



## APPLICABLE MODELS



## General Brake Service Info

Take care of your ONYX Motorbike, and it will take care of you...! This document provides reference information, procedures, and other supporting information for the front and rear brake systems.



**CAUTION**

If you are not confident in your ability to successfully and safely perform maintenance or repair tasks, we recommend having the work performed by a local, certified, and reputable bike mechanic. Contact ONYX Motorbikes for assistance with finding a suitable service shop near you.

### Tools Required

<ul style="list-style-type: none"> <li>Hex (Allen) Key Set – Ball-End T-Handle or Standard (2mm, 3mm, 4mm, 5mm, 6mm)</li> </ul>	<ul style="list-style-type: none"> <li>#2 Cross-Slotted (Phillips) Screwdriver</li> </ul>
<ul style="list-style-type: none"> <li>Brake Fluid Bleeding Kit</li> </ul>	<ul style="list-style-type: none"> <li>Needle Nose Pliers</li> </ul>

## FRONT BRAKE REFERENCE INFORMATION

This section provides information related to the Front Brake system employed on ONYX Motorbikes.

Item	Specification
Brake System Type – Front	Single-Piston Hydraulic 220 mm DIA Hydraulic Disc Brake
Brake Operation – Front	Right Hand
Front Brake Type	Single-Piston Hydraulic 220 mm DIA Hydraulic Disc Brake with Braided Stainless Steel Brake Hose
Front Brake Rotor Disc	Cross-Drilled Slots 220 mm DIA x 5 mm THK
Front Brake Rotor Disc Thickness Inspection Information	Replace the brake rotor disc thickness is 0.14" (3.5 mm) or less. If the brake rotor disc is worn to 3.5 mm THK, warped, and/or cracked, replace the front brake rotor disc and pads immediately.
Front Brake Fluid Type	DOT-3
Front Brake Caliper Style	ZUMA50 BWS YW50 Front Left
Front Brake Pad Type Material	Semi-Metallic; Powerful Initial Bite with Long Life and Thermal Stability Up to 1,100 °F
Front Brake Pad Style	Yamaha Zuma 50 02-11, 49mm (61mm w/tabs) x 27mm x 4 mm THK (NOTE: Replacement must match shape and configuration.)
Front Brake Pad Thickness Inspection Information	Replace the brake pads if either pad's thickness is 0.03" (0.8 mm) or less. If the brake pads are worn, replace both brake pads immediately.
Compatible Replacement Front Brake Pads (Keywords)	Yamaha Zuma 50 02-11; GY6 50CC Scooter; Jog 50cc YW50 09-10 BWS; Adly Fox50 07-09 Front; E-Ton Beamer50 04-08 Front; E-Ton Beamer50III '09 Front; TGB Key West 50 05-09 Front; Genuine Black Cat Front; Genuine Rattler50 Front; Genuine Rough House 50 Front

## Front Brake Caliper Reference Info



Front Brake Caliper – Side View



Front Brake Caliper – “Inside” View



Front Brake Caliper – Installed

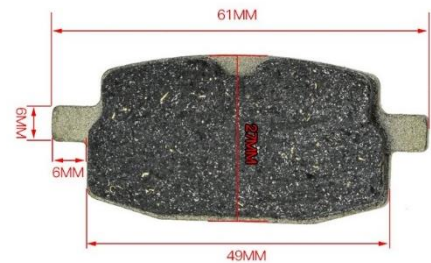
## Front Brake Pad Reference Info



Front Brake Pad – Front and Rear View

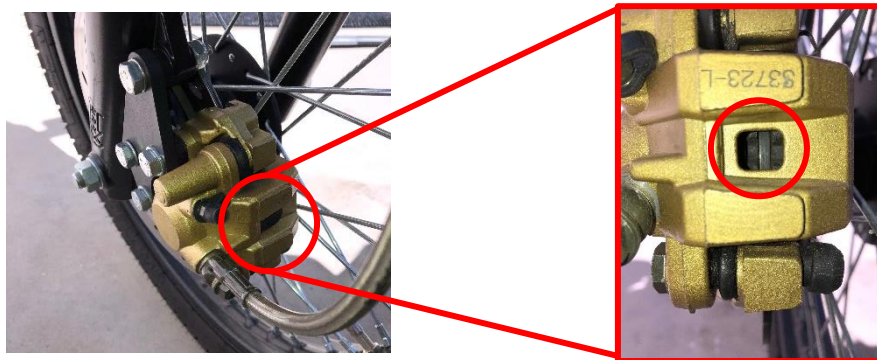


Front Brake Pad Set



Front Brake Pad Dimensions

## CHECKING FRONT BRAKE PAD WEAR



Front Brake Pad – Brake Pad Inspection Window

**NOTE:** Replace both front brake pads (as a set) if either pad's thickness is 0.03" (0.8 mm) or less.

## FRONT BRAKE CALIPER BRAKE FLUID CHECK AND BLEEDING

Hydraulic brakes use fluid to operate the caliper piston to press the pads to the brake disc. The brake fluid level and quality must be checked and changed according to the Recommended Maintenance Schedule. If the front brake lever ever becomes spongy or soft, the front brake system should be checked for any leaks, and then should be checked and bled to remove any air that could be in the fluid.



**CAUTION**

- A soft or spongy feeling in the front brake lever can indicate the presence of air in the brake system hydraulic fluid. Air in the system will cause diminished braking capability and can result in loss of control. Inspect and bleed the brake system if necessary.
- Do not make contact with or ingest brake fluid. Follow the safety information on the brake fluid container for proper precautions and aid if you make contact with brake fluid.
- Brake fluid can corrode painted surfaces and plastic parts. Always clean up any spilled brake fluid immediately!
- Only top off or fill with new DOT-3 brake fluid from a new sealed container. Use of old or other brake fluid types can damage and deterioration to rubber seals can occur causing leakage and poor performance. Brake fluid is hygroscopic (absorbs water) and can pick up moisture over time in the braking system and if not stored properly. Water in brake fluid lowers the boiling point of the brake fluid, which can affect braking performance.

1. Using a #2 cross-slotted (Phillips) screwdriver, remove the two (2) screws securing the master cylinder reservoir cover, and carefully set the cover off to the side on a clean surface.



**Example Master Cylinder Reservoir Cover Screws**

2. Top off the master cylinder reservoir with DOT-3 fluid.
3. Remove the rubber cover from the front brake caliper bleed screw.



**Front Caliper Bleed Screw with Cover**

4. Place a combination wrench on the bleed screw to prepare to loosen it. Do not loosen it yet.
5. Connect the end of a suitable (tight fit) clear tube to the nipple of the bleed screw. If using a brake bleeding system, follow the instructions provided with the bleeding system.

6. Insert the other end of the plastic tube into a suitable container to safely capture brake fluid.
7. If you are not using a brake bleeding system, it is easiest to do these next steps with the help of a friend so that one person can operate the brake lever while the other loosens (opens) and tightens (closes) the bleed screw. Slowly apply the front brake a few times by pulling the brake lever.
8. Gently pull and hold the front brake lever in.
9. Loosen the bleed screw, and allow the brake lever to go close to its limit, but not too far. Tighten the bleed screw when it reaches the limit, and then release the lever. Brake fluid should have flowed into the plastic tube while the bleed screw was open...
10. Top off the master cylinder reservoir with DOT-3 fluid.
11. Repeat steps 7-10 until air bubbles have been removed from the system.
12. With the bike straight upright, check the level of the brake fluid in the master cylinder window, and top off the master cylinder reservoir with DOT-3 fluid.



**Front Caliper Master Cylinder  
Reservoir Fluid Level Check  
Window**

13. Replace the master cylinder reservoir cover, and secure with the two screws. Check the operation of the front brake after bleeding the brake system.

## FRONT BRAKE PAD BEDDING AND BREAK IN PROCEDURE

As a reminder, most of the braking power comes from the front braking, so it is critical to ensure that the front pads and rotor are properly cared for. Proper care starts with getting them off to a proper start. Use the following recommended steps to safely and properly bed and break in new FRONT brake pads and/or a new front brake rotor disc.



### CAUTION

- Find a safe, flat, and open area to perform the brake bedding and break-in procedure with no cars or people nearby. You will be operating your e-bike in a non-standard and somewhat haphazard manner.
- The brake pad and rotor bedding procedure is recommended for the FRONT brakes only. While this procedure *could* be used to bed or season new rear brake pads too, it is not necessary or recommended. Using the following procedure could potentially overheat and glaze the rear pads, which can lead to unwanted squeaks and squeals. The rear brakes are usually fine after a few hard stops.
- Do NOT come to a complete stop if at all possible during this bedding process! The brake pads and brake rotors are extremely hot at this point and sitting on one point will imprint the pad material onto the surface unevenly. This can cause vibration and uneven braking.

Contact ONYX Motorbikes for assistance with this information or finding a suitable service shop near you.

1. Find a flat and clear open area with no cars or other people around.
2. Perform 3-4 medium semi-stops from 15 mph with slightly more aggressive than normal braking down to around 5 mph. You don't need to come to a complete stop for each pass. This brings the brake rotor up to temperature so they are not exposed to sudden thermal shock.
3. Make 8-10 aggressive semi-stops from 20 mph down to 10 mph. For this set of semi-stops, you want to be firm and aggressive, but not to the point where the wheels lock up. It's important to note that you should not come to a complete stop but rather a semi-stop (~10mph). Accelerate back up to 20 mph each time after you slow down to your 10 mph semi-stop.

**NOTE:** You may notice that your brakes will start fading, and possibly smoke, after the 6th or 7th pass. This fade will stabilize and will gradually recess once your brakes have cooled down to normal operating temperatures. Ride carefully as your brakes may feel softer for the next few minutes.

4. Try to keep rolling and not come to a complete stop for 5-10 minutes, preferably without using your brakes. Once you have done this, the brake pads and rotor should be ready for a long life of good hard riding and braking.



## REAR BRAKE REFERENCE INFORMATION

This section provides information related to the Rear Brake system employed on ONYX Motorbikes.

Item	Specification
Brake System Type – Rear	Dual Piston Line-Pulled Hydraulic 205mm DIA 6-Bolt (Pitch Circle Diameter = 44 mm) Drilled Disc Brake; Regenerative Braking Energy Recovery System
Brake Operation – Rear	Left Hand
Rear Brake Type	High-Strength Aluminum Alloy Material X-TECH HB-100 Dual Piston Line-Pulled Hydraulic Disc Brake
Rear Brake Caliper Hydraulic Oil Type	Shimano SM-DB-OIL (or similar) Hydraulic Mineral Oil (NOTE: Lifetime use oil, and never needs to be topped-off or changed under normal circumstances.)
Rear Brake Caliper Weight	0.45 lbs. (205 g)
Rear Brake Caliper Mounting	2X 5 mm Mounting Screw Thru-Hole at 2" (51 mm) Spacing
Rear Brake Rotor Disc	Cross-Drilled 205 mm DIA x 1.9 mm THK (8" DIA x 0.07" THK) with 6 Low-Profile Head Mounting Screws
Rear Brake Rotor Disc Thickness Inspection Information	Replace the brake rotor disc thickness is 0.06" (1.5 mm) or less. If the brake rotor disc is worn to 1.5 mm THK, warped, and/or cracked, replace the front brake rotor disc and pads immediately.
Brake Pad Material	Semi-Metallic
Brake Pad Style	Mountain Bicycle (MTB), 34.2 mm x 26.6 mm x 4 mm THK (NOTE: Replacement must match shape and configuration.)
Rear Brake Pad Thickness Inspection Information	Replace the brake pads if either pad's thickness is 0.03" (0.9 mm) or less. If the brake pad(s) are worn, replace both brake pads as a set immediately.
Compatible Replacement Rear Brake Pads (Keywords)	Pads Compatible with: X-TECH HB-100; Shimano XTR BR-M965 BR-M966 BR-M975; Shimano Saint M800; Shimano Deore XT BR-M765 BR-M775 BR-M776; Shimano Deore LX BR-M585 BR-T665; Shimano SLX BR-M665; Shimano Deore BR-M535 BR-M595 BR-M596; Non-Series BR-M545 BR-R505 BR-T605; Alfine S500 S501 A500 S505; Shimano A01S M07 M07Ti M07S Ashima APV PCB TRP Dash; Hone M601

## Rear Brake Caliper Assembly Reference Info



Rear Brake Pad – Front and Rear View



Rear Brake Pad Set with Retaining Spring and Cotter Pin



Rear Brake Pad Set – Ready to Insert

## Rear Brake Pad Reference Info



Rear Brake Pad – Front and Rear View

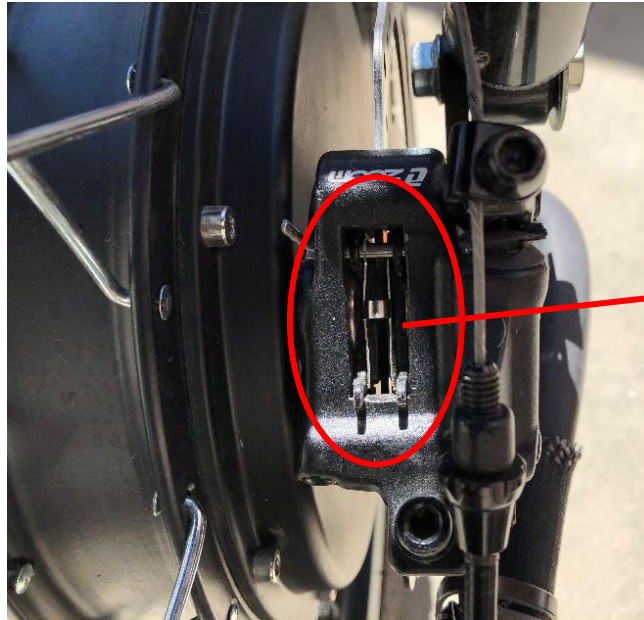


Rear Brake Pad Set with Retaining Spring and Cotter Pin



Rear Brake Pad Set – Ready to Insert

## CHECKING REAR BRAKE PAD WEAR



Rear Brake Caliper  
Pad Inspection and  
Remove & Replace  
Cutout

*Rear Brake Pad – Brake Pad Inspection Window*

Use the Rear Brake Caliper Pad Cutout window for general quick checks. If necessary, it is best to remove and inspect the brake pads up close if there is any question about how much pad material is left on the pad.

**NOTE:** Replace both front brake pads (as a set) if either pad's thickness is 0.03" (0.9 mm) or less.



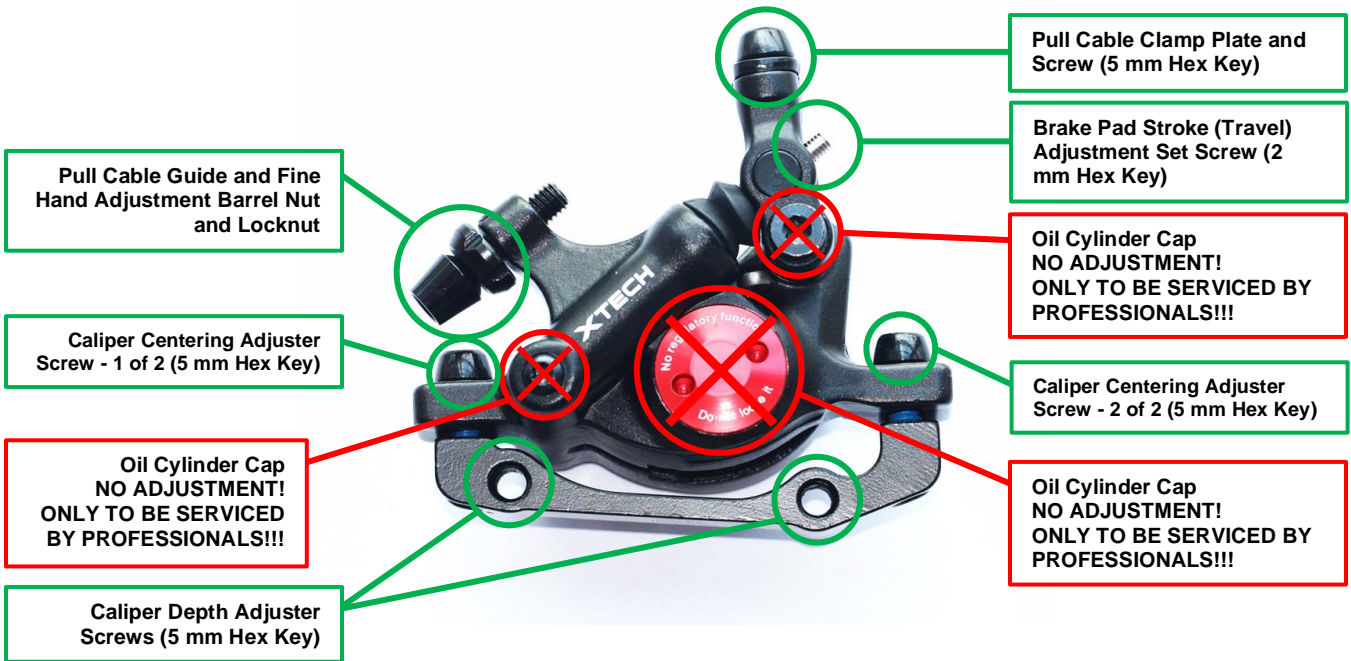
## REAR BRAKE CALIPER ADJUSTMENTS

The rear brake caliper and bike frame allow for many adjustments in order to service and always optimize the rear brake performance. For example, if the rear wheel needs to be serviced or removed for any reason, it is best to remove the rear brake caliper from the frame in order to clear the brake rotor disc and prevent damage to the caliper and rotor. Once the rear caliper is adjusted or moved in any way, it will be necessary to realign the brake caliper in order to ensure proper and full brake performance.



**CAUTION**

Do not overtighten any screws as it is easy to strip the threads. Use nut lock compound such as Loctite 242 on the tip of the screw threads of the Upper and Lower Caliper Mounting Screws.  
Contact ONYX Motorbikes for assistance with this information or finding a suitable service shop near you.



Rear Brake Caliper Adjustment Hardware – Adjustment Features (1 of 2)



Rear Brake Caliper Adjustment Hardware – Caliper Inside Adjustment Features (2 of 2)

## REAR BRAKE CALIPER ADJUSTMENT – ALIGNMENT

Whenever servicing or removing the rear wheel, you must check and readjust the rear caliper in order to ensure that the rear brake is set and will work to the best of its ability.



CAUTION

Handle and work on the rear wheel and brake rotor with care. The rear brake disc rotor is very thin and is easily warped or bent.

Contact ONYX Motorbikes for assistance with this information or finding a suitable service shop near you.



Loosen the appropriate screws to adjust the rear brake caliper as necessary to realign the Rear Brake Caliper:

### 1 Adjust and **C**enter the Brake Disc Between the Pads:

1. Loosen the top two [2] caliper centering adjuster socket head cap screws (SHCS) screws.
2. Center the brake caliper so that the brake disc is centered between the inside edges of the caliper and pads.
3. Tighten the two [2] caliper centering adjuster SHCS screws.
4. Check and ensure that the brake disc is still centered after tightening the screws. Repeat the steps above if necessary.

### 2 Adjust and **S**et the Brake Pads to Make Full Contact with the Brake Disc:

1. Loosen the bottom two [2] caliper depth adjuster SHCS screws.
2. Slide the brake caliper so that the brake pads make full contact with the brake disc without the caliper touching the outside edge of the disc. Slide the caliper toward the rear of the bike to make MORE contact with the brake disc.
3. Tighten the two [2] caliper depth adjuster SHCS screws.
4. Check and ensure that the brake pads are making adequate contact after tightening the screws. Repeat the steps above if necessary.

## REAR BRAKE CALIPER ADJUSTMENT – BRAKING ACTION

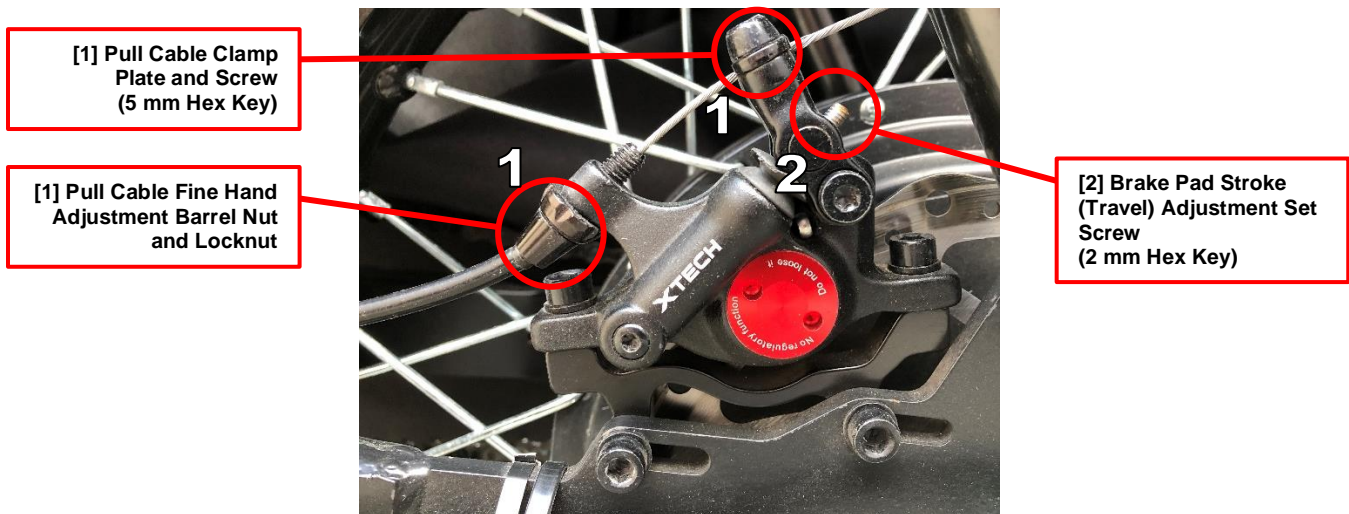
Over time, the initial bite and braking force can become less effective over time. Cables can stretch and pads slowly wear away, which can affect how the brake lever operates and feels. For example, if you can squeeze the lever fully on without the brake engaging, urgent action is required. Use the following information to make adjustments to improve rear braking feel.



**CAUTION**

- Handle and work on the rear wheel and brake rotor with care. The rear brake disc rotor is very thin and is easily warped or bent.
- Making adjustments to the rear brake can be done in multiple ways, and each can have an effect on the other adjustments. Adjust the brakes carefully, and always check operation thoroughly before riding the bike.

Contact ONYX Motorbikes for assistance with this information or finding a suitable service shop near you.



Make the appropriate adjustments to ensure that the rear brake lever has a secure and strong amount of constant pressure without pulling all the way back and bottoming out on the left grip AND so that the rear brake pads are as close as possible without rubbing or making constant contact with the brake rotor disc surface:

### 1 Adjust the Brake Lever Stiffness and Pull:

1. If the brake lever is offering sufficient and desired braking feel, but the initial bite is just not enough, then you may skip to section 2 below to adjust the brake pad tension. Otherwise, proceed with the steps below to adjust the rear brake cable.
2. If necessary, raise the bike's rear wheel so that the rear wheel can spin freely and the rear brake can be operated.
3. Loosen the pull cable barrel nut locknut to allow for adjustment of the cable.

4. Adjust the barrel adjuster nut to adjust the pull cable tension:
  - Turn the barrel adjuster nut **clockwise** to **decrease** the cable tension. Try one full turn initially, then try half turns, testing the brake lever periodically.
  - Turn the barrel adjuster nut **counterclockwise** to **increase** the cable tension. Try one full turn initially, then try half turns, testing the brake lever periodically.

Once the proper adjustment has been made, screw the locknut until it is flush to the caliper to keep the barrel firmly in its new position. Repeat the steps as needed until the proper brake lever feel and engagement are felt. If the barrel nut adjustments do not provide enough adjustment to resolve the braking issue, release the cable clamp screw to readjust the pull cable by proceeding with steps 5-7 below.

5. Wind the barrel adjuster back in, and then undo the pull cable clamp bolt that anchors and secures the cable to the brake.
6. Use one hand to squeeze the brake mechanism together by pulling the pull cable clamp arm toward the barrel nut (i.e., toward the front of the bike). The brake doesn't need to be applied hard; it just needs to be barely touching the rotor disc surface. Don't let go of the brake until you've pulled and tightened the pull cable clamp screw in the next step...
7. With the rear brake still engaged using your hand, pull more cable through the cable clamp, until the cable is just taut. Let go of the cable now, and tighten the clamp bolt.
8. Carefully lower the bike's rear wheel, and slowly ride to test the operation of the rear brake

## 2 Adjust the Initial Brake Bite and Brake Pad Tension:

1. If necessary, raise the bike's rear wheel so that the rear wheel can spin freely and the rear brake can be operated.
2. Using a 2 mm hex key, turn the set screw to adjust the brake pad tension (a.k.a., travel or stroke) so that the pads are as close to the rotor disc surface without constant contact (e.g., contact without applying the brakes):
  - Turn the set screw **clockwise** to move the pads **closer** to the brake rotor disc surface.
  - Turn the set screw **counterclockwise** to move the pads **farther** away from the brake rotor disc surface.
3. Spin the rear wheel and check that it spins freely.

If the wheel does not spin freely, adjust the brake pad tension screw by turning the screw counterclockwise so that the pad is not in constant contact with the rotor without applying the rear brake. Repeat the steps above if necessary.

4. Carefully lower the bike's rear wheel, and slowly ride to test the operation of the rear brake.