



<http://www.totalmotorcycle.com/maintenance/brakes.htm>

## Motorcycle Brake Maintenance Guide

*Motorcycle Brake Maintenance Tips to keep your motorcycle at peak condition.*

Motorcycles accelerate fast and have a high top speed but it is your brakes that you depend on to stop you when you need it. Learning to perform your own motorcycle brake maintenance on your bike will keep your brakes in top condition.

*Motorcycle master cylinder, brake line, caliper and disk brake (rotor).*



*Badly maintained Brake  
system !!!  
(Pic Cees Cornwall-  
Netherlands)*



# Motorcycle Brake Maintenance

## Brakes

*Tip: Brake fluid absorbs moisture over time and becomes less effective. Replace brake fluid every one to two years and your brakes will perform the best they can.*

Motorcycle brakes are an art by themselves! Modern bike brakes have just an amazing stopping power, well beyond that of what the regular rider will encounter while riding.

Motorcycles have up to two brake fluid reservoirs, one for the front, usually found on the handlebars and one for the back. Both should be checked regularly. Topping up should only be done from a new, sealed bottle as brake fluid tends to absorb moisture over time. If your brake pads are thin and due for replacement. Beware - brake fluid, if spilt on paintwork eats right through to the bare metal.

Also check the thickness of the brake pads. If you allow them to go right down to the metal your brake disc will be damaged resulting in an unnecessary and expensive replacement. Fitting braided steel brake lines will increase the performance of your brakes by roughly 50%

*(done on my Vmax..... and it's TRUE !!! Hansi DiKnoppio)*

## The Parts



Typical Motorcycle Master Brake Cylinder with Fluid Window.



Typical Motorcycle Front Brake Caliper



Typical Motorcycle Rear Brake Caliper



Typical Cheap Brake Bleeding Kit



Deluxe Brake Bleeding Kit



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## Replacing front and rear brake pads

*Tip: If you are unsure how to replace brake pads then have a mechanic do it for you. It is worth the **cost** as it is in the best interests of your safety. Feel free to bleed your own brakes as that is a easy operation to do.*

Replacing stock or worn brake pads is the quickest way to get increased braking power out of a tired system. Various manufacturers make all kinds of different types of replacement brake pads for today's motorcycles. Some **claim** to last longer, while others claim to give more feel and braking power. However, be forewarned that the manufacturer of your motorcycle put a lot of time and effort into developing your braking system, and there is no telling what a different type of pad material might do to your rotors or how well different pads will work with the overall design and setup of your bike. If you have any doubts, then stick with genuine factory parts.

Removing the calipers from the rotors is the first step in checking your brake pads. In dealing with your front disc brakes, first remove the Front Caliper two main bolts that attach the calipers to the forks. Once the calipers are free you can slide them off of the brake discs and inspect the amount of pad material and look for anything out of the ordinary. If there is less than 1/8 inches of pad thickness left then they should be replaced.

### Internals of Front Caliper

Once the calipers are free from their mounting locations, it is time to disassemble them and remove the brake pads. On this particular setup there is one threaded metal pin that holds one side of the pads in place. The other side of the pad rests in the casting of the brake caliper. Removing this pin will free the pads and they should just fall right out. Notice the metal clips inside the caliper just beneath where the pads sit. These metal clips provide pressure on the pads to keep them from moving around inside the caliper. It is a good idea when you are working on your brakes to replace these

clips. It would be foolish if you spent all this time and effort to have something so simple and cheap screw things up.

### Internals of Rear Caliper

Once the two mounting bolts have been removed, the caliper should easily slide off the rotor. Inspection of the pads is the same as the fronts. The rear pads are smaller because less braking power is required. The rear pads are held in place by one bolt on one side of the caliper and are held at the other end inside the casting of the mounting bracket that the caliper is bolted to. Be very careful to make sure the new pads are firmly mounted in the caliper and are held securely at both mounting locations. If there is any doubt, check them again! Otherwise, they could fall out while you are cruising down the side of your favorite canyon road and ruin a perfect day, causing you to crash into the guard rail and go flying off the side of a cliff. Not a pretty site.

Once the new pads have been assembled into the calipers and everything is torqued to spec, it is time to bleed the lines.

### How to Bleed Motorcycle Brakes

*Tip: Any brake bleeding kit will do just fine but make sure you have a small bucket to put the tiny brake bleeder fluid container in as it is very likely to overflow.*

It is actually not very hard to bleed (renew) your own motorcycle brake fluid. This should be done at least every 2 years. Or when the brake fluid turns from clear to a brown to black colour (darker it is, the worse it is).

Brake fluid will eat away at plastic and paint, be sure to cover any paint or plastic that may get splashed with brake fluid. Wipe any spilled fluid with the rag and lots of water.



Step 1: Make sure you have the tools to bleed your brake fluid. The tools you require will vary, but generally this is what you will need:

- A. Wrench/Spanner (average 10mm)
- B. Brake bleeding kit (rubber fitting, clear hose, small container)
- C. Brake fluid overflow container (to put the brake bleeding kit small container in)
- D. Rags
- E. Brake Fluid (check what type of brake fluid you need for your bike. e.g. DOT 3). Make sure to buy enough brake fluid in the DOT type you require. (500ml should be more than enough).

Step 2: Attach the brake bleeding kit to the brake fluid nipple located on the brake caliper.

Step 3: Loosen the nipple so the fluid is free to flow down the brake bleeding kit tube and into the small container

Step 4: Remove the master cylinder cap (top) so you can monitor and refill more brake fluid into the master cylinder as you bleed the brakes.

Step 5. Pump the brake lever so the old/new brake fluid is forced through the tube into the brake bleeding kit fluid container

Step 6: Keep the volume of the master cylinder constant (near full) as to not have it empty. Keep pumping on the brake lever until the fluid coming out is clear (rather than the old brown/black colour).

Step 7: Once all the tiny air bubbles are gone hold pressure on the brake level and re-tighten the brake fluid nipple to close it off.

Step 8: Replace the master cylinder top cover.

Step 9: Remove the brake bleeding kit from the cliper and use the rag with water to clean up any spillage.

## Drum Brakes

For a long time motorcycles were stopped by drum brakes which work by pushing shoes up against the inside of a drum and cause friction slowing the motorcycle down. Drum brakes are easy to recognize with the 'drum' mounted on the wheel.



*Brake Shoes*

Drum brakes worked well and are still being used for smaller bikes however drums are prone to overheating and wear-outs. Even the high performance ones, these motorcycle brakes need regular adjustment for optimal use. Disc brakes started to appear in the seventies with Honda leading the pack (the CB750). A disc brake works on a simple principle that a steel disc is gripped by two pads by a hydraulic calliper.

## Disk Brakes

Disk brakes are much friendlier for a motorcycle rider, less prone to overheating and require little (or no) adjustment. The downside was/is (especial during the early days) that wet weather didn't let these motorcycle brakes function as well. Modern day bikes use twin front disc's and only one at the rear. Using more brake power at the back would lead to wheel block ups due to the dynamics of braking.

## Brake Disk or Rotor



Each disk is gripped by calipers, where every caliper is pushed by four or six pistons. This highly improves the brake power and the riders feel when braking. Many tour bikes use a combination of different motorcycle brake hydraulics to divide the front and back braking power in the most optimal way. Additionally some bikes now also have ABS (anti block system).

The steel disk floats in the wheel so it can accommodate the temperature influences which occur while braking. The pads are also fitted loosely in the clamp around the steel disk. Over time the disk pads need replacing which is just standard maintenance. However keep an eye on disk damage due to incorrect placement of brake pads or anything else. Damaging the steel disk can result in a costly replacement.