

AUTO FUEL TUNER

Installation Guide

2012 - UP

Harley-Davidson V-Rod Models



Ride everyday, perform every second

1 – Auto Fuel Tuner

1 – Wire Harness

1 – Installation Guide

Part Number: 118-1014

1 – Posi-Tap

4 – Zip Ties

THE IGNITION MUST BE TURNED OFF BEFORE INSTALLATION! READ ALL THE DIRECTIONS CAREFULLY BEFORE STARTING THIS INSTALLATION. DO NOT APPLY EXCESSIVE FORCE WHEN INSTALLING THE SENSOR CONNECTORS TO THE SENSORS. THIS WILL RESULT IN BENDING THE ALIGNMENT OF THE TERMINAL PINS LOCATED IN THE CONNECTORS AND SENSORS.

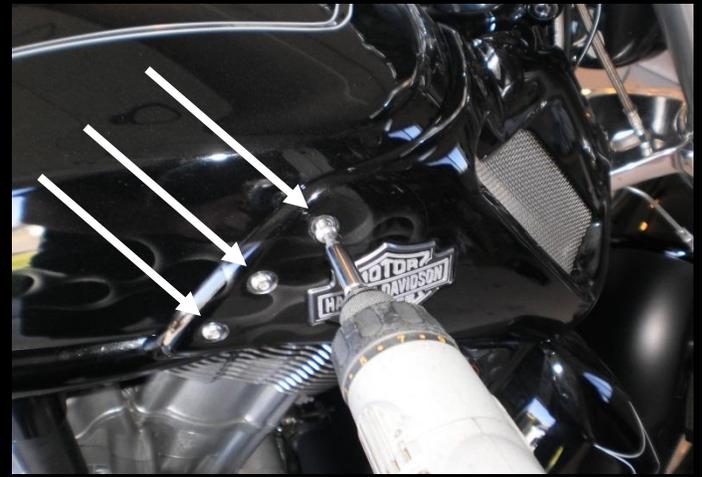
Tools required:

- 4mm, 5mm hex wrench
- 10mm socket
- Pliers
- Straight screw driver

STEP 1 only applies to the V-ROD VRSCF Muscle

Remove the 5 hex bolts that attach the airbox side air intake and remove left and right sides.

STEP 1



STEP 2

Remove the 4mm cap screw located under the left radiator cover and remove the left radiator cover.

Check out our installation video at:

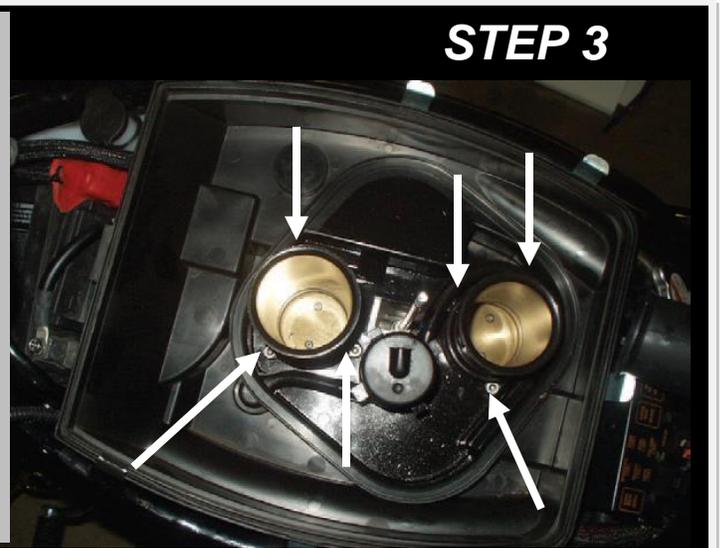
<http://www.youtube.com/user/TABPerformance/videos>



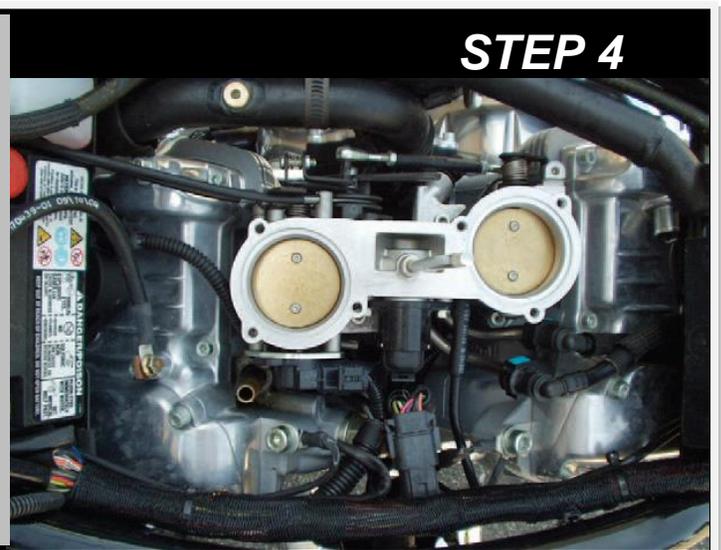
Lift the seat. Turn the ballhead fastener counter clockwise and slide airbox cover toward rear of bike.

Remove the airbox cover. Disconnect the IAT sensor at the front of the airbox by pressing down the wire. Undo the 8 clamps on the airbox, and remove the lid. There are 3 clamps on each side. Remove the air filter.

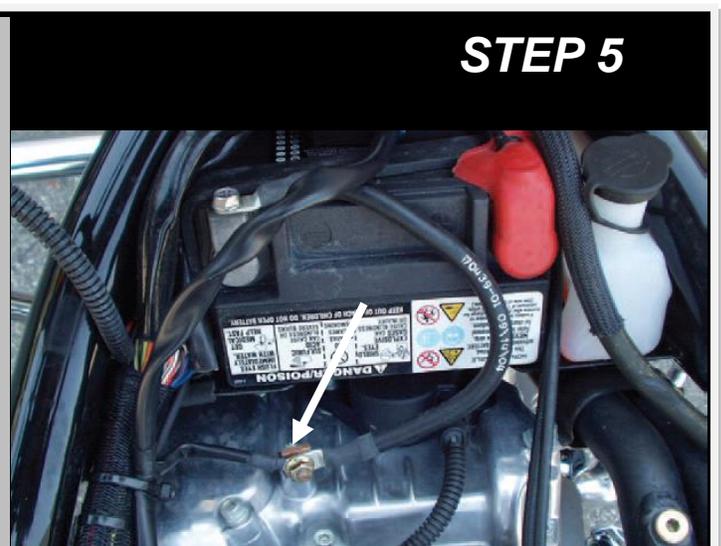
Slide the rubber rings to the top of the air horns then using a 5mm Hex wrench, remove the 6 bolts at the base of the air horns inside the airbox.



Use the pliers to loosen the clamp on the breather hose that goes from the airbox to the rear cylinder head. Remove the breather hose. Lift and remove the airbox



Locate the battery and disconnect the negative battery cable. Connect the Fuel tuner to the wiring harness. Mount the fuel tuner near the air box or factory ECU. Route wiring harness down left side of bike. Use a zip tie to secure the fuel tuner harness to the stock wiring harness



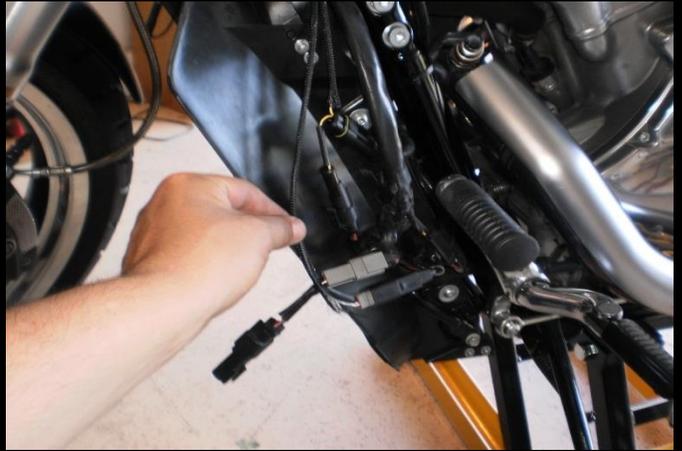
STEP 6

Unplug the Throttle Position Sensor (TPS) connector at the TPS sensor. Plug the two TPS connectors from the Auto Tuner in between the TPS Sensor and the factory TPS Connector. If there is a black wire loom over the 3 wires to the TPS, remove this loom.



STEP 7

Unplug the Crank Position Sensor (CPS) connector located at the left side of the radiator cover. Route the Auto Tuner harness which includes two CPS connectors underneath the bottom of the motorcycles frame along with the main harness loom. Put the two CPS Connectors from the Auto Tuner in between the CPS sensor plug in the factory wiring harness and the factory CPS connector.



STEP 8

Route the Auto Tuner harness which includes two O₂ sensor connectors to the rear O₂ sensor plug location which is located under the rider's seat on top of the fuel tank. Unplug the rear O₂ sensor connector from the factory wiring harness, connect the plug from the auto tuner harness to the factory wiring harness, then connect the other connector to the factory O₂ sensor.



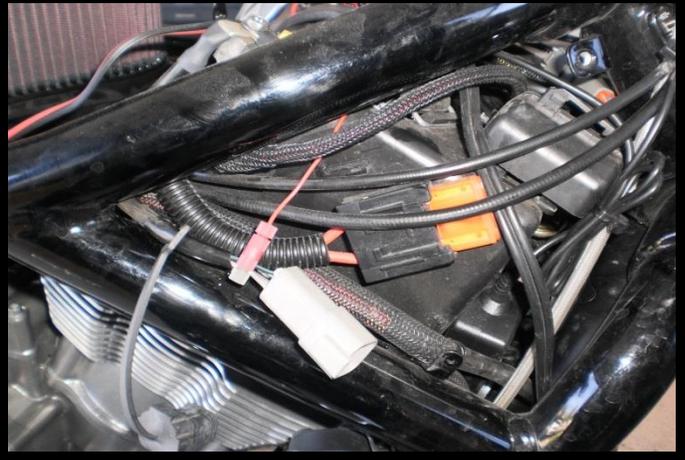
Repeat step 8 on the front O₂ sensor located under the left radiator cover.

STEP 9



Connect the RED wire to the Grey wire on the Data-Link connector harness.

STEP 10



Connect the RED/WHITE tracer wire to the POSITIVE side of the battery.

STEP 11



STEP 12

Use the zip-ties to secure the harness into a clean install. Connect the tuner to the tuner harness.



STEP 13

With the module installed correctly, you will see an LED light displayed with the key-on. The LED light is located at the top right side of the front of the module.

The LED light will blink RED with the key-on.



STEP 14

After starting the engine, the LED light will turn GREEN after approximately 2 minutes of operation and will be in the closed-loop mode.



TROUBLE SHOOTING GUIDE

1. What does it mean if my LED light is not changing to green?

When your light is not changing to green something may not be hooked up properly. After 2 minutes of running, the module will blink a code.

2 red blinks and a pause means there is no engine speed detected, check your crank position sensor plugs and make sure there is a good connection.

3 red blinks and a pause means there is no O2 sensor detected, check your O2 sensor plugs and make sure you have a good connection.

2. Why is my check engine light coming on and not going off?

This means that your bike is telling you that you have a trouble code; you can go into the speedometer and pull the codes out. Below is the procedure of pulling the codes out of the speedometer.

1. Turn ignition switch to OFF & Run/Stop switch is to Run.
2. Push odometer reset button in & hold.
3. Turn ignition switch to Ignition and release odometer reset button. Background lighting should illuminate, speedometer needle should sweep its full range and indicator lamps (battery, security, low fuel, check engine and cruise) should illuminate. The word "diag" should then appear.
4. Push the odometer reset button once and you will see the selection menu "PSSPT" with the first P flashing.
5. Each letter represents an area of the diagnostics module. The module that is flashing is the one you are going to check. To move from one letter (module) to the next, you push the odometer reset button one time. (from P to S to SP to T and back to P, etc.)
 - P = ECM/ICM (Electronic Control Module (EFI) / (Ignition Control Module, 'Carbureted')
 - S = TSM/TSSM (Turn Signal/Turn Signal Security Module)
 - SP = Speedometer
 - T = Tachometer
6. To get the DTC within an area of diagnostics, push and hold the odometer reset button in for 5 seconds and release. If there are any DTC's the code will be displayed or the work "none" will appear if there are no DTC's. Push the odometer reset button again to view additional codes if they exist
7. Record the codes.
8. If DTC's are not to be cleared, press and release the odometer reset button. Part number of module will be displayed. NOTE: To determine if a code is current or 3 historic, clear the displayed code by pushing in and holding the odometer reset button (longer than 5 seconds) until 'clear' comes up. Release the odometer reset button. Turn OFF the ignition switch. Run your bike and shut it down then recheck the DTC's again by repeating steps 1 to 9. If the code is current, it will reappear.
9. Press and release the odometer reset button to continue to the next module.
10. Turn Ignition switch to OFF.

Below is a list of error codes and their meanings which should help you narrow down where the issue is. This list can also be found on the FAQ section of our website.

B0563 Battery Voltage High TSM/TSSM
B1004 Fuel Level Sending Unit Low Instruments
B1005 Fuel Level Sending Unit High/Open Instruments
B1006 Accessory Line Overvoltage Instruments
B1007 Ignition Line Overvoltage Instruments
B1008 Reset Switch Closed Instruments
B1131 Alarm Output Low TSM/TSSM
B1132 Alarm Output High TSM/TSSM
B1134 Starter Output High TSM/TSSM
B1135 Accelerometer Fault TSM/TSSM
B1151 Sidecar BAS Low TSM/TSSM
B1152 Sidecar BAS High TSM/TSSM
B1153 Sidecar BAS Out of Range TSM/TSSM
P0106 MAP Sensor Rate of Range Error Carb
P0107 Map Sensor Failed Open/Low Carb
P0107 Map Sensor Open/Low EFI
P0108 Map Sensor Failed High Carb
P0108 Map Sensor High EFI
P0112 IAT Sensor Voltage Low EFI
P0113 IAT Sensor Voltage Open/High EFI
P0117 ET Sensor Voltage Low EFI
P0118 ET Sensor Voltage Open/High EFI
P0122 TP Sensor Open/Low EFI
P0123 TP Sensor High EFI

P0261 Front Injector Open/Low EFI
P0262 Front Injector High EFI
P0263 Rear Injector Open/Low EFI
P0264 Rear Injector High EFI
P0373 CKP Sensor Intermittent Carb
P0373 CKP Sensor Intermittent EFI
P0374 CKP Sensor Not Detected Carb
P0374 CKP Sensor Synch Error EFI
P0501 VSS Low Carb
P0501 VSS Low EFI
P0502 VSS High/Open Carb
P0502 VSS High/Open EFI
P0505 Loss of Idle Sped Control EFI
P0562 Battery Voltage Low Carb
P0562 Battery Voltage Low EFI
P0563 Battery Voltage High Carb
P0563 Battery Voltage High EFI
P0602 Calibration Memory Error Carb
P0603 EEPROM Failure Carb
P0603 ECM EEPROM Error EFI
P0604 RAM Failure Carb
P0605 Program Memory Error Carb
P0605 ECM Flash Error EFI
P0607 Converter Error Carb
P1001 System Relay Coil Open/Low EFI

P1002 System relay Coil High/Shorted EFI
P1003 System relay Contacts Open EFI
P1004 System Relay Contacts Closed EFI
P1009 Incorrect Password Carb
P1009 Incorrect Password EFI
P1010 Missing Password Carb
P1010 Missing Password EFI
P1351 Front Ignition Open/Low Carb
P1351 Front Ignition Open/Low EFI
P1352 Front Ignition Coil High/Shorted Carb
P1352 Front Ignition Coil High/Shorted EFI
P1353 Front Cylinder No Combustion EFI
P1354 Rear Ignition Coil Open/Low Carb
P1354 Rear Ignition Coil Open/Low EFI
P1355 Rear Ignition Coil High/Shorted Carb
P1355 Rear Ignition Coil High/Shorted EFI
P1356 Rear Cylinder No Combustion EFI
P1357 Intermittent Secondary Front EFI
P1358 Intermittent Secondary Rear EFI
U1016 Loss of ICM/ECM Serial Data Instruments
U1016 Loss of ECM Serial Data, Vehicle Speed, Vehicle Inhibit Motion or Powertrain Security Status TSM/TSSM
U1064 Loss of TSM/TSSM Serial Data Carb
U1064 Loss of TSM/TSSM Serial Data EFI

U1064 Loss of TSM/TSSM Serial Data Instruments
U1097 Loss of Speedometer Serial data Carb
U1097 Loss of Speedometer Serial data EFI
U1097 Loss of Speedometer Serial data TSM/TSSM
U1255 Missing Message at Speedometer EFI
U1255 Serial Data Error/Missing Message EFI
U1255 Serial Data Error/Missing Message Instruments
U1255 Serial Data Error/Missing Message TSM/TSSM
U1300 Serial Data Low Carb
U1300 Serial Data Low EFI
U1300 Serial Data Low Instruments
U1300 Serial Data Low TSM/TSSM
U1301 Serial Data Open/High Carb
U1301 Serial Data Open/High EFI
U1301 Serial Data Open/High Instruments
U1301 Serial Data Open/High TSM/TSSM

3. Why am I having a high or fluctuating idle on my motorcycle?

On some Harley-Davidson models this will occur, we have added a secondary power wire to our harnesses that corrects this issue. On the V-ROD Models make sure that you're getting a good seal around the base of the air box cover. The rubber gasket has a tendency to become kinked when you put it back together which can allow excess air in. If you see that your gasket is kinked or damaged in any way you will want to replace it with a new gasket. If this problem still occurs, plug your throttle position sensor back to stock. When you plug your Throttle Position Sensor back to stock you are completely bypassing the Auto Tuner, and if it continues to idle high then you may be having problems with your bike and you will need to take your bike to a local Harley-Davidson dealer to have them check it out.

4. Why, after installing the Auto Tuner, am I having deceleration popping and sputtering?

Some popping, especially in deceleration is normal and even occurs with factory exhaust and settings although it is not as noticeable since the factory exhaust is so quiet. If you are getting a lot of popping it may be an issue with the O2 Sensor. If there are any exhaust leaks or the O2 sensor(s) have been removed and have not been properly tightened our Auto Tuner will think that the motorcycle is running lean and add fuel, this can cause poor fuel mileage and deceleration popping and sputtering. On the V-ROD Models make sure that you're getting a good seal around the base of the air box cover. The rubber gasket has a tendency to become kinked when you put it back together which can allow excess air in. If you see that your gasket is kinked or damaged in any way you will want to replace it with a new gasket.

5. Having an issue not covered above? The most common installation issue we find is with the Throttle Position Sensor (TPS), which if not properly installed can cause a host of different issues, so this is always the best place to start. What often happens is the factory housing gets left behind when you unplug the factory connection and if you don't have things properly lined up when you go to plug the Auto Tuner in the pins will get jammed in this housing and you won't make a good connection. To check if this is the case pull apart the TPS connection and look on the Auto Tuner plug side to see if you see a piece of purple plastic as shown in the picture to the right. If you do fish out and remove this piece of purple plastic and discard it (you don't need it). Then make sure the Auto Tuner pins are straight and in line with the center of the plug, and then connect everything back together and this will most likely resolve your issue.

6. What if all else fails? Check out the FAQ section of our website or call our tech support line at 1 (888) 822-0070 ext. 2

