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MOTORCYCLE EXHAUST SYSTEM INSTALLATION INSTRUCTIONS

Harley Davidson ®
FLH Models 1999-2010
Part Number: M121312S, X, B "Long Touring"

WARNING:

*Not legal for use on catalyst-equipped vehicles except for racing vehicles which may not be operated on a highway.
This exhaust may not meet State or Federal Noise Emissions standards and may not be used on any vehicle if such
use is in violation of State or Federal Noise Emission standards.
Not Legal for Sale or use in California on Emissions Controlled Vehicles*

***Your New Patriot Exhaust is Unique in the Industry with the SFI Valve Technology ^{Pat Pend}
that allows you to tailor the sound and power curve to your riding style.***

***Please read and understand these instructions completely prior to attempting installation.
Check the parts list and tools required to be sure all you have all the necessary items.***

REMOVAL OF STOCK EXHAUST

**Make sure the motorcycle is completely cool before starting
*Hot Exhaust can, and will, burn you***

1. If you are not familiar with the basic mechanical workings of your motorcycle, please refer to a Factory Shop Manual or consult a Professional Mechanic.
2. Remove both the right and left saddlebags and set aside.
3. Remove the two Allen bolts that attach the right side floor board brackets to the frame.
4. If your bike is equipped with passenger floor boards, remove *them also*.
5. **Oxygen Sensor equipped models;** unplug the sensors from the wiring harness and remove any cable ties to free the wiring. The front cylinder O2 plug is above the voltage regulator. The rear cylinder O2 plug is near the starter motor.
6. Remove the two 5/16" bolts that hold each muffler to the saddlebag supports.
7. Loosen the clamps that hold the muffler to the head pipes. Remove the mufflers. These can be difficult to remove; penetrating oil and/or heat may help as does twisting the muffler as you pull rearward.
8. Remove the left side crossover pipe;
 - a. 2008 and older models; Using a 5/16" Nut driver or Flat Blade Screwdriver, remove all the heat shields. Loosen the clamp that holds the left side pipe to the bracket located above the starter and the nut that holds the silver bracket to the black starter bracket. Loosen the clamp that attaches the left side pipe to the main pipe. Remove the left side pipe.
 - b. 2009-10 models; loosen the clamp that attaches the left side pipe to the main pipe on the right side. Unbolt the clamp that holds the left side pipe to the back of the transmission.
9. Remove the nut and carriage bolt from the clamp that holds the front pipe to the bracket under the transmission.
10. Remove the nuts that attach each exhaust flange to the cylinder head and remove the pipes.
11. Remove the transmission pipe support bracket except on 08-10 models (same as supplied bracket)

12. If your bike has Oxygen Sensors, use a 22mm (or 7/8") wrench to remove them from the exhaust, being careful not to damage them. Set sensors aside for re-installation.

INSTALLATION

Notice: Chrome and Stainless can be easily scratched during installation if you are not careful.
Warranty does NOT cover this type of damage.

1. Check the condition of the Exhaust gaskets and Replace as necessary. Patriot™ recommends Harley® part #17048-98 or equivalent.
2. Using a pair of Lock Ring Pliers, remove the Snap Rings and Flanges from your original exhaust. Check that the snap rings and flanges are in good condition and flat. Replace any parts that are bent or corroded.
3. Install the flanges and snap rings onto your new Patriot™ Exhaust.
4. If your motorcycle is equipped with Oxygen Sensors, install them into the bungs on the Patriot Exhaust using Anti Seize on the threads (Note: Apply Anti Seize to threads only, contamination of the sensor probe can harm the Oxygen Sensor and affect engine performance). If you do not have Oxygen Sensors, install the supplied plugs into the bungs.
5. Install the supplied transmission support bracket to the 2 lowermost bolts on the side of the transmission. This bracket is the same as the standard bracket on 08-10 models. See photo 1.
6. Slip the Patriot™ Exhaust up to the cylinder heads, carefully placing the pipes in the exhaust ports without damaging the exhaust gaskets.
7. Using two of the 5/16" bolts that held the original mufflers, bolt the Patriot muffler to the saddlebag support but DO NOT Tighten.
8. Slide the flanges over the exhaust studs and loosely install the original exhaust flange nuts, DO NOT tighten at this time.
9. Install the supplied carriage bolt through the bracket on the pipe at the transmission, DO NOT tighten at this time. See Photo 2.
10. Check that the pipe is properly installed on the bike and isn't hitting the timing cover and looks straight, adjust as necessary. When you are happy with the fitment, tighten all flange nuts evenly to a final torque of approximately 18-22 lbs/ft. You will notice as you tighten the flange nuts that the exhaust will tend to move one way or another. Tightening them evenly will allow the pipes to seat square to the gasket and remain straight on the bike.
11. Tighten the muffler to saddlebag support bolts to 12-15 lbs/ft torque. Tighten the carriage bolt at the transmission bracket to 18-22 lbs/ft.
12. Reconnect the oxygen sensor wiring in the opposite manner to which it was removed.
13. Reinstall the right side floorboard using the supplied Allen bolts (1/2" dia. on 99-08, 3/8" dia. on 2009-10), original lock washer and supplied spacers. The spacer fits between the frame and the floor board bracket. Tighten to 75 lbs/ft torque on 99-08, 35 lbs/ft. on 2009-10.
14. Insert the straight end of the lock cable through the adjuster on the SFI Valve. The SFI Adjustment cable mounts to the muffler using the included 10-32 Stainless Allen Screw, lock washer, and a drop of Loctite. See photo 3.
15. Carefully clean all Dirt, Oil, and Fingerprints from your Patriot™ Exhaust. These things can permanently discolor your exhaust and are not covered by warranty.
16. Check over the installation to make sure that all fasteners are properly tightened.

STARTING THE ENGINE

1. With the SFI valve in the Open position, start the engine and allow it to warm up to operating temperature, but do not allow idling for an excessive period of time as this can cause overheating and discoloration of the exhaust.

Check for any unusual noises or exhaust leaks. Move the adjustment lever to change the sound – USE CAUTION Exhaust may be HOT! Once you are satisfied with the sound position, fully tighten the 10-32 Stainless Allen Screw with a drop of Loctite.

NOTE: On carbureted bikes DO NOT run with the choke on for any longer than necessary as this can cause discoloration to the exhaust.

For the first few miles you may see an abnormal amount of smoke from your exhaust, especially if riding with the SFI™ Valve in the closed position. **Do Not Panic**, this is normal as the silencing material breaks in. This will usually stop after the first 10 miles. During this time the cable may also be a little harder to operate than normal. Riding with SFI™ valve in the Closed (Quietest) position will increase low RPM torque. In the Open (Loudest) position it will create more High RPM Horsepower. It is possible to ride with the valve at any position between Open & Closed to suit the sound preferred and your riding style

NOTE: Re-tighten all hardware after the first 20 miles and then again at each scheduled service.

PARTS LIST

Qty	Description
1	2 into1 Header System with O2 sensor plugs
1	Front Heat Shield 2 pc. (Installed)
1	Rear Heat Shield (Installed)
1	10-32 X3/8" Stainless Steel Allen Head Cap Screws
1	Stainless Steel Lock Washer
1	Stainless Steel Lock Washer
1	Lock Out Rod
2	1/2-13 X 1 1/2" Allen Bolts
2	1/2" Aluminum Spacers
2	3/8" Aluminum Spacers
1	3/8-16 X 2.25" Allen Bolt
1	3/8-16 X 3.5" Allen Bolt
1	3/8 Carriage Bolt
1	3/8 Serrated Flange Nut
1	Transmission Support Bracket

TOOLS REQUIRED

Flat Blade Screwdriver
5/16" Nut Driver
1/2" Combination Wrench
9/16" Combination Wrench
22mm or 7/8" Wrench for Oxygen Sensors
5/32" Allen Wrench
3/8" Allen Wrench
1/4" or 3/8" Drive Ratchet and Extension
9/16", 1/2" and 7/16" Sockets
Lock Ring Pliers
Anti Seize
Loctite® 222 or equivalent

LIMITED ONE YEAR WARRANTY

All Patriot Defender™ Exhaust are guaranteed, to the original purchaser, to be free of defects in materials and workmanship for one year. This warranty covers the replacement or repair of the product only and does not cover the cost of removal and installation.

Discoloration or "Bluing" is caused by Excessive Heat or Improper Tuning and IS NOT covered by this warranty. Patriot Defenders are made from Stainless Steel and can turn Gold in color over time. If this happens use Stainless Steel Polish to return to a bright and shiny finish. Use regular Chrome Polish on the heat shields.

Damage or product failure resulting from collision, improper installation, off-road use, road hazards, the use of exhaust insulating wrap or like products or rust occurring after installation, is not covered by the warranty.

Should a part become defective it should be returned to the original selling retailer and must be accompanied with the sales receipt. If there is no retailer in your area, call the factory for a return authorization and return your part prepaid to the factory for inspection. PerTronix reserves the right to replace or repair the alleged defective part at our discretion and return the part freight collect.

The Patriot Defender™ exhaust will increase the performance of your motorcycle, however due to increased efficiency it will be necessary to re-jet your Carburetor or recalibrate your Fuel Injection. Failure to do so can cause improper performance, overheating, and/or discoloration of your exhaust.

Patriot's *Top Fueler* is pre programmed for use with your Defender Exhaust System and is user adjustable to accommodate other changes to your motorcycle.

Fuel injected Harley-Davidson's® are equipped with an ECU (computer) that's programmed to deliver proper fuel/air mixture for a stock bike. The Patriot Defender™ changes the flow characteristics of the motor, requiring a change to the fuel requirements. The Patriot Top Fueler adjusts the fuel flow by sensing the load being placed on the motor for proper and accurate fuel mixture at all times. See www.patriotpipes.com for more information.





Photo 1: Bracket to Transmission
From Bottom



Photo 2: Pipe mounted to
Transmission Bracket

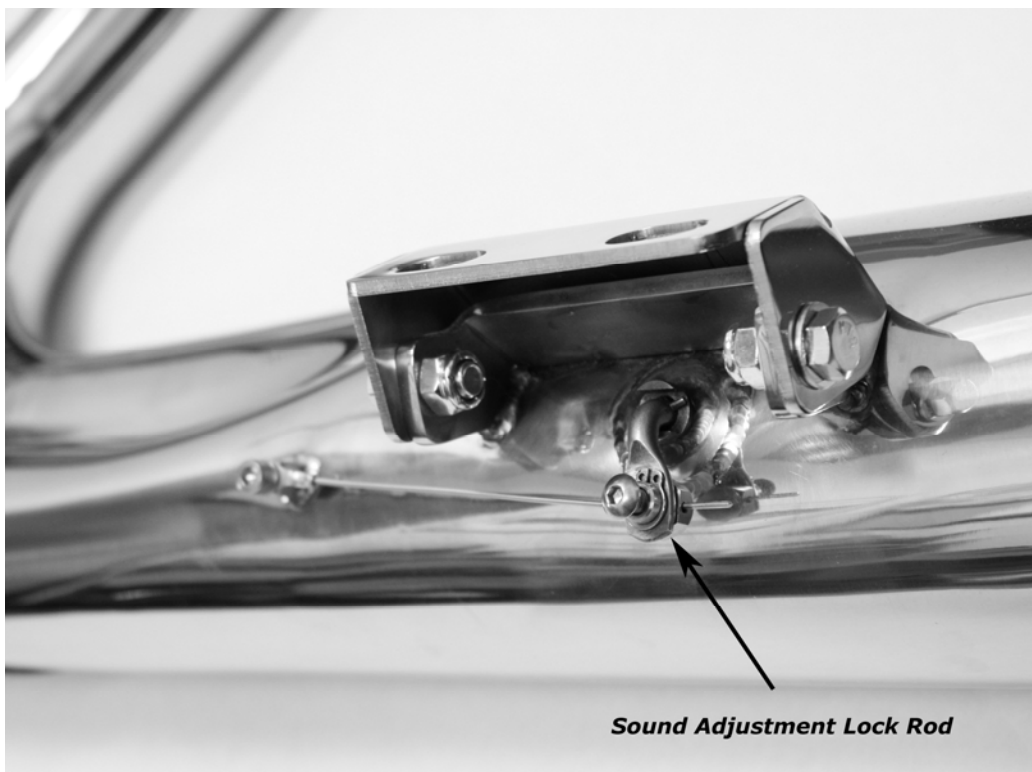


Photo 3: Sound Adjustment Lock Rod