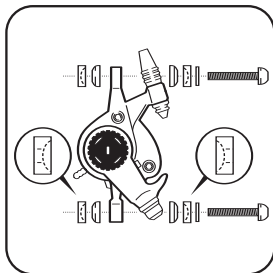
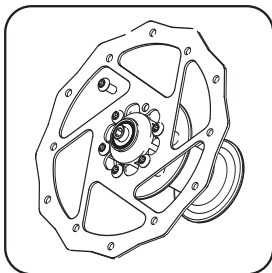
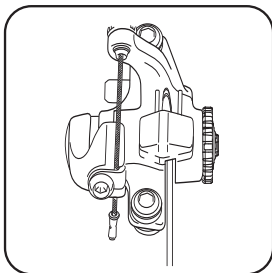




Ball Bearing Disc Brake™

Installation and Setup Guide



POWERED BY SRAM

PLEASE READ THE SAFETY AND WARRANTY INFORMATION INSIDE

955-310589-000 Rev. B © SRAM Corporation, 2005

CONGRATULATIONS!

You have selected the best mechanical disc brakes your money can buy! This manual contains important information for installing, setting up and adjusting your new brakes. To ensure that your Avid brakes perform properly, we recommend that you have them installed by a qualified bicycle mechanic. We also urge you to follow all of our recommendations to help make your riding experience safe, enjoyable and trouble free.

First, here is some information to get you started:

TRI-ALIGN CALIPER POSITIONING SYSTEM

Avid disc brakes use a unique alignment system called Caliper Positioning System (CPS). These stacks of concave and convex washers allow the caliper to be perfectly aligned with the rotor, regardless of imperfections in the mounting tabs on the fork or frame, giving you full, square pad contact.

TOOLS NEEDED

- 2.5 and 5mm hex wrenches
- T-25 TORX® wrench
- Cable cutters
- Adjustable torque wrench: 2.8-10Nm (25-90 in-lb) range
- Safety Glasses

MAKE SURE YOU HAVE THE RIGHT BRACKETS

fronts:



115-373602-300
203 Front QR20



115-373502-600
203 Front Boxser



11.5373.102.800
203 Front Forged



115-372102-900
185 Front Forged



11.5376.102.500
160 Front Forged



11.5376.302.900
160 Front Extruded



11.5372.302.300
185 Front
Post Mount



11.5373.302.200
203 Front
Post Mount

rears:



115-373202-500
203 Rear Forged



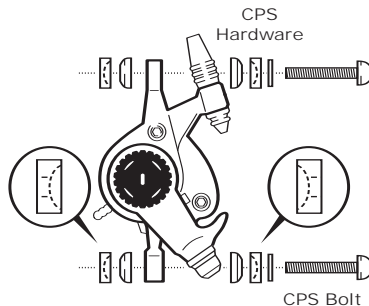
115-372202-600
185 Rear Forged



115-376202-200
160 Rear Forged



115-376402-600
160 Rear Extruded



SAFETY INFORMATION

Brakes are a safety-critical item on a bicycle. Improper setup or use of brakes can result in loss of control or an accident, which could lead to a severe injury.

Avid brakes are a performance product that offer increased stopping power over brakes that you may be used to. This greater power requires less effort to lock-up a wheel when braking. A wheel lock up might cause you to lose control and possibly cause injury.

It's your responsibility to learn and understand proper braking techniques. Consult the owner's manual for your bicycle and a professional bike dealer.

Practice your riding and braking techniques on a flat and level surface prior to aggressive riding.

The effectiveness of braking is dependent on many conditions over which Avid has no control. These include the speed of the bicycle, type and condition of the riding surface, braking lever force, proper installation and maintenance of brakes, brake lines, hydraulic fluid, levers, brake pads, condition of the bike, weight of the rider, proper braking techniques, weather, terrain, and a variety of other factors.

Avid brakes and levers are not intended for use on any motorized bicycle or vehicle. Such use could result in a serious personal injury.

ALWAYS RIDE UNDER CONTROL

Remember, it takes longer to stop in wet conditions. To reduce the possibility of an accident and minimize trail erosion, you should avoid locking-up your wheels.

FOLLOW THESE INSTRUCTIONS CAREFULLY

If you do not understand the instructions, have the installation done by a professional bike mechanic.

Only levers designated for side-pull brakes, such as Avid's Speed Dial series and FR5 levers, can be used with the mountain Ball Bearing Disc Brake. For best operation and performance Avid highly recommends that you use an Avid Speed Dial lever and premium quality brake cable and housing. Failure to do so will reduce the performance of the system.

Avid disc brakes are compatible with 44mm, 6-bolt, International Standard hubs.

We recommend 32 or 36-spoke wheels with a 3 or 4 cross spoke lacing pattern. Contact your specific wheel manufacturer for more specifications.

Do not use radially spoked wheels.

Disc brakes are OIL SENSITIVE! Do not spray any solvents or lubricants in the vicinity of the rotors or brake pads. NEVER touch the pad surface or rotor surface with your fingers. Doing so will significantly degrade braking performance.

WARNING

Do not touch the braking surface of any rotor with your bare hands, because the oils from your fingers will degrade its performance. Always wear gloves, or handle the rotor by its spokes.

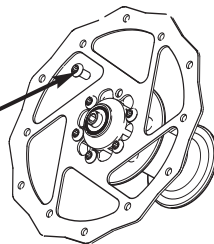
Disc brakes become very hot during use. Do not touch the caliper or rotor immediately after use. Make sure the brake has cooled down before making any adjustments.

1 INSTALL ROTOR

Mount the rotor to the hub using the supplied T-25 TORX® bolts and tighten to the specified torque. Avoid logo MUST face out. Install the wheel into the fork or frame.

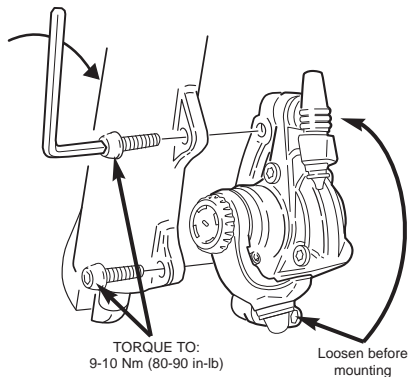
WARNING: IF YOU ARE USING A HUB WITH A REMOVABLE SHIM, YOU MAY NEED LONGER ROTOR MOUNTING BOLTS. CONTACT THE HUB MANUFACTURER FOR THE RECOMMENDED BOLTS.

TORQUE TO:
6.2 Nm (55 in-lb)



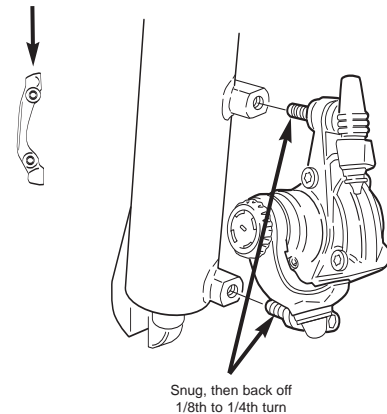
2 MOUNT FRONT CALIPER

Mount the front caliper to the fork.



OR

Remove... ...then mount direct



I.S. MOUNT

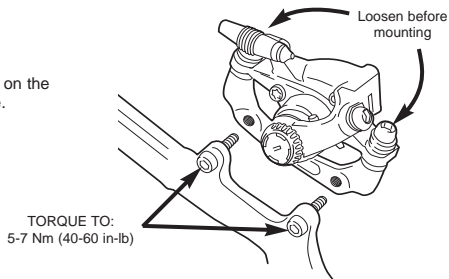
Loosen the CPS bolts, then bolt the caliper to the mounting tabs. Tighten the mounting bolts to the specified torque. Check that the caliper moves freely on the CPS hardware.

POST MOUNT

Remove the mounting bracket but leave the CPS bolts and washer stacks intact. Bolt the caliper directly to the fork. Snug the bolts, then back them out 1/8th to 1/4th turn. Check that the caliper moves freely on the CPS hardware.

3 MOUNT REAR CALIPER

Loosen the CPS bolts, then mount the rear caliper to the I.S. tabs on the rear of the bike. Tighten the mounting bolts to the specified torque. Check that the caliper moves freely on the CPS hardware.

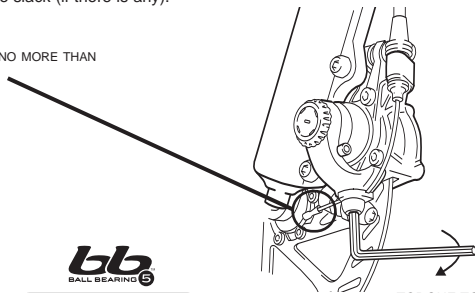


4 INSTALL THE CABLE

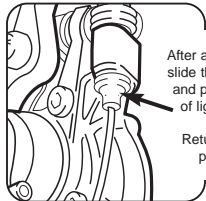
Pass the brake wire through the anchor bolt on the actuating arm. Cable slack may be removed with a fourth hand tool. Be careful not to advance the torque arm as you pull the cable. Tighten cable anchor bolt to the specified torque. Use the barrel adjuster at the brake lever to remove any remaining cable slack (if there is any).

IMPORTANT:

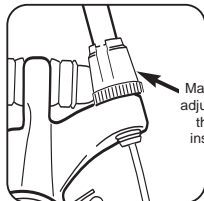
AFTER THE CABLE IS ANCHORED, CHECK TO BE SURE THERE IS NO MORE THAN 20MM (3/4 IN) OF EXCESS CABLE BEYOND THE ANCHOR BOLT. TRIM AS NECESSARY.



bb
BALL BEARING 7



bb
BALL BEARING 5

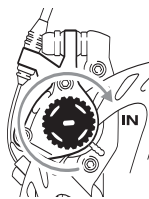


5

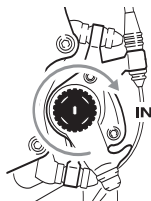
ALIGN THE CALIPER (BB7 ONLY)



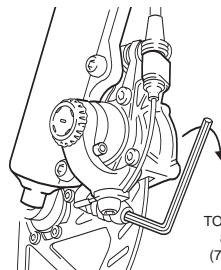
A. Turn the inboard (closest to the wheel) knob clockwise until it pushes the rotor into the position shown. Note that the rotor should not be centered between the walls of the caliper body.



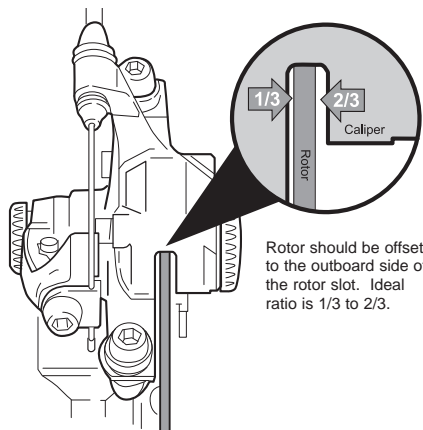
B. Turn the outboard pad adjustment knob in until it is firmly squeezing the rotor against the inboard pad – thus immobilizing the actuating arm. Your caliper is now in perfect position and ready to be tightened. You'll back the pads off again in a few moments.



C. Tighten the two CPS bolts that attach the caliper to the mounting bracket. Tighten one and then the other, repeating until they are at the specified torque.



TORQUE TO:
8-10 Nm
(70-90 in-lb)

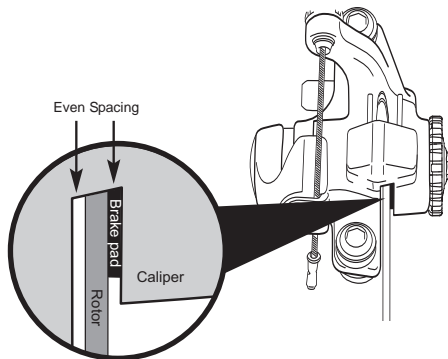
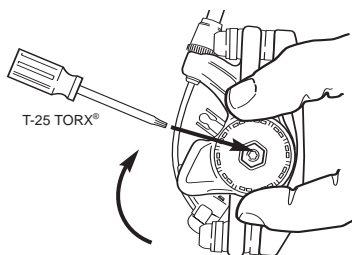


Rotor should be offset to the outboard side of the rotor slot. Ideal ratio is 1/3 to 2/3.

5 ALIGN THE CALIPER (BB5 ONLY)



A. Use your fingers or a Torx® wrench to turn the inboard pad adjustment knob clockwise until the rotor is centered in the caliper. This positions the pads for the next step in the installation.

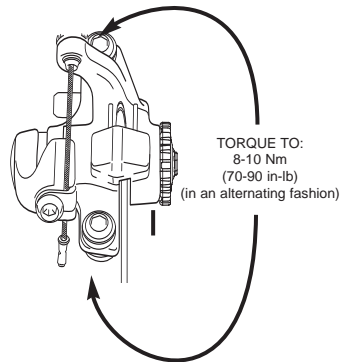


Turn adjustment knob until the rotor is centered in the caliper.

B. Make sure the CPS bolts are loose enough for the caliper to move freely.

C. Squeeze the brake lever to compress the brake pads firmly on the rotor.

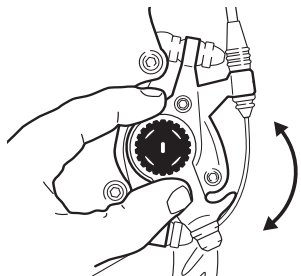
D. While still holding the brake lever, tighten the CPS bolts. Once they are tight, you can let go of the lever.



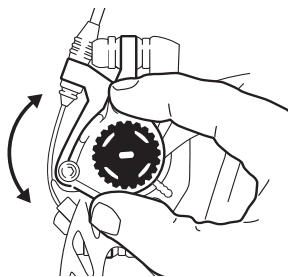
6

ADJUST THE PADS (BB7 ONLY)

Turn both pad adjustment knobs counterclockwise until desired pad/rotor clearance is achieved (approx. 2 or 3 clicks each).



Outboard pad adjustment knob



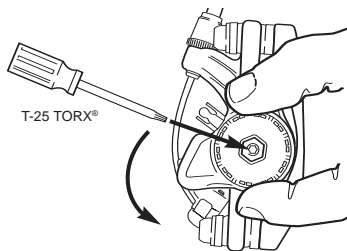
Inboard pad adjustment knob

IMPORTANT:

Only use the barrel adjuster at the brake lever to adjust for cable slack. For lever throw, use the outboard adjustment knob. For brake pad wear adjustment, use both the inboard AND outboard knobs.

ADJUST THE PADS (BB5 ONLY)

Back the adjustment knob off (counterclockwise) until the rotor spins freely. Now you can dial the pad in or out until you find the brake action you prefer (make sure, of course, that there's no drag on the rotor). If you can't seem to get the feel you like, or the rotor is dragging, repeat step 5.



T-25 TORX®

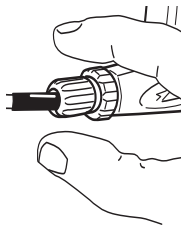
Fine Tuning

BEFORE EACH RIDE

- Check cables for signs of wear or fraying.
- Squeeze the brake lever firmly and check for proper brake function. Adjust for pad wear if necessary.
- Check pads for wear and replace if necessary.
- Ensure rotors are free of foreign substances and oils.

CABLE SLACK ADJUSTMENT

Use the barrel adjuster on the brake lever to remove any cable slack from the system. Turn the adjuster out until there is no free play in the lever but not so far that the torque arm on the caliper is advanced. The torque arm should return completely when the brake lever is released. If necessary, repeat step 6.



Note: New cables will stretch and require adjustment.

PAD BREAK-IN

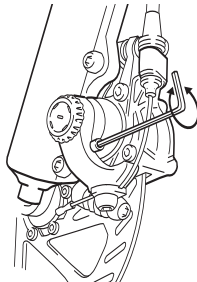
It may take anywhere from 20 to 40 complete stops to break in Avid pads. You may begin to notice an increase in braking power after the first ride. Brake noise can occur not only during the break-in period but off and on throughout the life of the brake pads. Noise is dependent upon factors such as brake setup, rider weight, riding style, braking style, and riding conditions (i.e. dust, soil, and contamination of friction surfaces).

CARE AND CLEANING

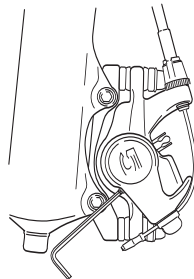
Extreme care must be taken when cleaning both the bicycle and its new disc brakes. Under normal use, it is not necessary to clean the caliper rotor or pads. If necessary, use only water and dish detergent to wash the caliper and rotor – being sure to thoroughly rinse all soap residue from the rotor. Dry with a clean paper towel.

SPRING TENSION ADJUSTMENT

If necessary, spring tension can be adjusted by turning the spring tension adjustment screw with a 2.5mm hex wrench. Turning the screw clockwise increases spring tension, which equals harder lever pull.



bb
BALL BEARING 7



bb
BALL BEARING 5

PAD WEAR ADJUSTMENT (BB7 ONLY)



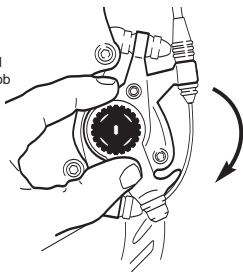
Over time, you will need to compensate for brake pad wear. You can do so with two very simple adjustments:

Turn both the inboard and outboard red adjusting knobs clockwise one or two clicks as needed to restore your brake to optimum settings. **DO NOT** use your barrel adjuster to compensate for pad wear.

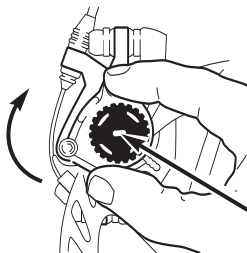
A pad wear indicator is at the center of each knob. As the knob is turned in, the indicator will retract deeper into the knob giving a visual indication of approximately how much the pads have worn.

A pad should be replaced when its total thickness (backing plate & friction material) is less than 3mm. Instructions will be included with your new pads.

Outboard pad
adjustment knob



Inboard pad
adjustment knob



Pad wear
indicator

PAD WEAR ADJUSTMENT (BB5 ONLY)

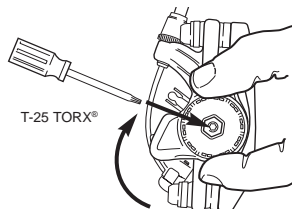


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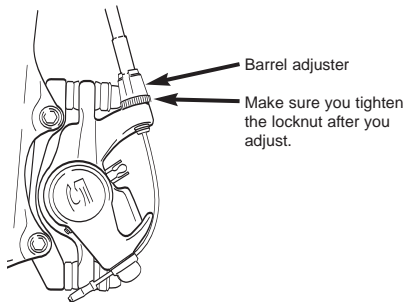
1. Unscrew (counterclockwise) the barrel adjuster on the caliper.
2. Turn the inboard pad adjustment knob clockwise.

Both of these adjustments move the brake pads closer to the rotor. You do need to adjust both pads as they wear. Try different settings until the brake feels just the way you like.

NOTE: While you can perform a similar adjustment on the barrel of your brake lever, we suggest that you adjust for pad wear at the caliper. That way you leave the brake lever for on-the-fly adjustments.



T-25 TORX®



Barrel adjuster

Make sure you tighten the locknut after you adjust.



PAD REPLACEMENT (BB7 ONLY)

A pad should be replaced when its total thickness (backing plate and friction material) is less than 3mm.

1. REMOVE THE OLD PADS

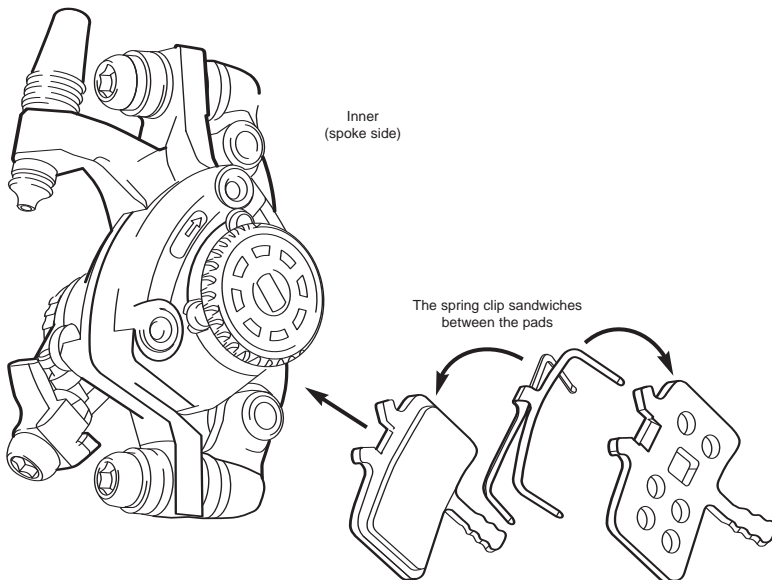
Back both adjuster knobs all the way out (counterclockwise,) then squeeze the pad tabs together and pull both pads straight out of the caliper.

2. INSTALL THE NEW PADS AND SPRING

Assemble the spring between the new left and right pads. Align the spring to the pad as shown.

Squeeze the brake pad/spring clip assembly together then press firmly into the caliper until it "clicks" into place.

The pad marked "R" goes on the spoke side of the brake.





PAD REPLACEMENT (BB5 ONLY)

A pad should be replaced when its total thickness (backing plate and friction material) is less than 3mm.

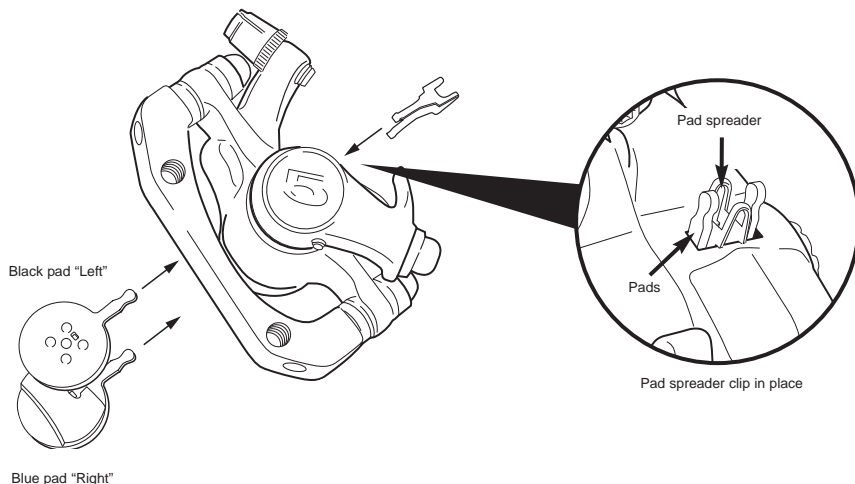
1. REMOVE THE OLD PADS

Back the inner adjustment knob all the way out (counterclockwise). Pull the pad spreader clip from between the pads, then pull the pads out of the caliper one at a time.

2. INSTALL THE NEW PADS AND SPREADER

Insert the new pads one at a time into the caliper.

VERY IMPORTANT: MAKE SURE YOU PLACE THE BLACK PAD ON THE INNER SIDE (TOWARDS THE WHEEL) AND THE BLUE PAD ON THE OUTSIDE (AWAY FROM THE WHEEL.) ONCE THE PADS ARE IN THE CALIPER YOU CAN SLIDE THE SPREADER CLIP BACK INTO POSITION – BETWEEN THE PADS.



SRAM CORPORATION WARRANTY

EXTENT OF LIMITED WARRANTY

SRAM warrants its products to be free from defects in materials or workmanship for a period of two years after original purchase. This warranty only applies to the original owner and is not transferable. Claims under this warranty must be made through the retailer where the bicycle or the SRAM component was purchased. Original proof of purchase is required.

LOCAL LAW

This warranty statement gives the customer specific legal rights. The customer may also have other rights which vary from state to state (USA), from province to province (Canada), and from country to country elsewhere in the world.

To the extent that this warranty statement is inconsistent with the local law, this warranty shall be deemed modified to be consistent with such law, under such local law, certain disclaimers and limitations of this warranty statement may apply to the customer. For example, some states in the United States of America, as well as some governments outside of the United States (including provinces in Canada) may:

- Preclude the disclaimers and limitations of this warranty statement from limiting the statutory rights of the consumer (e.g. United Kingdom).
- Otherwise restrict the ability of a manufacturer to enforce such disclaimers or limitations.

LIMITATIONS OF LIABILITY

To the extent allowed by local law, except for the obligations specifically set forth in this warranty statement, in no event shall SRAM or its third-party suppliers be liable for direct, indirect, special, incidental, or consequential damages.

LIMITATIONS OF WARRANTY

- This warranty does not apply to products that have been incorrectly installed and/or adjusted according to the respective SRAM technical installation manual. The SRAM installation manuals can be found online at www.SRAM.com, www.rockshox.com or www.avidbike.com.
- This warranty does not apply to damage to the product caused by a crash, impact, abuse of the product, non-compliance with manufacturer's specifications of usage or any other circumstances in which the product has been subjected to forces or loads beyond its design.
- This warranty does not apply when the product has been modified.
- This warranty does not apply when the serial number or production code has been deliberately altered, defaced or removed.
- This warranty does not apply to normal wear and tear. Wear and tear parts are subject to damage as a result of normal use, failure to service according to SRAM recommendations and/or riding or installation in conditions or applications other than recommended.

WEAR AND TEAR PARTS ARE IDENTIFIED AS:

- Dust seals
 - Bushings
 - Air sealing o-rings
 - Glide rings
 - Rubber moving parts
 - Foam rings
 - Rear shock mounting hardware and main seals
 - Stripped threads/bolts (aluminum, titanium, magnesium or steel)
 - Upper tubes (stanchions)
 - Brake sleeves
 - Brake pads
 - Chains
 - Sprockets
 - Cassettes
 - Shifter and brake cables (inner and outer)
 - Handlebar grips
 - Shifter grips
 - Jockey wheels
 - Disc brake rotors
 - Tools
- This warranty shall not cover damages caused by the use of parts of different manufacturers.
 - This warranty shall not cover damages caused by the use of parts that are not compatible, suitable and/or authorized by SRAM for use with SRAM components.



POWERED BY SRAM

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