



# ***Engine Management System***

***604-001***

***INSTRUCTIONS***

***For 2008 - 2010***

***Harley-Davidson® FL Models***



***Revolution Performance*** was founded with two major goals in mind – to go that extra mile and provide a superior level of customer service and support in the V-Twin performance industry and to provide an outlet for a complete line of performance components and services for Harley-Davidson® Evo Big Twin® and Twin Cam® 88 as well as Buell® American Motorcycles. Revolution Performance carries a full line of aerospace aluminum alloy cylinders for Harley-Davidson® and Buell® American motorcycles as well as a complete inventory of performance components to make your package work together. The staff at Revolution Performance brings a great deal of engine development experience to the table not only in several disciplines of professional racing but in street applications as well. From the individual who wants a one stop shop for all his performance component needs to the shop owner seeking a reliable supplier of parts and services we are here to help. We also have a long history in professional race team support so we can not only assist in your R&D efforts but with our manufacturing capabilities we can make your ideas reality with the utmost in security. We use our expertise to help OEMs produce better racing components as well as parts that make it to the street. We work closely with premier engineers at both Harley-Davidson® and Buell® on many of their projects and our customers receive that same level of dedication. Our commitment to providing the best components and customer service in the industry is a basis for everything we do so that the customer can meet any realistic performance goal that they set for themselves.

# ***HD Tuner Installation Instructions for 2008 to 2010 FL Models***

**Revolution Performance LLC** makes no claims to the suitability of this product for your motorcycle. Use of this product may void the manufacturer's warranty and may void federal emissions compliance of your vehicle. This product is intended for closed course/racing use only.

Use of leaded fuels will significantly shorten the life of O2 sensors, and may over time cause poor vehicle performance. It is suggested that if leaded fuels are being used that the O2 sensors be changed every 10 hours of vehicle operation to ensure peak performance.

Installation of this performance kit requires a moderate level of vehicle mechanical knowledge. If you feel that you may not be capable of the safe installation of this product, please contact your local service provider for professional assistance.

Before beginning installation verify that all necessary components have arrived. The kit should include:

- 1 Control Box**
- 2 Wide Band O2 Sensors**
- 1 Easy Turn Wire Connector**
- 1 Fuse Box Decal**
- 1 ECU Shipment Box**
- 1 Customer Information Data Sheet**

## **Step 1**

Remove the seat, saddlebags, and side covers from your vehicle. Refer to your owner's or service manual for details.

## **Step 2**

Remove the maxi-fuse, ECU, ECU caddy, and battery from your vehicle. Refer to your owner's or service manual for details.



### Step 3

Remove your stock oxygen sensors. The wide band sensors supplied with this kit are longer than the OE sensors. There may be clearance issues with some aftermarket exhaust systems. Carefully install the new sensors, and verify that there is clearance for them on the vehicle. If the new sensors do not fit, this kit cannot be installed on your vehicle. Contact the retail establishment where the kit was purchased for a full refund.

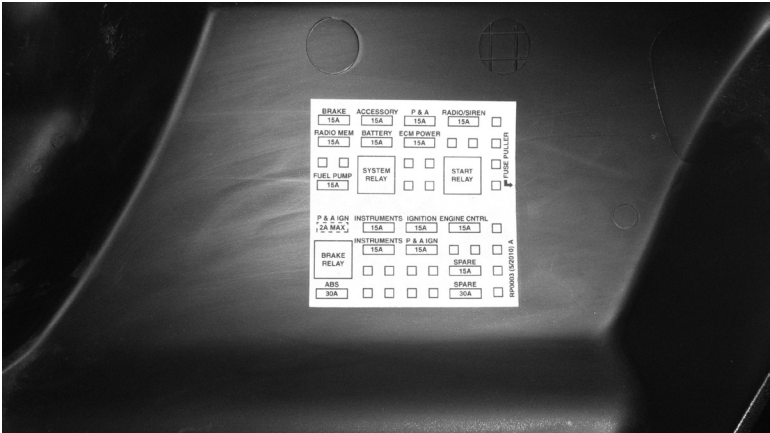
On 2010 and newer models the stock exhaust system uses a new style O2 sensor located in the catalyst along the right hand side of the motorcycle.

**Revolution Performance** recommends either replacing your exhaust system with an '09 style exhaust, or adding oxygen sensors within 6-8 inches of the exhaust port of your stock exhaust system. Contact **Revolution Performance** for exhaust system bungs.



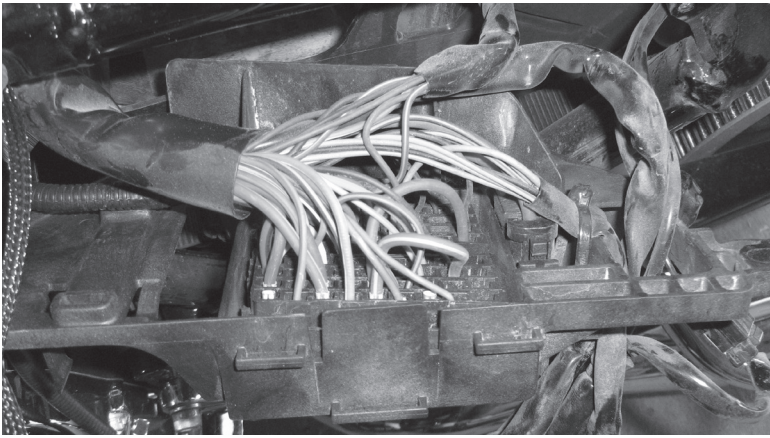
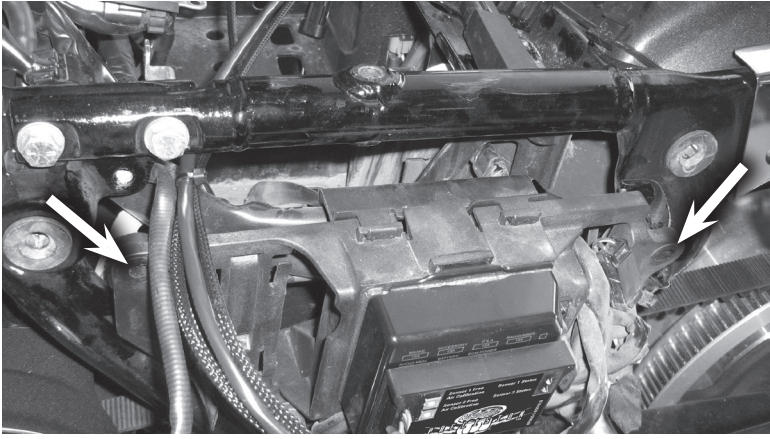
#### Step 4

Remove fuse box cover. Clean the cover thoroughly, peel the backing from the self adhesive tape on the back of the control box, and affix the control box to the fuse box cover per the photo above.



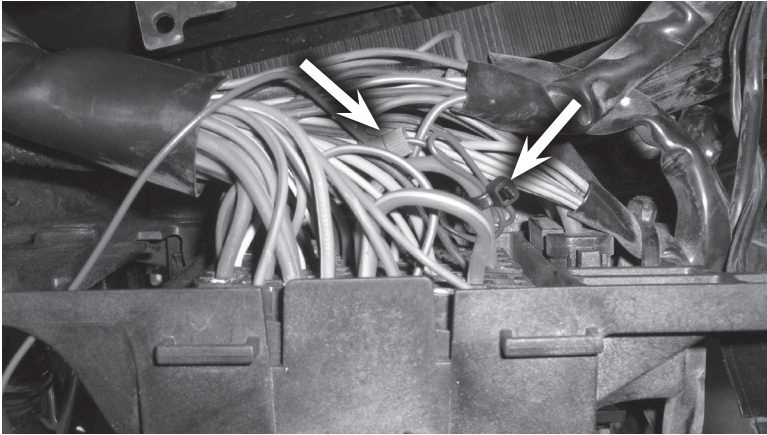
#### Step 5

Thoroughly clean the inside of the left side cover, peel the backing off of the fuse panel decal, and affix the fuse panel decal inside the cover per the picture above.



### Step 6

Remove the 2 bolts holding the fuse panel assembly to the frame. Once the bolts are removed carefully cut the zip ties holding the panel tight to its wire harness. Once the assembly is loose remove the back of the fuse panel to expose the individual circuit wires (see photos above).



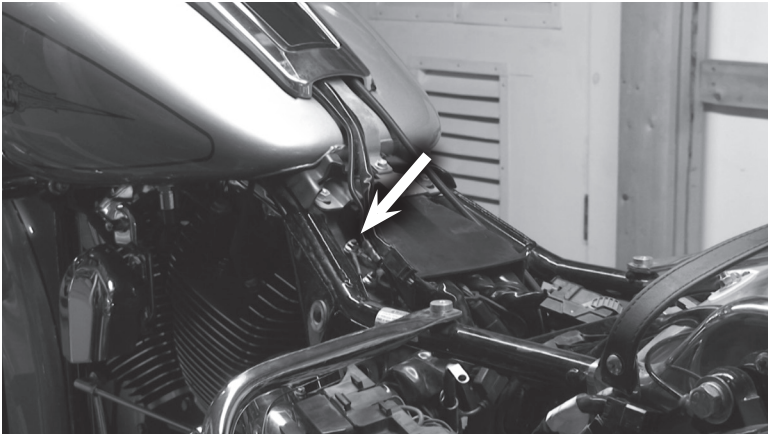
### **Step 7**

Locate the head light circuit of the fuse panel. On some models this circuit is labeled as an instrument circuit. Once you are absolutely sure you have the headlight circuit, disassemble the easy turn wire connector. Place the U portion of the connector around the wire coming from the headlight circuit, and thread the connector body into the U until tight to make a secure tap of that circuit. Now unthread the opposite end of the connector and thread the red power wire through the connector end.

Place the wire into the connector, and thread on the cap. A photo showing the connector and power wire assembled to the fuse panel with zip ties for strain relief is shown above.

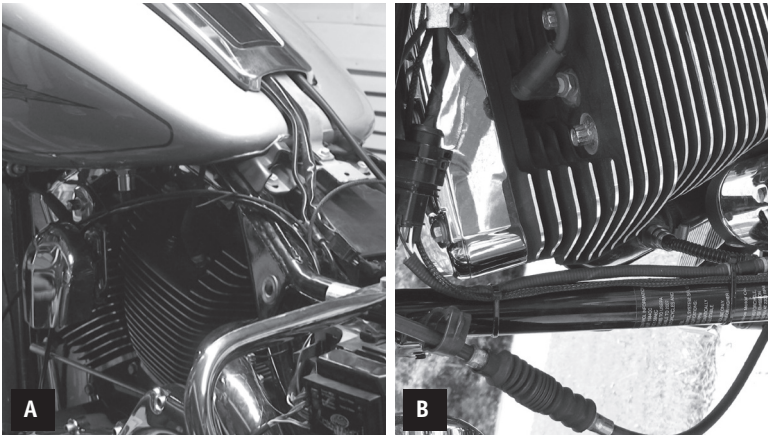
### **Step 8**

Reassemble the back of the fuse block.



### Step 9

Route the black ground wire with attached ring terminal through the frame backbone and attach it to the stock grounding lugs.



### Step 10

On 2008 models route the front O2 wires around the fuse panel, and over the backbone of the frame (see photo A above). On 2009-2010 models route the front O2 wires around the fuse panel and through the opening in the back of the frame (see photo B above). Route the wires over the horn bracket and plug the O2 connector into the sensor. Route the control wires down the front left down tube and plug the connector into the stock wiring harness. Secure the wires to the horn bracket with a zip tie, and to the down tube as shown in the photo above. Be sure that the wires cannot contact any hot exhaust or engine components. Secure them with zip ties where appropriate.

## Step 11

Route the rear O2 wires through the opening in the back of the frame and into the left side cover area.

## Step 12

Route the rear control wires from the control box through the opening in the back of the frame and plug them into the stock wiring harness. Secure these wires as necessary to keep them away from hot exhaust and engine parts.

On 2010 and newer models attach the front and rear control wires to the factory O2 sensor plugs located on the right hand side of the motorcycle next to the ABS module.



## Step 13

Reinstall the 2 bolts that hold the fuse panel to the frame. Connect the rear O2 sensor, and use zip ties to secure everything. When the installation is finished it should look like the photo above.

## Step 14

Install battery, ECU caddy, and maxi-fuse. Do not reconnect ECU.

Switch the vehicle to the run position. Verify that both sensor lights on the control box are flashing slowly. After 30 seconds the lights will either flash quickly or be solid on. Place a screw driver on the calibration screw and adjust it so that the light has just turned from flashing quickly to steady on. Repeat this for cylinder #2.

## Step 15

Reassemble side covers and saddlebags.

## Step 16

Fill out customer information sheet. This sheet needs to be filled out as completely as possible. Your VIN number needs to be written on the sheet or the sheet will be returned to you so that the VIN may be completed. Be sure to include your return address and a phone number where you may be reached. When completed, fold your information sheet up and pack it into the preaddressed and posted mailer to **Revolution Performance**. Your ECU will be processed, and in several days you will receive your ECU back.

## Step 17

Install your ECU and install your seat.

## Step 18

The home position of the twist grip sensor needs to be reset. This is a simple procedure that must be repeated 4 times before starting your vehicle. Perform the following:

1. **Turn on the ignition and run switches.**
2. **Wait at least 10 seconds.**
3. **Turn off the bike for at least 10 seconds.**
4. **Repeat steps 1-3, four times.**

## Step 19

Start your vehicle. Let it idle up to operating temperature (at least 5 minutes). Try not to blip the throttle unless necessary to keep the engine running. The vehicle may run poorly initially until the Control Box finds the correct parameters for your engine. You will notice that after several minutes your vehicle will run increasingly better. After your vehicle is at operating temperature shut it off.

## Step 20

Gear up and go ride! Your vehicle is now equipped with the finest dynamic fuel injection controls available. It will optimize as you ride, and grow with you as your bike does. As equipped it will self compensate for minor changes in intake and exhaust configurations, heads, and cams. The ECU functions like normal and your vehicle can be serviced by any dealer.

Want to perform significant modifications to your motor? No problem! Simply download a new customer information form from the **Revolution Performance** web site ([www.revperf.com](http://www.revperf.com)) and send your ECU and form to us. For a small fee we will update your ECU for the new engine, and you are good to go. Your bike will tune itself!



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RP0004 vA (8/9/2010)