SERVICE MANUAL – DIRETTISSIMA/MAXIMA PUMP

V2024_02

CONTENT

1. General information

1. Read the manual completely before using the products and follow the instructions contained in these instructions when installing, using and maintaining the product in order to avoid personal injury and damage to property.
2. The installation and maintenance of Trickstuff products require a basic knowledge of handling bicycle components and should only be performed by qualified bicycle mechanics. During installation or maintenance, clean working conditions must be ensured so that dirt entry into the brake systems is avoided.
3. If any of the instructions in this manual are unclear, do not proceed with installation or maintenance. Contact your local Trickstuff dealer or the Trickstuff support-team.

2. Safety

The installation, use and maintenance of Trickstuff products requires that you have read and understood the following safety instructions.

1. General safety instructions

- Always follow the instructions in the manual when working on Trickstuff products.
- We recommend only Trickstuff products for the use with Trickstuff brakes.
- When working on the system, pay attention to appropriate personal protective equipment such as gloves and safety goggles.
- Trickstuff products are to be used exclusively in accordance with their intended use. Otherwise the user assumes the responsibility.

Warning!
Improper installation, use and maintenance of components pose a considerable risk and can lead to accidents with serious injuries including death.

2. Brake pads and brake discs

- Visually inspect the brake pads and rotors before each ride:
  - Worn brake pads and/or brake discs can lead to sudden brake failure.
  - Lubricants such as oil or grease on the brake pad or brake disc can limit the effectiveness of the brake.
  - Corrosion can cause the friction material to detach from the backing plate, resulting in brake failure. Replace brake pads that show signs of rust immediately.

TRICKSTUFF® GMBH
SCHWABENMATTEN 17A
79292 PFAFFENWEILER
GERMANY
TECH-SUPPORT@TRICKSTUFF.DE

- Brake pads should not be under a minimum thickness of 0.5mm.
- Brake discs must not show any deformations or cracks and must be mounted in the correct direction of rotation.
- Brake discs must have a minimum thickness of 1.6mm.

- In case of damage to the brake pads and/or brake discs, stop using them immediately and replace them with new brake pads or brake discs.
- Brake pads may only be used with a compatible caliper.
- Before working on brake calipers or brake discs, make sure that they are no longer hot and that the brake discs are no longer spinning. Heat and rotation can cause burns, bruises, cuts and other injuries.
- When installing brake pads, only use the original pad spring, pad retaining bolt and safety clip.
- Check the functionality of the brake after mounting or replacement of brake pads and/or brake discs.

3. Brake

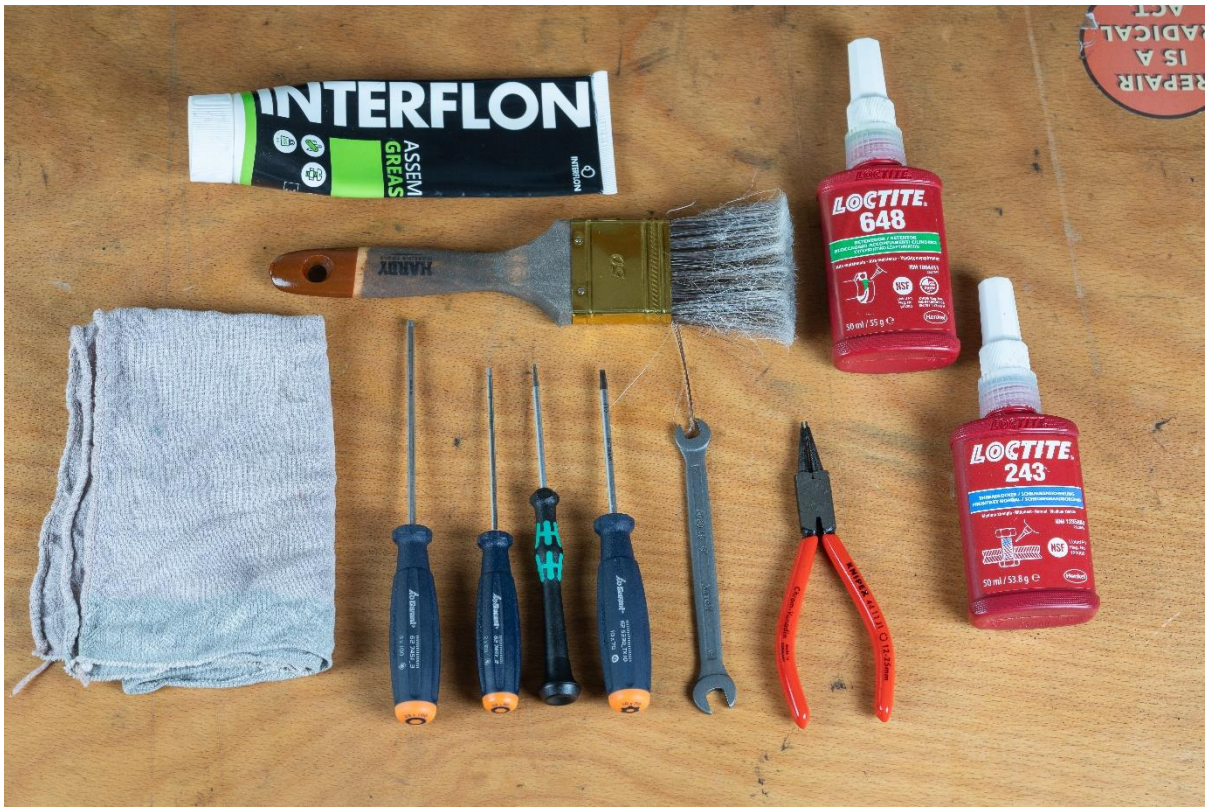
Warning!
If the brake is used with deficiencies it can fail and lead to accidents with serious injuries including death.

- Check the brake before and after each use of your bike and check for damages.
- If there is damage or signs of damage, the brakes must not be used. If in doubt, contact your local Trickstuff dealer or the Trickstuff support-team.
- If the brake leaks oil under high or low pressure, do not continue riding and contact the Trickstuff support-team immediately.
- The brake must be compatible with all parts of the bike. The maximum system weight of the brake must not be exceeded.
- Trickstuff brakes are only as good as the pilot who uses them. Proper braking technique is essential. Improper braking can lead to accidents with serious injuries.
  - Permanent braking should be avoided. When braking, do not drag the brake steadily, but brake in bursts if the ground will allow. Continuous heat input from a permanently dragging brake can cause the brake to overheat, preventing sudden braking and thus leading to serious accidents with risk of injury. Likewise, permanent braking on changing ground conditions such as rolling gravel, wet ground, loam, rocks, road markings, etc. can cause loss of control.
  - Excessive pulling of the front brake can lead to rollover.

TRICKSTUFF® GMBH
SCHWABENMATTEN 17A
79292 PFAFFENWEILER
GERMANY
TECH-SUPPORT@TRICKSTUFF.DE

3. Tools

- TX10 key
- HEX1.5mm key
- HEX2mm key
- HEX3mm key
- 7mm open-end wrench
- 8mm open-end wrench
- Brush for cleaning
- Shop-towels
- Circlip pliers Knipex 44 11 J1
- Assembly grease (e.g. Interflon assembly grease)
- Medium strength thread locker (e.g. Loctite 243)
- High strength thread locker (e.g. Loctite 638)



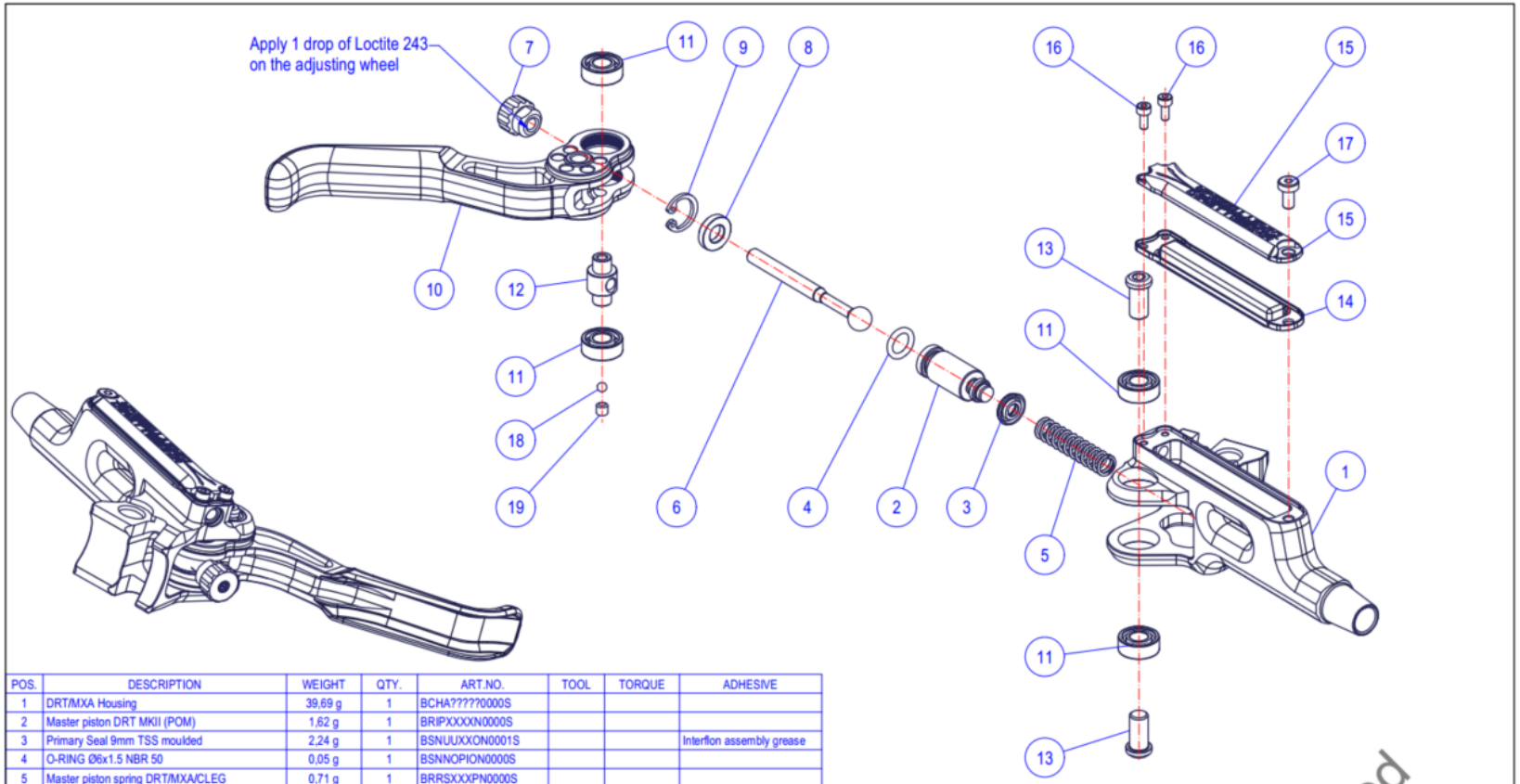
TRICKSTUFF® GMBH
SCHWABENMATTEN 17A
79292 PFAFFENWEILER
GERMANY
TECH-SUPPORT@TRICKSTUFF.DE

Service Kits:

To service the brake pump, one service kit is required for each brake pump (i.e. two kits for one set of brakes).

- Regular service: KIT SEALS & PISTON DRT+MXA PUMP OIL ASM

TRICKSTUFF® GMBH
SCHWABENMATTEN 17A
79292 PFAFFENWEILER
GERMANY
TECH-SUPPORT@TRICKSTUFF.DE



POS.	DESCRIPTION	WEIGHT	QTY.	ART.NO.	TOOL	TORQUE	ADHESIVE
1	DRT/MXA Housing	39,69 g	1	BCHA????0000S			
2	Master piston DRT MKII (POM)	1,62 g	1	BRIPXXXXN0000S			
3	Primary Seal 9mm TSS moulded	2,24 g	1	BSNUUXXON0001S			Interflon assembly grease
4	O-RING Ø6x1.5 NBR 50	0,05 g	1	BSNNOPION0000S			
5	Master piston spring DRT/MXA/CLEG	0,71 g	1	BRRSXXXPN0000S			
6	Piston rod DRT/MXA M4 long	4,4 g	1	BRSSKDIPN0000S	HEX2	-	-
7	Wheel DRT/MXA tool free reach adjust.	1,29 g	1	BCZADRTP?0000S	WS7	2,0 - 2,5Nm	Loctite 243 (1 drop)
8	Free stroke spacer 2.0 DRT	0,89 g	1	BRZSDRTXN0000S			
9	Circlip 10x1 DIN472 Type J	0,27 g	1	BSSSC101N0000S			
10	Finger lever DRT	17,27 g	1	BCLADRTP?0000S			
11	BALL BEARING DRT/MXA	1,62 g	4	BSBSXXXXN0000S			
12	Barrel nut DRT	0,94 g	1	BRSSNXXXN0010S			
13	PIVOT BOLT DRT/MXA M5 LOCK	0,65 g	2	BNSALXXX?0000S	HEX3	2 - 2,8Nm	-
14	Membrane DRT/MXA	0,76 g	1	BRNNDXXXN0000S			
15	Reservoir lid DRT	2,45 g	1	BCEADRTP?0000S			
16	CYLINDER HEAD SCREW ISO4762 M2x5-A2	0,28 g	2	BSSSXDRTN0000S	HEX1,5	Max. 0,15Nm	Loctite 243 (1 drop)
17	CYLINDER HEAD SCREW DIN7984 M3x6-A2	0,67 g	1	BSSSXDRTN0001S	HEX2	Max. 0,3Nm	Loctite 243 (1 drop)
18	Barrel nut locking ball DRT	0,01 g	1	BRSSNXXXN0011S			
19	SET SCREW DIN913 M3x3-A1	0,14 g	1	BRSSSXXXN0010S	HEX1,5	0,3 - 0,5Nm	Loctite 648 (1 drop)

	Article number: BCMADRT??0007S	Weight: 82 g	Date: 01.12.2023	A3
TRICKSTUFF Trickstuff GMBH Schwabenmatten 17A 79292 Pfaffenweiler www.trickstuff.de	Project: DIRETTISSIMA		Scale: 1 : 1	
	Title: DRT Pump, Bionol		Drawing number: 10056363	
	This document shall not be copied nor be made available to any third parties without our written consent !		Old drawing no:	

TRICKSTUFF® GMBH
SCHWABENMATTEN 17A
79292 PFAFFENWEILER
GERMANY
TECH-SUPPORT@TRICKSTUFF.DE

Overview M4-/M5 connectors:

	Caliper					Pump	
Product	C21	C22	C41	C42	MXA	DIRETTISSIMA/ MAXIMA	PICCOLA
Connector	M5	M4	M5	M4	M5	M4	M5

You will also need the appropriate tools to remove the brake from the bike in accordance with the operating instructions.

Note: Trickstuff brakes are designed for use with organic, biodegradable Trickstuff "Bionol" oil. Never use DOT brake fluids (e.g. DOT4/5/5.1/etc.), otherwise the seals of the brake system will be damaged and the brake can no longer be used without an inspection.

Note: Only use new Bionol. Drained Bionol should not be reused.

TRICKSTUFF® GMBH
SCHWABENMATTEN 17A
79292 PFAFFENWEILER
GERMANY
TECH-SUPPORT@TRICKSTUFF.DE

4. Service brake pump

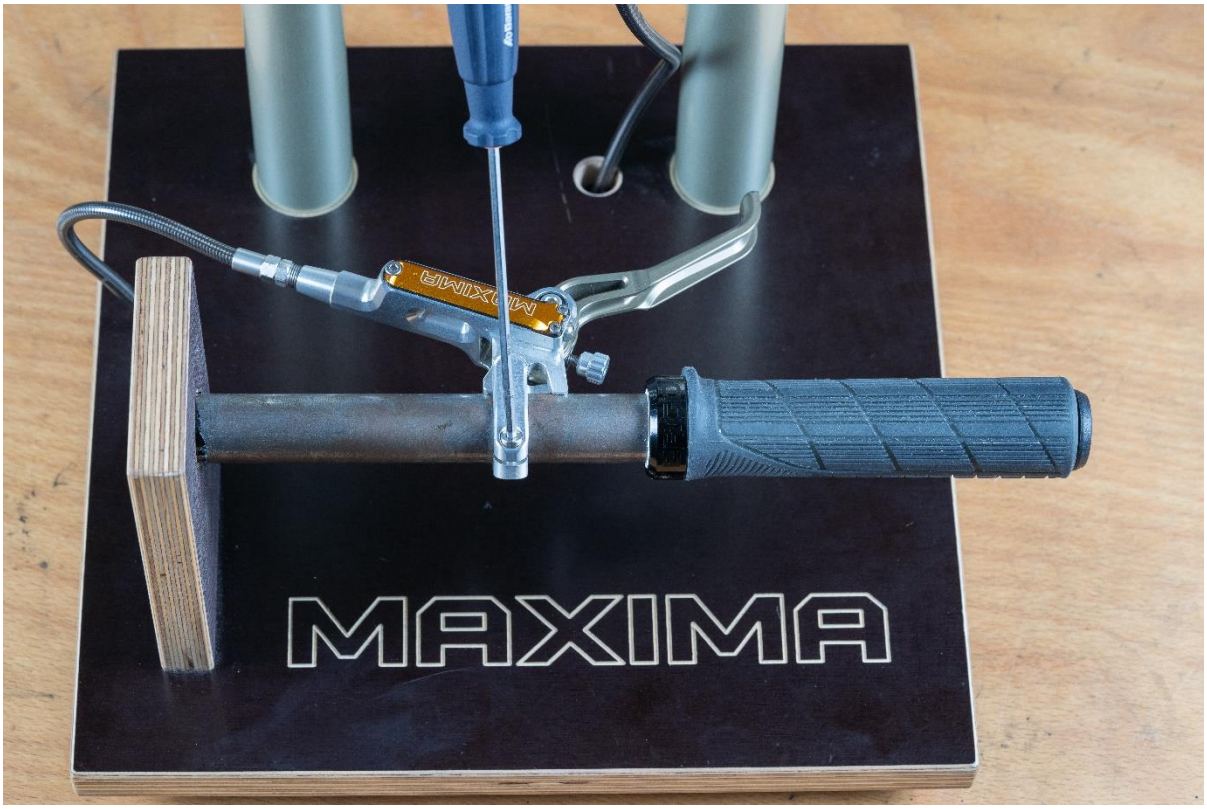
The following service manual includes service for the whole brake pump assembly, its disassembly and exchange of all seals. The process is identical for Direttissima and MAXIMA brake pumps.

Preparation

1. Fix your bike in a bike stand and dismount the wheels.
2. Fully push back the caliper pistons. If you use the wooden Piston-Push-Back-Tool, first remove the brake pads and then push back the caliper pistons. If you use the Triple-B-Tool, first push back the caliper pistons and then remove the brake pads, to avoid damaging the pistons. Take care not to tilt the pistons in this process, if in doubt release the applied force and start over.

TRICKSTUFF® GMBH
SCHWABENMATTEN 17A
79292 PFAFFENWEILER
GERMANY
TECH-SUPPORT@TRICKSTUFF.DE

3. Remove the brake pump from your handlebar including clamps and interfaces. Use tools according to the respective manual. Note the lever distance to adjust it to the same setting after the service.



TRICKSTUFF® GMBH
SCHWABENMATTEN 17A
79292 PFAFFENWEILER
GERMANY
TECH-SUPPORT@TRICKSTUFF.DE

4. Use an 8mm open-end-wrench to remove the brake hose from the brake pump.

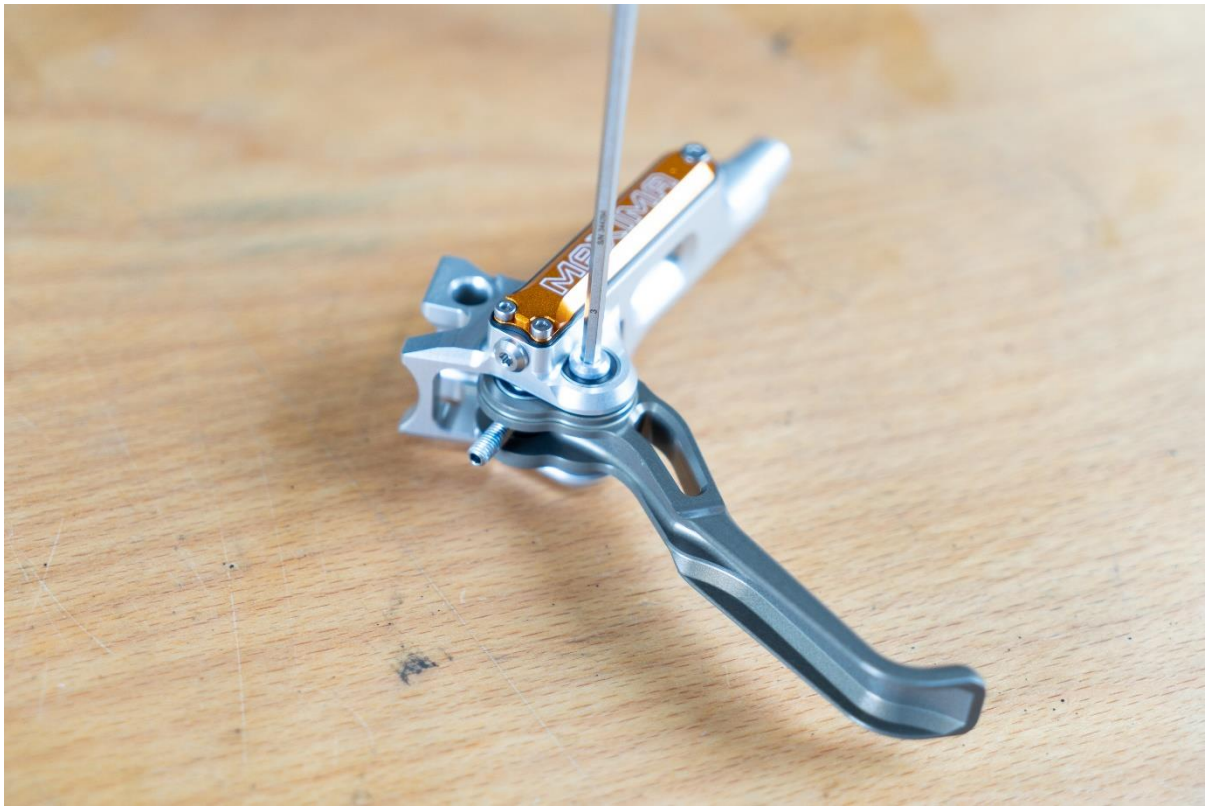
TRICKSTUFF® GMBH
SCHWABENMATTEN 17A
79292 PFAFFENWEILER
GERMANY
TECH-SUPPORT@TRICKSTUFF.DE

Disassembly of the brake pump

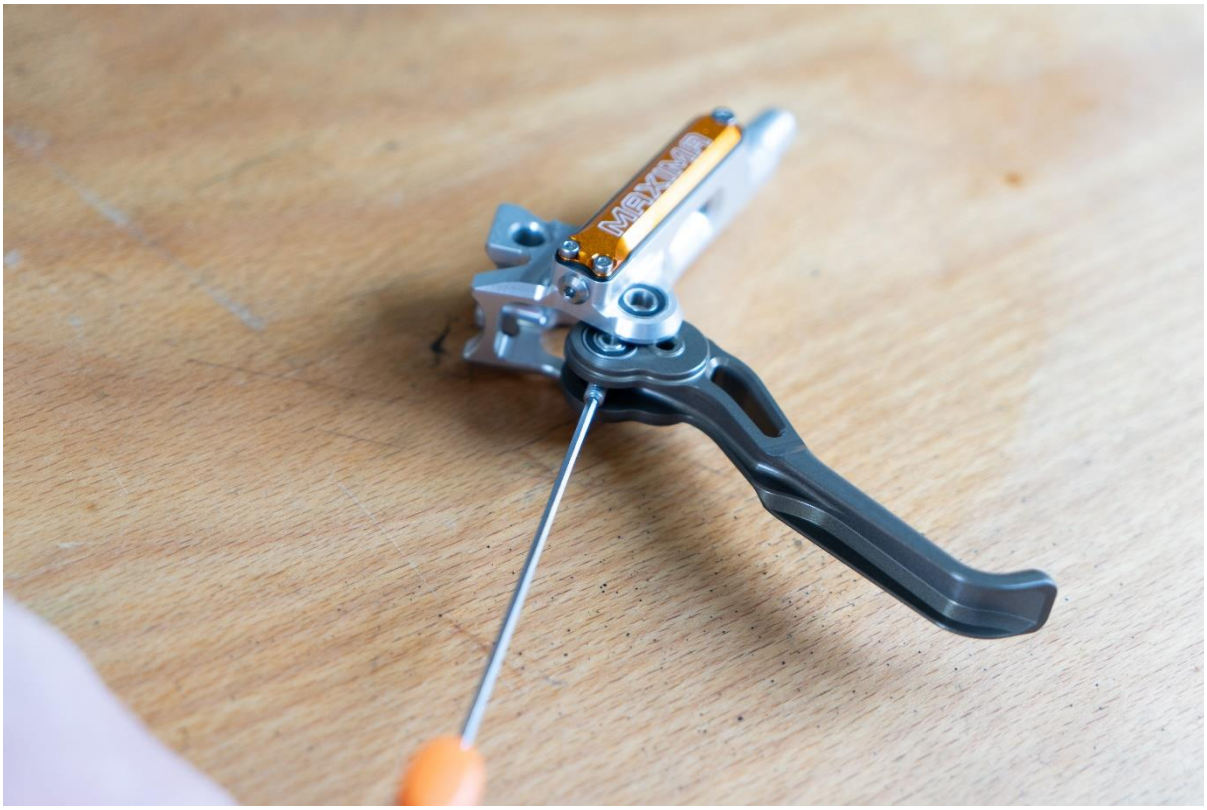
1. Remove the dial for tool-free reach adjustment using a 7mm open-end-wrench and a HEX2mm key.

TRICKSTUFF® GMBH
SCHWABENMATTEN 17A
79292 PFAFFENWEILER
GERMANY
TECH-SUPPORT@TRICKSTUFF.DE

2. Remove both pivot bolts (upper and lower) using a HEX3mm key.

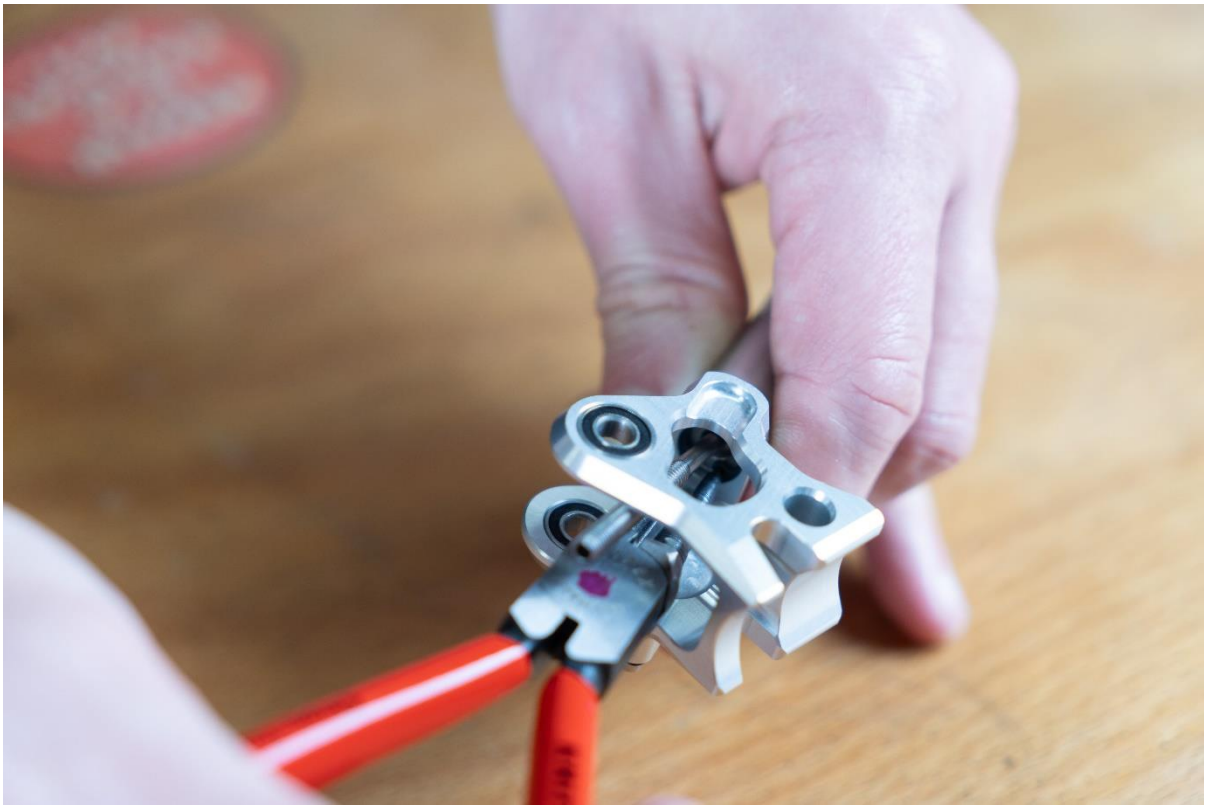


3. Use a HEX2mm key to remove the lever blade from the piston rod. Use a shop towel to clean the lever blade and put it aside, further service on the lever blade is not necessary.

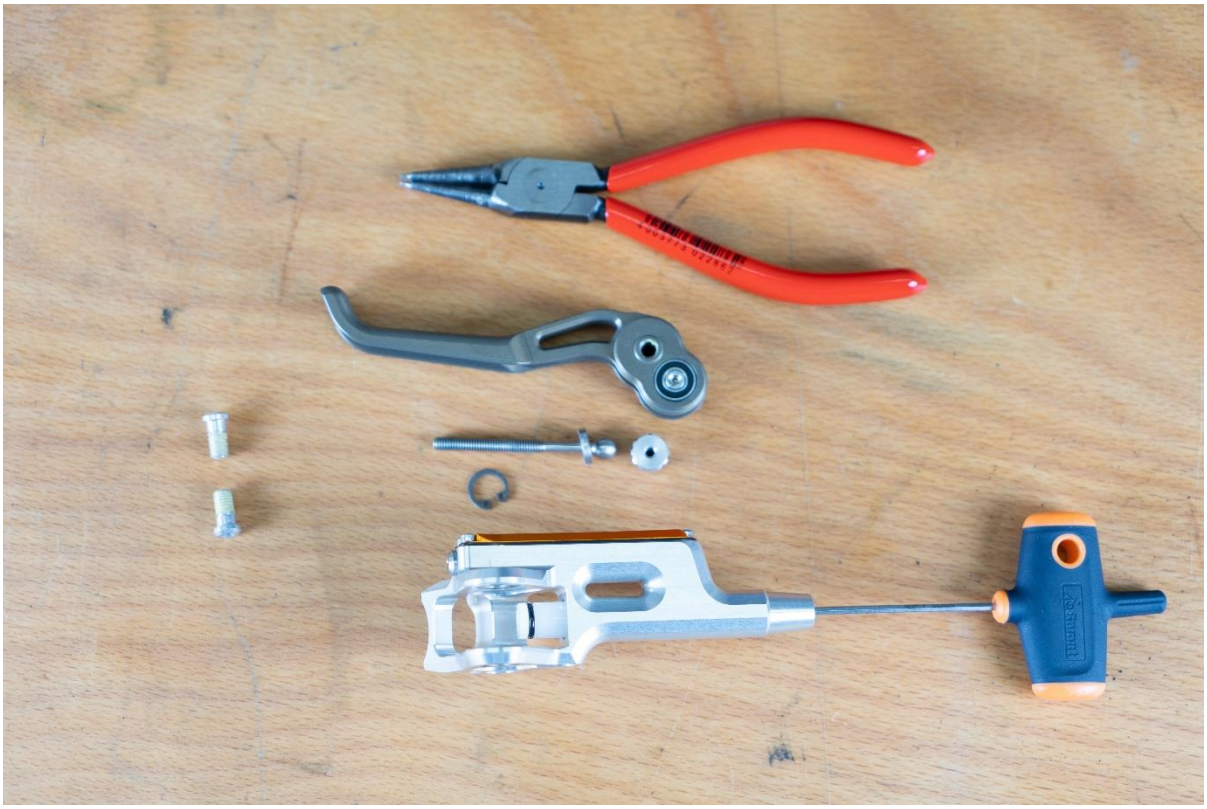


TRICKSTUFF® GMBH
SCHWABENMATTEN 17A
79292 PFAFFENWEILER
GERMANY
TECH-SUPPORT@TRICKSTUFF.DE

4. Remove the circlip with circlip pliers (e.g. Knipex 44 11 J1) from the pump housing. The used circlip should be replaced and not used again.
   Note: Please dispose of the to-be-replaced parts according to your local recycling guidelines.



5. To remove the pump piston, use a HEX2mm key (or similar long slim tool) and push the piston out from the front side in a straight line.
   Note: Take care not to scratch the cylinder surface during this step. Remove the pump piston from the spring and dispose of both of them.



TRICKSTUFF® GMBH
SCHWABENMATTEN 17A
79292 PFAFFENWEILER
GERMANY
TECH-SUPPORT@TRICKSTUFF.DE

6. Remove the three bolts from the reservoir cap (2x M2+1x M3) using HEX2mm and HEX1.5mm keys. Take out the membrane and discard it. Soak up leaking oil with a shop towel.

TRICKSTUFF® GMBH
SCHWABENMATTEN 17A
79292 PFAFFENWEILER
GERMANY
TECH-SUPPORT@TRICKSTUFF.DE

7. Lastly, remove the bleed bolt using a TX10 key. Dispose of the old O-ring and put a new one on.

8. Clean pump housing and reservoir cap with warm water and a liberal amount of washing-up liquid. Works best in combination with a soft brush and a lot of clean water for rinsing afterwards. Before assembly, make sure everything is properly dried and no water residue remains. You can dry the pump with compressed air or by putting it on a household radiator for some time.
9. Use a flashlight to check the cylinder surface for cleanliness, scratches and possible damage/debris. If you find your cylinder surface damaged, please contact the Trickstuff-Support.

TRICKSTUFF® GMBH
SCHWABENMATTEN 17A
79292 PFAFFENWEILER
GERMANY
TECH-SUPPORT@TRICKSTUFF.DE

Assembly of the brake pump

Note: The reservoir cap is slightly bent for equal preload of the sealing reservoir membrane (see image below).

1. First put the reservoir cap on a new membrane. The surrounding seal lip should show no damages and equal distance all around. Now put the reservoir cap on the pump housing, as shown in the image below.
   Note (MAXIMA): Now is the time to put the correct MAXIMA-Cap on the left/right pump housing, left and right reservoir cap differ in logo orientation! Regularly, the logo faces away from the rider.

TRICKSTUFF® GMBH
SCHWABENMATTEN 17A
79292 PFAFFENWEILER
GERMANY
TECH-SUPPORT@TRICKSTUFF.DE

2. In the next step the reservoir cap bolts will be mounted.
   Warning: If not carefully mounted according to this process, you can damage the membrane. Please follow these steps:
   1. Apply medium strength thread locker (e.g. Loctite 243) to the M3 bolt and apply 3-4 clockwise turns with a HEX2mm key. Torquing down happens a little later.
   2. Apply medium strength thread locker (e.g. Loctite 243) to the M2 bolt and apply 3-4 clockwise turns with a HEX1.5mm key. Torquing down happens a little later.
   3. Check correct seating of membrane sealing lip around the cap. It should not show gaps or be folded under the cap.
   4. Apply torque to the M3 bolt, until you can feel that you are just starting to compress the rubber membrane. From this point, add ¼ turn more. Adding more torque to the screw can damage the seal.
   5. Apply torque to both M2 bolts in the same way, one after the other. Screw in until you feel an increase in torque resistance (=compression of the seal), then add ¼ turn to that. The membrane and its sealing lip should be equally compressed all around now.

Note: To check whether the assembly of the membrane was successful, you can apply negative and positive pressure (alternating) to the syringe during bleeding after the service. If the seal is damaged, drawing a vacuum at the brake pump with the bleeding syringe will result in air intake, or positive pressure can result in oil exit. In this case, take off the membrane again and check it for damages optically, then give the assembly another try.

3. Mount the new piston spring on a new pump piston. Apply a small amount of grease (e.g. Interflon Assembly Grease) to the primary seal as shown in the picture.

TRICKSTUFF® GMBH
SCHWABENMATTEN 17A
79292 PFAFFENWEILER
GERMANY
TECH-SUPPORT@TRICKSTUFF.DE

4. Push the pump piston into the pump housing. This should show only minimal resistance.

TRICKSTUFF® GMBH
SCHWABENMATTEN 17A
79292 PFAFFENWEILER
GERMANY
TECH-SUPPORT@TRICKSTUFF.DE

5. Put the free stroke spacer on the piston rod. Then mount the new circlip like shown in the image below.
   Note: Circlips have a sharp and a dull outer edge. When mounting the circlip, make sure the sharp edge is engaged, it has to face outwards ("sharp edge facing ← left ← in picture below").

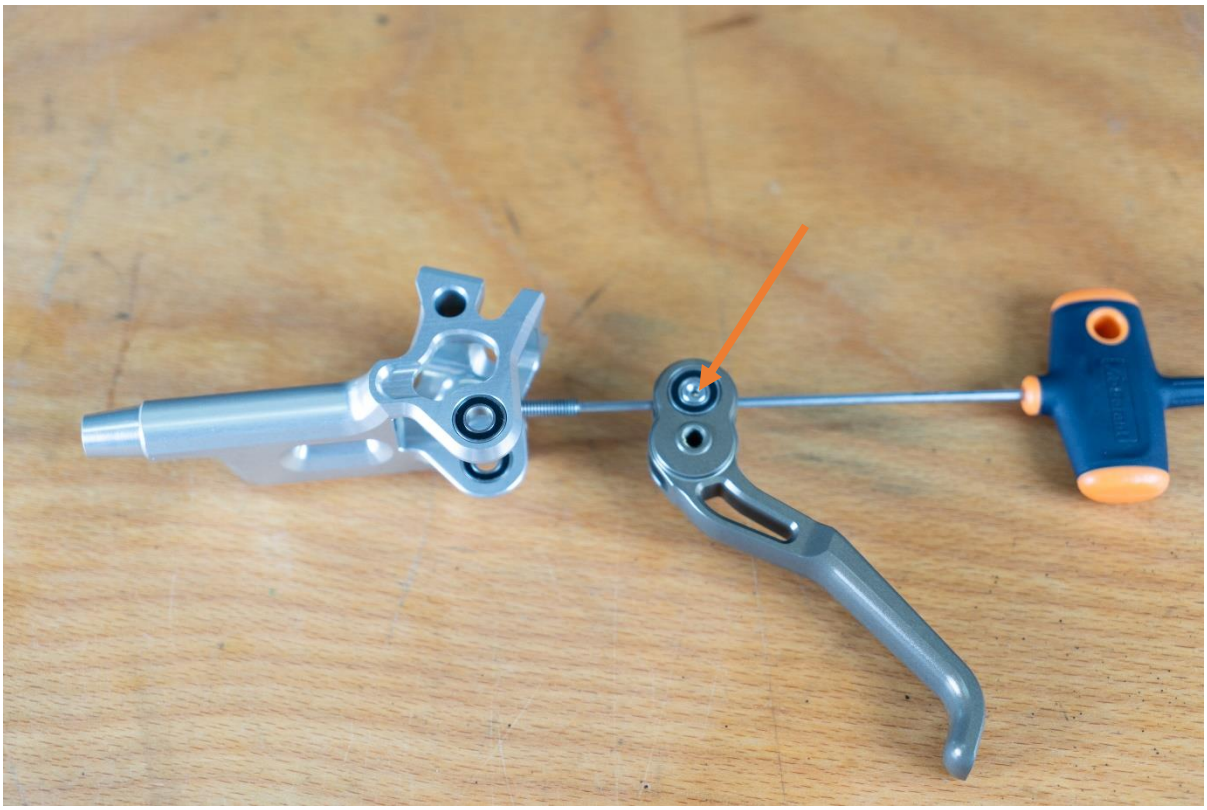
TRICKSTUFF® GMBH
SCHWABENMATTEN 17A
79292 PFAFFENWEILER
GERMANY
TECH-SUPPORT@TRICKSTUFF.DE

6. Mount the circlip together with the piston rod and the free stroke spacer into the pump housing. Use circlip-pliers (e.g. Knipex 44 11 J0) for the assembly of the circlip. This step can be a little fiddly, it can be necessary to start over. Best way is to do it like shown in the image below. Check the circlip for correct seating, it „clicks" when it seats itself correctly.

TRICKSTUFF® GMBH
SCHWABENMATTEN 17A
79292 PFAFFENWEILER
GERMANY
TECH-SUPPORT@TRICKSTUFF.DE

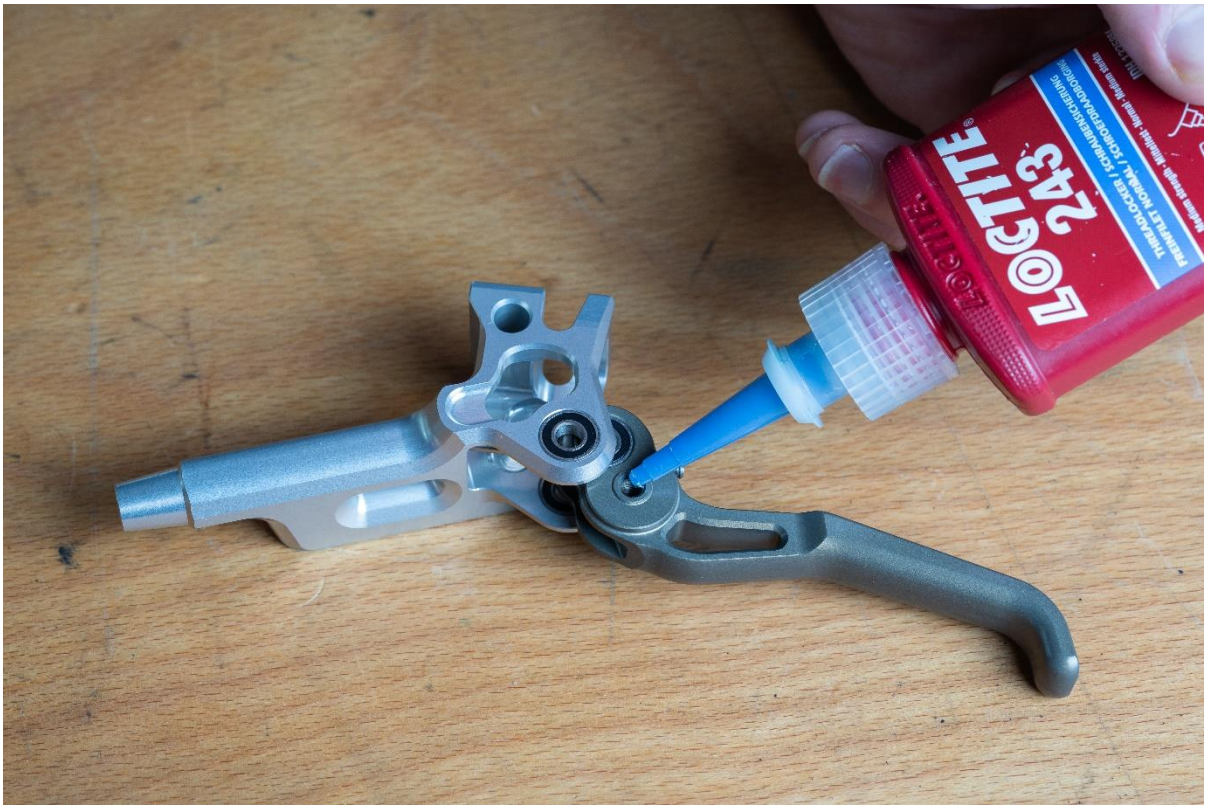
7. Use a HEX2mm key to mount the lever blade to the piston rod.

Note: Confirm that you reuse the right lever with the right pump housing again and vice versa. Otherwise the bolt for play adjustment (see image below) can't be reached with the tool later on.



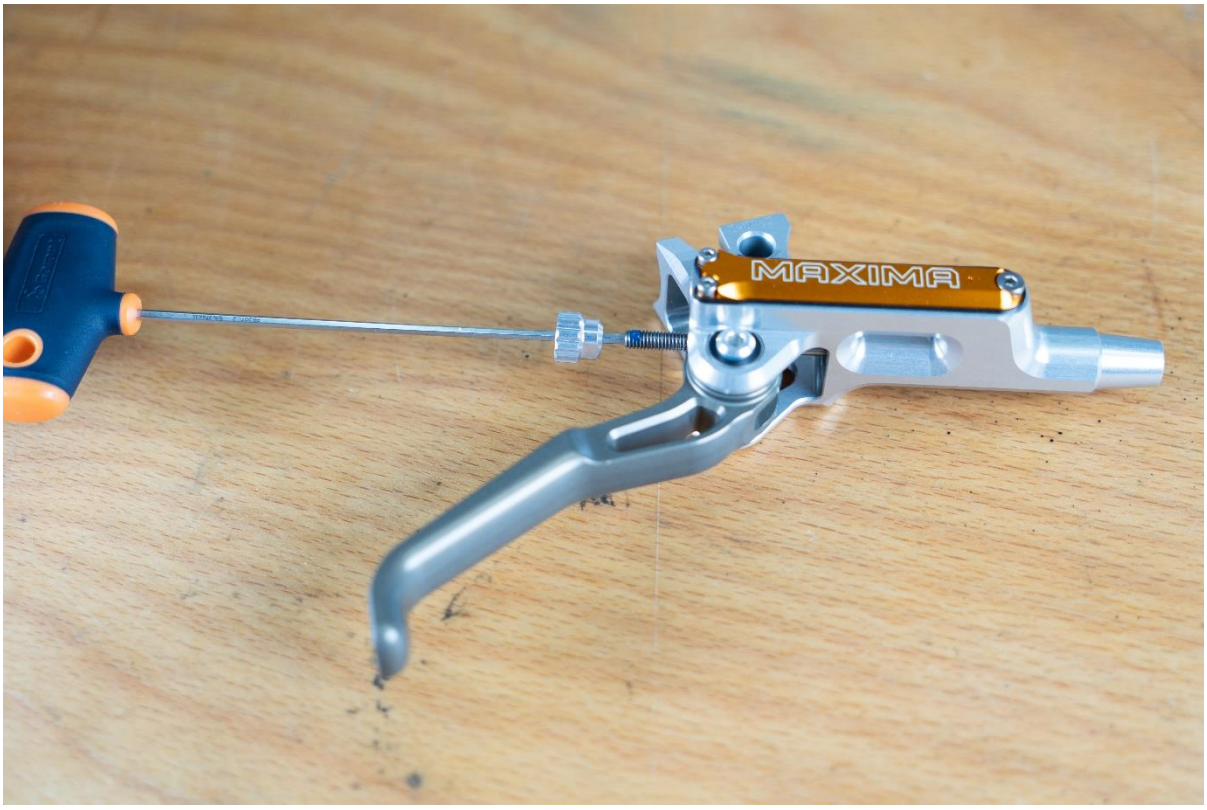
TRICKSTUFF® GMBH
SCHWABENMATTEN 17A
79292 PFAFFENWEILER
GERMANY
TECH-SUPPORT@TRICKSTUFF.DE

8. Mount the pivot bolts using a HEX3mm key. New bolts are precoated with medium strength thread locker. If you remount previously used bolts, apply medium strength thread locker (e.g. Loctite 243).
   Note: Apply thread locker to the inner threads, as shown in the picture below. This way you avoid fixing the bearings to the pivot bolts.



TRICKSTUFF® GMBH
SCHWABENMATTEN 17A
79292 PFAFFENWEILER
GERMANY
TECH-SUPPORT@TRICKSTUFF.DE

9. Before mounting the dial back onto the piston rod, make sure to apply medium thread locker to this connection as well. Use a 7mm open-end wrench for tightening.



TRICKSTUFF® GMBH
SCHWABENMATTEN 17A
79292 PFAFFENWEILER
GERMANY
TECH-SUPPORT@TRICKSTUFF.DE

10. Check the lever blade movement for unwanted play. If detected, use the locking bolt on the backside of the brake pump for adjustment:
    1. Before trying to move the bolt, use a heat gun to warm the bolt to release the thread locker.
       Note: Be careful when inducing heat, to not damage the nearing bearings.
    2. After heating it up, remove the locking bolt with a HEX1.5 key and apply high strength thread locker (e.g. Loctite 648) before mounting it again.
       Note: In this bore, there is a small plastic ball, which gets deformed against the threads of the piston rod. This eliminates play in the lever movement. Apply torque to the locking bolt until the play is gone, but only so much that it doesn't prevent you from manually turning the dial.

TRICKSTUFF® GMBH
SCHWABENMATTEN 17A
79292 PFAFFENWEILER
GERMANY
TECH-SUPPORT@TRICKSTUFF.DE

3. Install the brake hose with its fitting back to the freshly serviced brake pump. Use an 8mm open-end wrench and 4-6Nm of torque to finish the installation.

4. Bleed the brake system according to the respective manual and mount it back on your bike

Technical changes, errors and misprints excepted.

TRICKSTUFF® GMBH
SCHWABENMATTEN 17A
79292 PFAFFENWEILER
GERMANY
TECH-SUPPORT@TRICKSTUFF.DE