

# 2012 Code™ - Code R™ Service Manual

---



## SRAM LLC 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.

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:

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

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.

- 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](http://www.sram.com), [www.rockshox.com](http://www.rockshox.com), [www.avidbike.com](http://www.avidbike.com), [www.truvativ.com](http://www.truvativ.com), or [www.zipp.com](http://www.zipp.com).
- 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 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 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 and 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/Wheel braking surfaces/Bottom out pads/Bearings/Bearing Races/Pawls/Transmission gears/Spokes/Free hubs/Aero bar pads/Corrosion/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.
- This warranty shall not cover damages resulting from commercial (rental) use.

## AVID BRAKE SERVICE

We recommend that you have your Avid brakes serviced by a qualified bicycle mechanic. Servicing Avid brakes requires knowledge of brake components as well as the special tools and fluids used for service.

This publication includes trademarks and registered trademarks of SRAM Corporation designated by the symbols <sup>TM</sup> and <sup>®</sup>, respectively.

Copyright © SRAM LLC 2011

For exploded diagram and part number information, please refer to the Spare Parts Catalog available on our web site at [www.sram.com](http://www.sram.com).

For order information, please contact your local SRAM distributor or dealer.

Information contained in this publication is subject to change at any time without prior notice. For the latest technical information, please visit our website at [www.sram.com](http://www.sram.com).

Your product's appearance may differ from the pictures/diagrams contained in this catalog.

Product names used in this document may be trademarks or registered trademarks of others.

# TABLE OF CONTENTS

<b>CODE BRAKE LEVER OVERHAUL .....</b>	<b>5</b>
PARTS AND TOOLS NEEDED FOR SERVICE:.....	5
<b>CODE R BRAKE LEVER OVERHAUL.....</b>	<b>17</b>
PARTS AND TOOLS NEEDED FOR SERVICE:.....	17
<b>CODE BRAKE CALIPER OVERHAUL .....</b>	<b>25</b>
PARTS AND TOOLS NEEDED FOR SERVICE:.....	25
<b>AVID BRAKE HOSE LENGTH ADJUSTMENT .....</b>	<b>30</b>
PARTS AND TOOLS NEEDED FOR SERVICE:.....	30
<b>AVID BRAKE BLEED PROCEDURE .....</b>	<b>34</b>
PARTS AND TOOLS NEEDED FOR SERVICE:.....	34
<b>DISC BRAKE PAD INSTALLATION INSTRUCTIONS.....</b>	<b>40</b>
<b>DISC BRAKE PAD AND ROTOR BED-IN PROCEDURE.....</b>	<b>41</b>



# **SAFETY FIRST!**

At SRAM, we care about YOU. Please, always wear your safety glasses and protective gloves when servicing your componentry.

Protect yourself! Wear your safety gear!

Important: Your parts may look different from those illustrated.

## CODE BRAKE LEVER OVERHAUL

Avid brake lever assemblies need to be serviced periodically to optimize braking function. If brake fluid is leaking from any area of the brake lever assembly, there may be damage or wear and tear to the internal moving parts. If your brake was filled with fluid OTHER than DOT 5.1 or 4 (such as mineral oil or DOT 5), damage to all rubber and plastic internal parts may exist. If your brake was damaged in a crash, there may be damage to the lever blade and pushrod assemblies, as well as the housing assembly. Inspection and/or replacement of these parts, due to any of the above situations, will be necessary to restore proper brake function.

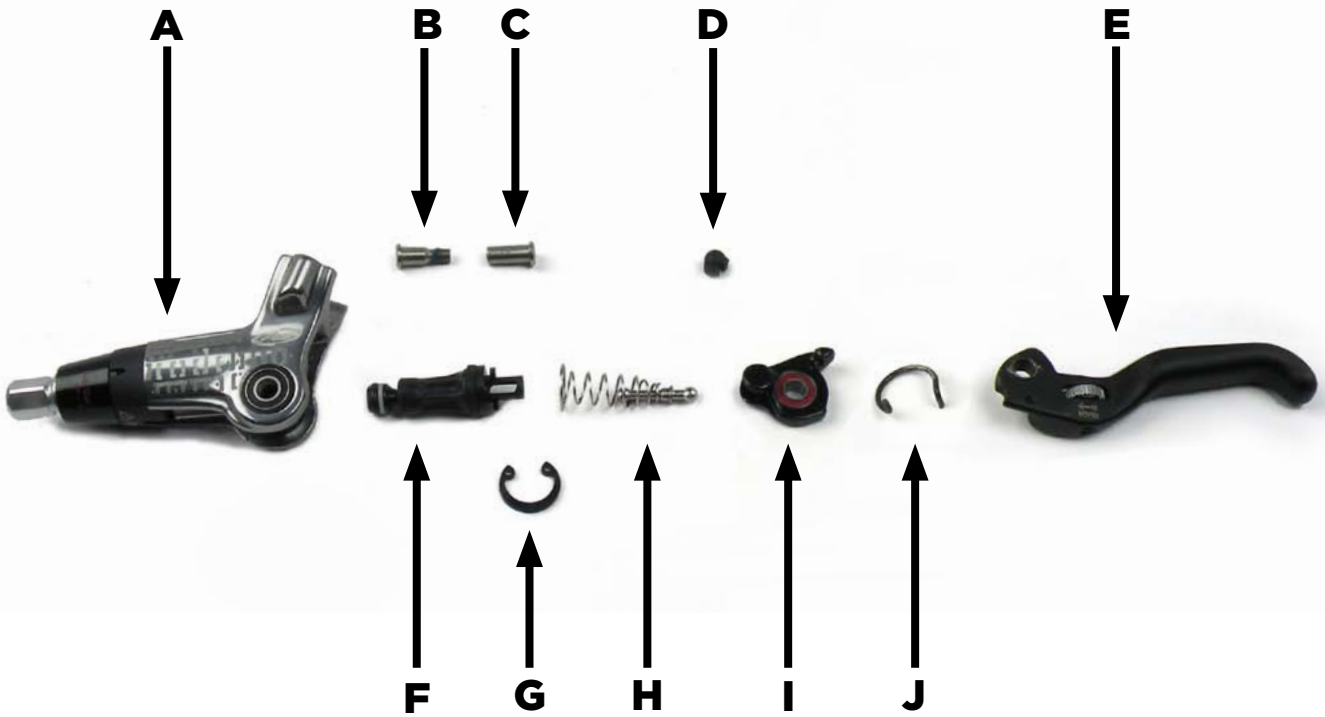
### **WARNING:**

- Avid highly recommends the use of nitrile gloves when handling DOT fluids.
- DOT fluids will damage painted surfaces! If any fluid comes in contact with a painted surface (i.e. your frame) or printing on the brakes, wipe it off immediately and clean with isopropyl alcohol or water. Removal of paint and/or printing by DOT fluid is not covered under warranty!
- Do not allow any brake fluid to come in contact with the brake pads. If this occurs, the pads are contaminated and must be replaced.
- For best results, use only Avid High-Performance 5.1 DOT Fluid. If Avid fluid is not available, only use DOT 5.1 or 4 fluid. Do **not** use mineral oil or DOT 5 fluid.
- Used DOT fluid should be recycled or disposed of in accordance to local and federal regulations.
- Never pour DOT fluid down a sewage or drainage system or into the ground or a body of water.

### **PARTS AND TOOLS NEEDED FOR SERVICE:**

- Safety glasses
- Nitrile gloves
- Needle-nose pliers
- Long snap ring pliers
- Oil pan
- Avid High-Performance 5.1 DOT Fluid or DOT 4 Fluid, or Avid DOT Grease or DOT 5.1 or 4 compatible grease
- 5 mm ferrule
- Torque wrench
- 4 mm hex bit socket
- 8 mm flare nut crowfoot
- 8 mm flare nut wrench
- 11 mm open end wrench
- 2 mm hex
- Two 4 mm hex wrenches
- Bench vise or 10 mm open end wrench
- Isopropyl alcohol
- Clean, lint-free rag

## EXPLODED VIEW - CODE BRAKE LEVER ASSEMBLY



A. LEVER BODY

B. LEVER PIVOT SHOULDER BOLT

C. LEVER PIVOT SLEEVE BOLT

D. CAM COUPLER

E. LEVER BLADE

F. PISTON/BLADDER ASSEMBLY

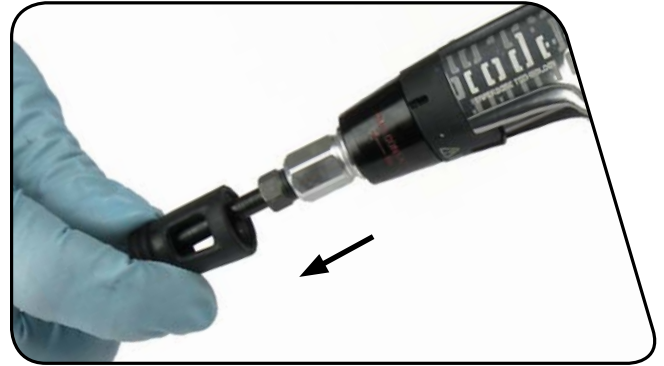
G. SNAP RING (SHOWN REMOVED)

H. PUSHROD/SPRING ASSEMBLY

I. CAM

J. LEVER SPRING

- 1** Remove the brake lever from the handlebar.  
Use a 4 mm hex to remove the brake clamp bolts from the clamp.  
Pull the hose boot off the compression nut and slide it down the hose.  
If dirty, clean the levers with alcohol and a clean rag.



- 2** Use an 11 mm open end wrench to hold the hose stop in place and use an 8 mm flare nut wrench to unthread the hose compression nut. Pull the brake hose and compression fitting from the brake lever body.



**3** Allow any brake fluid to drain into a container. Hold the lever assembly over the container and squeeze the lever to pump any brake fluid from inside the lever assembly.

**If the system has been contaminated with the wrong fluid, you will need to flush all the parts with soapy water, rinse, and allow to dry prior to rebuilding. You will also need to install all new seals and a new hose.**



**4** Use two 4 mm hex wrenches to remove the lever pivot shoulder bolt and the lever pivot sleeve bolt.

*You may need to push the shoulder bolt out with the 4 mm hex or similar tool.*

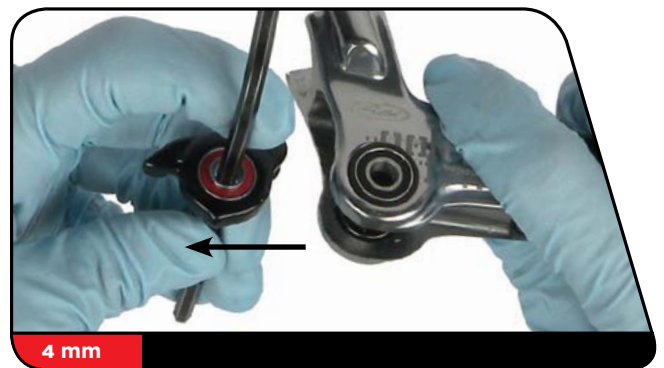




**5** Rotate the lever and cam assembly toward the clamp. Remove the lever blade and lever spring from the cam.



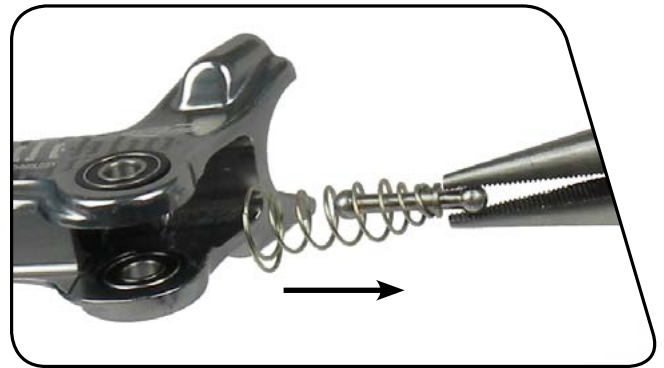
**6** Slide a 4 mm hex through the bearing in the cam and use the hex to pull the cam off the end of the pushrod.



**7** Use needle-nose pliers to remove the cam coupler from the pushrod.



**8** Use needle-nose pliers to forcefully pull on the pushrod to remove the pushrod and spring from the piston/bladder assembly.



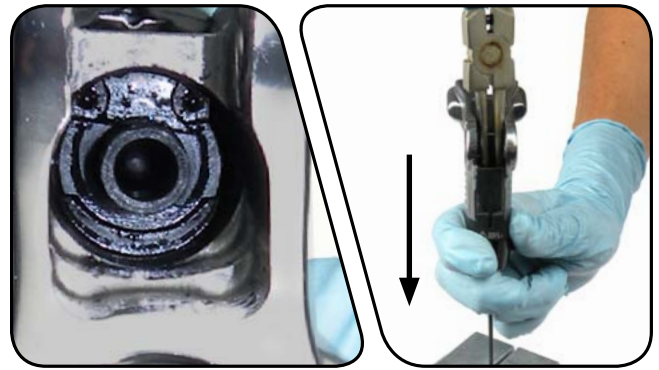
**9** Clamp a 2 mm hex into a vise with the long end extending upward. Install the lever body onto the hex and insert the hex into the hole located in the fluid flow port.

*Place a clean rag under the lever body to wipe up any fluid that may spill out.*



- 10** Use long snap ring pliers to compress the snap ring. Then apply downward pressure to the lever body and use the pliers to remove the snap ring in the lever body along with the piston/bladder assembly. Remove the lever body from the hex.

*The piston/bladder assembly is attached to the snap ring.*



- 11** Replace the entire piston/bladder assembly with a new assembly. Lubricate the new assembly by dipping it into Avid High-Performance 5.1 DOT Fluid.

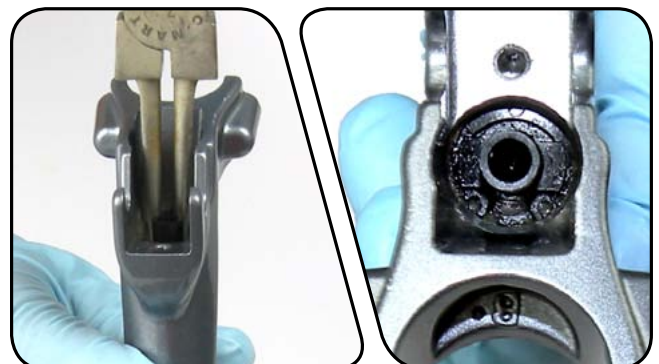
*You can also use Avid DOT Grease, or DOT 5.1 or 4 compatible grease, as a lubricant.*



- 12** Use long snap ring pliers to push the piston/bladder assembly into the lever body, and secure the snap ring in its groove.

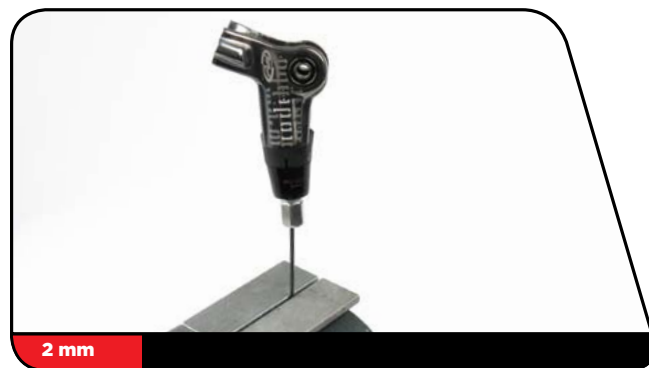
*You can also use a long 10 mm socket against the snap ring to push the assembly into the lever body.*

*If you push the snap ring past its groove, you can use the 2 mm hex in the vise to push on the assembly from inside the fluid flow port, which will seat the snap ring into the groove.*



**13** Install the lever body onto the 2 mm hex in the vise and insert the hex into the hole located in the fluid flow port.

Use needle-nose pliers to re-install the pushrod into the piston until you hear a click, indicating the pushrod is seated in the piston.



**14** Use needle-nose pliers to press the cam coupler onto the end of the pushrod. You will hear a click when the end of the pushrod is seated inside the coupler.

Position the opening in the cam coupler so that it faces toward the lever pivot.



**15** Insert a leg of the lever spring into the hole on the lever cam. Make sure the spring makes contact with the inside of the cam.



**16** Reinstall the lever blade onto the cam and lever spring. Insert the exposed spring leg into the hole on the lever blade.

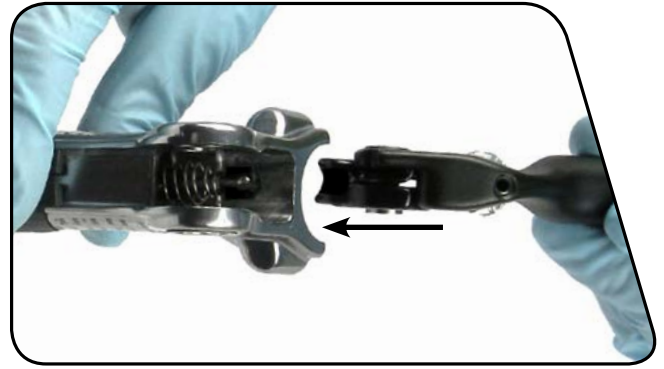
Use your thumb to compress the spring between the cam and the lever blade and align the pivot holes.

Insert a 5 mm cable ferrule as a tool to hold the cam and lever blade together as you install the assembly into the lever body.





- 17** Re-install the lever blade. Position the pocket in the cam over the cam coupler. Slide the lever blade and cam straight into the lever body until you hear a click, indicating the pushrod is seated in the cam coupler.



- 18** Align the holes in the lever blade and lever body. Use a 4 mm hex to re-install the lever pivot sleeve bolt into the aligned holes, which will push out the ferrule tool used in step 16.

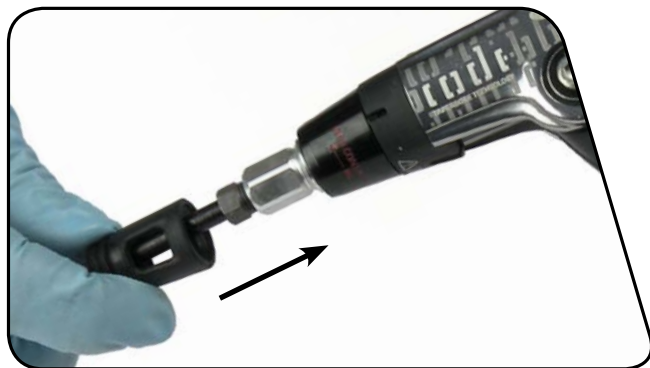
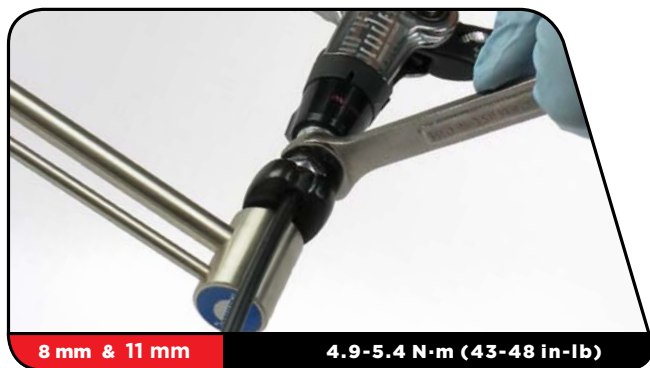
*Be sure the ferrule tool is completely removed.*



- 19** Re-install the lever pivot shoulder bolt. Use a torque wrench with a 4 mm hex bit socket to tighten the bolt to 2.0-2.5 N·m (17-22 in-lb).



**20** Thread the compression nut into the lever body by hand. Use an 11 mm open end wrench to hold the hose stop in place, then use a torque wrench with an 8 mm flare nut crowfoot to tighten the compression nut to 4.9-5.4 N·m (43-48 in-lb). Slide the hose boot over the compression nut.



**21** Re-install the brake lever onto the handlebar. Arrows on the clamp must point up. Use a torque wrench with a 4 mm hex bit socket to re-install the brake clamp bolt and tighten the top bolt completely to 2.8-3.4 N·m (25-30 in-lb) so there is no gap. Then tighten the bottom bolt to the same torque.





## CODE R BRAKE LEVER OVERHAUL

Avid brake lever assemblies need to be serviced periodically to optimize braking function. If brake fluid is leaking from any area of the brake lever assembly, there may be damage or wear and tear to the internal moving parts. If your brake was filled with fluid OTHER than DOT 5.1 or 4 (such as mineral oil or DOT 5), damage to all rubber and plastic internal parts may exist. If your brake was damaged in a crash, there may be damage to the lever blade and pushrod assemblies, as well as the housing assembly. Inspection and/or replacement of these parts, due to any of the above situations, will be necessary to restore proper brake function.

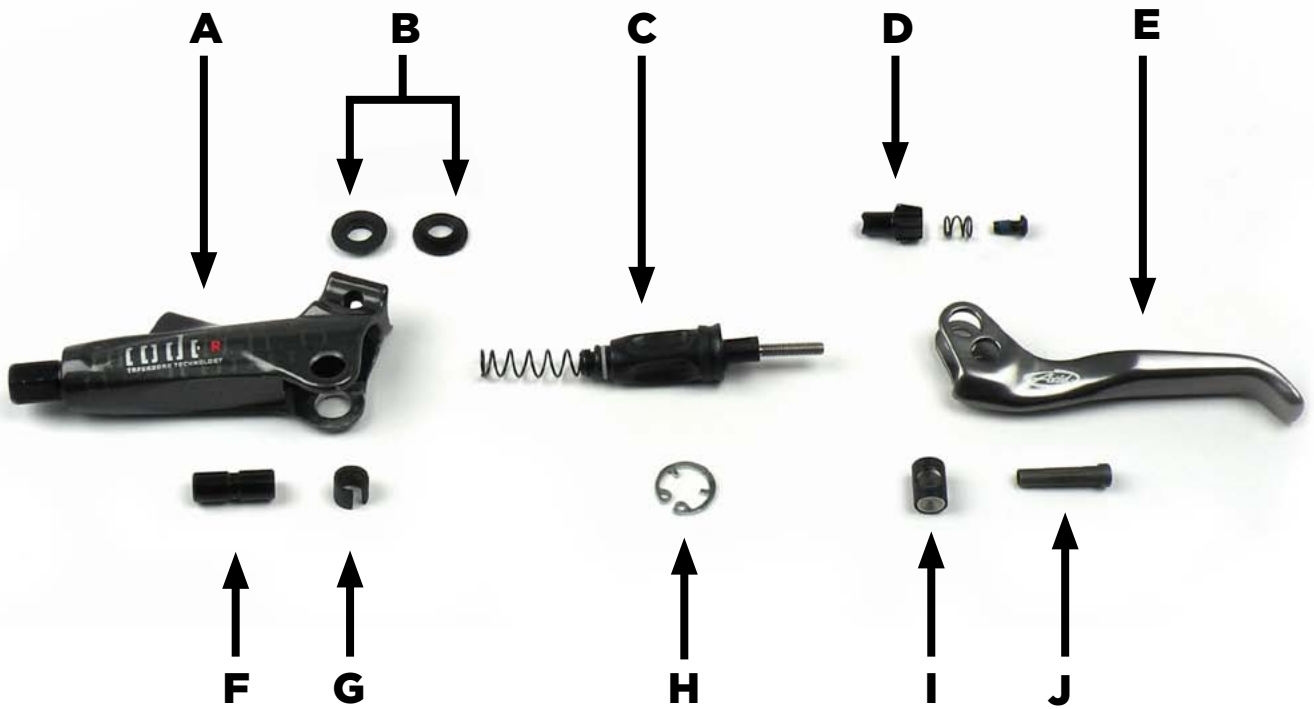
### **WARNING:**

- Avid highly recommends the use of nitrile gloves when handling DOT fluids.
- DOT fluids will damage painted surfaces! If any fluid comes in contact with a painted surface (i.e. your frame) or printing on the brakes, wipe it off immediately and clean with isopropyl alcohol or water. Removal of paint and/or printing by DOT fluid is not covered under warranty!
- Do not allow any brake fluid to come in contact with the brake pads. If this occurs, the pads are contaminated and must be replaced.
- For best results, use only Avid High-Performance 5.1 DOT Fluid. If Avid fluid is not available, only use DOT 5.1 or 4 fluid. Do **not** use mineral oil or DOT 5 fluid.
- Used DOT fluid should be recycled or disposed of in accordance to local and federal regulations.
- Never pour DOT fluid down a sewage or drainage system or into the ground or a body of water.

### **PARTS AND TOOLS NEEDED FOR SERVICE:**

- Safety glasses
- Nitrile gloves
- T25 TORX®
- Rubber mallet
- Long snap ring pliers
- Oil pan
- Avid High-Performance 5.1 DOT Fluid or DOT 4 Fluid, or Avid DOT Grease or DOT 5.1 or 4 compatible grease
- Torque wrench
- T25 TORX bit socket
- 8 mm flare nut crowfoot
- 8 mm flare nut wrench
- 11 mm open end wrench
- 2, 2.5, 4, and 5 mm hex wrenches
- Bench vise or 10 mm open end wrench
- Isopropyl alcohol
- Clean, lint-free rag

## EXPLODED VIEW - CODE R BRAKE LEVER ASSEMBLY



A. LEVER BODY

B. PIVOT BUSHINGS

C. PISTON/BLADDER/PUSHROD ASSEMBLY

D. REACH ADJUST KNOB

E. LEVER BLADE

F. PIVOT PIN

G. PIVOT CLIP

H. SNAP RING  
(SHOWN REMOVED)

I. DOWEL

J. PUSHROD SLEEVE

**1** Use a T25 TORX® to remove the brake clamp bolt from the discrete clamp, MMX, or XLoc (XLoc will first require the removal of the XX shifter). Remove the brake lever from the handlebar. Pull the hose boot off the compression nut and slide it down the hose.

If dirty, clean the levers with alcohol and a clean rag.



**2** Use an 11 mm open end wrench to hold the hose stop in place and use an 8 mm flare nut wrench to unthread the hose compression nut. Pull the brake hose and compression fitting from the brake lever body.



**3** Allow any brake fluid to drain into a container. Hold the lever assembly over the container and squeeze the lever to pump any brake fluid from inside the lever assembly.

**If the system has been contaminated with the wrong fluid, you will need to flush all the parts with soapy water, rinse, and allow to dry prior to rebuilding. You will also need to install all new seals and a new hose.**

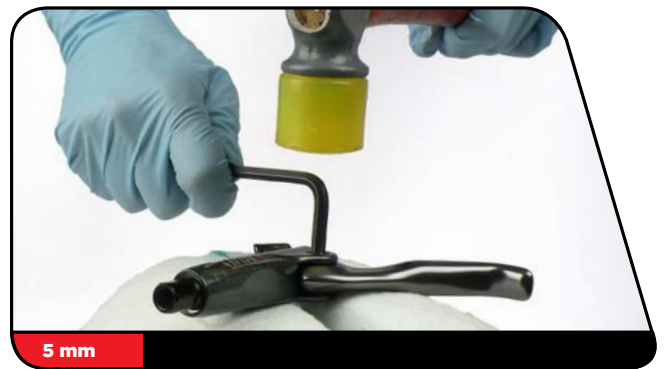


**4** Remove the pivot pin. Open a vise 1/2 inch and place a clean rag over the jaws of the vise.

Position the pivot pin over the opening of the vise. Use a rubber mallet to gently tap a 5 mm hex against the pivot pin.

Remove the hex and pivot pin from the brake lever.

*The pivot bushings, pivot clip, and dowel may fall out of the lever blade, this is ok. Set them aside on a clean rag.*



**5** Turn the reach adjust knob counter-clockwise by hand to remove the lever from the pushrod.



**6 To replace a damaged or lost reach adjust knob assembly:**

Clamp a 4 mm hex into a vise with the long end extending upward. Install the end of the sleeve onto the 4 mm hex.

Use a 2.5 mm hex to remove the reach stop screw, then remove the reach knob, spring, cross dowel, and blade from the sleeve.

Install the new cross dowel into the lever blade and slide the sleeve through the recessed side of the dowel.

Slide the new reach knob, followed by the spring, onto the sleeve.

Clamp a 4 mm hex into a vise with the long end extending upward. Install the end of the sleeve onto the 4 mm hex.

Use a 2.5 mm hex to install and tighten the reach stop screw to 0.5-0.7 N·m (4-6 in-lb).

Remove the reach adjust/blade assembly from the 4 mm hex.



**7** Clamp a 2 mm hex into a vise with the long end extending upward. Install the lever body onto the hex and insert the hex into the hole located in the fluid flow port.

*Place a clean rag under the lever body to wipe up any fluid that may spill out.*



- 8** Use long snap ring pliers to compress the snap ring. Then apply downward pressure to the lever body and use the pliers to remove the snap ring in the lever body along with the piston/bladder assembly. Remove the lever body from the hex.

*The piston/bladder assembly is attached to the snap ring.*

**CAUTION**

Eye Hazard: Do not look directly into the lever body while performing this step. The internal piston/spring assembly is preloaded and will come out of the lever body quickly. Wear safety glasses.



- 9** Replace the entire piston/bladder assembly with a new assembly. Lubricate the assembly by dipping it into Avid High-Performance 5.1 DOT Fluid.

*You can also use Avid DOT Grease, or DOT 5.1 or 4 compatible grease, as a lubricant.*



- 10** Position the snap ring on the retainer of the piston, with the clocked portion of the retainer seated between the two centering tabs of the snap ring. Orient the snap ring eyelets away from the lever blade opening.

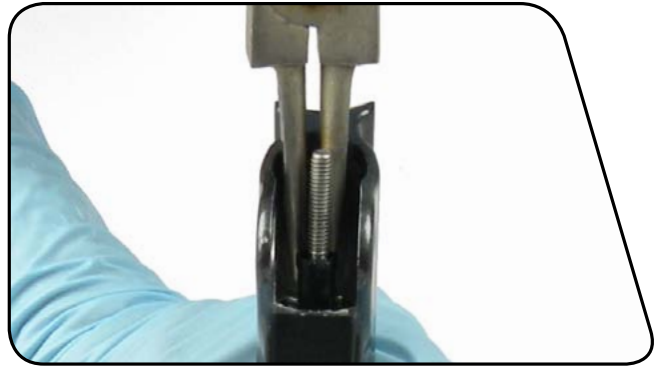




**11** Use long snap ring pliers to push the piston/bladder assembly into the lever body, and secure the snap ring in its groove.

*You can also use a long 10 mm socket against the snap ring to push the assembly into the lever body.*

*If you push the snap ring past its groove, you can use the 2 mm hex in the vise to push on the assembly from inside the fluid flow port, which will seat the snap ring into the groove.*



**12** Insert a pivot bushing into each side of the lever body.



**13** Align the pushrod sleeve and the pushrod. Turn the reach adjust knob clockwise by hand to thread it onto the pushrod.



**14** Re-install the pivot pin. Confirm that the pivot bushings are still in place. Insert the pivot clip into lever blade and align it with the holes in the lever body and lever blade. Align the holes in the lever body, both bushings and the lever blade. Gently tap the pivot pin into place with a rubber mallet until it is flush with the lever body.

**The lever blade action may feel sluggish following installation of the pivot pin. To improve the feel, mount the brake lever onto the handlebar, hold the lever blade between your thumb and forefinger, then gently flex the lever blade from side to side. Check the lever pivot action. Repeat this process until the lever pivot action feels smooth. Be careful not to flex the lever too far at any time, otherwise damage to the lever blade or body could occur.**



**15** Thread the compression nut into the lever body by hand. Use an 11 mm open end wrench to hold the hose stop in place, then use a torque wrench with an 8 mm flare nut crowfoot to tighten the compression nut to 4.9-5.4 N·m (43-48 in-lb). Slide the hose boot over the compression nut.



**16** Re-install the brake lever into the discrete clamp, MMX, or XLoc. Use a torque wrench with a T25 TORX® bit socket to re-install the brake clamp bolt into the discrete clamp, MMX, or XLoc and tighten to 5-6 N·m (44-52 in-lb).





## CODE BRAKE CALIPER OVERHAUL

Avid brake lever assemblies need to be serviced periodically in order to optimize braking function. If brake fluid is leaking from any area of the brake lever assembly, there may be damage or wear and tear to the internal moving parts. If your brake was filled with fluid OTHER than DOT 5.1 or 4 (such as mineral oil or DOT 5), damage to all rubber and plastic internal parts may exist. If your brake was damaged in a crash, there may be damage to the lever blade and pushrod assemblies, as well as the housing assembly. Inspection and/or replacement of these parts, due to any of the above situations, will be necessary to restore proper brake function.

### WARNING:

- Avid highly recommends the use of rubber gloves when handling DOT fluids.
- DOT fluids will damage painted surfaces! If any fluid comes in contact with a painted surface (i.e. your frame) or printing on the brakes, wipe it off immediately and clean with isopropyl alcohol or water. Removal of paint and/or printing by DOT fluid is not covered under warranty!
- Do not allow any brake fluid to come in contact with the brake pads. If this occurs, the pads are contaminated and must be replaced.
- For best results, use only Avid High-Performance 5.1 DOT Fluid. If Avid fluid is not available, only use DOT 5.1 or 4 fluid. Do **not** use mineral oil or DOT 5 fluid.
- Used DOT fluid should be recycled or disposed of in accordance to local and federal regulations.
- Never pour DOT fluid down a sewage or drainage system or into the ground or a body of water.

### PARTS AND TOOLS NEEDED FOR SERVICE:

- Safety glasses
- Nitrile gloves
- Avid High-Performance 5.1 DOT Fluid or DOT 4 Fluid, or Avid DOT Grease or DOT 5.1 or 4 compatible grease
- Oil pan
- Flat blade screwdriver
- Air compressor with blow gun chuck
- Torque wrench
- 5 mm hex bit socket
- 2.5 and 5 mm hex
- Sharp pick
- Clean, lint-free rags
- Isopropyl alcohol

## TROUBLESHOOTING

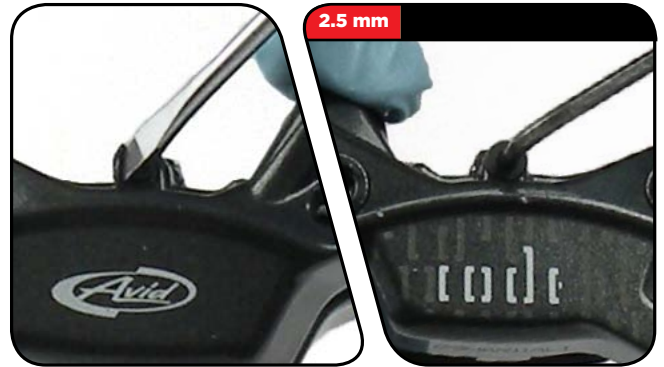
### 'Sticky' or slow brake pad return feel

Before completely disassembling your caliper, it's worth trying to loosen the sticky piston. Try the following:

1. Clamp the bicycle in a bicycle work stand.
2. Spin the affected wheel. Lightly squeeze the brake lever and watch the brake pads when the lever is released.
3. Determine which side of the caliper has a slow returning brake piston.
4. Remove the caliper from the bicycle. If you have a caliper mounting bracket, remove the bracket with the caliper attached.
5. Remove e-clip from the guide pin groove on top of the caliper. Use a 2.5 mm hex to remove the guide pin from the caliper.
6. Remove both brake pads and h-spring.
7. Use a 10 mm box wrench to press the working piston into caliper body.
8. While continuing to hold the piston inside the caliper body, squeeze the brake lever slowly to move the sticky piston inward. Press the piston back into the caliper again.
9. Repeat these steps to correct caliper piston inner o-ring position.
10. Both pistons should now be moving freely. Re-install the spring pad clip, h-spring, and pads into the caliper. If there is no improvement, continue with caliper service.
11. Re-install the caliper (or mounting bracket with attached caliper) on the bicycle. You may need to re-center the caliper to the rotor. If you removed the caliper without an adapter, or removed it from the adapter, it will need to be re-centered. Spin the wheel and check brake function.

**1** Use a 5 mm hex to remove the brake caliper from the fork or frame and remove the caliper mounting bracket and hardware from the caliper. Set aside in the correct order (not pictured).

**2** Remove the e-clip from the guide pin groove on top of the caliper. Use a 2.5 mm hex to remove the guide pin from the caliper.



**3** Pull and remove both brake pads and h-spring.  
*If the total thickness of the backing plate and pad friction material is less than 3 mm, the brake pads need to be replaced.*  
[Click here for detailed brake pad removal instructions](#)



**4** Use a 5 mm hex to remove the caliper body bolts.  
Brake fluid will leak, so hold the caliper over a container to catch the fluid.



**5** Separate the caliper body halves and open the caliper assembly. Remove the banjo from the caliper.



**6 Caliper Piston Removal:**

Insert an air compressor chuck nozzle into the hole of one of the caliper body halves.

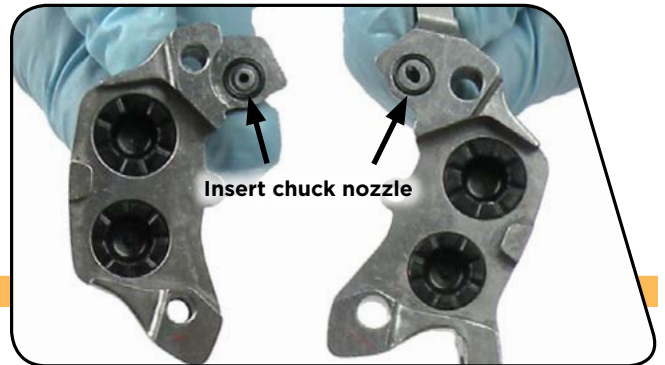
**Cover the pistons with at least two rags.** Point the caliper pistons and rags into your hand.

Squeeze the air chuck and force air into the hole in the caliper half. The compressed air will unseat the pistons from the caliper. Remove the pistons from the caliper.

**! WARNING:**

Point the caliper in a safe direction. Use two rags to prevent the pistons from causing injury or becoming lost. Repeat this process for the other caliper body half.

*If both pistons do not unseat simultaneously, cover the open piston bore with a piece of inner tube and use the air chuck to unseat the second piston.*



**7** Remove the square-edge o-rings from inside each caliper body half with a sharp pick. Lubricate the new square-edge o-rings with Avid High-Performance 5.1 DOT Fluid and install them inside each caliper body half.

*Do not scratch the o-ring gland with the pick. You can also use Avid DOT Grease, or DOT 5.1 or 4 compatible grease, as a lubricant.*



- 8** Inspect the caliper pistons for damage and replace if necessary. Re-install the caliper brake pistons into each half of the caliper body.



- 9** Use a sharp pick to remove the o-ring on the inside each caliper half. Lubricate the new o-rings with Avid DOT Grease and install them inside each caliper body half.
- Do not scratch the o-ring gland with the pick.  
You can also use DOT 5.1 or 4 compatible grease as a lubricant.  
Make sure the o-ring is seated in the recessed gland.*



- 10** Re-assemble the caliper halves. Loosely thread the caliper body bolts clockwise by hand. Re-install the banjo between the caliper halves.



- 11** Use a torque wrench with a 5 mm hex bit socket to tighten the caliper body bolts to 8.5-10 N·m (75-90 in-lb).

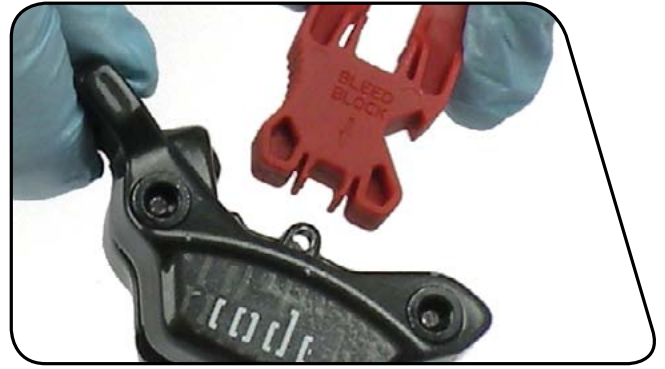


5 mm

8.5-10 N·m (75-90 in-lb)

**12** Insert the Bleed Block into the caliper in place of the brake pads.

*You will need to bleed your brakes before re-installing the brake pads.*



**13** Clean the assembled caliper with alcohol and a clean rag to remove any brake fluid.

**14** Visually check your work. Inspect the banjo for any protruding o-rings. If there are any o-rings that are 'squeezed' beyond the outside edges of the banjo or bolt, remove and replace the o-rings, and then repeat the installation process.

**Overhauling the caliper introduces a small amount of air into the system, so at this point it is necessary to bleed the brakes for optimal performance. See the section, "Avid Brake Bleed Procedure" for instructions.**

## AVID BRAKE HOSE LENGTH ADJUSTMENT

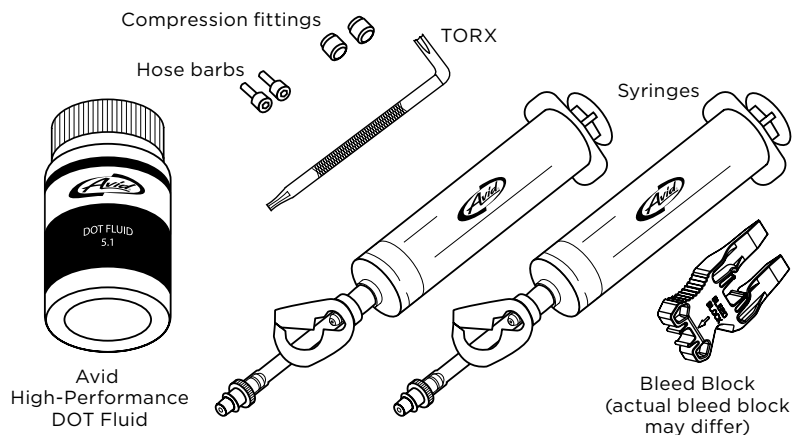
After completing the hose length adjustment, it will be necessary to bleed the brakes for optimal performance. See the section, "Avid Brake Bleed Procedure" for instructions.

### WARNING:

- Avid highly recommends the use of nitrile gloves when handling DOT fluids.
- DOT fluids will damage painted surfaces! If any fluid comes in contact with a painted surface (i.e. your frame) or printing on the brakes, wipe it off immediately and clean with isopropyl alcohol or water. Removal of paint and/or printing by DOT fluid is not covered under warranty!
- Do not allow any brake fluid to come in contact with the brake pads. If this occurs, the pads are contaminated and must be replaced.
- For best results, use only Avid High-Performance 5.1 DOT Fluid. If Avid fluid is not available, only use DOT 5.1 or 4 fluid. Do **not** use mineral oil or DOT 5 fluid.
- Used DOT fluid should be recycled or disposed of in accordance to local and federal regulations.
- Never pour DOT fluid down a sewage or drainage system or into the ground or a body of water.

### PARTS AND TOOLS NEEDED FOR SERVICE:

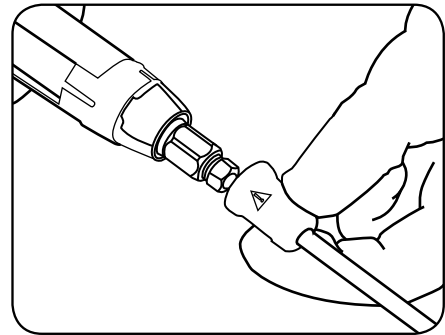
- Safety glasses
- Nitrile gloves
- Hydraulic hose cutters or very sharp cable housing cutters
- Avid DOT Grease or DOT 5.1 or 4 compatible grease
- Isopropyl alcohol
- Avid Bleed Kit or Avid Professional Bleed Kit
- Adjustable torque wrench
- 8 mm flare nut wrench
- 11 mm open end wrench
- T10 TORX®
- Clean, lint-free rag
- Avid High-Performance 5.1 DOT Fluid or DOT 4 Fluid



**Avid Bleed Kit Contents**

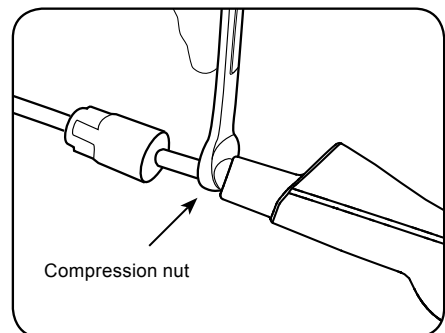
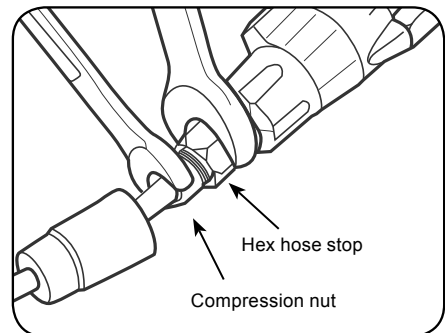
**1** Make sure the hoses are properly secured to the bicycle and check the routing of each hose. Account for suspension movement and be sure the handlebars can move freely by turning the bars all the way from side to side.

**2** Pull the hose boot away from the lever to access the compression nut. If the boot sticks, carefully pry up a corner with something that won't harm it (like the end of a zip tie) and spray isopropyl alcohol between the boot and the lever. Work the alcohol in; the boot should loosen up and slide easily down the hose.



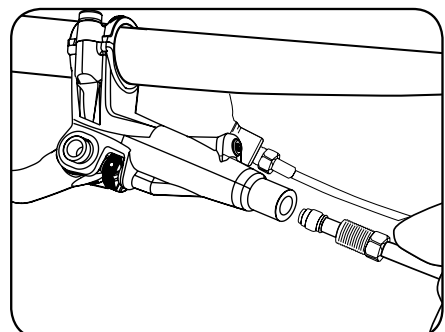
**3** **For models with a compression nut and a hex hose stop:** Use an 11 mm open end wrench to hold the hose stop in place and use an 8 mm flare nut wrench to unthread the compression nut.

**For models with a compression nut only:** Use an 8 mm flare nut wrench to unthread the compression nut.



**4** Pull the hose from the lever. Be careful, DOT fluid will drip from the hose. Try not to spill too much fluid because any fluid that drips out will create bubbles that you'll have to eliminate later.

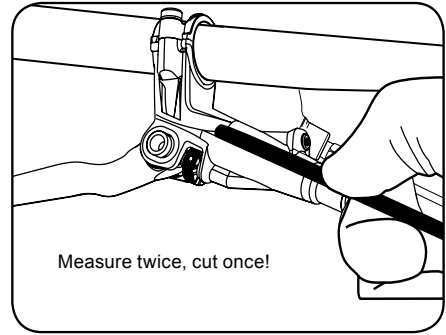
Slide the nut down the hose and away from the end where you'll be cutting. Do not pull the brake lever while the hose is removed.





- 5** Determine where you need to cut the hose by holding it up to the lever in the position you like. Make sure to leave a gentle bend in the hose with enough length to freely turn the bars all the way from side to side. Double-check this measurement because you can't go back after you cut.

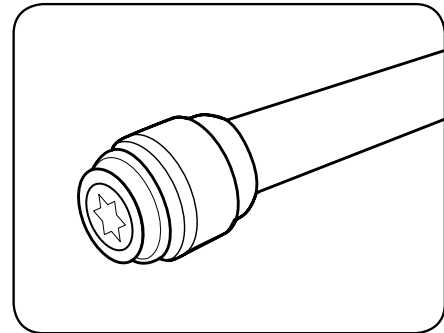
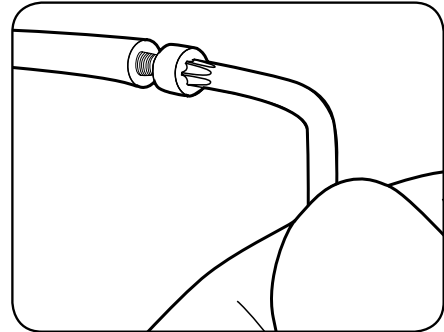
The groove in the lever nose marks the spot where you'll cut the hose. Cut the hose using hydraulic hose cutters or very sharp cable housing cutters.



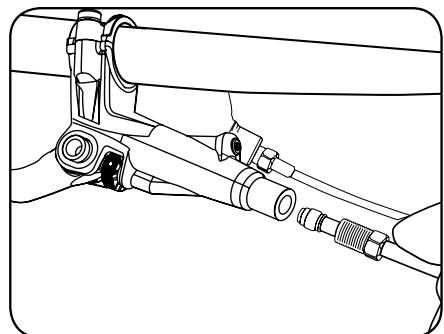
- 6** Apply Avid DOT Grease to the threads of a new hose barb, the compression fitting outer surfaces and compression nut threads.

While holding the hose firmly, use a T10 TORX® to thread the hose barb into the end of the hose until it is flush.

Slide a new compression fitting over the end of the hose with the new hose barb.



- 7** Push the hose firmly into the lever until it stops. While holding the hose in place, slide the compression fitting and compression nut up to the lever or hose stop.

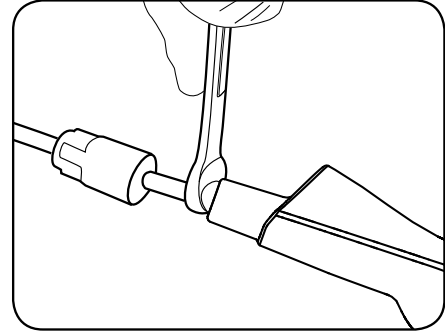
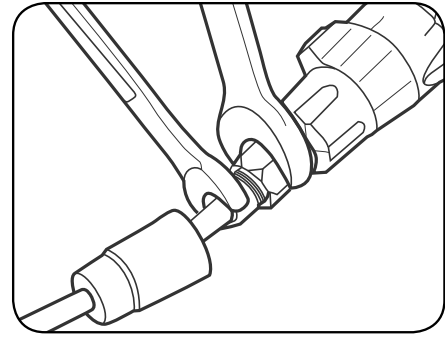




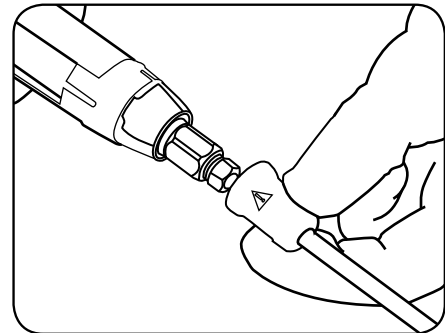
**8** **For models with a compression nut and a hex hose stop:** While continuing to push the hose into the hose stop, use an 11 mm open end wrench to hold the hose stop in place and use an 8 mm flare nut wrench to tighten the compression nut to the proper torque.

**For models with a compression nut only:** While continuing to push the hose into the lever body, use an 8 mm flare nut wrench to tighten the compression nut to the proper torque.

- If your compression fitting is alloy, tighten to 5 N·m (47 in-lb).
- If your compression fitting is steel, tighten to 7.8 N·m (70 in-lb)



**9** Slide the boot back into place.



**Cutting the hose introduces a small amount of air into the system, so at this point it is necessary to bleed the brakes for optimal performance. See the next section, “Avid Brake Bleed Procedure” for instructions.**

## AVID BRAKE BLEED PROCEDURE

Avid brakes are the most powerful and precise hydraulic brakes on the market. A key reason behind this is the ability to optimize brake performance with a perfect bleed. The goal of bleeding is to remove any air that is trapped in the hose, caliper, or lever. Air trapped in a hydraulic brake system degrades the performance of the brake. The following instructions will walk you through our simple bleed procedure.

**Avid brakes come with hoses attached and bled. If you don't need to change the hose length, you do not need to bleed the system prior to installation.**

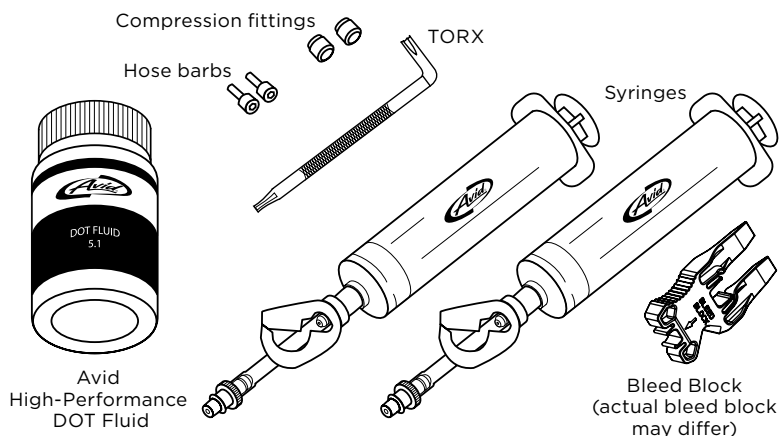
Supplemental video instruction is available at [www.sram.com/en/service](http://www.sram.com/en/service).

### **WARNING:**

- Avid highly recommends the use of nitrile gloves when handling DOT fluids.
- DOT fluids will damage painted surfaces! If any fluid comes in contact with a painted surface (i.e. your frame) or printing on the brakes, wipe it off immediately and clean with isopropyl alcohol or water. Removal of paint and/or printing by DOT fluid is not covered under warranty!
- Do not allow any brake fluid to come in contact with the brake pads. If this occurs, the pads are contaminated and must be replaced.
- For best results, use only Avid High-Performance 5.1 DOT Fluid. If Avid fluid is not available, only use DOT 5.1 or 4 fluid. Do **not** use mineral oil or DOT 5 fluid.
- Used DOT fluid should be recycled or disposed of in accordance to local and federal regulations.
- Never pour DOT fluid down a sewage or drainage system or into the ground or a body of water.

### **PARTS AND TOOLS NEEDED FOR SERVICE:**

- Safety glasses
- Nitrile gloves
- T10 TORX®
- Isopropyl alcohol
- Avid Bleed Kit or Avid Professional Bleed Kit
- Avid Bleed Block
- 2.5 and 4 mm hex wrenches
- Sharp pick
- Clean, lint-free rag
- Avid High-Performance 5.1 DOT Fluid or DOT 4 Fluid



**Avid Bleed Kit Contents**

When bleeding Avid brakes, keep in mind that you are simply forcing air bubbles out of the system. We recommend that you bleed your brakes at least once a year to ensure optimal performance. If you ride frequently or in aggressive terrain, you should bleed your brakes more often.

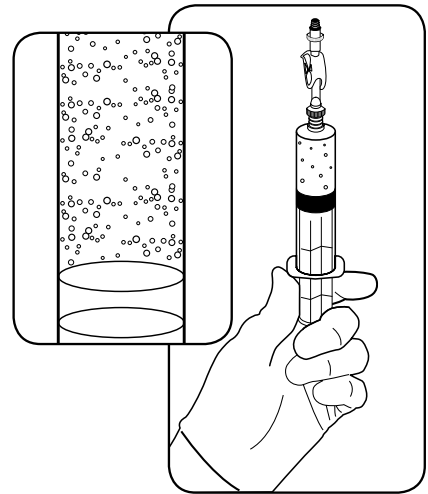
When bleeding brakes, you may notice discoloration of the old fluid as it exits the system into the syringe at the lever. If the fluid is severely discolored, this indicates that the fluid is very old. In this case, bleeding the system twice in order to completely remove the old fluid is recommended.

- 1 Fill one syringe 1/2 full with Avid High-Performance 5.1 DOT Fluid and fill the other syringe 1/4 full.

Hold each syringe with the tip pointed up and tap the side of the syringe with your finger to bring any air bubbles to the top. Place a clean rag around the tip and slowly push the air bubbles out of the syringe. Close the hose clamp on each syringe.

- 2 De-gas the fluid in the 1/2 full syringe. Leave the hose clamp shut and pull on the plunger. Bubbles will form in the brake fluid. While the plunger is still pulled down, lightly tap the syringe to release the bubbles sticking to the sides and the bottom so that they can rise to the top of the fluid. When the bubbles stop forming and have all risen to the top, release the plunger, open the clamp and carefully push the air out. Repeat several times.

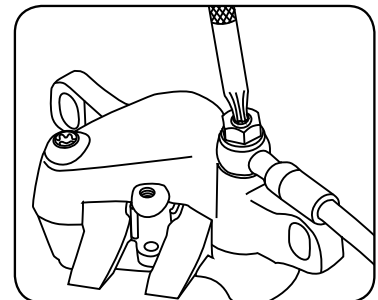
*You will not be able to remove all the bubbles.*



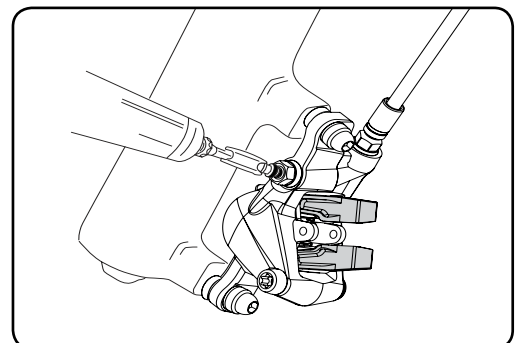
- 3 Remove the wheel from your bike. Remove the brake pads and spreader clip from the caliper and insert the appropriate Bleed Block. This will help prevent system overfill and keep DOT fluid from contaminating your brake pads.

[Click here for detailed brake pad removal instructions](#)

- 4 Use the T10 TORX® to remove the caliper bleed port screw from the caliper body or banjo bolt

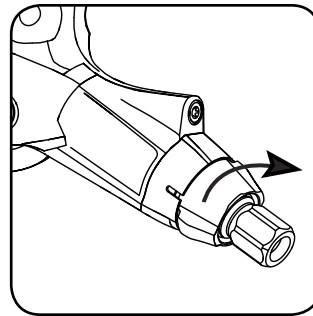
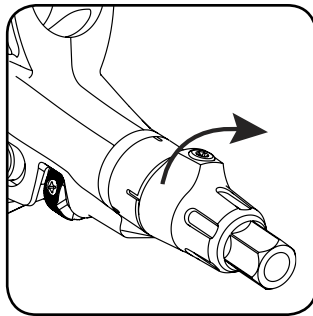


- 5 Make sure the fluid in the 1/2 full syringe is pushed all the way to the tip (no air gap!), then thread into the caliper bleed port.

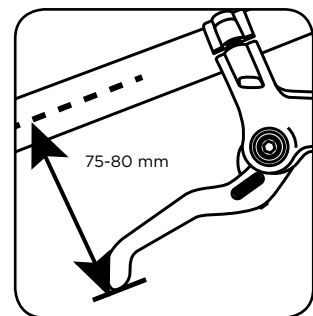
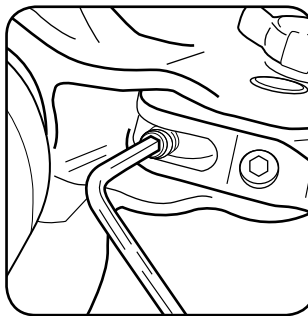
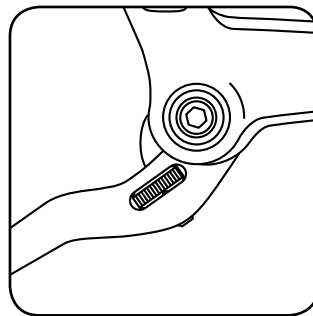
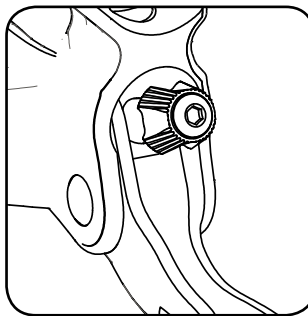


**6** For models with **Contact Point Adjustment** and a **rotating bleed port screw** located on the **contact point adjuster**: rotate the adjuster in the direction opposite the arrow until it stops, then rotate the adjuster back just enough to place the bleed screw at its highest point.

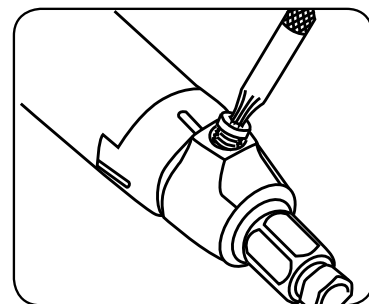
**For models with Contact Point Adjustment and a fixed bleed port screw**: rotate the adjuster in the direction opposite the arrow on the adjuster knob until it stops.



**7** For models equipped with **Reach Adjust**, make sure the tip of the lever blade is 75-80 mm from the centerline of the handlebar. If the lever is too far out, it can make bleeding the brake impossible.



**8** Use the T10 TORX® to remove the lever bleed port screw.



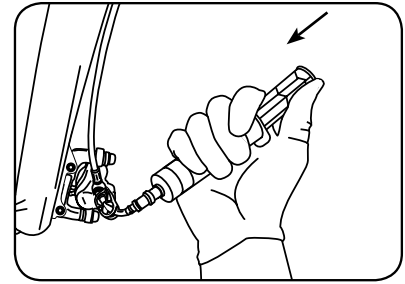
**9** Make sure the fluid in the 1/4 full syringe is pushed all the way to the tip (no air gap!), then thread into the lever bleed port.

*It is not necessary to reposition the angle of the brake lever on the handlebar. You may have a small amount of DOT fluid drip from the bleed port screw, this is normal. Just have a clean rag handy to wipe off any excess after the syringe is installed.*

**10** Hold both syringes upright.

Gently push on the caliper syringe plunger to move fluid from the caliper syringe into the lever syringe until the lever syringe is increased to 1/2 full and the caliper syringe is decreased to 1/4 full.

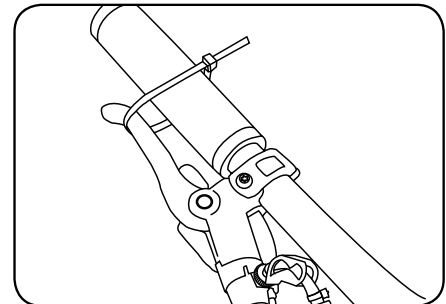
*You should see bubbles form in the lever syringe.*



**11** Close the syringe clamp on the lever.

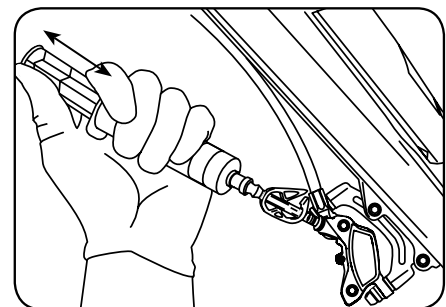
**12** Pull the brake lever all the way to the bar with your finger and hold it there until instructed to release the lever in a later step.

If you don't want to hold the lever with your finger, have a friend hold it or you can fasten it with a zip-tie or rubber band.



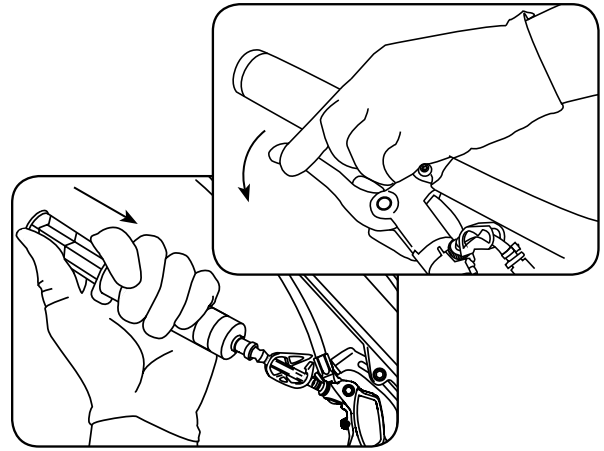
**13** Pull out on the caliper syringe plunger to create a vacuum then gently push in on the plunger to pressurize the system. Repeat this procedure several times, until large bubbles stop coming out of the caliper.

*Do not pull the plunger past the end of the syringe.*



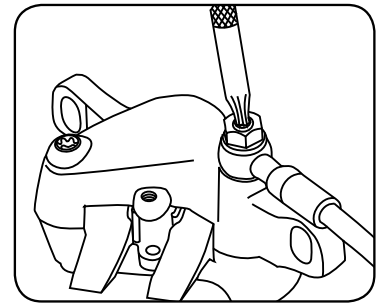
- 14** Once the large bubbles at the caliper have stopped, apply a small amount of pressure on the syringe plunger and slowly let the pressure extend the brake lever you have been holding with your finger. If you fastened the lever with a zip-tie or rubber bands, remove these first but keep the lever pulled in with your finger, then apply pressure on the syringe plunger.

*You will feel the pressure at your finger on the lever, just let the fluid extend the lever back to its original position.*



- 15** Close the clamp on the caliper syringe, then remove the syringe from the caliper and re-install the bleed port screw.

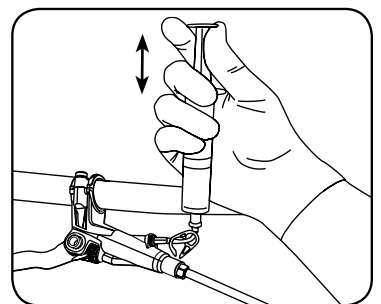
*Use a clean rag to wipe off any excess DOT fluid that spills out as you re-install the bleed port screw.*



- 16** Open the syringe clamp on the lever.

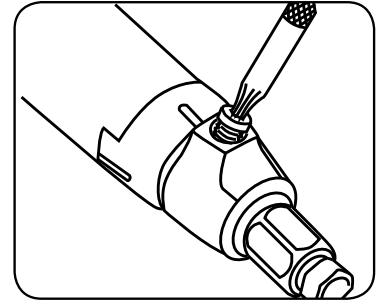
- 17** Pull out on the lever syringe plunger to create a vacuum, then gently push in on plunger to pressurize the system. Squeeze and release the brake lever ten times, allowing the lever to snap back to its starting position after squeezing (this helps break loose the bubbles). Repeat this procedure of creating a vacuum at the syringe and squeezing the brake lever ten times until large bubbles stop coming out of the lever.

*Do not pull out too hard on the plunger or you will suck air past the plunger seal into the fluid and create more bubbles that you will have to eliminate.*



- 18** Once the large bubbles at the lever have stopped, apply a small amount of pressure on the syringe plunger then remove the syringe and re-install the bleed port screw.

*There will be a small amount of excess DOT fluid that spills out as you remove the syringe and re-install the bleed port screw, this is normal. be sure to wipe the fluid off the lever with a clean rag.*



- 19** Spray isopropyl alcohol or water onto a clean rag and wipe off the brake lever and caliper to remove any excess DOT fluid.

- 20** Visually check your work. Inspect the banjo bolt and banjo for any protruding o-rings. If there are any o-rings that are 'squeezed' beyond the outside edges of the banjo or bolt, remove and replace the o-rings, and then repeat the installation process.

- 21** Remove the Bleed Block from the caliper and re-install the brake pads and spreader clip.

- 22** Reinstall your wheel according to the manufacturer's instructions.

### **WARNING:**

- **Empty the syringes into a sealed container and dispose of the fluid properly. Remember, DOT fluid should be recycled or disposed of in accordance to local and federal regulations.**
- **NEVER pour DOT fluid down a sewage or drainage system or into the ground or a body of water.**
- **Do not re-use this fluid.**
- **Do not leave the hose clamps closed, this will damage the clear tubing on the syringes.**

- 23** You are almost ready to ride, but first it's a good idea to test your brakes. Pull on the lever extremely hard (as hard as you can imagine yourself pulling the lever while you're riding) several times. Make sure to look around the compression nut on the lever, and the banjo bolt on the caliper for any leaks. Make one last check of all the bolts and fittings. If everything checks out, **YOU ARE READY TO RIDE!**

## DISC BRAKE PAD INSTALLATION INSTRUCTIONS

### 1 Remove pad retainer bolt.

Start by removing the e-clip on the wheel side of the caliper, then unthread the retainer bolt using a 2.5 mm hex. Remove the retainer bolt all the way.

### 2 Push the pistons back in.

Elixir calipers are self-adjusting, the pistons need to be pushed back into the body to their original position before the new pads can be installed. The safest way to do this is with the old pads still in the caliper to protect the pistons. Place a flat-blade screwdriver between the old pads, then carefully rock it back and forth, pushing the pistons back into their bores.

### 3 Remove the old pads.

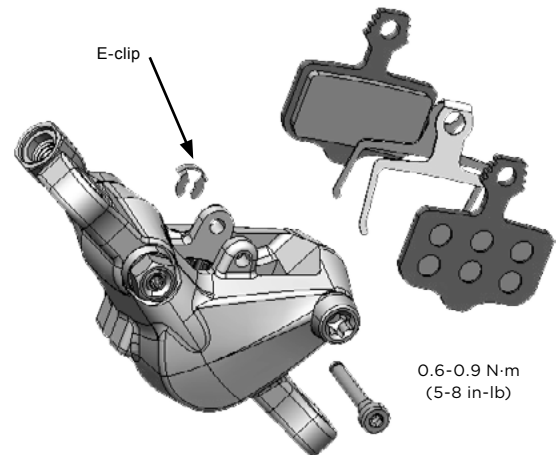
Grab the pad tabs and pull straight out.

### 4 Install the new pads and spreader.

Be sure the spreader clip is oriented to the pads as shown. Align the hole in the spreader clip with the holes in the pad tabs. Squeeze the pad and clip assembly together, then insert into the caliper as a unit. Firmly push until the assembly is seated into place.

### 5 Re-install the pad retainer bolt.

Replace the pad retainer bolt, tighten to torque specifications, and replace the e-clip on the wheel side of the caliper.





## DISC BRAKE PAD AND ROTOR BED-IN PROCEDURE

All new brake pads and rotors should be put through a wear-in process called 'bed-in'. The bed-in procedure, which should be performed prior to your first ride, ensures the most consistent and powerful braking feel along with the quietest braking in most riding conditions. The bed-in process heats up the brake pads and rotors which deposits an even layer of brake pad material (transfer layer) to the braking surface of the rotor. It is this transfer layer that optimizes braking performance.



### WARNING:

**The bed-in process requires you to perform heavy braking. You must be familiar with the power and operation of disc brakes. Braking heavily when not familiar with the power and operation of disc brakes could cause you to lose control of your bicycle, which could lead to a crash and could lead to serious injury and/or death. If you are unfamiliar with the power and operation of disc brakes, you should have the bed-in process performed by a qualified bicycle mechanic.**



### IMPORTANT:

To safely achieve optimal results, remain seated on the bike during the entire bed-in procedure.



Accelerate the bike to a moderate speed, then firmly apply the brakes until you are at walking speed. Repeat approximately twenty times.



Accelerate the bike to a faster speed. Then very firmly apply the brakes until you are at walking speed. Repeat approximately ten times.



### IMPORTANT:

Do not lock up the wheels at any point during the bed-in procedure.



Allow the brakes to cool prior to any additional riding.

[www.sram.com](http://www.sram.com)