

## HD FL & TOURING MODELS 4 PISTON DIFFERENTIAL BORE REAR BRAKE SYSTEM

### 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.

This instruction sheet covers PM Brake System part #s 1277-0073, 1287-0073 and 1290-0073

### 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 (*1999 and earlier only*) that runs between the master cylinder and the caliper, then you will be just switching the line at the caliper's banjo fitting. We recommend depressing the brake pedal through half of its travel and securing the pedal in this position (strap or bungee). This will prevent fluid from draining out of the master cylinder.

### 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.

## PM 1984 and Newer FL Rear Brake System

Performance Machine,differential bore,4 piston rear brake caliper kits are engineered to fit specific 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 motor-cycle and your brake rotor. 2000 and newer FL models will require a PM brake line kit (part # 0085-2007).

### 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 cor-rect procedures to do these adjustments.

## Removing The Stock Brakes

The basic steps are the same to install a PM rear brake caliper system on most FL and Touring Model HDs. Using a suitable lift, raise the motorcycle high enough off the ground to allow you to unweight the rear wheel.

### Warning

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

**Photo 2:** Remove both right and left bags,as well as right side muffler. Remove Cotter pin and rear axle nut,slide rear axle completely out.

### Note

*Retain original wheel spacers, as they will be re-used on some models*

**Photo 3:** Remove stock caliper/bracket from bike,as well as brake line.

(2000 and newer)**Photo 4:** Remove rubber bung from stock caliper and install into PM Bracket (as shown in **Photo 5**).



REAR BRAKE SYSTEM - 1984 - 1999 FL MODELS



REAR BRAKE SYSTEM -  
2000-2001 AND 2002 AND  
NEWER FL MODELS (BRAKE LINE KIT  
REQUIRED)



PHOTO 2



PHOTO 3



PHOTO 4



PHOTO 5



**PHOTO 6**

## Installing Rear Caliper Bracket - FL Models

**Photo 6:** Install PM Bracket (do not install caliper at this time). Locate bracket onto stock swingarm tab (1999 and earlier will locate onto swingarm), slide axle from right side, capturing supplied spacer between bracket and swingarm. Install axle, (from right side) tighten nut to factory recommended specifications and install cotter pin.

**(2000 and newer)** Remove stock brake line and sending unit from bike. Install stock sending unit to PM brake line kit using sealant tape **Photo 7**.

Install PM stainless brake line kit to master cylinder **Photo 8**. Using supplied washers, tighten banjo bolt to 10 ft.lbs. of torque. Place balance of line in stock position along frame and secure with additional zip ties **Photo 9**. Plug sending unit back into electrical harness. Attach tail end of brake line to PM caliper with supplied washers and torque banjo bolt to 10 ft.lbs.



**PHOTO 7**

## Bleeding The Brake System

PM strongly recommends bleeding the caliper off of the bike. This is the most efficient method to bleed this particular brake system and will result in firm, powerful and consistent braking.

Begin by placing the caliper higher than the master cylinder. This will ensure any air in the line will rise to the bleed point and be forced out. Insert a 1/4" thick object between the brake pads (a wrench will do the job). This will prevent the pistons from being pushed out of the caliper during bleeding.



**PHOTO 8**

You may also find it is easier to bleed the brake system if you have a helper.

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**



**PHOTO 10**

**Caution**

Do not over tighten the bleeder screw.

# Completing The Brake Installation

## Installing Rear Caliper - FL Models

Once the caliper is properly bled, it can be installed onto the PM bracket.

### Caution

*You must use the bolts supplied with the BRACKET (not the bolts supplied with the caliper). All PM Brake Systems designed for the FL, Road King and touring models will use the shorter of the two sets of bolts (the longer bolts will interfere with the disc).*

The PM Caliper 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.

After the caliper is centered over the rotor, apply a drop of **Threadlock** to the bolts and torque to 22 ft.lbs.

### 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.



PHOTO 11



PHOTO 12

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6892 Marlin Circle ~ La Palma, California 90623, USA ~ 714.523.3000 ~ fax 714.523.3007