

SRAM

2017-2021
Level Ultimate, TLM, TL



SERVICE MANUAL

SRAM LLC WARRANTY

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS AGAINST SRAM, LLC. YOU MAY ALSO HAVE OTHER RIGHTS THAT VARY FROM STATE TO STATE, COUNTRY, OR PROVINCE. THIS WARRANTY DOES NOT AFFECT YOUR STATUTORY RIGHTS. TO THE EXTENT THIS WARRANTY IS INCONSISTENT WITH THE LOCAL LAW, THIS WARRANTY SHALL BE DEEMED MODIFIED TO BE CONSISTENT WITH SUCH LAW. FOR A FULL UNDERSTANDING OF YOUR RIGHTS, CONSULT THE LAWS OF YOUR COUNTRY, PROVINCE, OR STATE.

EXTENT OF LIMITED WARRANTY

Except as otherwise set forth herein, SRAM warrants its bicycle components to be free from defects in materials or workmanship for a period of two (2) years after original purchase of the product.

SRAM warrants all Zipp MOTO Wheels and Rims to be free from defects in materials or workmanship for the lifetime of the product.

SRAM warrants all non-electronic Zipp branded bicycle components, Model Year 2021 or newer, to be free from defects in materials or workmanship for the lifetime of the product.

GENERAL PROVISIONS

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 product was purchased or a SRAM authorized service location. Original proof of purchase is required. All SRAM warranty claims will be evaluated by a SRAM authorized service location whereupon acceptance of the claim the product will be repaired, replaced, or refunded at SRAM's discretion. To the extent allowed by local law claims under this warranty must be made during the warranty period and within one (1) year following the date on which any such claim arises.

NO OTHER WARRANTIES

EXCEPT AS DESCRIBED HEREIN, AND TO THE EXTENT ALLOWED BY LOCAL LAW, SRAM MAKES NO OTHER WARRANTIES, GUARANTIES, OR REPRESENTATIONS OF ANY TYPE (EXPRESS OR IMPLIED), AND ALL WARRANTIES (INCLUDING ANY IMPLIED WARRANTIES OF REASONABLE CARE, MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE) ARE HEREBY DISCLAIMED.

LIMITATIONS OF LIABILITY

EXCEPT AS DESCRIBED HEREIN, AND TO THE EXTENT PERMITTED BY LAW, IN NO EVENT SHALL SRAM OR ITS THIRD PARTY SUPPLIERS BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES. SOME STATES (COUNTRIES AND PROVINCES) DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL DAMAGES, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

LIMITATIONS OF WARRANTY

This warranty does not apply to products that have been incorrectly installed, adjusted, and/or maintained according to the respective SRAM user manual. The SRAM user manuals can be found online at sram.com/service.

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 intended 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, including but not limited to, any attempt to open or repair any electronic and electronic related components, including the motor, controller, battery packs, wiring harnesses, switches, and chargers.

This warranty does not apply when the serial number or production code has been deliberately altered, defaced, or removed.

SRAM components are designed for use only on bicycles that are pedal powered or pedal assisted (e-Bike/Pedelec).

Notwithstanding anything else set forth herein, the battery pack and charger warranty does not include damage from power surges, use of improper charger, improper maintenance, or such other misuse.

This warranty shall not cover damages caused by the use of parts of different manufacturers or parts that are not compatible or suitable for use with SRAM components.

This warranty shall not cover damages resulting from commercial (rental) use.

WEAR AND TEAR

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 INCLUDE:

- Aero bar pads
- Air sealing o-rings
- Batteries
- Bearings
- Bottomout pads
- Brake pads
- Bushings
- Cassettes
- Chains
- Corrosion
- Disc brake rotors
- Dust seals
- Free hubs, Driver bodies, Pawls
- Foam rings, Glide rings
- Handlebar grips
- Jockey wheels
- Rear shock mounting hardware and main seals
- Rubber moving parts
- Shifter and Brake cables (inner and outer)
- Shifter grips
- Spokes
- Sprockets
- Stripped threads/bolts (aluminum, titanium, magnesium or steel)
- Tires
- Tools
- Transmission gears
- Upper tubes (stanchions)
- Wheel braking surfaces

ZIPP IMPACT REPLACEMENT POLICY

Zipp branded products, Model Year 2021 or newer, are covered under a lifetime impact-damage replacement policy. This policy can be used to obtain a replacement of a product in the event of non-warranty impact damage occurring while riding your bicycle. See www.zipp.com/support for more information.



SAFETY FIRST!

We care about YOU. Please, always wear your safety glasses and protective gloves when servicing SRAM products.

Protect yourself! Wear your safety gear!

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SRAM Level Brake Systems Service

We recommend that you have your SRAM Level components serviced by a qualified bicycle mechanic. Servicing SRAM components requires knowledge of bicycle mechanics as well as the special tools and lubricants/fluids used for service.

SRAM brake systems need to be serviced periodically to optimize braking function. If brake fluid is leaking from any area of the brake there may be damage or wear and tear to the internal moving parts. If the system has been contaminated with the wrong fluid there may be damage to all rubber and plastic internal parts. If your brake was damaged in a crash there may be damage to the lever blade, pushrod, and housing assemblies. Inspect and replace these parts to restore proper brake function.

Visit www.sram.com/service for the latest SRAM Spare Parts catalog and technical information. For order information, please contact your local SRAM distributor or dealer.



For recycling and environmental compliance information, please visit www.sram.com/en/company/about/environmental-policy-and-recycling. Information contained in this publication is subject to change at any time without prior notice. Your product's appearance may differ from the pictures contained in this publication.

SAFETY INSTRUCTIONS

Do not use mineral oil or DOT 5 fluid.

If the brake system has been contaminated with mineral oil or DOT 5 fluid, flush all of the parts with soapy water, rinse them with clean water, then allow all the parts to dry prior to rebuilding. Install new seals, a new bladder, and replace the hose.

For best results, use only SRAM High-Performance DOT 5.1 brake fluid. If SRAM brake fluid is not available, only use DOT 5.1 or 4 brake fluid.

Use only DOT compatible grease.

Always wear safety glasses and nitrile gloves when working with DOT brake fluid.

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

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

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.

Place an oil pan on the floor underneath the area where you will be working on the brake.

Servicing your brakes removes all of the brake fluid from the system. You must bleed your brakes after you service the brake system. Consult the *SRAM MTB Disc Brake Hose Shortening and Bleed Manual* at www.sram.com/service.

⚠ CAUTION

Do not use mineral oil or DOT 5 fluid. Do not use tools, rags, or syringes that are contaminated with mineral oil or DOT 5 fluid. Using contaminated materials will result in permanent damage to the seals and reduce braking performance. Brakes must be replaced if contaminated with mineral oil or DOT 5 fluid.

Service Procedures

The following procedures should be performed throughout service, unless otherwise specified.

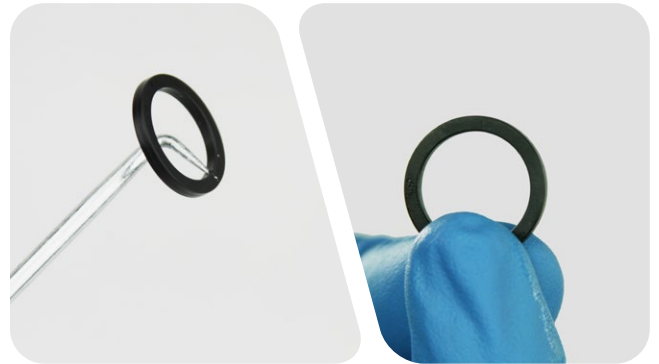
Clean the part with isopropyl alcohol and a clean, lint-free rag.
Clean the sealing surface on the part and inspect it for scratches.



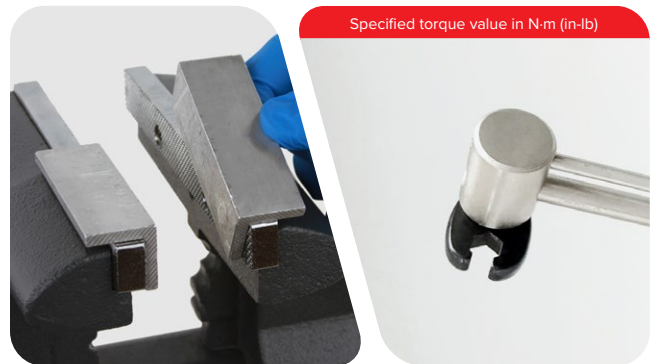
Replace the o-ring or seal with a new one from the service kit.
Use your fingers, a ziptie, or a pick to pierce and remove the old seal or o-ring.
Apply DOT grease to the new seal or o-ring when instructed.

NOTICE

Do not scratch any sealing surfaces when servicing the product. Scratches can cause leaks. Consult the spare parts catalog to replace the damaged part.



Use aluminum soft jaws when placing a part in a bench vise.
Tighten the part with a torque wrench to the torque value listed in the red bar.
When using a crowfoot socket and torque wrench, install the crowfoot socket at 90 degrees to the torque wrench.



NOTICE

Do not apply DOT brake fluid or grease to caliper pistons when performing troubleshooting procedures. Use of DOT brake fluid or grease can diminish braking performance and cause rotor rubbing.

If your brakes exhibit excessive lever throw or spongy feel, perform the following steps before bleeding the system:

- 1 Clamp the bicycle into a bicycle work stand.
- 2 Remove the wheel from the affected caliper.
- 3 Remove the brake pads.
- 4 Install the pad spacer.
- 5 Squeeze the brake lever several times until both pistons have advanced and contact the pad spacer. One piston may move faster than the other; continue to squeeze the lever until the second piston touches the spacer.
- 6 Remove the pad spacer.
- 7 Use a plastic tire lever to push the pistons back into the caliper bores.
- 8 Repeat steps 4-7 until both pistons are move freely.
- 9 Install the brake pads and the wheel.
- 10 Loosen the caliper bolts.
- 11 Lightly squeeze (approx. 4 lbs) the brake lever several times to position the brake pads to the proper distance from the rotor.
- 12 Center the caliper on the rotor, and tighten the caliper bolts.
- 13 Spin the wheel and check the brake function. The pistons should move freely and there should not be excessive brake lever throw. If there is no improvement in the brake function, proceed with caliper service.

Disc Brake Pad Gap Reset - Monoblock caliper only

NOTICE

Do not apply DOT brake fluid or grease to caliper pistons when performing troubleshooting procedures. Use of DOT brake fluid or grease can diminish braking performance and cause rotor rubbing.

If the brake lever was squeezed without a pad spacer or rotor installed in the caliper, the pad gap may have been reduced. If this happens the rotor might not have enough clearance in the caliper without rubbing. Perform this procedure to reset the pad gap:

- 1 Remove the wheel from the affected caliper.
- 2 Install the 3.8 mm side of a Monoblock pad spacer between the brake pads.
- 3 Squeeze the brake lever *hard* 5 times (approximately 22 lbs).
- 4 Remove the spacer from the caliper, and install the 1.85 mm side of the SRAM spacer between the brake pads.
- 5 Squeeze the brake lever *lightly* 5 times (approximately 4 lbs or less).
- 6 Remove the pad spacer.
- 7 Re-install the wheel, and re-center the caliper.



NOTICE

Do not apply DOT brake fluid or grease to caliper pistons when performing troubleshooting procedures. Use of DOT brake fluid or grease can diminish braking performance and cause rotor rubbing.

If there is still insufficient clearance between the brake pads and rotor after performing the pad gap reset procedure, perform this overnight procedure to reset the retraction distance between the caliper pistons:

- 1** Remove the wheel from the affected caliper.
- 2** Install the 3.8 mm side of a Monoblock pad spacer between the brake pads and remove it without squeezing the brake lever.
- 3** Install the 1.85 mm side of the Monoblock pad spacer between the brake pads.
- 4** Squeeze the brake lever *lightly* 5 times (approximately 4 lbs or less).
- 5** Allow the system to sit, untouched, for 12-24 hours.
- 6** Remove the pad spacer.
- 7** Re-install the wheel, and re-center the caliper.



Parts and Tools Needed for Service

Parts

- Caliper Piston Kit - Level Ultimate/TLM Monoblock (Monoblock calipers)
- Caliper Piston Kit - Level Ultimate/TLM Phen. B1 (2 piece calipers)

Safety and Protection Supplies

- Apron
- Clean, lint-free shop towels
- Nitrile gloves
- Oil pan
- Safety glasses

Lubricants and Fluids

- Isopropyl alcohol
- SRAM DOT assembly grease
- SRAM High-Performance DOT 5.1 brake fluid (If SRAM brake fluid is not available, only use DOT 5.1 or 4 brake fluid)

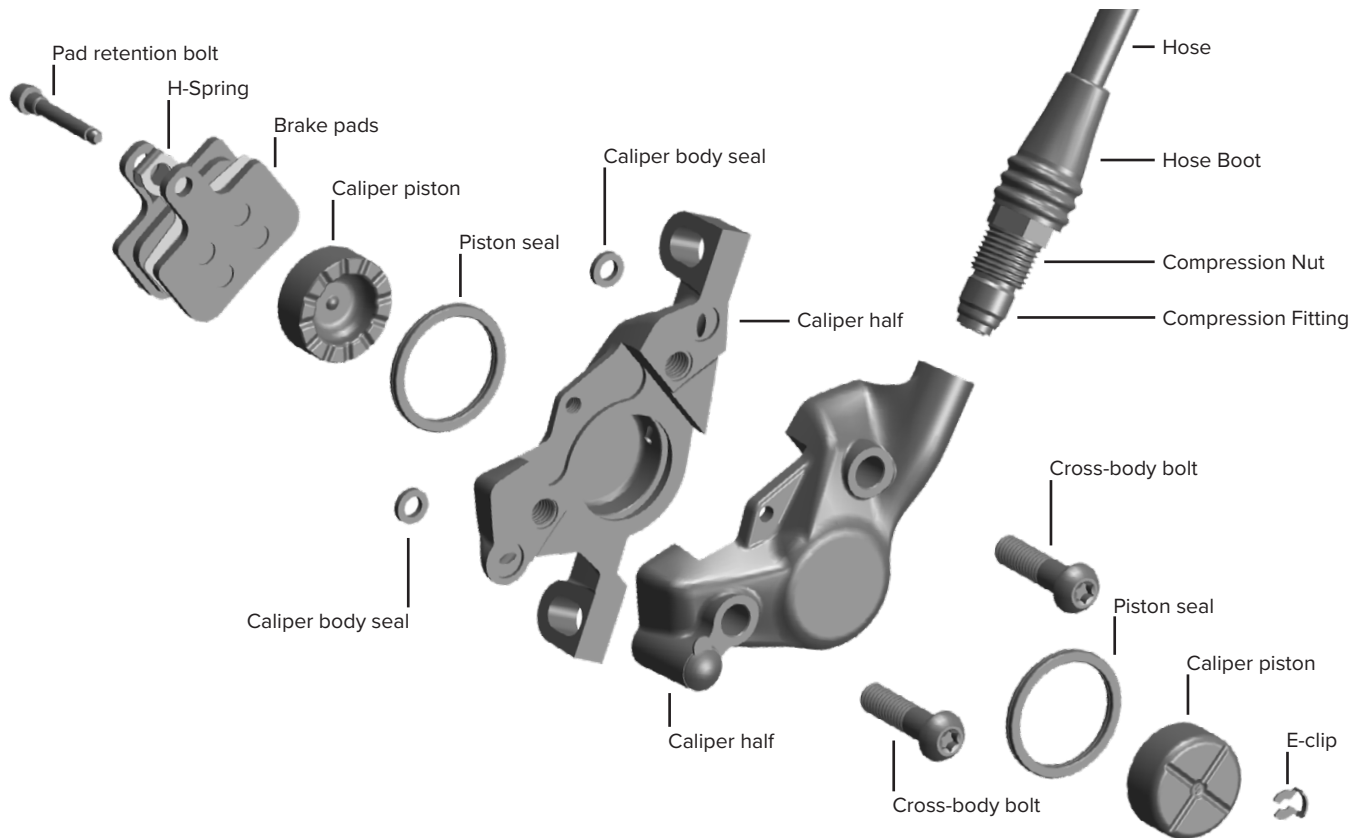
Common Tools

- 2.5 & 5 mm hex wrench
- T25 TORX wrenchs
- T25 TORX bit socket
- Digital caliper
- Needle nose pliers
- Pick with a 90 degree bent tip
- Air compressor with rubber-tipped air chuck nozzle
- Soft rubber or piece of inner tube
- Torque wrench

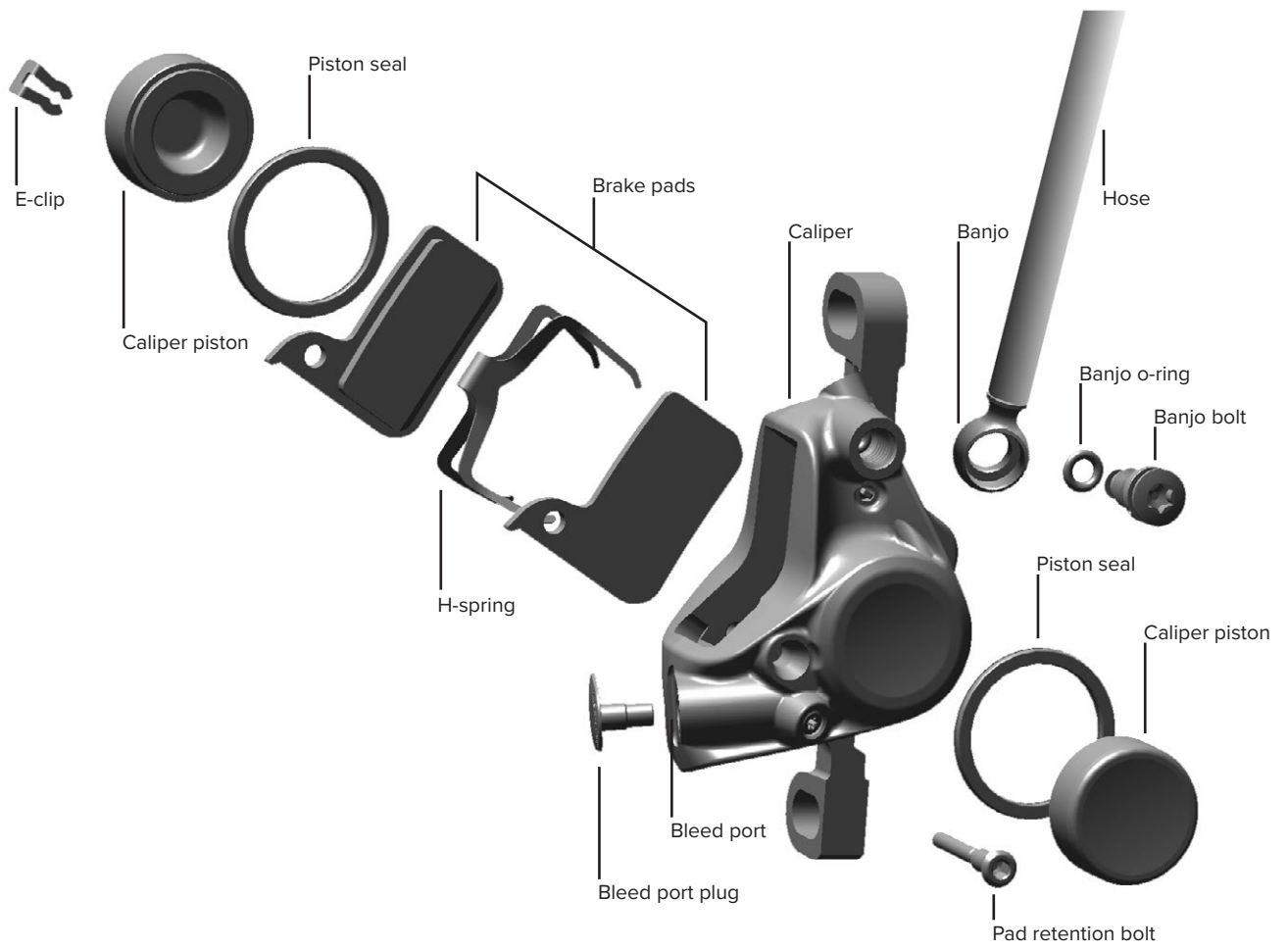
SRAM Tools

- SRAM Brake Bleed Kit (includes: Bleed Block and Bleeding Edge Fitting)
- HRD Bleed Block (2 piece calipers)
- Monoblock Bleed Block (Monoblock calipers)
- Monoblock caliper 21 mm piston removal tool
- Level/AXS Caliper Piston Removal Tool
- Level pad spreader tool
- Level piston plug

Level Caliper Exploded View - 2 piece caliper



Level Caliper Exploded View - Monoblock caliper



Caliper Brake Pad Removal

- 1 Remove the caliper from the frame, then remove the mounting bracket and the hardware from the caliper. Set them aside in the order that they were removed.
- 2 Remove the E-clip from the pad retention bolt, then remove the pad retention bolt from the caliper.



- 3 Remove the brake pads from the caliper.

NOTICE

Brake pads must be replaced if the total thickness of the backing plate and pad friction material is less than 3 mm.



NOTICE

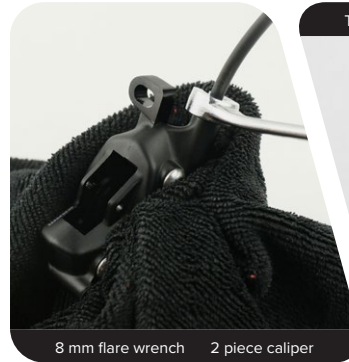
DOT brake fluid will damage painted surfaces. If any fluid comes in contact with a painted surface (i.e. your frame) or printing on the brakes, wipe it off immediately and clean it with isopropyl alcohol or water. Damage to painted and/or printed surfaces by DOT brake fluid is not covered under warranty.

1 2 piece caliper: Remove the compression nut and hose.

Monoblock caliper: Remove the banjo bolt and hose.

NOTICE

Fluid will drip. Place an oil pan and/or shop towel under the hose.



8 mm flare wrench 2 piece caliper



T25 Monoblock caliper

2 2 piece caliper: Insert the Level / AXS Caliper Piston Removal Tool.



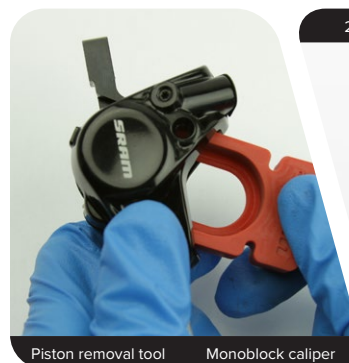
Piston removal tool

2 piece caliper

Monoblock caliper: Insert the SRAM Monoblock caliper 21 mm piston removal tool, then install the pad retention bolt into the caliper.

CAUTION

Monoblock caliper: The pad retention bolt must be installed. If the pad retention bolt is not installed the SRAM piston removal tool may dislodge rapidly from the caliper, which can lead to bodily injury or damage to the parts.



Piston removal tool

Monoblock caliper



2.5 mm Monoblock caliper

- 3** Firmly press a rubber-tipped air chuck nozzle into the banjo port. Hold the caliper securely against a rubber surface and force air into the banjo port to dislodge the piston from the caliper.

⚠ CAUTION - EYE HAZARD

Wear safety glasses.

The caliper piston may dislodge rapidly from the caliper, which can lead to bodily injury or damage to the parts. Point the caliper piston toward a rubber surface to prevent the piston from becoming a projectile.



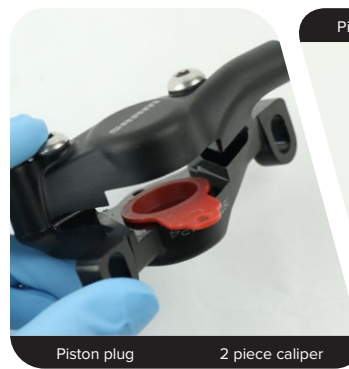
- 4** **Monoblock caliper:** Remove the pad retainer bolt.



5 Remove the piston and the piston removal tool from the caliper.



6 Insert the Level piston plug so that it fits snugly into the empty piston bore and is flush with the inside of the caliper.



- 7** Insert the Level / AXS Caliper Piston Removal Tool (2 piece caliper) or the Monoblock Caliper 21 mm Piston Removal Tool (Monoblock caliper) so that it will capture the still-installed piston. Make sure the horse-shoe opening is aligned with the tab on the piston plug.

Monoblock caliper: Use a 2.5 mm hex wrench to install the pad retention bolt in order to hold the piston removal tool in place.

⚠ CAUTION

The pad retention bolt must be installed. If the pad retention bolt is not installed the SRAM piston removal tool may dislodge rapidly from the caliper, which can lead to bodily injury or damage to the parts.



- 8** Firmly press a rubber-tipped air chuck nozzle into the banjo port. Hold the caliper securely against a rubber surface and force air into the banjo port to dislodge the piston from the caliper.

⚠ CAUTION - EYE HAZARD

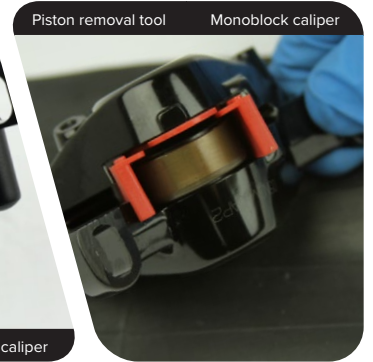
Wear safety glasses. The caliper piston may dislodge rapidly from the caliper, which can lead to bodily injury or damage to the parts. Point the caliper piston toward a rubber surface to prevent the piston from becoming a projectile.



9 **Monoblock caliper:** Remove the retention bolt.



10 Remove the piston removal tool, the piston, and the piston plug from the caliper.



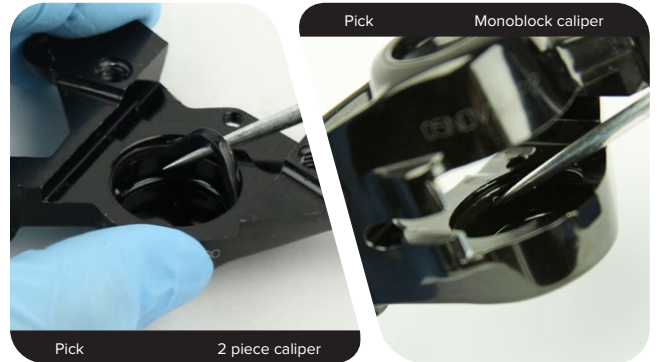
- 11** **2 piece caliper:** Remove the cross-body bolts from the caliper.
Remove the body seals from the caliper body.



- 12** Use a pick to remove the piston seals from each piston bore.

CAUTION

Do not scratch the seal gland with the pick. Scratches could cause fluid to leak when the brake is applied, which will contaminate the brake pads and could lead to a brake failure.



- 13** Spray isopropyl alcohol inside each piston bore, the inside and the outside of the caliper, and all of the removed parts and clean them with a shop towel.

NOTICE

If the system has been contaminated with mineral oil or DOT 5 fluid, flush all of the parts with soapy water, rinse them with clean water, then allow all of the parts to dry prior to rebuilding. Install all new seals and a new brake hose.

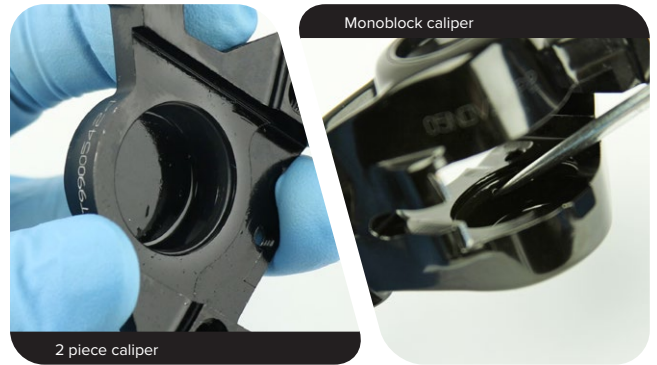
For the best braking performance, use only SRAM DOT 5.1 brake fluid. If SRAM fluid is not available, use only DOT 5.1 or 4 brake fluid.



NOTICE

DOT brake fluid 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 it with isopropyl alcohol or water. Damage to painted and/or printed surfaces by DOT brake fluid is not covered under warranty.

- 1 Apply a small amount of SRAM 5.1 DOT brake fluid to new piston seals and install the piston seals into each piston bore.

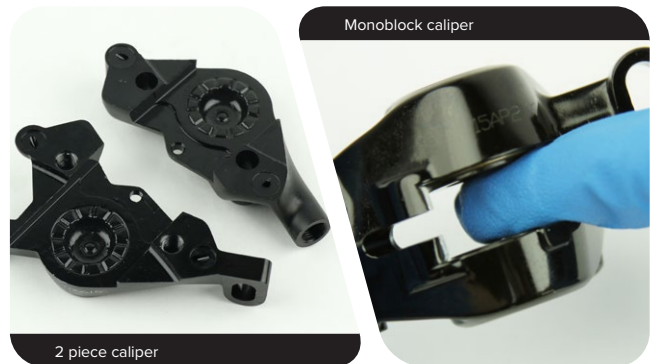


- 2 Inspect the caliper pistons for damage and replace the pistons if necessary.

Use your gloved finger to apply a small amount of SRAM DOT 5.1 brake fluid to each piston, then install each piston into each piston bore.

NOTICE

For the best braking performance, use only SRAM DOT 5.1 brake fluid. If SRAM brake fluid is not available, use only DOT 5.1 or 4 brake fluid. Do not use grease. Grease will prevent the pistons from fully retracting into the caliper bores which will reduce braking performance.



Tip: If a piston is difficult to install into a piston bore, lay the caliper on a flat surface. Slide a thin wrench through the caliper, then gently and evenly press the piston into the bore.



- 3** **2 piece caliper:** Install new body seals into the caliper body.
Install the cross-body bolts into the caliper body, then tighten.



- 4** **2 piece caliper:** Install the hose boot onto the new hose. Apply DOT grease to the hose barb threads. Thread the hose barb into the hose until it is flush with the end of the hose.

NOTICE

Do not overtighten the hose barb. Overtightening may cause damage to the hose liner.



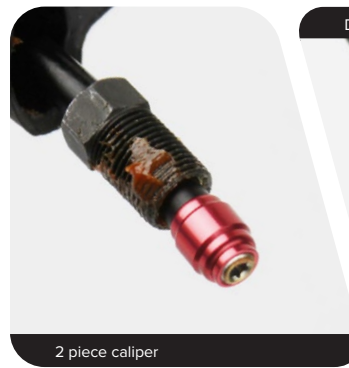
- 2 piece caliper:** Install the compression nut onto the hose.



2 piece caliper: Thread the compression fitting over the hose barb, counter-clockwise, until it is flush or slightly lower than the hose barb.

The compression fitting is reverse threaded.

Apply DOT grease to the outside of the compression fitting and the threads of the compression nut.

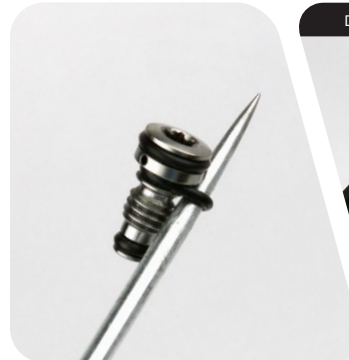


2 piece caliper: Install the hose into the caliper while threading the compression nut into the caliper by hand. Tighten the compression nut. Install the hose boot over the compression nut.



5 Monoblock caliper: Remove the o-ring from the banjo bolt.

Install the new o-rings and apply a thin layer of grease. Install the banjo bolt into the banjo boot.



Monoblock caliper: Tighten the banjo bolt with the banjo boot at the desired angle.



6 **2 piece caliper:** Install the HRD bleed block (11.2 mm) into the caliper.



Monoblock caliper: Insert the Monoblock bleed block (11.8 mm) into the caliper, then install the pad retention bolt.



⚠ CAUTION

You must bleed your brakes before reinstalling the brake pads. Installing the brake pads prior to bleeding the brakes could contaminate the brake pads and could lead to brake failure.

7 Spray isopropyl alcohol on the caliper and clean it with a shop towel.



Visually check your work. If any of the o-rings protrude from the banjo fitting or banjo bolt, remove and replace the o-ring, then repeat the installation process.

⚠ CAUTION

Servicing your brakes removes all of the fluid from the system. You must bleed the brakes after you service the brake caliper and/or lever. For brake bleed, brake hose shortening, and brake pad replacement instructions, visit www.sram.com/service.

SRAM Level TL Caliper Service

Parts and Tools Needed for Service

Parts

- Caliper Piston Kit - Level TL/T

Safety and Protection Supplies

- Safety glasses
- Nitrile gloves
- Oil pan
- Clean, lint-free shop towel

Lubricants and Fluids

- Isopropyl alcohol
- SRAM High-Performance DOT 5.1 brake fluid
(If SRAM brake fluid is not available, only use DOT 5.1 or 4 brake fluid)

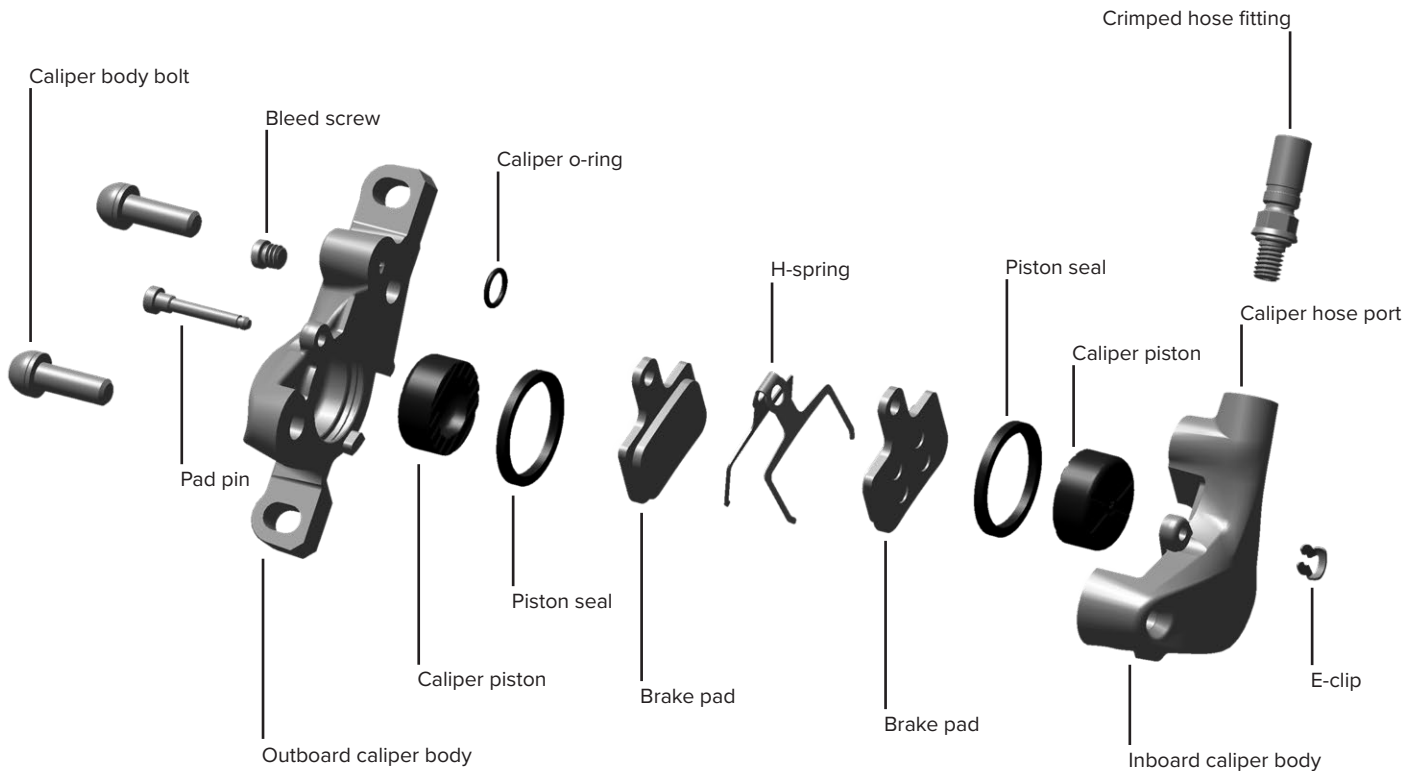
Common Tools

- 2.5 mm and 5 mm hex wrenches
- 5 mm hex bit socket
- 8 mm flare nut wrench
- 8 mm open end wrench and crowfoot
- Needle nose pliers
- Digital caliper
- Pick with a 90 degree bent tip
- Torque wrench
- Air compressor with a rubber-tipped chuck nozzle
- Soft rubber or piece of inner tube

SRAM Tools

- SRAM Brake Bleed Kit
(includes: Bleed Block and Bleeding Edge Fitting)

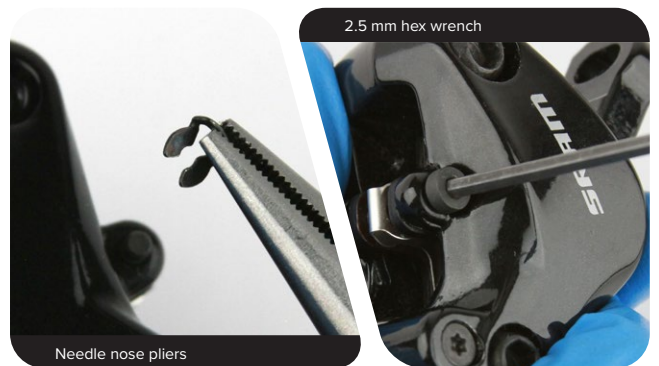
SRAM Level TL Caliper Exploded View



Caliper Brake Pad Removal

- 1 Remove the brake caliper from the fork or frame.
Remove the caliper mounting bracket and hardware from the caliper then set the bracket and hardware aside in the order they were removed.

- 2 Use needle nose pliers to remove the E-clip from the pad pin.
Use a 2.5 mm hex wrench to remove the pad pin from the caliper.



- 3 Pull the brake pads out of the caliper.

NOTICE

Brake pads must be replaced if the total thickness of the backing plate and pad friction material is less than 3 mm.



NOTICE

DOT brake fluid 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 it with isopropyl alcohol or water. Damage to painted and/or printed surfaces by DOT brake fluid is not covered under warranty.

- 1 Use an 8 mm flare nut wrench to remove the crimped hose fitting.
Pull the brake hose and crimped hose fitting from the caliper hose port.
Brake fluid will leak, so hold the caliper over a container to catch the fluid.



- 2 Use a 5 mm hex wrench to remove the caliper body bolts.



- 3 Separate the caliper body halves.



- 4 Use a T10 TORX wrench to remove the bleed screw.



5 Place the inboard caliper half, piston side down, on a soft rubber mat or a small section of inner tube on a flat surface.

Insert a rubber-tipped air chuck nozzle into the caliper hose port.

⚠ CAUTION - EYE HAZARD

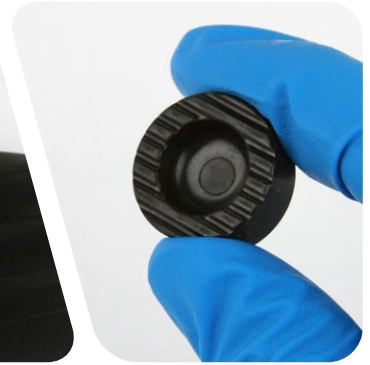
Wear safety glasses.

The caliper piston may dislodge rapidly from the caliper, which can lead to bodily injury or damage to the parts. Point the caliper piston toward a rubber surface before forcing air into the caliper.

While firmly pushing against the caliper half and chuck nozzle, squeeze the air chuck to force air into the caliper hose port and dislodge the piston from the caliper.

Continue to force air into the caliper until the piston is dislodged.

Remove the piston from the caliper.



6 Place the outboard caliper body half, piston side down, on a soft rubber mat or a small section of inner tube on a flat surface.

Insert a rubber-tipped air chuck nozzle into the bleed screw opening.

⚠ CAUTION - EYE HAZARD

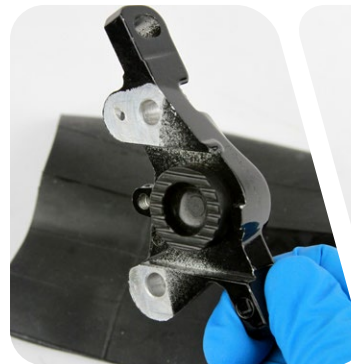
Wear safety glasses.

The caliper piston may dislodge rapidly from the caliper, which can lead to bodily injury or damage to the parts. Point the caliper piston toward a rubber surface before forcing air into the caliper.

While firmly pushing against the caliper half and chuck nozzle, squeeze the air chuck to force air into the bleed screw opening and dislodge the piston from the caliper.

Continue to force air into the caliper until the piston is dislodged.

Remove the piston from the caliper.

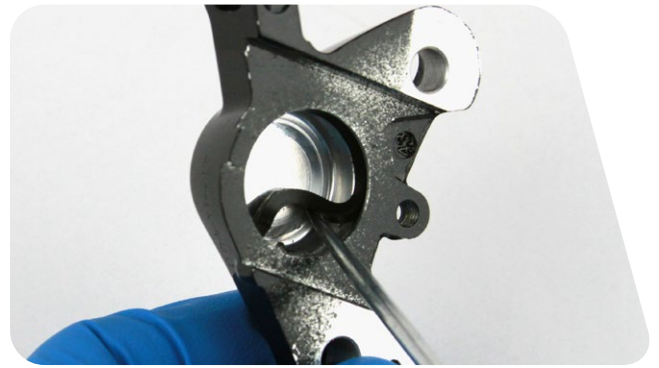


7 Use a pick to remove the piston seal from inside both the inboard and outboard half of the caliper body.

Spray isopropyl alcohol into the caliper piston bores, and clean them with a shop towel, then install a new seal inside each caliper body half.

NOTICE

Do not scratch the seal gland with a pick. It could result in a slow fluid leak when the brake is applied.



NOTICE

DOT brake fluid 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 it with isopropyl alcohol or water. Damage to painted and/or printed surfaces by DOT brake fluid is not covered under warranty.

- 1 Inspect the caliper pistons for damage and replace the pistons if necessary.

Use your gloved finger to apply a small amount of SRAM DOT 5.1 brake fluid to each piston, then install each piston into each piston bore.

NOTICE

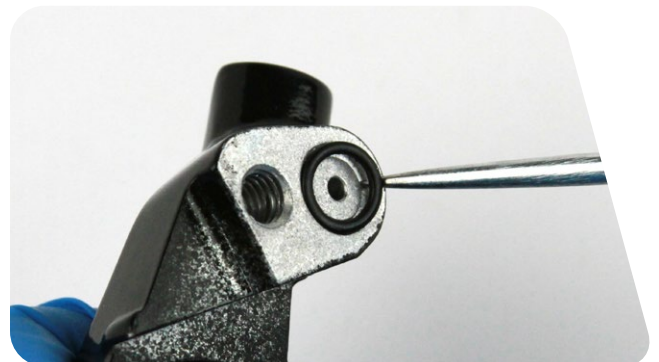
For the best braking performance, use only SRAM DOT 5.1 brake fluid. If SRAM fluid is not available, use only DOT 5.1 or 4 brake fluid. Do not use grease. Grease will prevent the pistons from fully retracting into the caliper bores, which will reduce braking performance.



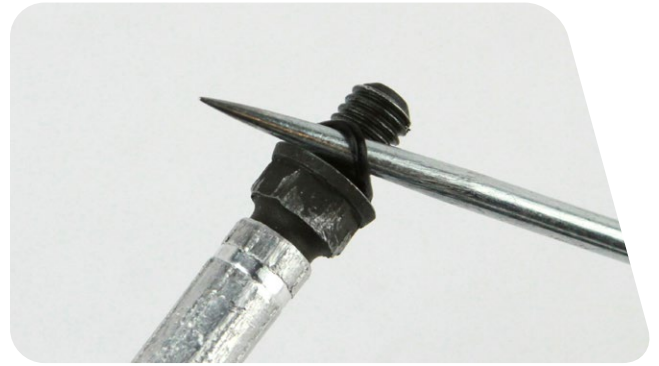
- 2 Spray isopropyl alcohol on the caliper halves and both of your gloves, and clean them with a shop towel.



- 3 Use a pick to remove the caliper o-ring from the inboard caliper half and install a new o-ring.



- 4** Use a pick to remove the o-ring from the crimped hose fitting. Apply a small amount of DOT 5.1 fluid to the new o-ring and install it.



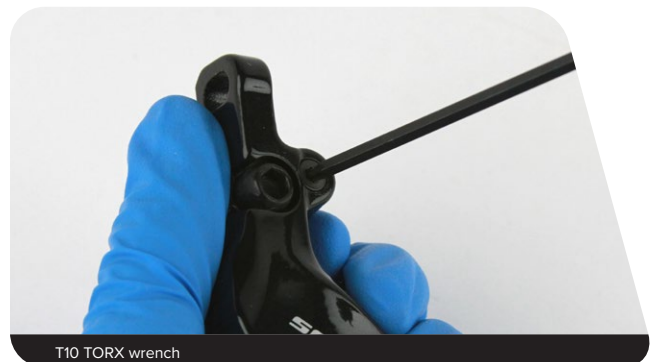
- 5** Align the caliper body halves together, then thread the caliper body bolts into the caliper by hand.



- 6** Use a torque wrench with a 5 mm hex bit socket to tighten each bolt to 11 N·m (97 in-lb).



- 7** Use a T10 TORX wrench to install the bleed screw.



- 8 Use a torque wrench with an 8 mm flare nut crowfoot socket to tighten the crimped hose fitting into the caliper hose port to 11 N·m (97 in-lb).



- 9 Insert the bleed block into the caliper.

CAUTION

You must bleed your brakes before reinstalling the brake pads. Installing the brake pads prior to bleeding the brakes could contaminate the brake pads and could lead to a brake failure.



- 10 Spray isopropyl alcohol on the caliper and clean it with a shop towel.



Visually check your work. If an o-ring protrudes from the crimped hose fitting, remove and replace the o-ring, then repeat the installation process.

CAUTION

Overhauling the caliper removes all of the fluid from the caliper. You must bleed the brakes for optimal performance. For brake bleed, brake hose shortening, and brake pad replacement instructions, visit www.sram.com/service.

Lever Service

Parts and Tools Needed for Service

Parts

- Lever Internals Kit - Level Ultimate/TLM/TL

Safety and Protection Supplies

- Safety glasses
- Nitrile gloves
- Oil pan
- Clean, lint-free shop towel

Lubricants and Fluids

- Isopropyl alcohol
- SRAM DOT assembly grease
- SRAM High-Performance DOT 5.1 brake fluid
(If SRAM brake fluid is not available, only use DOT 5.1 or 4 brake fluid)

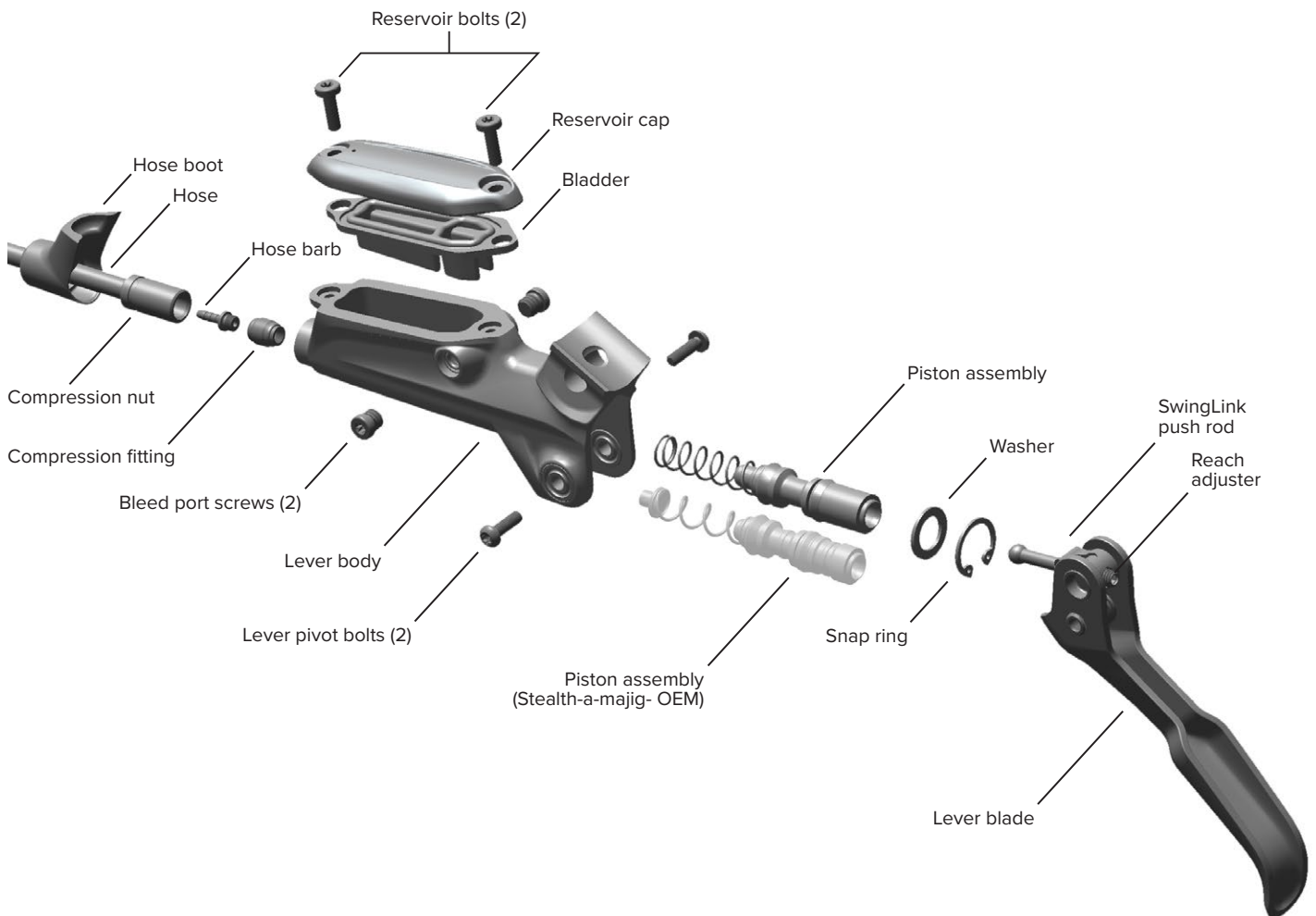
Common Tools

- T8, T10, & T25 TORX wrench
- T10 TORX bit socket
- 8 mm flare nut wrench
- 8 mm open end wrench and crowfoot
- Long-tipped snap ring pliers
- Pick with a 90 degree bent tip
- Rubber mallet
- Torque wrench

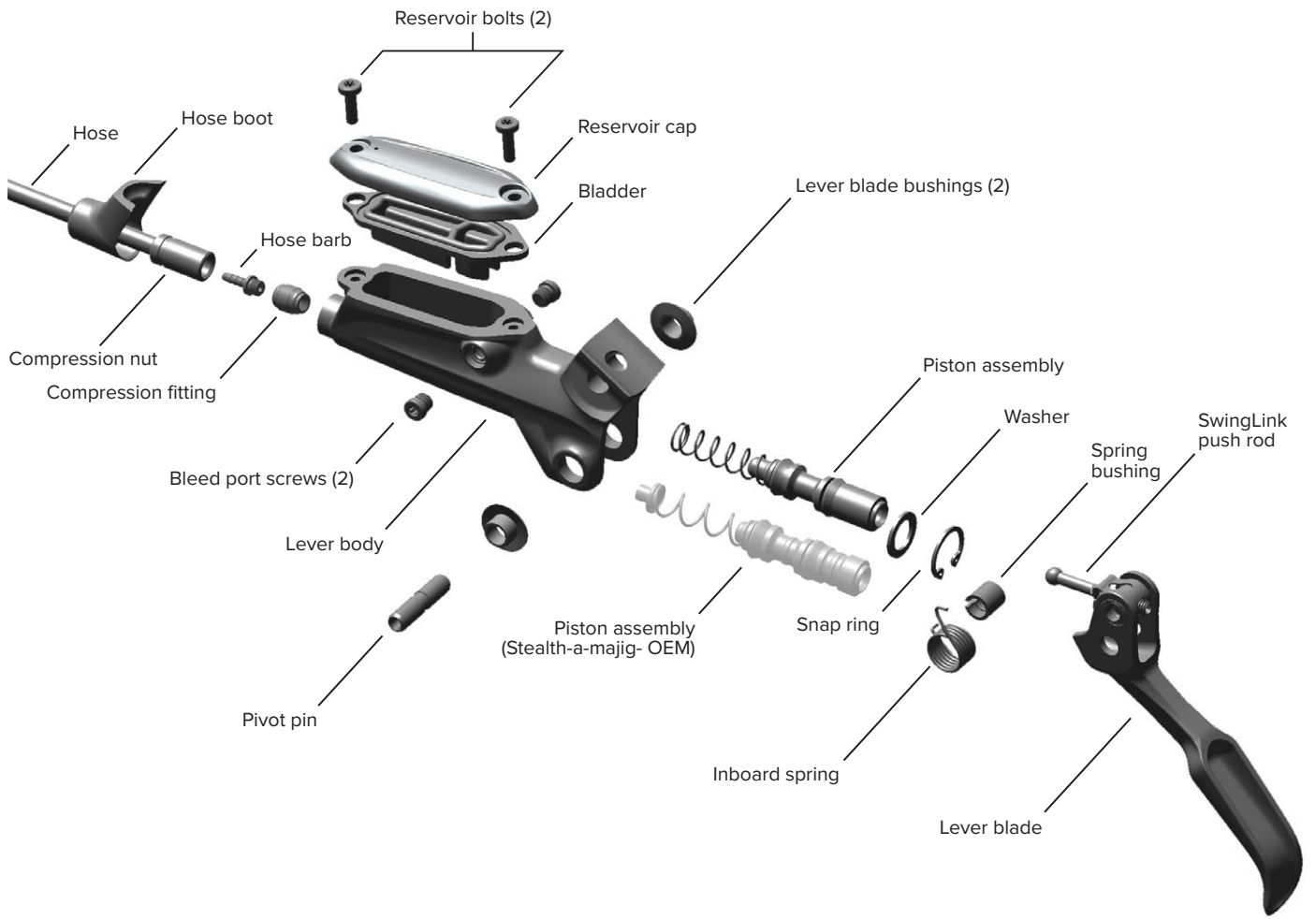
SRAM Tools

- SRAM Brake Bleed Kit
(includes: Bleed Block and Bleeding Edge Fitting)
- SRAM lever pivot tool
- SRAM hydraulic hose cutter

Level Ultimate Lever Exploded View



Level TLM & TL Lever Exploded View



NOTICE

DOT brake fluid 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 it with isopropyl alcohol or water. Damage to painted and/or printed surfaces by DOT brake fluid is not covered under warranty.

- 1 Use a T25 TORX wrench to remove the brake clamp bolt from the discrete clamp, MMX, or XLoc (XLoc requires removal of the shifter) and remove the brake lever from the handlebar.
- 2 Pull the hose boot away from the brake body to expose the compression nut, then slide the boot down the brake hose.



- 3 Use an 8 mm flare nut wrench to unthread the hose compression nut, then pull the brake hose and compression fitting from the brake lever body.



- 4 Use a T10 TORX wrench to remove the reservoir cap bolts from the reservoir cap.



- 5 Remove the reservoir cover and bladder from the lever body.



- 6 Pour the remaining brake fluid into an oil pan. Squeeze the lever blade to force any remaining brake fluid out of the lever body.

NOTICE

If the system has been contaminated with mineral oil or DOT 5 fluid, flush all of the parts with soapy water, rinse with clean water, then allow all of the parts to dry prior to rebuilding.

Install all new seals and a new brake hose.

For the best braking performance, use only SRAM DOT 5.1 brake fluid. If SRAM fluid is not available, use only DOT 5.1 or 4 brake fluid.



- 7 Separate the bladder from the reservoir cover.

Spray isopropyl alcohol on the bladder and the reservoir cover, then clean them with a shop towel.

NOTICE

All components must be completely dry before reinstalling them. Moisture residue from cleaning the bladder can leak out of the bladder as it dries, which can be misinterpreted as a system leak, when it is not.



8 **Ultimate:** Use a T10 TORX wrench to remove each lever pivot bolt.



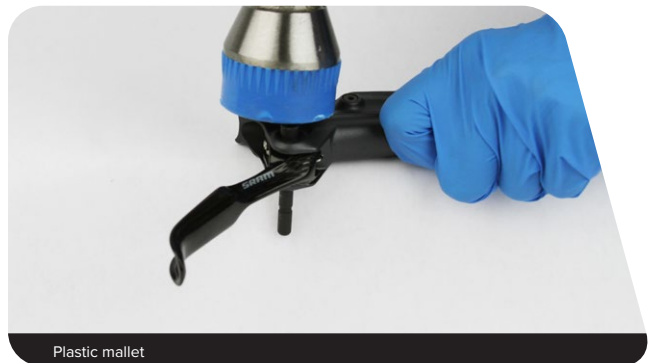
TLM/TL: Use a 2 mm hex wrench to rotate the reach adjust counter-clockwise and set the reach adjust position to the minimum setting.



TLM/TL: Place the lever body on the edge of a table, allowing the pivot pin to hang off of the side of the table, then insert the SRAM aftermarket lever pivot tool into the pivot pin slot.



TLM/TL: Use a plastic mallet to tap the pivot pin until it dislodges from the lever body completely.



9 Remove the inboard spring from the spring hole.



10 Remove the lever blade from the lever body.



TLM/TL: The spring and spring bushing will separate from the lever blade. Insert a new spring bushing into the spring.



11 **TLM/TL:** Remove the lever blade bushings from the lever body and replace with new lever blade bushings.



Piston Assembly Removal

- 1 Use long-tipped internal snap ring pliers to compress the piston assembly into the lever body as you remove the snap ring.



- 2 Remove the washer located beneath the snap ring.



- 3 Remove the piston assembly.



- 4 Spray isopropyl alcohol on and in the lever body, the lever blade, and both of your gloves, then clean them with a shop towel.

NOTICE

DOT brake fluid 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 it with isopropyl alcohol or water. Damage to painted and/or printed surfaces by DOT brake fluid is not covered under warranty.

- 1** Submerge the new piston assembly in SRAM DOT 5.1 brake fluid.
If SRAM fluid is not available, only use DOT 5.1 or 4 brake fluid.



- 2** Insert the piston assembly into the lever body.
Spray isopropyl alcohol on the lever body and both of your gloves, then clean them with a shop towel.



- 3** Install the washer on the piston assembly.
Use long-tipped internal snap ring pliers to push the piston assembly into the lever body, and secure the snap ring in the lever body.



Lever Blade Installation

- 1 TLM/TL:** Insert the lever spring and bushing into the lever blade so that one end of the spring is braced against the lever blade and the other extended beyond the blade.

Hold the spring and bushing in place throughout the lever installation process.



- 2** Insert the push rod into the piston that is inside the lever body.



- 3** Insert the hooked end of the spring into the spring hole in the lever body.



4 Ultimate: Make sure the holes in the spring, bushing, and lever blade align with the pivot bolt holes in the lever body.

Use a T10 TORX wrench to thread each new pivot bolt into the bearings on each side of the lever body until they are hand tight.



T10 TORX wrench

TLM/TL: Insert the pin on the SRAM Lever Pivot tool through the lever body bushings, lever spring, and the spring bushing.

Insert the pin on the SRAM Lever Pivot tool onto the pivot pin.



SRAM lever pivot tool

Push the pivot pin through the lever body so that it is flush with the lever body on both sides.

Remove the pivot pin tool.



5 Ultimate: Use a torque wrench and a T10 TORX bit socket to tighten each pivot bolt to 1.2 N·m (11 in-lb).



T10 TORX bit

1.2 N·m (11 in-lb)

- 6** Press the bladder into the reservoir cap. The bladder must be flush with the edge of the cap to be properly installed.



- 7** Place the reservoir cap/bladder assembly onto the lever body.



- 8** Use a torque wrench and a T10 TORX bit socket to tighten each reservoir cap bolt to 1.2 N·m (11 in-lb).



- 9** Spray isopropyl alcohol on the lever body and clean it with a shop towel.



- 10 Cut the hose to install a new barb and compression fitting.

NOTICE

You must install a new hose barb and compression fitting before reconnecting the brake lever to the hose.



SRAM hydraulic hose cutter

- 11 Apply DOT grease to the hose barb threads. Thread the hose barb into the hose until it is flush with the end of the hose.

NOTICE

Do not overtighten the hose barb. Overtightening may cause damage to the hose liner.



T8

DOT grease

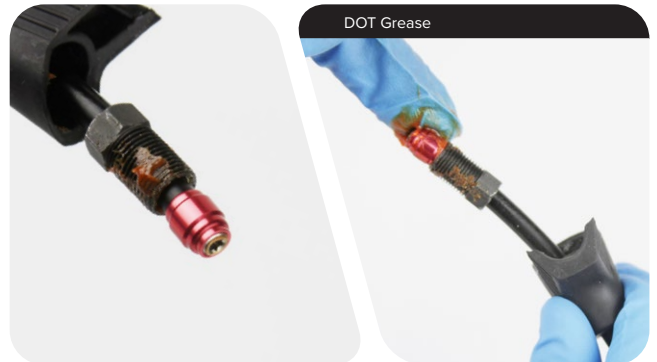
- 12 Install the compression nut onto the hose.



- 13 Thread the compression fitting over the hose barb, counter-clockwise, until it is flush or slightly lower than the hose barb.

The compression fitting is reverse threaded.

Apply DOT grease to the outside of the compression fitting and the threads of the compression nut.



DOT Grease

14 Install the compression fitting and nut into the lever.



15 Tighten the compression nut.
Clean the lever.
Slide the hose boot onto the compression nut.



⚠ CAUTION

Servicing your brakes removes all of the fluid from the system. You must bleed the brakes after you service the brake caliper and/or lever. For brake bleed, brake hose shortening, and brake pad replacement instructions, visit www.sram.com/service.

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. This transfer layer optimizes braking performance. To watch a video of the bed-in procedure, visit www.sram.com/service.

⚠ WARNING- CRASH HAZARD

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 crash, which 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.

To safely achieve optimal results, remain seated on the bike during the entire bed-in procedure. Do not lock up the wheels at any point during the 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.
- Allow the brakes to cool prior to any additional riding.
- After the bed-in procedure has been performed, the caliper may need to be re-centered.

Level Ultimate Lever Bearing Replacement

This service requires the Lever Pivot Bearing Press Tool

- 1 Install the threaded bearing press into the lever body with the recessed face of the press facing the bearing to be removed.



- 2 Install the bearing press onto the bearing press bolt and thread into the threaded bearing press.



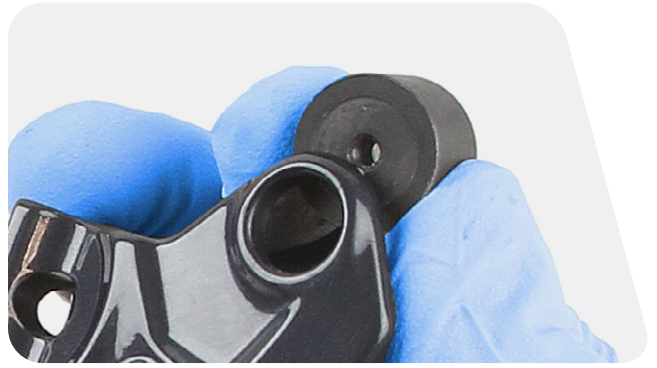
- 3 Tighten the bearing press bolt until the bearing is pressed through the lever body and into the threaded bearing press tool recess.
Unthread the bearing press bolt to remove the tools and old bearing.
Discard the bearing.
Repeat steps 1-3 to remove the other bearing.



- 4 Clean the lever body bearing bores.



- 5** To install a new bearing insert the threaded bearing press into the lever body with the flat face toward the bearing bore.



- 6** Place a new bearing into the bearing bore.
Install the bearing press onto the bearing press bolt and thread into the threaded bearing press.

Do not reuse bearings that have been removed.



- 7** Tighten the bearing press bolt until the bearing is pressed into the lever body.

Unthread the bearing press bolt to remove the tools from the lever body.

Repeat steps 5-7 to install the other new bearing.



To continue with lever service, go to [Piston Assembly Removal](#).

If you do not need to service your lever internals, go to [Lever Blade Installation](#) to assemble the brake lever.

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