



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

Installation Instructions
Forward Control Kit
For FXR® 1984 and newer

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 this forward control 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 rear brake master-cylinder assembly and the brake line that runs from the master-cylinder to the brake light switch junction and then on to the rear brake caliper. No brake lines are included in this kit, you must order the brake lines separately.
- 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.
- To install this kit you will be changing the shift pedal assembly. It is highly advised to also obtain the appropriate service manual for your motorcycle for detailed instructions regarding the transmission shift linkage.

Warning

- Before performing any installation steps, disconnect the motorcycles battery to eliminate any possibility of damage to yourself or the electrical system.

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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Preparation

Before starting to assemble this forward control kit on your motor-cycle check the packing list to make sure that the kit you received is the correct one for your model motorcycle and that the foot pegs and foot pedals are the style you ordered. Check the master cylinder part number, if you are installing this kit on a motorcycle with a single caliper the 5/8" bore master cylinder P.N. 0065-2603 is recommended, for a dual caliper installation then the 3/4" bore master cylinder P.N. 0065-2703 should be used. Next check the contents hardware kit P.N. 0109-1000 against the packing list for complete-ness.

_____ Note _____

The following steps require basic knowledge of Harley® motors and more detailed descriptions of primary case and chain removal is readily available from the factory service manuals.

Removing Factory Shift Controls

_____ Note _____

The installation of Performance Machine Forward Controls on an FXR requires removal of the inner and outer primary covers, as well as the clutch, compensating sprocket and primary chain. We strongly recommend replacing the primary cover gaskets as well as the inspection cover gasket with new units (gaskets not included in PM Forward Control Kit).

A spring compressor will also be necessary to remove clutch.

Begin by draining all oil from the primary. Remove original foot peg and foot peg mount. Remove the shifter and outer primary cover. There are 10 bolts holding the primary cover on. See Photos 1 and 2.

Remove chain tensioner, and starter drive gear. The starter will have to be unbolted (from the right side of the bike) . A spring compressor will be necessary to remove the clutch. Unbolt the compensating sprocket and main shaft nut (leaving clutch and compensating sprocket in place). The clutch is torqued 70-80 ft-lbs and the compensating sprocket will be 150-165 ft-lbs from the factory and will require a strong impact wrench to remove .

_____ Note _____

The mainshaft nut is a left hand thread .

The clutch , compensating sprocket and chain are best removed as one unit. See Photos 3 and 4.



FXR FORWARD CONTROL KIT



Photo 1



Photo 2



Photo 3



Photo 4



Photo 5

Completing the Shift Control

Remove the inner primary cover and original shifter shaft and linkage. Only the shift arm on the transmission will be left in place. The shifter shaft/arm and linkage are no longer used. See Photo 5.

After thoroughly cleaning the inner primary cover, place it engine side *up* on a flat surface and press the supplied plug into the hole left by the shifter shaft. Flip the cover over and bolt the remaining half of the plug with the supplied button head cap screw and a drop of *Loctite* #242 (bl u e) . See Photo 6.

Warning

Proper use of Loctite and tightening of this bolt is critical, as failure to do so could cause serious damage to your engine.

Re-assemble the inner primary, clutch, compensating sprocket, primary chain, chain tensioner and starter drive gear in the reverse order of removal. Consult your factory manual for correct torque specs. PM strongly recommends you install new gaskets at all stages of assembly.

After the outer primary cover has been installed remove the original inspection cover and install the new cover supplied in the PM Forward Control Kit. Again, we recommend using a new gasket. See Photo 7.



Photo 6

Installing New Shift Control

Your new Performance Machine shift controls will mount to the two hole lug welded on your frame's lower left side. Since these holes are generally not utilized on an FXR you may have to run a tap through them to clean out any debris or excess paint. See Photo 8.

Mount foot peg and shifter peddle to shift control assembly. Use a drop of *Loctite* #271 (red) on the shifter peddle and foot peg bolts and tighten to 25 ft-lb. Tighten the bolt while holding the footpeg pivot so that its hinge is lined up in a 45° rear facing angle. At this point the footpeg itself, may not face the correct angle (sitting on the bike your foot should be parallel to the peg). We recommend adjusting this after both the shift and brake sides have been installed and you can comfortably sit on the bike (see page 6 for further detail on this step).



Photo 7



Shift Control Assembly



Photo 8

Installing The Shift Control

Using two 3/8" x 1 1/4" socket head cap screws, with lock and flat washers, apply a drop of *Loctite* #242 (blue) to threads and bolt shift assembly to frame. See Photo 9.

Note

Before torquing the shift control mounting bolts down, tighten them snug and look behind the shift control mounting plate to where it contacts the mounting lug on the frame. Make sure it fits squarely to the lug before proceeding further.

Torque the two shift control mounting bolts down to 25 ft-lb.

Thread the 5/16" jam nut and the 5/16" ball rod end onto the transmission shift rod and attach it on the inside of the arm of the shift control link age using a 5/16" x 1 1/4" socket head screw, flat washer and lock nut. Attach other end of shift rod to trans using 5/16" fine thread bolt. Mount the shift pedal to the other end of the shift arm using a 5/16" x 1" socket head screw with a drop of *Loctite* #242 (blue) on it.

Adjust the transmission shift linkage until arms are parallel and secure it with the jam. Apply a drop of *Loctite* #242 (blue) to the threads under the jam nut before tightening. See Photo 10. Shift pedal may not be in correct position, once linkage is secured. Final adjustment of shift arm and brake arm are covered on page 6.

Setting Up the Master Cylinder

The master cylinder pushrod return spring and pushrod boot must be installed on the master cylinder before it is assembled onto the forward control mount. The parts are shown in Photo 11: pushrod boot (A), pushrod return spring (B), spring seat washer (C), and master cylinder (D). Place the return spring seat washer into bore of master cylinder so that it sits on top of the piston retaining snap ring. Next set the pushrod return spring on the seat washer and slide the pushrod boot over the return spring now slip the big end of the boot over the flange on the master cylinder so that the ridge on the inside of the boot fits into groove "A" that is machined into the end of the master cylinder flange, see Photo 12.

Installing the Brake Control

Remove the existing brake controls and lines all the way back to the caliper. Also, remove original footpegs and footpeg mounts from motorcycle. Your new Performance Machine brake controls will mount to the two hole lug welded on your frame's lower right side. Since these holes are generally not utilized on an FXR you may have to run a tap through them to clean out any debris or excess paint.

Note

For complete brake system removal instructions and precautions refer to the appropriate service manual for your year and model.



Photo 9



Photo 10

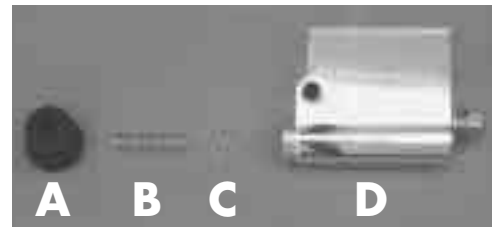


Photo 11

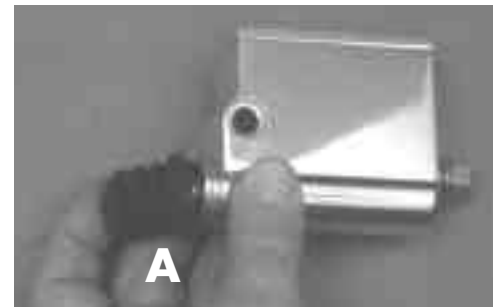


Photo 12



BRAKE CONTROL

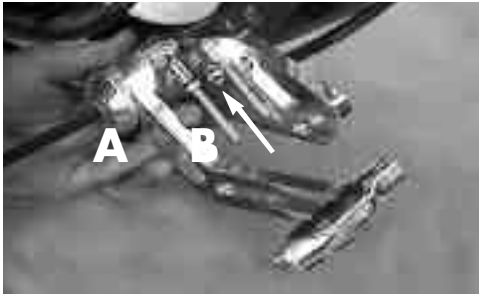


Photo 13



Photo 14

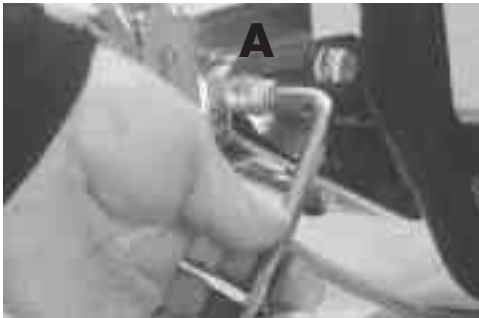


Photo 15



Photo 16



Photo 17

Installing the Brake Control Continued...

On the back side of Performance Machine brake control, remove the temporary assembly nut that secures the brake pedal pivot bolt. Put a drop of *Loctite* #242 (blue) on the brake pedal pivot bolt "A", fit the brake control to the mounting lug on the frame and screw the brake pedal pivot bolt into the lower mounting hole (install the bolt finger tight at this time), See Photo 13. Install a 3/8"x 2 1/4" hex bolt from behind the brake pedal assembly (you will not be able to get to this bolt hole once the assembly is mounted to the frame). See Photo 14. Next put a drop of *Loctite* #242 (blue) on the 3/8" x 1/2" socket head cap screw and install it through the counter bored hole at "B" in the brake control mounting plate and screw it into the upper hole in the mounting lug on the frame.

Note

Before torquing the brake control mounting bolts down, tighten them snug and look behind the brake control mounting plate to where it contacts the mounting lug on the frame. Make sure it fits squarely to the lug before proceeding further.

Torque the two brake control mounting bolts down to 25 ft-lb.

Install the master cylinder by first removing the brake pedal pushrod from the brake pedal assembly. Next align the rear mounting hole on the master cylinder up with the rear hole on the brake control plate and slide the master cylinder onto bolt. Apply a drop of *Loctite*#242 (blue) to the bolt threads and screw the footpeg pivot onto the bolt. Put a drop of *Loctite* #242 (blue) on the threads of the 3/8" x 1 1/4" socket head cap screw and with a lock and flat washer insert it through the front mounting hole See Photo 15, and screw it into the master cylinder, torque the bolts down to 20 ft-lb. Slip the end of the brake pedal pushrod through the hole in the end of the master cylinder boot and into the recess in the piston and re-install to the brake pedal using a drop of *Loctite*#242 (blue).

Note

Remember to hold the footpeg pivot so that its hinge is at a 45° rear facing angle while the mounting bolt is tightened, See Photo 16.

See peg alignment instructions on page 6.

Adjusting The Brake Linkage

The master cylinder pushrod must be adjusted after the master cylinder is attached to the brake control mounting plate. To do this you must slide the pushrod boot back from the pedal end of the pushrod to expose the pushrod jam nut. Loosen the jam nut and adjust the pushrod until the brake pedal has 1/8" free play, that means that the brake pedal moves down 1/8" before the pushrod contacts the master cylinder piston. Once the pushrod is correctly adjusted apply a dab of *Loctite* #242 (blue) to the pushrod threads and tighten the jam nut while holding the pushrod. After adjusting the pushrod recheck the brake pedal's free play, see Photo 17.

Warning

Failing to correctly adjust the brake pedal free play could cause the caliper to lockup on the brake rotor.

Adjusting The Brake & Shifter Pedal

If you find that the brake or shifter pedal adjustment is not to your liking, you can adjust it. You first remove the brake pedal pivot bolt, then remove the brake pedal pinch bolt, "A" in Photo 18. Next slide the pedal off the spline shaft, "B", now re-align the pedal to the position you want and slip it on the spline shaft and install its mounting bolts. Re-check the brake pedal's free play (should be 1/8").

Aligning the Footpegs

After you have assembled the shift & brake control onto your motorcycle you must align the footpegs. The folding footpeg assembly uses a blind stud to attach the footpeg to the footpeg pivot. Shim washers (3/8" x .015") are used on the stud between the footpeg and the pivot, see Photo 19, so that the top surface of the footpeg is correctly aligned for your foot when it is tightened down on the pivot. This is done by setting a couple of shim washers on the footpeg mounting stud "A" and then screwing the footpeg onto the mounting stud, if the footpeg is rotated to far forward then add another shim washer, if not far enough then remove a shim washer.

After you have selected the correct number of shims for your foot-peg, disassemble the footpeg and put a drop of *Loctite* #271 (red) on both ends of the stud and reassemble the footpeg.

Bleeding The Brake System

Attach the brake line to the master cylinder with the supplied banjo bolt and copper washers. Fill the master cylinder with the manufactures suggested brake fluid and set the cover back on the master cylinder. Attach a short length of rubber hose to the bleeder screw on the brake caliper. Pump the brake pedal several times, see Photo 20. On the final stroke of pumping the brake pedal hold the brake pedal down and open the bleeder fitting on the caliper, after the air and brake fluid have stopped coming out of the hose attached to the bleeder screw it closed, you can now release the brake pedal. This action will force the air that is trapped in the brake system into the caliper and opening the bleeder screw, Photo 21 lets the air out of the system. Because the brake system was empty, you will need to repeat the bleeding 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.

Warning

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

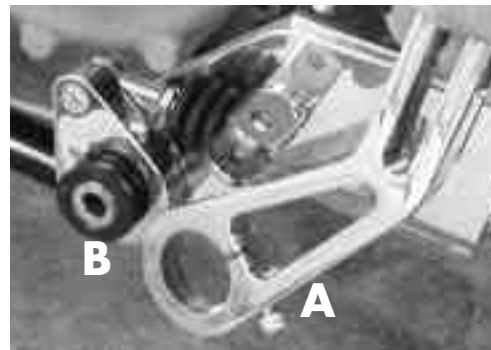


Photo 18



Photo 19



Photo 20



Photo 21