



## installation instructions

# billet aluminum clutch slave cylinder for 1991/2007 ducatis with external clutch slave cylinder (ø28.5mm bore)

part number 90041/42/43

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this **evoluzione cyclesports billet aluminum clutch slave cylinder (ø28.5mm bore)** has been developed for high performance street and racing use on 1991/2007 ducatis utilizing an external slave cylinder. important features include cnc (computer numerically controlled) billet 6061-t6 aluminum construction with 20% reduction in effort, triple x-ring seal design, ball bearing push rod pivot and a 10 year warranty against seal leakage. this kit is easy to install and includes all necessary hardware for installation.

### introduction

the **evoluzione cyclesports billet aluminum clutch slave cylinder** is easy to install by carefully following the instructions. [read all instructions first to familiarize yourself with the parts and procedures.](#)

### installation

**step 1.** if equipped, remove the left side fairing.

**step 2.** lightly lubricate the o-rings on the supplied piston with brake fluid. install the piston into the clutch slave cylinder with the piston bore facing out. push piston in all the way until seated.

**step 3.** locate the clutch slave cylinder and wrap a shop towel around the body (to catch any clutch fluid leakage). place a catch pan under the bike. using a 12mm wrench, slightly loosen (but don't remove) the banjo bolt holding the clutch line on the slave cylinder.

**step 4.** working quickly, carefully remove and discard the stock banjo bolt and the two crush washers from the slave cylinder and clutch hose. replace with a supplied banjo bolt and two crush washers. install the banjo bolt with the crush washers and the hose

onto the new slave cylinder. snug up but do not tighten the banjo bolt. carefully clean off the slave cylinder and let it hang from the hose.

**step 5.** with a 5mm allen wrench, remove the three bolts holding the stock slave cylinder to the engine. pull the slave cylinder from the engine and allow the fluid to drain into the catch pan.

**step 6.** remove and discard the rubber bellows. clean the area where the slave cylinder mounts, making sure to remove all chain lube, dirt and grease.

**step 7.** insert the supplied bearing into the piston bore, followed by the small rubber seal. fit the anodized cover into the end of the cylinder (with the raised portion facing out) and place the second rubber seal into the groove on the front of the cover. using the three supplied bolts, carefully mount the slave cylinder on the engine, making sure the cover and rubber seal

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stay in place. hand tighten the three bolts with an allen wrench.

**step 8.** adjust the clutch hose and tighten the banjo bolt.

**step 9.** completely bleed the clutch system using fresh dot 3 or 4 brake fluid (see "clutch bleeding tips" section for more info). reinstall left fairing if removed.

### troubleshooting

the basis for hydraulic systems is that a fluid (in this case clutch or brake fluid) is non-compressible. this means no matter how much you try to "squish" it, it will always occupy the same amount of volume. gases, such as air, are very compressible. if a gas is introduced into a hydraulic system, it will completely compress before the fluid can start moving. this is why your clutch or brakes can feel like they are "bled" yet you can't get them to operate correctly.

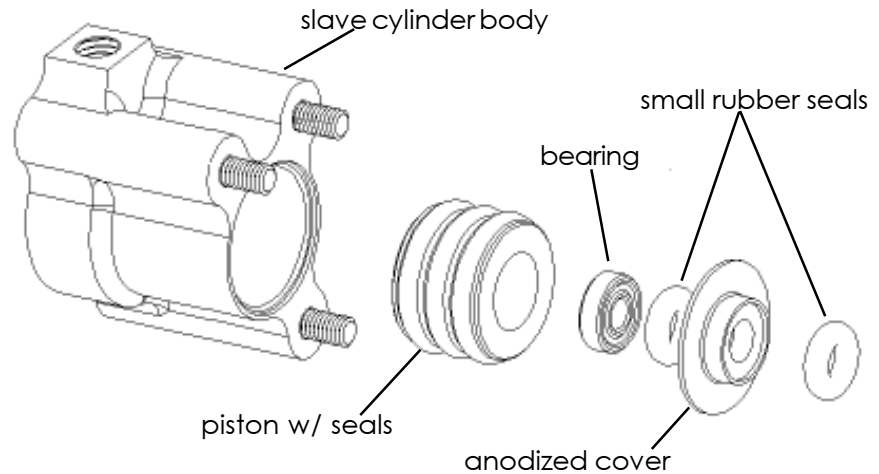
the most common problem with bleeding a clutch system is trapped bubbles. unless you do this for a living, you will most likely get air trapped in the system. though the clutch will feel like it is releasing, air bubbles will not allow full travel of the piston.

### clutch bleeding tips

if after installation (and bleeding) the clutch does not completely disengage, you will need to do a complete drain and re-bleed. in our testing, we have found the most complete way to bleed a hydraulic system is to "back bleed" the system.

**step 1.** start by completely draining your clutch system. carefully remove the lid (and bladder if equipped) from the fluid reservoir. next, remove the banjo bolt on the slave cylinder and allow the fluid to drain into a catch pan. if you do not have a bleeder valve on your master cylinder, install one at this point (such as our **p/n 90040 - evoluzione cyclesports banjo bolt w/bleeder**).

**step 2.** carefully pour brake fluid into the reservoir up to the "min"



line - do not overfill (do not spill any fluid - it is corrosive and can remove paint).

**step 3.** remove the three bolts holding the slave cylinder on the engine and remove the slave cylinder. hold the slave cylinder with the front (logo) pointing up and gently push the piston back into the bore with your thumb. make sure and watch that the fluid does not rise too high in the reservoir. this will force any air trapped in the slave cylinder back into the line and master cylinder. reinstall the slave cylinder.

**step 4.** wrap some towels around the **master cylinder** bleeder valve and attach the supplied bleeder cup. with an open-end wrench, gently open the bleeder valve 1/8 of a turn. carefully pump the master cylinder lever several times until you get a steady stream of fluid

coming into the bleeder cup (no air bubbles). note: you may need to fill the reservoir several times during this step.

**step 5.** fully close the bleeder valve and remove the bleeder cup and tubing - be careful not to spill any fluid.

**step 6.** wrap some towels around the **slave cylinder** bleeder valve and attach the bleeder cup. with an open-end wrench, gently open the bleeder valve 1/8 of a turn. carefully pump the master cylinder lever several times until you get a steady stream of fluid coming into the bleeder cup (no air bubbles). note: you may need to fill the reservoir several times during this step.

**step 8.** fully close the bleeder valve and remove the bleeder cup and tubing - be careful not to spill any fluid.

#### parts list

slave cylinder  
anodized cover  
piston w/seals  
6mm x 50mm bolt (3)  
bearing  
small rubber seal (2)  
bleeder banjo bolt  
aluminum crush washers (2)  
bleeder cup

#### tools required

8, 12 & 14mm wrenches  
allen wrenches  
shop rags  
catch pan  
bleeder cup & hose  
dot 4 brake fluid (1 pt.)