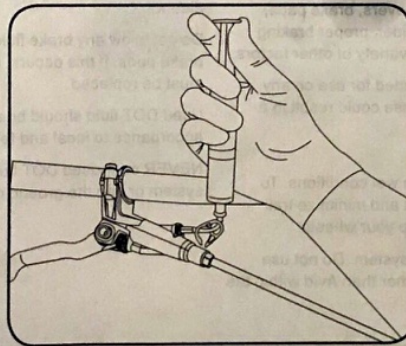




POWERED BY SRAM

Hydraulic Disc Brake Hose Length Adjustment & Bleed Guide



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, leading to a severe injury.

Avid brakes are a performance product that offer increased stopping power over brakes to which you are familiar. This greater power requires less effort to lock-up a wheel when braking. A wheel lockup 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 SRAM has no control. These include the speed of the bicycle, type and condition of 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.

Avid disc brakes are designed as a system. Do not use components from a manufacturer other than Avid within the system.

CAUTION

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.

Avid disc brake rotors are compatible with 44 mm, 6-bolt international standard disc 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.

Use only DOT 4 or DOT 5.1 fluids with AVID disc brakes. DOT 5.1 fluids provide enhanced braking performance.

Do not use a fluid other than the DOT fluids suggested. Doing so will damage the system and make the brakes unsafe to use.

DOT fluids will damage painted surfaces. If any fluid comes in contact with a painted surface (i.e. your frame), wipe it off immediately and clean with isopropyl alcohol.

Do not allow any brake fluid to come in contact with the brake rotors. If this occurs, clean the rotors with isopropyl alcohol.

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.

Used DOT fluid should be recycled or disposed of in accordance to local and federal regulations.

NEVER pour used DOT fluid down a sewage or drainage system or into the ground or a body of water.

INTRODUCTION

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. This manual will walk you through our simple bleed procedure. Regardless of which Avid brake you are using, the steps for hose length adjustment and bleeding are basically the same.

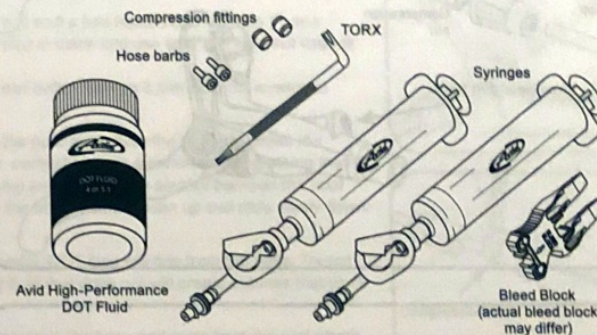
Avid brakes come with hoses attached and bled. If you don't need to change the hose length, you do not need to bleed the system prior to installation.

Hose shortening must be performed at the lever end of the hose.

Supplemental video instruction is available at www.sram.com/en/service.

TOOLS NEEDED

- Safety glasses
- Nitrile gloves
- Bleed Block
- 2.5 mm and 4 mm hex wrenches
- T10 TORX®
- 11 mm open end wrench
- 8 mm flare nut wrench
- Torque wrench
- High quality hydraulic hose cutter
- Sharp pick
- DOT compatible grease
- Lint-free rag
- Isopropyl alcohol

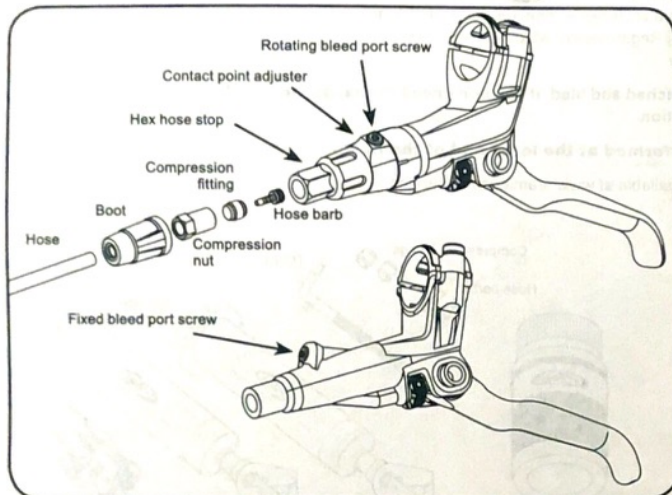
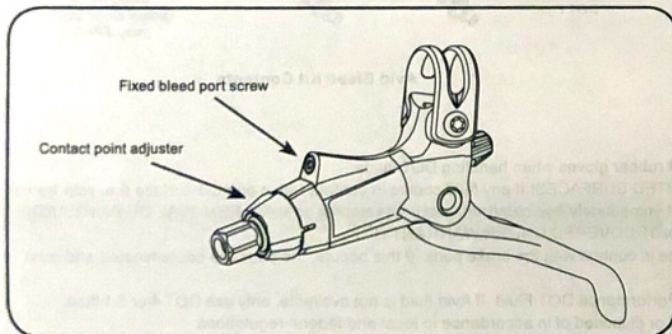
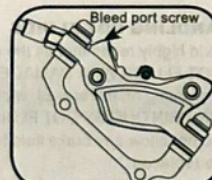
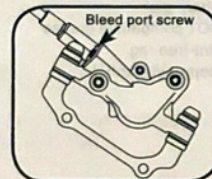
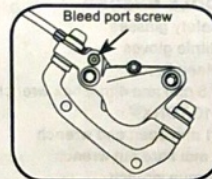
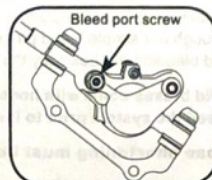


Avid Bleed Kit Contents

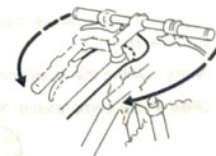
HANDLING DOT FLUIDS

- 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 Hi Performance DOT Fluid. If Avid fluid is not available, only use DOT 4 or 5.1 fluid.
- Used DOT fluid should be recycled or disposed of in accordance to local and federal regulations.
- **NEVER** pour used DOT fluid down a sewage or drainage system or into the ground or a body of water.

Here are the parts that you'll be dealing with in the hose adjustment and bleeding process:

LEVER BODY**CALIPER****HOSE LENGTH ADJUSTMENT****1 CHECK THE HOSE ROUTING**

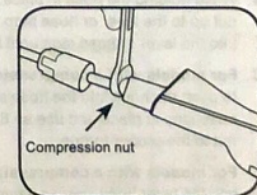
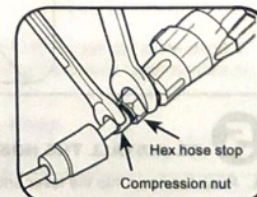
Make sure the hoses are properly secured to the bicycle and check the routing of each hose. Account for suspension movement and be sure the handlebars can move freely by turning the bars all the way from side to side.

**2 REMOVE THE HOSE FROM THE LEVER**

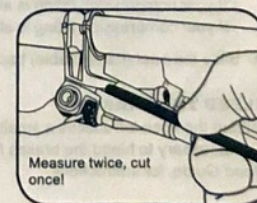
- A. For models with a compression nut and a hex hose stop:** Use an 11 mm open end wrench to hold the hose stop in place and use an 8 mm flare nut wrench to unthread the compression nut.
- For models with a compression nut only:** Use an 8 mm flare nut wrench to unthread the compression nut.

If your brake has a hose boot, pull the 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 some alcohol between the boot and the lever. Work the alcohol in; the boot should loosen up and slide easily down the hose.

- B.** 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.
- C.** Slide the nut and boot (if applicable) down the hose and away from the end where you'll be cutting. Do not engage the brake lever while the hose is removed.

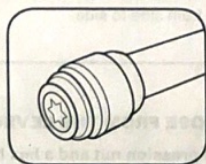
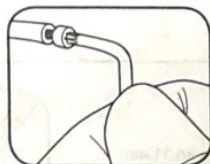
**3 DETERMINE HOSE LENGTH & CUT**

- A.** 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 part, because you can't go back after you cut.
- B.** The groove in the lever nose marks the spot where you'll cut the hose. Cut the hose using a high quality hydraulic hose cutter.



4 INSTALL THE NEW FITTINGS

- Apply DOT compatible grease to the hose barb threads, the compression fitting outer surfaces, and the compression nut threads.
- While holding the hose firmly, use a T10 TORX® to thread the new 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.



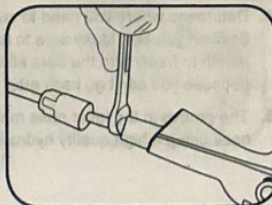
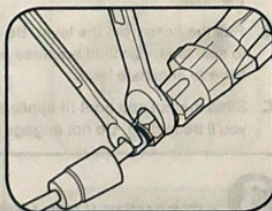
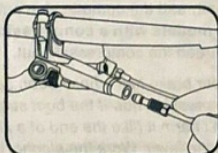
5 RE-INSTALL THE HOSE

- Push the hose 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. Use your fingers to thread the compression nut into the lever or hose stop until it stops turning.
- 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).

- Slide the boot (if applicable) back into place.



BLEED THE BRAKES

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, *Bleed Guide*, for instructions.

BLEED GUIDE

INTRODUCTION TO BLEEDING

When bleeding Avid brakes, keep in mind that you are simply forcing bubbles out of the system. Avid recommends 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.

PROCEDURE OVERVIEW

You will perform 3 basic operations when bleeding Avid brakes:

- Bleed the hose
- Bleed the caliper
- Bleed the lever

FLUSH

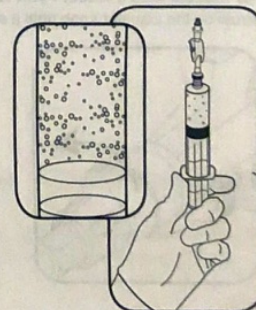
When bleeding brakes, you may notice discoloration of the old fluid as it exits the system into the syringe at the lever. If the fluid is severely discolored, this indicates that the fluid is very old. In this case, bleeding the system twice in order to completely remove the old fluid is recommended.

Following this procedure gives you a perfectly bled, optimally performing brake. Enjoy!

1 PREPARE THE SYRINGES

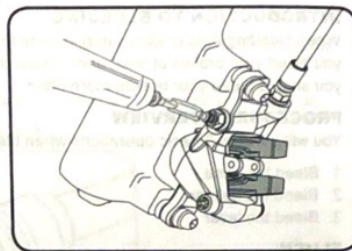
- Fill one syringe 1/2 full with Avid High-Performance DOT Fluid and fill the other syringe 1/4 full.
- Hold each syringe with the tip pointed up and tap the side of the syringe with your finger to bring any air bubbles to the top. Place a lint-free rag around the tip and slowly push the air bubbles out of the syringe.
- De-gas the fluid in the 1/2 full syringe. Removing as many of the gas bubbles as you can from the fluid now, before pushing them into the system, will make for a better bleed. Leave the syringe clamp shut and pull on the plunger. Bubbles will appear to form and enlarge. 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.



2 PREPARE THE CALIPER

- 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.
- Use a T10 TORX® to remove the caliper bleed port screw from the caliper body or banjo bolt.
- Make sure the fluid in the 1/2 full syringe is pushed all the way to the tip (no air gap!), then thread it into the caliper bleed port.

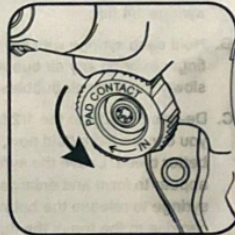
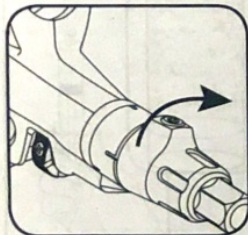


3 PREPARE THE LEVER

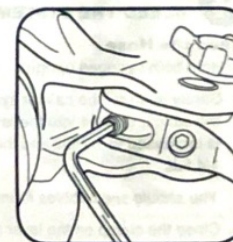
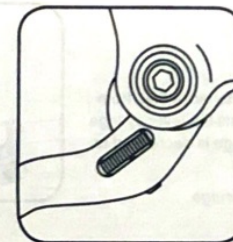
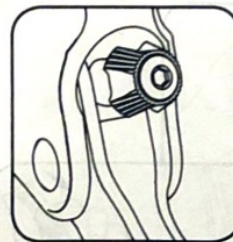
Contact Point Adjustment

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.

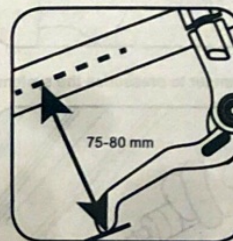
For models with Contact Point Adjustment and a fixed bleed port screw: rotate the adjuster in the direction opposite the arrow on the adjuster knob until it stops.



Reach Adjust



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.



On the Lever

- Use a T10 TORX to remove the lever bleed port screw.
- Make sure the fluid in the 1/4 full syringe is pushed all the way to the tip (no air gap!), then thread it 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 lint-free rag handy to wipe off any excess after the syringe is installed.

4 BLEED THE SYSTEM

Bleed the Hose

A. Hold both syringes upright.

B. 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 fill into the lever syringe.

C. Close the clamp on the lever syringe.

D. 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 toe strap or rubber bands.

Bleed the Caliper

E. 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.

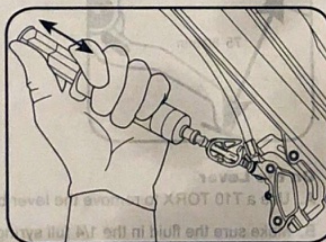
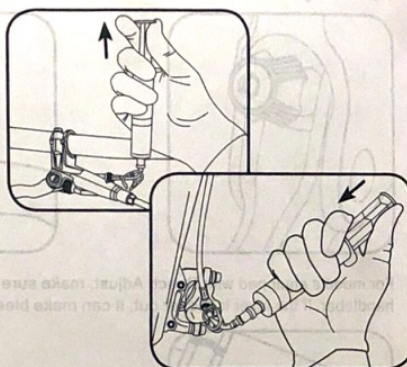
Do not pull out too hard on the plunger or you will suck air past the plunger seal into the fluid and create more bubbles that you will have to eliminate.

F. 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 toe strap 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.

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

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



Bleed the Lever

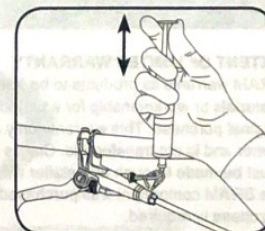
H. Open the syringe clamp on the lever.

I. 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 several 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.

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

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



Final Touch

K. Spray isopropyl alcohol onto a lint-free rag and wipe off the brake lever and caliper to remove any excess DOT fluid you may have missed before.

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

M. Re-install your wheel according to the manufacturer's instructions.

N. Empty the syringes into a sealed container and dispose of the fluid properly. Remember, 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.

Do not re-use this fluid.

Do not leave the syringe hose clamps closed, this will damage the clear tubing on the syringes.

5 TEST THE SYSTEM

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 and look around the hose 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!