



**Performance  
Machine · Inc**  
DISC BRAKES AND WHEELS

Installation Instructions

# HD Sportster 4 Piston Rear Brake Caliper

## ATTENTION

Statements in these instructions that are preceded by the following words are of special significance:

### Warning

This means there is the possibility of injury to yourself or others.

### Caution

This means there is the possibility of damage to the motorcycle.

### Note

Information of particular importance has been placed in italics.

## Important Notice

- Before installing a caliper kit, read through these instructions completely; this will familiarize you with the way in which the parts fit together and the tools needed to complete the job.
- In the course of installing this kit you will be replacing the stock brake caliper with a high-performance brake caliper. Please pay special attention to the section of the instructions dealing with the centering of the caliper over the brake rotor.
- PM products are design to use both DOT 4 and DOT 5 brake fluid, please use the manufactures suggested brake fluid. Never reuse brake fluid, Never mix DOT 4 and DOT 5 brake fluid, don't use brake fluid that you are not sure is new and clean. This installation should only be attempted by a mechanic with a thorough understanding of and experience with motorcycle hydraulic systems.
- If you plan on using the stock brake line/hose that runs between the master cylinder and the caliper, then you will be just switching the the line at the caliper's banjo fitting. We recommend that you do not disconnect the line from the stock caliper until you have the new caliper bolted in place and are ready to bleed the brake system. This way the brake fluid will not run completely out of the master cylinder before you have the new caliper connected up to it.

## WARRANTY

Performance Machine Inc. warrants to the original purchaser that the parts of this Brake Kit to be free of manufacturing defects in materials and workmanship for a period of one (1) year from the date of purchase. In the event warranty service is required, you must call Performance Machine immediately with a description of the problem.

If it is deemed necessary for Performance Machine to make an evaluation to determine whether the part is defective, [a return authorization number will be given by Performance Machine]. The parts must be packaged properly so as to not cause further damage and returned prepaid to Performance Machine with a copy of the original invoice of purchase and a detailed letter outlining the nature of the problem. If after the evaluation by Performance Machine the part was found to be defective it will be repaired or replaced at no cost to you. If we replace it, we may replace it with a reconditioned one of the same design.

Performance Machine shall not be held liable for any consequential or incidental damages resulting from the failure of a Performance Machine part.

Performance Machine shall have no obligation if a part becomes defective as a result of improper installation, modification or abuse.

## Disclaimer

These Performance Machine parts are designed for high performance motorcycle applications and are intended for the very experienced rider only. The installation of these Performance Machine parts may adversely affect or void your factory warranty.

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## PM Sportster Rear Caliper Kit

Performance Machine 4 piston rear brake caliper kits are engineered to fit specific Harley Davidson models. The mounting brackets are designed for ease of installation and maximum brake performance. Before starting the installation of this caliper kit, make sure it is the correct one for your motorcycle and your brake rotor.

### Special Installation Notes

To install a PM rear brake caliper, you will be removing the motorcycles rear wheel assembly. Please be aware that the reinstallation of the rear wheel assembly will require the alignment of the wheel in the motorcycles frame and the correct tensioning of the drive belt/chain. You will need the service manual for your model motorcycle for the complete instructions on the correct procedures to do these adjustments.

## Installing Rear Caliper - Sportster Models

### Removing The Stock Brakes

The basic steps are the same to install a PM rear brake caliper kit on any of the late model Harley Davidson "swingarm" style motorcycles; all require the removal of the rear wheel. Using a suitable lift, raise the motorcycle high enough off the ground to allow you to remove the rear wheel assembly.

#### Warning

Center the motorcycle on the lift so that it will not fall while you are working on it.

Photo 2: Remove the rear brake caliper assembly by unscrewing the 2 caliper mounting bolts that go through the caliper into the caliper mounting bracket. Lift the caliper up and off the mounting bracket and brake rotor, move the caliper back out of your working area. Don't remove the brake line from the caliper yet; you will do this just before you are ready to hook it up to the new caliper. The brake pads are held into the caliper mounting bracket by 2 spring clips; slide the brake pads out of the mounting bracket and remove the retaining springs.

Remove Cotter pin and rear axle nut, slide rear axle completely out.

Photo 3: Remove nut from Right rear shock and rotate belt guard up. Slide belt off of pulley and roll rear wheel back 6 - 8".

Photo 4: Remove original caliper bracket from swingarm.



**SPORTSTER REAR BRAKE SYSTEM 84 & UP MODELS**



**PHOTO 2**



**PHOTO 3**



**PHOTO 4**

## Installing Rear Caliper - Sportster Models



PHOTO 5



PHOTO 5A

Photo 5: Install PM caliper bracket. Locate swingarm between bracket stays and match axle hole with swingarm. Swingarm should fit snug between bracket stays.

Remove OEM axle spacer from left side of wheel and replace with large supplied spacer. Slide belt back onto pulley and position rear wheel in correct location. Install rear axle from right side, slide through wheel until flush with bracket.



PHOTO 6



PHOTO 6A

Photo 6: Install supplied spacer (smaller of two) between PM bracket and swingarm. Slide axle completely through spacer and swingarm. Tighten axle bolt to factory recommended specifications and install Cotter pin.

Re-install belt guard and right shock bolt.

Photo 7. Slide caliper over disc and align to holes in bracket

## Centering The Caliper

After you have installed the new PM brake caliper onto your motorcycle you must align its center to the center of the brake rotor; otherwise you will not get maximum brake performance or brake pad wear. The center line of the caliper is where the two halves of the caliper are joined together. Look down from the top of the caliper onto the rotor; if it is offset to the outside then you will need to install mounting bolt shims. The caliper shim kit that is included in the caliper kit contains 6 shims: 2ea. .016", 2ea. .032" and 2ea. .062". These shims are to be inserted between the caliper bracket and the caliper's mounting boss to position the caliper so that its center line is over the rotor's center line. To install the shims, slip the shim into place and replace the mounting bolt. Check the caliper for centering at both ends; on most installations the same thickness of shim will be needed behind each mounting boss.



PHOTO 7

After the caliper is centered over the rotor, apply a drop of **Loctite** # 242 (blue) to the 5/16" x 1.5" bolts and install from wheel side of caliper, torque to 22 ft.lbs.

### Warning

**Turn wheel slowly and check for interference (caliper to disc and caliper to wheel)**



PHOTO 8

Photo 8. Remove the end of the brake line from the stock caliper; you will need a 3/8" 12 point socket wrench or box end wrench to remove the banjo bolt from the stock caliper. Working rapidly, so that an excessive amount of brake fluid does not run out of the end of the brake hose, attach the end of the brake line to the new PM caliper using the PM supplied seal washers, one washer goes on each side of the banjo fitting.

Tighten banjo bolt to 10 ft.lbs. of torque.

# Completing The Brake Installation

## Bleeding The Brake System

You will find it is easier to bleed the brake system if you have a helper. First, fill the master cylinder with manufactures suggested brake fluid and put the cover back on the master cylinder. Attach a short length of rubber hose to the bleeder screw on the brake caliper, put the other end of the hose into a coffee can or other suitable catch can. Have your helper push down on the rear brake pedal 5 times. At the end of the 5th stroke, have your helper hold the pedal down. While the helper holds the lever/pedal, open the bleeder fitting on the caliper, you will need a 1/4" end wrench for this. Air and brake fluid should come out of the end of the hose that is connected to the bleeder fitting. After the air and brake fluid have stopped coming out of the hose, close the bleeder fitting; your helper can now release the pedal. This action will force the air that is trapped in the brake system out the bleeder screw, because the brake system can contain more air than you can expel in one bleeding; you will need to repeat this procedure more than once. Check the fluid level in the master cylinder after each bleeding, don't let the master cylinder run dry as this will push air back into the brake system which will require the bleeding procedure to be started over again.



**PHOTO 9**

### **Note**

*Do not over tighten the bleeder screw.*

### **Warning**

Failing to bleed all the air out of the brake system will impede the performance of the brakes.

### **Warning**

After installing PM Brakes we strongly encourage you to do a systems check of your bike.

1. While bike is still on a stand, slowly rotate wheels watching for any potential interference (disc to caliper and caliper to wheel).
2. After properly bleeding brakes, lever or pedal feel should be firm and consistent.
3. Test at slow speeds, checking brakes in short intervals. Visually inspect disc, caliper and wheel before and after road testing. For the first 100 miles break in disc and pads by using light to medium braking. Avoid unnecessary hard braking. Braking power will progressively increase with less effort as brake pads and disc break in.