slow at high speed, you may need to use a heavier weight oil. RockShox recommends a maximum of 30 wt. oil. Heavier oils tend to be more temperature sensitive, resulting in inconsistent performance and more service intervals.

#### Maintenance

To maintain high performance, safety, and long life, periodic maintenance is required. RockShox forks are engineered for easy service to help you keep the fork performing like new.

The recommended tools and intervals are listed below. Remember, performing maintenance more often is necessary if you ride in extreme conditions.

TOOLS

- Safety glasses
- 22mm open-end wrench
- *3, 4, 5, 6mm bex wrencbes*
- 14mm open-end wrench
- 22mm six-point socket and ratchet
- Torque wrench
- Small tip internal snap ring pliers
- Standard snap ring pliers
- Plastic face mallet
- Long (8"+/200mm) Socket extension, end wrapped with lint-free cloth
- Blue Loc-tite™

Page 6

- RockSbox Oil (or fork oil without seal sweller additives)
- Judy Butter or bigh quality Teflon-fortified grease

#### Important: Always wear safety glasses when working on RockShox forks.

Important: For best performance, avoid lithium-based greases. Some lithium greases can become sticky, turn gray and cake up when used to lubricate the bushings. Smooth fork action is greatly limited and performance is greatly reduced when this happens.

#### Before Every Ride

Before every ride, inspect the following parts according to its manufacturer's instructions:

- 1. Front wheel and axle for proper installation and adjustment.
- 2. Fork for any obvious damage (crown, brace, upper tubes, lower tubes, and dropouts).
- 3. Front brake cable for proper routing.
- 4. Front brake pads for proper contact with the rim.
- 5. Front brake lever for proper adjustment.
- 6. Headset for proper function and adjustment.

After every ride clean and dry the fork, taking care not to get water in the fork at upper tube/lower tube junction. Wipe the upper tubes with a clean cloth and remove all debris and dirt from around the seals.

#### AFTER EVERY EIGHT HOURS OF RIDING

After every eight hours of riding, clean and oil the upper tubes and check fasteners for proper torque. Follow this procedure:

- 1. Wipe seal area and upper tube clean. Apply two to three drops of Teflon-fortified oil to the upper tubes at the seals.
- 2. Check crown bolts, brace bolts, axle clamp bolts, and brake posts for proper torque (Refer to "Torque Tightening Values").

### TORQUE TIGHTENING VALUES

Bottom shaft bolt	50-55 in-lb. (5.7-6.2 Nm)
Top caps	30-40 in-lb. (3.5-4.5 Nm)
Threaded rod plug, rebound/compression	30-40 in-lb. (3.5-4.5 Nm)
Axle clamp bolts	40-60 in-lb. (4.5-6.8 Nm)
Axle bolt	20-25 in-lb. (2.3-2.8 Nm)
Crown bolts	40-60 in-lb. (4.5-6.8 Nm)
Brake post, brake mount bolt	60 in-lb. (6.8 Nm)

#### AFTER TWENTY-FIVE HOURS OF RIDING

- 1. With a 22mm six-point wrench remove the top caps. Inspect the O-ring and replace if necessary.
- 2. Push the lower legs up and remove the spring stacks. Note orientation of parts (spring, spring spacer, and preload spacers). Wipe clean.
- 3. Place an oil pan underneath the fork. Reinstall top caps, invert the fork and remove the top caps. Oil will pour out of the fork from the upper tubes.
- 4. Cycle lower legs up and down to pump out remaining oil.
- 5. Return the fork to an upright position.
- 6. Pour oil into the upper tubes while slowly cycling the lower fork leg up and down. With the fork leg fully compressed without springs, the oil level should be 152 mm from the top of upper tube. Approximately 165 cc of oil is required for each fork leg.

#### Important: Do not set oil level above or below this specification.

- 7. Completely extend the fork. Install the spring stacks into the leg.
- 8. Install top cap and torque to 30 to 40 in-lb.

#### AFTER EVERY ONE HUNDRED HOURS OF RIDING

After every one hundred hours of riding, disassemble and clean entire fork following the instructions on the next page.



#### Service

#### Service

#### DISASSEMBLING THE FORK

- 1. With a 22mm six-point socket wrench, remove the top caps. Inspect top cap O-rings and replace if necessary.
- 2. Push the lower leg assembly up and remove the spring stacks. Note orientation of parts (spring, spring spacer, and preload spacers). Wipe clean.
- 3. Place an oil pan underneath the fork. Partially loosen shaft bolts with a 6mm hex wrench, tap bolts firmly with a soft mallet to break shafts free from lower tubes (Fig. 2), and remove bolts completely.
- 4. Slide the lower leg assembly down several inches and allow the oil to drain out of the fork.
- 5. Remove the lower tube assembly from the fork and clean the internals by wrapping a socket extension in a lint-free rag and twirling it inside each leg.
- 6. Visually inspect the upper tubes for wear or damage.
- 7. The fork has a black damper rod in the right leg (rebound) and a silver damper rod in the left leg (compression). With snap ring pliers, remove the damper rod retaining rings from the bottom of both upper tubes and slide the damper rods out. Clean the inside of the upper tubes.



Fig. 3

#### BLACK REBOUND DAMPER DISASSEMBLY

- 1. Slide the glide ring off the damper rod and inspect for cracks, scratches or wear. Replace if necessary.
- 2. Slide the upper tube base valve off the damper rod. Note orientation of the check valve, check plates, wavy washer, and carrier.
- 3. Remove top out spring.
- 4. Clean all parts.
- 5. Remove the spring retainer.
- 6. With a pick tool, remove the snap ring at the top of the damper rod.
- 7. Carefully remove the index plate, wavy washer, index pin and index ball. The index ball is located underneath the index plate (Fig 3). Take care not to lose the index ball, it is small and can be lost easily.
- 8. Place a 22mm wrench on the top of the damper rod.
- 9. Use a 14mm wrench to remove the threaded end plug from the damper rod. Inspect the internal and external O-rings for wear and replace if necessary.
- 10. Carefully slide the rebound adjuster out of the damper rod.
- 11. Inspect the four O-rings on the rebound adjuster for wear (three are on the outside and one is on the end). Replace if necessary.
- 12. Degrease and clean all parts.

Page 8

#### BLACK REBOUND DAMPER ASSEMBLY

- 1. Grease the rebound adjuster and 0-rings with a small amount of Judy butter. Carefully slide them into the rebound damping rod from the bottom.
- 2. Apply a small amount of thread locking fluid onto the end plug thread. Install threaded end plug (Fig. 4), using a 14mm wrench. Torque to 30 to 40 in-lb.
- 3. Put a small amount of grease on the bottom of the index plate. Place the index ball into the recess of the index plate.
- 4. Align the groove in the index plate with the finger on the rebound adjuster and place the index plate into the damper rod.
- 5. In the bottom of the rebound damper, use a 3mm Allen wrench to rotate the damping adjuster until the index plate slot aligns with the damper rod slot.

- 6. Insert the index pin and reinstall the wavy washer and snap ring.
- 7. Grease the top-out spring, base valve and glide ring and install them onto the damper rod.

## Important: The upper tube rebound base valve is black. Insure that this valve is not installed in the compression side!

#### SILVER COMPRESSION DAMPER DISASSEMBLY

- 1. Slide the glide ring off the damper rod. Inspect for cracks, scratches or wear and replace if necessary.
- 2. Slide the base valve off the damper rod. Note orientation of the check valve, check plate, wavy washer, and carrier. (Fig. 5)
- 3. Remove top out spring.
- 4. Remove spring retainer.
- 5. Place a 22mm wrench on the top of the damper rod.
- 6. Use a 14mm wrench to remove the high speed compression assembly.
- 7. Clean assembly.
- 8. Make the internal high speed compression adjustment now.

Important: When turning the nut, insure the end of the compression adjuster rod does not become less than fully engaged on the thread. The nut is self-locking and can become disengaged during operation if the adjuster is not fully threaded.

#### SILVER COMPRESSION/DAMPER ASSEMBLY

Important: When turning the nut, insure the end of the compression adjuster rod does not become less than fully engaged on the thread. The nut is self-locking and can become disengaged during operation if the adjuster is not fully threaded.

- 1. Apply a small amount of thread locking fluid to the threads of the compression adjuster assembly. Install the compression adjuster assembly into the compression damper rod. Torque to 30 to 40 in-lb.
- 2. Grease the top-out spring, base valve, and glide ring and install them onto the damper rod.

Important: The compression base valve is white. Insure this valve is not installed in the rebound side.

#### Assembling The Fork

- 1. Carefully install the damper rods into the upper tubes. The black rebound damper goes on the right and the silver compression damper goes on the left (rider's perspective).
- 2. Insure the glide rings are properly seated on the dampers.
- 3. Install the snap ring, square edge face down, into the base of the upper tubes.
- 4. Lightly oil the bushings in the lower assembly and apply a thin coat of oil on the upper tubes. Grease sealing O-rings at bottom of each damper.
- 5. Slide the lower tubes onto the fork.
- 6. Install the spring stack in each upper tube and hand tighten the top caps in place.
- Seat the damper rods into the lower assembly and install the bottom shaft bolts. Torque to 50 to 55 in-lb.
- 8. Remove the top cap and spring assemblies.
- 9. Fill fork with the desired oil by following steps 6 and 7 from "After Twenty-Five Hours of Riding."
- 10. Install the spring stack and top caps and torque to 30 to 40 in-lb

Fig. 4



#### Service • Warranty

#### BUSHING REPLACEMENT

Like all moving parts, bushings will eventually wear and need replacement. Increased fore and aft movement of upper tubes in lower tubes (similar to a loose headset) signal the need to remove and replace the bushings. Typically, bushings need to be replaced once a year. This service requires RockShox specialty tools. We recommend this level of service be done by a qualified bicycle technician familiar with our products and this procedure.

#### Installation and Removal of 20mm Axle

## Important: Be careful not to overtorque the axle clamp bolts. The torque setting for these bolts is 40 to 60 in-lb.

TO REMOVE THE AXLE:

- 1. Using a 6mm Allen wrench loosen the axle bolt on the right side of the fork.
- 2. Loosen the four axle clamp bolts.
- 3. Push on the axle bolt to push the axle out the left side of the fork.
- 4. Remove axle bolt.
- 5. Twist and remove the axle by using a 6mm wrench on hex end of axle.
- 6. To install the axle, reverse the above procedure and torque the axlebolt to 20 to 25 in-lb.

#### DISC BRAKE MOUNT

Disc brake mounting tabs are provided on the left lower leg. Use your brake manufacturer's instructions to install a disc brake system on your fork.

An optional disc brake cable clamp is available through your dealer, local distributor, or by contacting RockShox.

Important: Do not drill, tap, grind or otherwise modify the Boxxer to mount a disc brake. This can cause structural failure to the fork and result in loss of control of the bicycle with possible serious and/or fatal injuries. Modifying the fork also voids the warranty.

#### **Glossary of Terms**

Bottoming Out – When all suspension travel has been used.

Compression Stroke – The "upward" motion of a fork that is moving in response to an impact.

 $\ensuremath{\textbf{Preload}}\xspace - \ensuremath{\textbf{The}}\xspace$  amount a spring is compressed on an extended fork.

 ${f Rebound}$  – The extension or return stroke of the fork.

Sag - Compression of the suspension caused by the rider's weight.

**Spring rate** – The amount of force required to deflect a spring a given distance.

#### IMBA Rules of the Trail

- Ride on open trails only
- Leave no trace
- Control your bicycle
- Always yield trail
- Never spook animals

#### Warranty

ROCKSHOX, INC. WARRANTS ITS PRODUCTS FOR A PERIOD OF ONE YEAR FROM ORIGINAL DATE OF PURCHASE TO BE FREE FROM DEFECTS IN MATERIALS OR WORKMANSHIP. ANY ROCKSHOX PRODUCT THAT IS RETURNED TO THE FACTORY AND IS FOUND BY ROCKSHOX TO BE DEFECTIVE IN MATERIALS OR WORKMANSHIP WILL BE REPAIRED OR REPLACED AT THE OPTION OF ROCKSHOX, INC. THIS WARRANTY IS THE SOLE AND EXCLUSIVE REMEDY. ROCKSHOX SHALL NOT BE HELD LIABLE FOR ANY INDIRECT, SPECIAL, OR CONSEQUENTIAL DAMAGES.

The warranty does not apply to products which have not been properly installed and adjusted according to RockShox installation instructions. The warranty does not cover any product that has been subject to misuse or whose serial number has been altered, defaced or removed. This warranty does not cover paint damage or modifications to the product. Proof of purchase is required.

#### Warranty Repair

If for any reason it should be necessary to have warranty work done, return the product to the place of purchase. In the USA, Dealers should call for a Return Authorization number (RA#) prior to returning product.

Products returned for inspection must be sent freight prepaid and with proof of purchase to:

RockShox, Inc.

#### 401 Charcot Ave.

#### San Jose, CA 95131

For more technical information, visit our website at www.rockshox.com

Toll-free Technical Support in the USA, call 1.800.677.7177

Customers in countries other than the USA should contact their local dealer or distributor.





- 1 Top Cap
- 2 O-ring, Top Cap
- 3 Preload Spacers
- 4 Volume Spacer
- 5 O-ring
- 6 Coil Spring
- 7 Upper Tube
- 8 Rebound Damper Assy
- 9 Rebound Check Valve Assy
- 10 Snap Ring
- 11 Compession Damper Assy
- 13 Crown Bolt
  14 Lower Crown/Steerer Assembly
  15 Dust Wiper
  16 Snap Ring
  17 Oil Seal
  18 Upper Bushing
  19 Lower Bushing
  20 Bottom Out Pad
  21 Lower Leg Assembly
  22 Shaft Bolt

12 Upper Crown

- 23 Compression Check Valve Assy24 Upper Crown/Steerer Bolt,
- 4 Upper Grown/Steerer M5x0.8x16
- 25 Crush Washer
- 25 Crush was 26 Fork Stop
- $\overline{\mathbf{r}}$
- 27 Crush Washer Retainer
- 28 Axle and Axle Bolt
- 29 Axle Clamp Bolts
- 30 Decal

