

Part 1: Module Installation



#309-363 11-'13 TBW Softail® Models includes '13 CVO Breakout®

Thank you for purchasing a ThunderMax ECM! Please read through the following instructions before beginning the installation procedure. Following these instructions will ensure that the ECM is installed and setup properly for optimal results. If you have any problems or questions, please refer to the TMax Tuner.pdf Manual. The manual can be found in the software (see part 2), under the Help button in the menu. Record serial number NOW, in the space below for later use registering your ECM.

Serial # TMWM



309-363

Module Installation

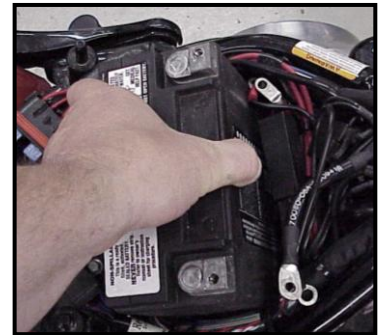
A: Remove the seat to access the factory Electronic Control Module (ECM). Slide the fuse box to the left to release it from the plastic bracket. Open the fuse box and remove the main fuse.



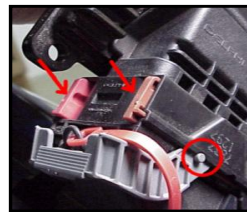
B: Remove the battery cables (negative first) and remove the battery from the motorcycle.

"DISCLAIMER: NOT LEGAL FOR SALE OR USE IN CALIFORNIA ON ANY POLLUTION CONTROLLED MOTOR VEHICLES" The user shall determine suitability of the product for his or her use. Installation and use on a pollution-controlled vehicle constitutes tampering under the U.S. EPA guidelines and can lead to substantial fines. Review your application and check your local laws before installing.
* CA Proposition 65 "known to the state of CA to cause [cancer] [birth defects or other reproductive harm]" see www.p65warnings.ca.gov for details

Special Note – If you have previously installed another tuning device such as a Power Commander, be sure to remove the device and any "O₂ Sensor Eliminators" that may have been installed at the sensor harness plugs at that time!



C: Breakout skip to page 4 Remove the factory ECM by spreading the side tangs and lifting the ECM away from the ECM caddy. Once removed from caddy, release the red locking clip from the connector, depress button on socket housing of the connector; rotate locking bar until it reaches the full rearward position (the index pin [circle] on locking bar will engage the rear



notch in the socket housing, and both red and orange slide bars [arrows] will protrude past the connector housing when fully released). Wiggle the ECM slightly as you remove it from the connector.

D: Unplug the taillight harness (arrow) at the connector. Remove the (2) bolts (circles) holding the steel fuse box mounting bracket from the frame. Cut the (2) wire ties holding the battery tray to right frame rail.



Oxygen Sensor Installation Tips

Your ThunderMax kit includes robust Bosch Wide-Band oxygen sensors that report data from every cylinder combustion event to the ThunderMax ECM for automatic air/fuel corrections. These sensors replace the factory supplied narrow-band sensors; 2011 FLSTSE models equipped with 18mm sensors are in most cases are direct bolt-in replacements, while 2012 FLSTSE models came equipped with 12mm sensors and will require the addition of 18mm sensor bungs to the exhaust header pipes or pipes equipped with 18mm bungs. Installation of the wide band sensors into most 18mm bung-equipped headpipes presents no clearance problems; however, some pipe brands may require exhaust pipe modification or sensor bung relocation for interference-free installation. The sensors must mount freely without contacting surrounding components. **If this is not possible, do not attempt to bend or modify the sensor in any way as it is a sensitive electronic component and will be damaged if you do.** Modify the pipe if required for clearance. Weld-in bungs are available for exhaust systems not equipped with 18mm bungs or if current bungs present clearance issues. Bungs should be located no more than 3-4" from the head/pipe connection (for ideal location, refer to 2011 Softail® factory location). Weld-in bungs are available in straight or angled style from many industry sources; see video installation link on page 8. After installation, route the sensor harness away from the engine and along the frame when possible, above the lowest frame point to avoid the possibility of dragging ground during operation. ***Avoid routing harnesses where engine movement or sharp edges can contact and cut into the harnesses or connector plugs.***

E: Lift the steel fuse box mounting bracket to expose the rear of the plastic battery tray / wiring caddy.



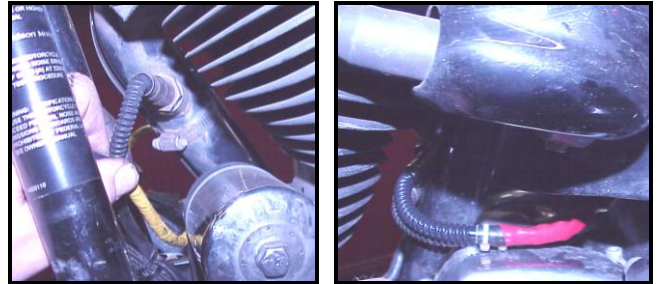
Firmly push the caddy forward to create space needed to feed the "Front" ThunderMax oxygen sensor harness (shown in yellow) connector through the opening between the frame and the caddy, exiting behind the right wing of the oil tank.



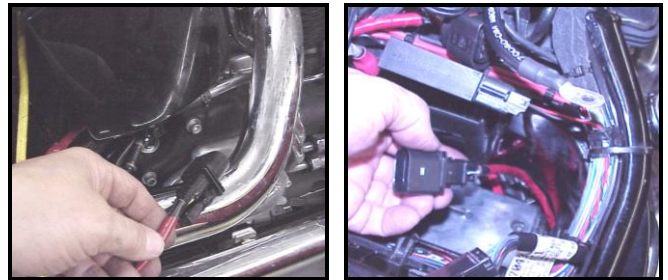
F: Unplug and remove the factory oxygen sensors from the exhaust pipes. If you wish to cap off the bike side of the harness connector, protective caps are provided.

See Tips and General Information Section on page 6 for further details.

Install both ThunderMax oxygen sensors into exhaust pipes and tighten.



G: Route rear sensor harness under oil tank, feeding connector plug up through opening in the right front bottom of the battery cavity in the oil tank.



H: Insert the ThunderMax oxygen harness connector into the ThunderMax ECM with the imprinted "ThunderMax" logo facing up. Tighten the (2) Phillips connector screws. Apply a dab of dielectric grease to the locating pins on the ThunderMax housing. With the ThunderMax oxygen sensor harness positioned below the ECM plug, connect the greased 72-pin ECM connector to the ThunderMax ECM. Before connecting, verify that the locking bar is in the fully open, rightmost position (locking bar index pin is fully engaged with right side notch in the socket housing).

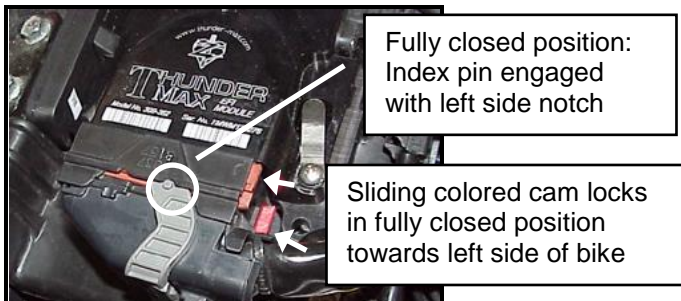
Fully open position:
Index pin engaged
with right side notch

Sliding colored cam locks
in fully open position
towards right side of bike



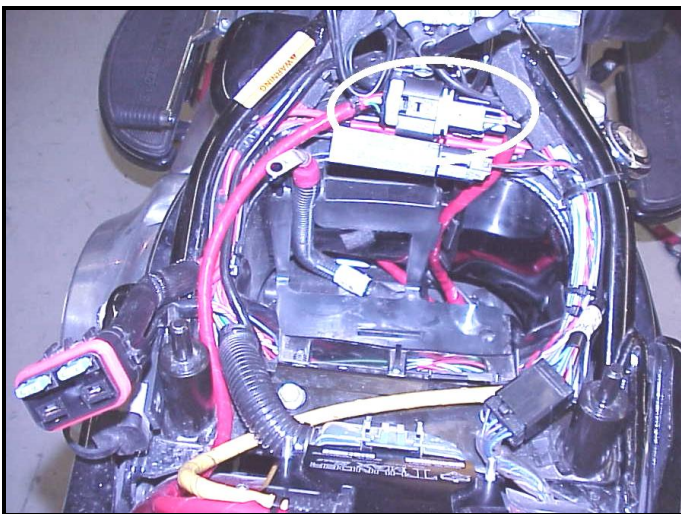
Rotate the locking bar towards the left side of the bike to engage the connector. Observe that the colored cam locks are moving with the locking bar; proper execution will show both colored cam locks visible in equal amounts on the left-facing side of the connector when the locking bar is in its fully seated position with the button lock engaged, as in the image below (**do not**

force the locking bar). Index pin will engage front notch in socket housing.

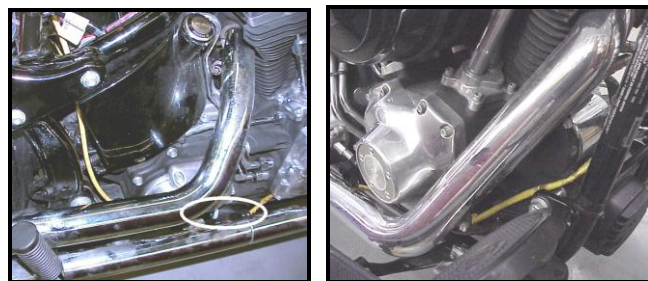


Important Note: Pin and socket housing of the connector must be fully engaged before you rotate the locking bar to the forward position. Forcing the locking bar forward before the connector is fully engaged will damage the connector and/or the ECM

I: Place the ThunderMax ECM into the ECM caddy. Position and connect rear oxygen sensor harness to sensor connector on top of oil tank, just forward of the battery under battery ground cable as shown.



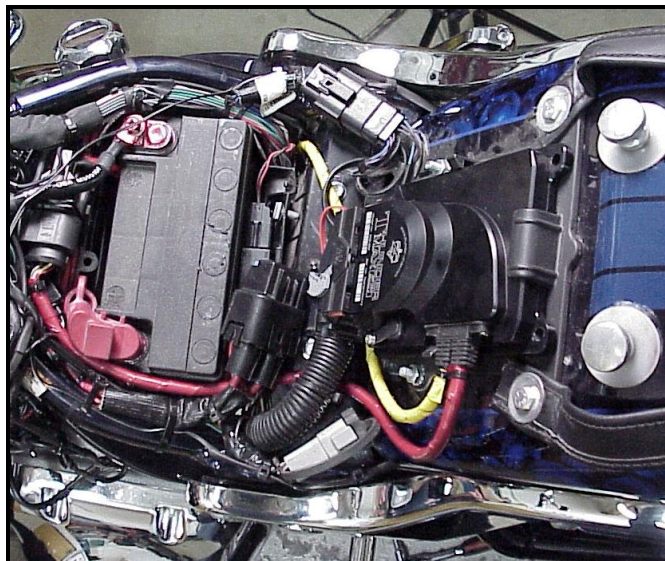
J: Route front oxygen sensor harness behind and under transmission with connector plug just under the engine/transmission mounting boss; connect to front oxygen sensor.



K: Securely tie all harnesses to the frame and/or other harnesses. Avoid routing harnesses where engine movement, sharp edges, exhaust systems or hot

engine components can contact and cut into the harnesses or connector plugs. Be aware that swingarm movement at full suspension compression reduces the clearance opening at the rear of the oil tank where the front oxygen sensor harness is routed (tie harness inboard of swingarm).

L: Install steel fuse box mounting bracket bolts. Plug in the tail light harness plug, re-install the battery (positive cable first). Re-install the main fuse and replace the fuse box cap. Replace harness trough ties and verify oxygen sensor harnesses are routed so they will not be pinched when seat is replaced.

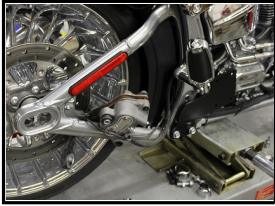


You are ready to proceed to part 2 setup of your system.

Breakout Module Installation

**** Obtain your models HD® service manual for procedures & specifications required in the following steps.**

C: Jack up the bike to remove the rear wheel / tire.

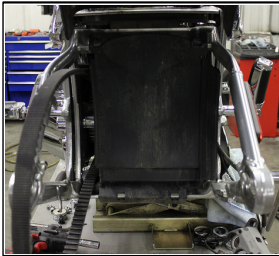


D: Remove the caliper bolts, remove the caliper and set to the side (as per picture above). Remove the axle nut.

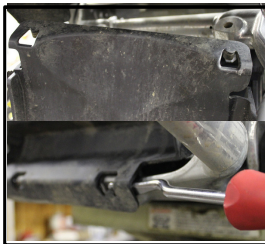
E: Remove the belt guard.

F: Slide the rear axle out, be careful with the wheel speed sensor and watch for the proper location of spacers.

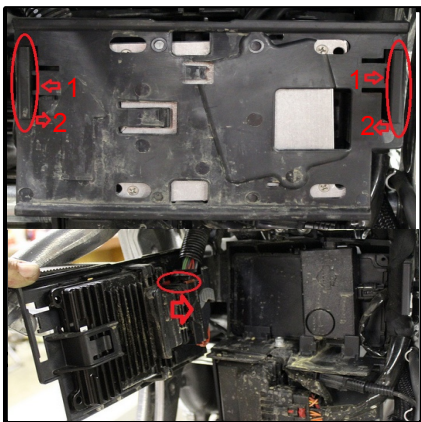
G: Remove belt from pulley and remove rear wheel / tire.



H: Remove splash guard, the plastic pins snap it into place.



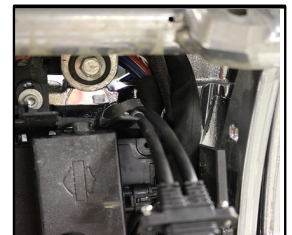
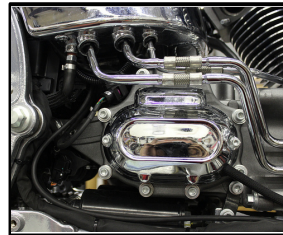
I: Unlatch ECM caddy by gently prying lock tabs (1) outward to allow long outer clips (2) to press inward to release caddy, pivot to hold in place while you disconnect harness connector (notice slides extend fully outside of connector housing). Unlatch and remove connector from the ECM, then remove caddy lid with ECM in place.



J: Disconnect the stock narrow band oxygen sensors the left picture shows the front connector location (just behind voltage regulator) and the right picture shows the rear connector location (in front of battery). Rubber caps are included to protect the harness end connector. If you have 18mm and 12 mm ports remove the 12mm sensors and block off the ports then skip to L.



K: If you do not have 18mm oxygen ports and plan to add them mark the locations prior to removing.



L: While exhaust is removed, route O2 harness just below the oil tank up into the opening into the ECM caddy area. Route the front O2 wire along the lower frame rail as shown in the left picture. Leave the rear O2 wire on the transmission under the oil tank. These will be connected and secured later.

M: Remove stock ECM and install ThunderMax by sliding onto caddy lid. Due to the ECM location the communication port isn't accessible after final assy. To communicate with the module you have 2 options: Silicone the cable into the port and lock in place with the tab, Or you can order a 309-454 for 2013 or a 309-456 for 2014-2015 models. This communication device plugs into the data port under the seat allowing an alternative way of communicating with the ECM.



N: Use the supplied dielectric grease and put a light coat on the O2 harness terminal end and on the seal area just below the flange. Insert the O2 harness into the port on the side of the housing and tighten. Also put a light coat of dielectric grease on the bike harness connector(s) and a light coat on the inside edge of the ECM connector housing.

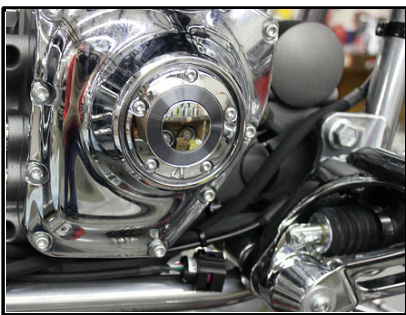


O: Position the caddy lid with ECM slightly into the tray and reconnect the factory harness to the ThunderMax ECM housing. Rotate the locking bar forward to engage the connector. Observe that the colored cam locks are moving with the locking bar; proper execution will show both colored cam locks visible in equal amounts on the forward-facing side of the connector when the locking bar is in its fully seated position with the button lock engaged, as in the bottom image in section I above (do not force the locking bar).

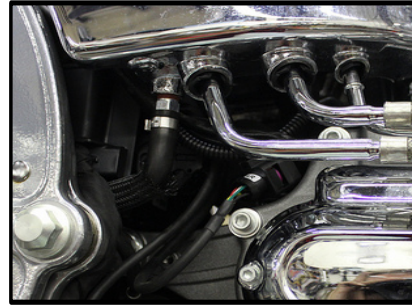
P: Align caddy lid/ECM assy with the housing while guiding the O2 harness up into the caddy housing opening and snap the lid back into place. Ensure the 2 inner locking tabs (1) return in place as not to allow the longer outer tabs (2) to spring inward allowing the caddy lid to disengage (refer to section I).

Q: Install the modified or new exhaust with 18mm O2 ports. Be sure to prefit the oxygen sensors prior to completely installing the exhaust. Sometimes it is easier to install the oxygen sensors prior to bolting the exhaust back on the bike. This is usually the case when the clearances are tight, not having enough clearance in length for the sensor to go into the port.

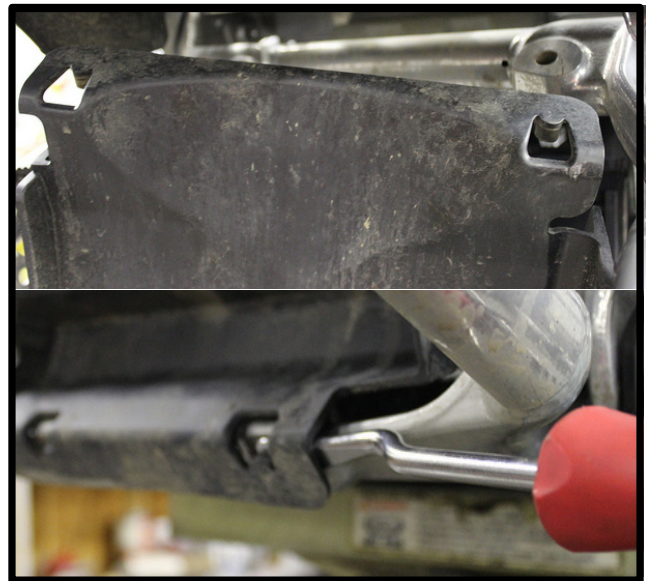
R: Loop the front oxygen sensor lead back over to the right frame rail, tuck inside the frame rail run down to the O2 harness front lead and push the connectors together until you hear a solid click. Use included wire ties to secure the wires in place, protecting from heat and abrasion. Do not allow the wiring to hang below the frame rail.



S: Loop the rear oxygen sensor lead back over to the right side under the oil tank. Push the connectors together until you hear a click. Use the included wire ties to secure the wiring away from heat and abrasion under the oil tank.



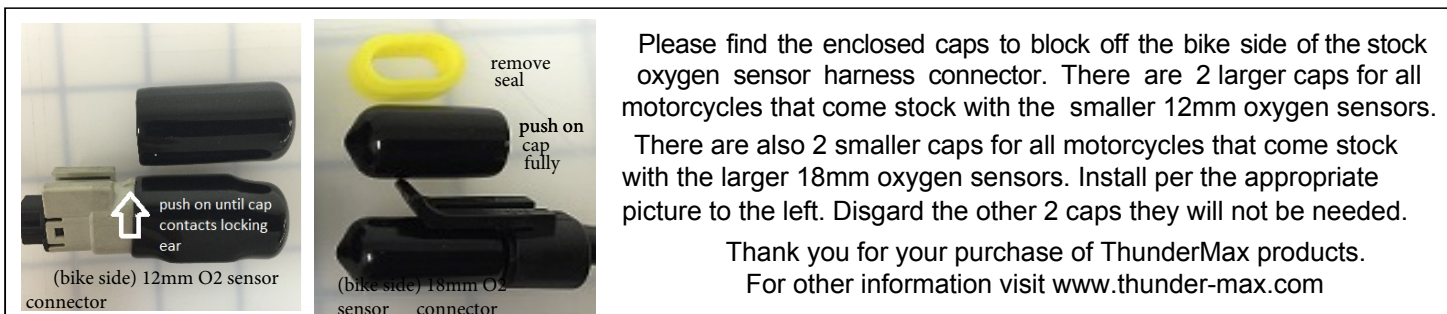
T: Install the splash shield over the ECM caddy lid. Finish reassembling the components per the factory service manual.



U: Re-install the battery, connecting the negative cable last. Put the fuse back in.

You are ready to proceed to part 2 setup of your system.

TIPS AND GENERAL INFORMATION



Heat Management Strategy

ThunderMax ECM's do not support the EITMS® (rear cylinder shutdown) feature like the stock ecm on HD® Throttle by Wire motorcycles. The ThunderMax heat management strategy which is just as affective, benefits from using the wide band oxygen sensors that are used in our auto tuning system.

Below is a brief summary of how we use the ThunderMax system to aid in managing the heat build up in your air cooled and liquid cooled HD® engine.

1. We run at a slightly lower engine idle and generate less heat. This also gives you back that true HD® sound.
2. As the bike starts to heat up (setting in traffic etc.) prior to an imediate need the check engine light will illmuniatue telling you its not urgent, but you need air flow or to shut the bike off soon for it to cool down.
3. As the heat starts to build we reduce the engine idle slightly more, once again to generate less heat.
4. Utilizing the wide band oxygen sensors, we have the capability to add fuel to help cool the engine.
5. With all of the data points available within our system, we can shift into a different area of the timing tables (timing vs temp)

to reduce the timing. Once again will generating less heat.

We are just effecient as the stock bikes with this strategy, but remember it is an air cooled engine, so with no air flow they are all going to get hot.

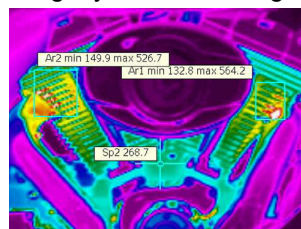
Built in support features

- [TMax-Auto Support tab] Includes [links](#) to collect and transmit module information, map data and/or monitor logs (recorded riding sessions) via E-mail directly to TMax support
- [TMax-Auto Support tab] Includes [links](#) to TMax-troubleshooting steps to aid in diagnosing issues, as bikes age and issues with them start to appear.
- [Help tab] Includes comprehensive tuning manual
- [Help tab] Has [link](#) directly to Thunder-Max.com website for other support documents and videos

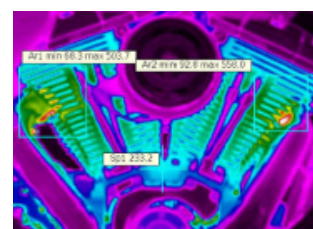
System Updates are available through TMax Tuner with an internet connection. Software, Firmware and Map updates can be downloaded; check frequently for updates.

Nitrous - When adding a Nitrous system, plan to use a relay to control the activation of the system. This will keep from overloading the circuit and causing damage to the ECM.

Interrupting 12v power to the module (battery service/ replacement) requires system to be re- initialized (Setup Sheet Step 7). Check battery terminal tightness as part of routine service (like during oil changes); avoid stacking accessory power leads onto main battery cables. If equipped with dual battery post ports, connect accessories separately.



Pic 1: Shows the excessive, high-heat environment in which a typical air cooled H-D® engine normally operates - Very uncomfortable for the rider!



Pic2: Shows a ThunderMax® AT equipped engine; Note the cooler operating temperature resulting from a properly balanced fuel curve - Much more comfortable for both rider and passenger!

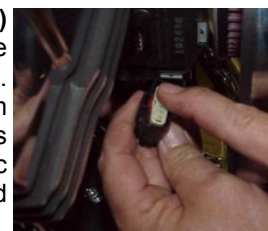
In-Tank Fuel Filters should be inspected as a part of routine maintenance. The filter is small and one bad load of fuel can clog it. The factory recommended service interval is 25K miles.

Fuel pressure should be checked during periodic service; this is also the first thing to check should you experience sudden or gradual decreasing performance. For any EFI system to operate properly, your fuel system should build and maintain 55-62 PSI of fuel pressure; your dealer can perform this simple test quickly.

Oxygen Sensors: Included Bosch wide-band sensors are very robust and durable; under normal conditions should last 50K miles or more. Circumstances that can damage or shorten the life of your sensors include:

- Leaded fuel – Race fuel
 - Oil deposits from oil consumption problems
 - Excessive moisture exposure
 - Excessive (extreme) heat
- There is no warranty on sensors.
Replacement P/N is 309-355.

H-D® released a Tech Tip (#418) regarding improving conductivity at the throttle body wire connector (TCA) plug. Carefully remove the harness plug from the throttle body, clean the male TCA pins with a swab and alcohol, apply dielectric grease to the female terminals and reassemble.



Part 2: Software Setup Guide



#309-XXX ThunderMax Tuner Software setup / map loading

Thank you for purchasing a ThunderMax ECM! Please read through the following instructions before beginning the installation procedure. Following these instructions will ensure that the ECM setup properly for optimal results. If you have any problems or questions, please refer to the TMax Tuner.pdf Manual, in the software (under the Help Menu).

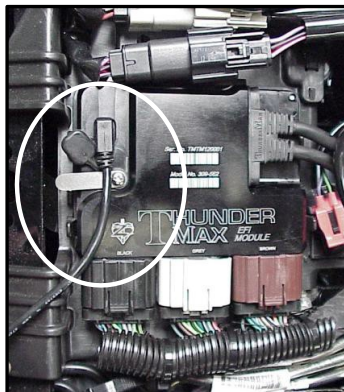
Step 1: Download Software and install software



Go to www.thunder-max.com, click on support tab, then software tab, now click TMax Tuner (yellow/top disc) Click save file and then ok, the file will start to download. When completed locate and open the file folder and double click on the setup (Application file or .exe file depends on Windows version). The Install Shield Wizard will automatically open and guide you through installing the software on your computer. After installing and opening the software the first time, you will be prompted to install the driver for the USB connection. The TMax Tuner software is designed to run on computers using Microsoft® Windows 2000™, XP™, Vista™ and 7, 8 & 10 operating systems. Your computer must have an adequate amount of free space on the hard drive for proper operation. TMax Tuner is approx. 140MB when installed. TMax Tuner is not compatible with any other operating systems.

Step 2: Linking and Installing a Map

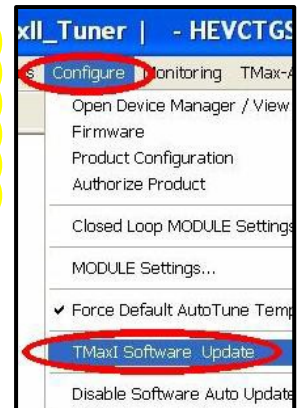
The TMax Tuner software for the ThunderMax EFI systems contains the correct drivers required for USB interface with the ECM. Connect the USB cable to the specific port on your PC that the driver will be configured to and the ThunderMax



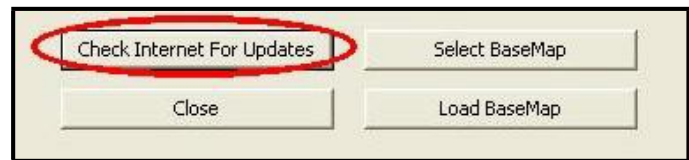
“DISCLAIMER: NOT LEGAL FOR SALE OR USE IN CALIFORNIA ON ANY POLLUTION CONTROLLED MOTOR VEHICLES” The user shall determine suitability of the product for his or her use. Installation and use on a pollution-controlled vehicle constitutes tampering under the U.S. EPA guidelines and can lead to substantial fines. Review your application and check your local laws before installing.
* CA Proposition 65 “known to the state of CA to cause [cancer] [birth defects or other reproductive harm]”
see www.p65warnings.ca.gov for details

ECM communication connection located under the retainer plate (loosen retainer screw, rotate retainer plate and open rubber weather seal). Open the TMax Tuner software and turn the bike’s ignition and handlebar switches to the on/run positions. Follow the prompt instructions for installing the driver. Turn off ignition when finished.

(There is no need to be linked to the module at this time). This section is only to ensure you are working with the latest version of TMax Tuner software and have the most up-to-date selection of base maps. It is suggested that you establish an Internet connection and click [Configure] on the tool bar, then [TMax Software Update] and follow prompts.



After uploading latest software (if found), next click [EFI Maps] [EFI Map Listings (Throttle By Wire)], double-click any map; when the Base Map Name Encoding window appears, click the [Check Internet For Updates] button and follow the prompts. Close window after updating.



Step 3: Enter VIN Number and Product Registration

With the communication cable connected to your computer and the ThunderMax ECM, cycle the ignition switch to the 'on' Position (be sure kill switch is in the run position) and linking to the ThunderMax



will occur automatically. (Red **[Link]** button turns green).

You will be prompted to enter the bike serial number (VIN); answer **[OK]** and enter your motorcycle's serial number (CAPITAL LETTERS ONLY), click **[OK]** then **[Close]**.



Now click **[Yes]** when the product registration prompt appears. When the product registration window opens, fill in the requested fields then click **[Close]**. Unlink (click green



[Link] button) and turn off ignition when finished. Once your software and map databases are verified as up-to-date and your module is registered, move to selecting and loading your base map.

Selecting A Base Map File from the Database

If you purchased a pre-mapped system, you may skip the map installation process.

The TMax Tuner EFI Map Database will help you chose a Base Map for your application. To open the Map Database, select from the toolbar **[EFI Maps]** then your application (**Throttle by Wire**), (**Throttle Cable**) or (**VRod**).



Available base maps will be shown (if the **[Show All Maps]** button at the lower left of the screen is highlighted, click it to clear any filtered maps so all maps will be shown).

ItemID	Manufacturer	EngineType	Family
288	Harley Davidson	103	TwinCam TBW
286	Harley Davidson	103	TwinCam TBW
279	HD-Trike	103	TwinCam TBW
273	Harley Davidson	103	TwinCam TBW
271	Harley Davidson	103	TwinCam TBW
267	Harley Davidson	103	TwinCam TBW
266	Harley Davidson	103	TwinCam TBW
265	Harley Davidson	103	TwinCam TBW
264	Harley Davidson	103	TwinCam TBW
259	Harley Davidson	103	TwinCam TBW
243	HD-Trike	103	TwinCam TBW
241	Harley Davidson	103	TwinCam TBW
240	Harley Davidson	103	TwinCam TBW
239	Harley Davidson	103	TwinCam TBW
197	Harley Davidson	103	TwinCam TBW
196	Harley Davidson	103	TwinCam TBW
195	Harley Davidson	103	TwinCam TBW
194	Harley Davidson	103	TwinCam TBW
188	Harley Davidson	103	TwinCam TBW
187	Harley Davidson	103	TwinCam TBW
186	Harley Davidson	103	TwinCam TBW
185	Harley Davidson	103	TwinCam TBW
184	Harley Davidson	103	TwinCam TBW
183	Harley Davidson	103	TwinCam TBW
182	Harley Davidson	103	TwinCam TBW

You will now be able to select the closest Base Map for your engine combination. Please read the following section on Key Elements, this will help you quickly narrow down the selection of available Base Maps and find the right one for your application.

Base Map “Key Elements”

The reason for selecting a Base Map by “Key Elements” is to find the closest Base Map match available for your combination, identified by the most critical components. These include:

Engine Size. A correct match to the engine's stroke is more important than an exact match of engine displacement. Stroke and cam timing influence engine pumping pressures. The correct shape of spark curves in the base map will be best matched by engine stroke.

Throttle Body / Injector Size. Choose the throttle body and injectors being used for your application (most applications will be “stock” unless performance parts have been installed).

Camshaft. Many popular short duration aftermarket cams (less than 240° intake duration) perform well when using a stock-cam base map. With broader timing cams (more than 240° intake duration) you may find that choosing a base map calibration developed for an aftermarket cam to be a better choice.

Exhaust System Design. There is no need for concern if an exact *brand* match does not appear in the Base Map library. Simply select the Base Map with the closest *style* of exhaust system (Slip-ons, 2:1, True Duals). Choosing the closest style will yield excellent results. Group your exhaust system in one of the following three categories:

Factory Head Pipe with Crossover: Dual exhaust systems with a cross over pipe that connects the front and rear exhaust pipes (includes 'X' pipes). Typically used with accessory slip-on mufflers. **Bikes with catalyst-equipped mufflers or headpipes require maps designed for use with catalyst-equipped systems or damage to the catalyst can result.** ThunderMax maps for use with 96, 103 and 110” internally stock engines are catalyst-safe maps.

2 into 1: Both head pipes converge into one collector.

(True) Dual Exhaust: 100% separate exhaust pipes. ThunderMax's AutoTune system allows you to choose a Base Map that isn't an exact match of components and still have excellent results. Even if your combination isn't listed, select the closest Map match and let the AutoTune create your custom Base Map while you ride. The closer match that the Base Map is to your combination, the faster the system will achieve the desired AFR Targets. This simply means less time to establish and maintain a great tune. Once you have allowed the system to establish custom AFR fuel-flow adjustments, you can use the AutoMap function to create an all-new Base Map based upon the Auto Tuned learned adjustments. To use the AutoMap feature, see the tuning manual for the procedure on how to create your custom base map using AutoMap.

Base Map File Browsing / Selection

With your Base Map Definitions window open, you may begin narrowing down the list of maps for your application. To sort the map files by a particular key element, left-click on the column heading to arrange the column in alpha/numeric order. All of the columns can be sorted in this manner for filtering purposes. Filter the maps to identify the base map that best matches your application by following these easy steps:

First (in order of importance) place your cursor over the 'Family' heading and left-click to change the sort order of that column. Scroll down the list and place your mouse pointer over you bike's family match and right-click to filter out no-match applications from the list.

Itemid	Manufacturer	EngineType	Family	Throttle	Exhaust
182	Harley Davidson	103	TwinCam TBW	Stock (Stock 4.22 Inj)	Stock 09'-12' FL Head Pipe (With Cats)
183	Harley Davidson	103	TwinCam TBW	Stock (Stock 4.22 Inj)	Vance & Hines Power Duals (No Cats)

Tip - After any filtering, notice that the [Show All Maps] button at the bottom left is now selectable. At any time if you want to return to the complete library listing, left-click the [Show All Maps] button and you will start over with all Base Map Files in the library displayed.

Second, right-click the engine size under 'Engine Type' that matches your engine. All maps that do not match your selection will be filtered from the screen.

Itemid	Manufacturer	EngineType	Family	Throttle	Exhaust
182	Harley Davidson	103	TwinCam TBW	Stock (Stock 4.22 Inj)	Stock 09'-12' FL Head Pipe (With Cats)
183	Harley Davidson	103	TwinCam TBW	Stock (Stock 4.22 Inj)	Vance & Hines Power Duals (No Cats)

Third, place your cursor over the 'Throttle' column and right click your match (injector size is more important than throttle body size if you have to choose).

Itemid	Manufacturer	EngineType	Family	Throttle	Exhaust
182	Harley Davidson	103	TwinCam TBW	Stock (Stock 4.22 Inj)	Stock 09'-12' FL Head Pipe (With Cats)
183	Harley Davidson	103	TwinCam TBW	Stock (Stock 4.22 Inj)	Vance & Hines Power Duals (No Cats)

Fourth, right-click the 'Cam' that closest matches your application.

Muffler	AirCleaner	Cam	CylinderHead	Piston	Modifications
Slip Ons - (All others)	Hi Flow Air Cleaner	Stock	Stock	Stock	None
(Exhaust Includes Muffler)	Hi Flow Air Cleaner	Stock	Stock	Stock	None

Fifth, right click the 'Exhaust' that closest matches your application.

Itemid	Manufacturer	EngineType	Family	Throttle	Exhaust	Muffler
182	Harley Davidson	103	TwinCam TBW	Stock (Stock 4.22 Inj)	Stock 09'-12' FL Head Pipe (With Cats)	Slip Ons - (All other
183	Harley Davidson	103	TwinCam TBW	Stock (Stock 4.22 Inj)	Vance & Hines Power Duals (No Cats)	(Exhaust Includes Muff

Keep right-clicking the application columns until you have located the best map match (in the case of identical maps, choose the latest date). Highlight the map you've chosen (left-click; blue bar indicates selected map) and click the [Close] button.

Step 4: This brings you to the 'Base Map Name Encoding' page, from which you can review the map parameters. Once verified, click the [Load BaseMap] button to load the map into the software.

Note - If you're still unsure of which Base Map to select, please email the specifications of your Key Elements to Support@Thunder-Max.com. Please title the email "Base Map Selection" for a faster response.

Step 5: Next, go to the [Tuning Maps] Tree and click the [+] sign next to [Module Configuration] to reveal the [Basic Settings] tab. Open the Basic Settings window and click the [Speedo Cal] button (list window appears).

Verify that the Speedometer Calibration is set for your year motorcycle based on the chart. If it is, click [Cancel]; if it is not, enter the correct value and click [OK], then [Close] the Basic Settings window. **If your bike doesn't have Automatic Compression Releases (ACR'S) toggle the Compression Release Control to 0 to Deactivate. If this isn't toggled you will get a "1655 ACR low code". Unless it is a CVO model, most bikes prior to 2011 models do not have "ACR's". (Normally on 103" & up)**

Step 6: Now that the Base Map is loaded into the TMax Tuner software; you must 'Write' (transfer) the Base Map to your ThunderMax ECM. With the communication cable connected, linking to the module is now automatically performed with the TMax Tuner software when the handle bar and key switch are in the on/run positions. Turn the ignition switch on; the red [Link] button will turn green to indicate a successful link. Once linked, from the toolbar click [File] [Write Module Maps and Settings], answer [OK] to the 'To Running Position' command in the 'Module Configuration Write Options' window that opens. When the system recognizes your motorcycle model through the VIN number entered earlier, you will receive

Step 7: Initialization Procedure

IMPORTANT STEP BEFORE STARTING

This step is required for new module installation, or when interruption of 12v power to the ECM takes place. Example: battery change, removal of battery, ECM or maxi fuse, etc. Turn the ignition switch on with the handlebar rocker switch to the run position for 20 seconds, uninterrupted. After 20 seconds, cycle the ignition switch off, repeat 3 times. Then turn ignition on and start the engine. Let the motorcycle idle on its own for 15 seconds. Cycle the ignition off and restart the motorcycle; normal idle speed should be attained depending on engine temperature. Warm-up cycle will have slightly elevated idle speed (approximately 1200 rpm) until engine reaches operating temperature. To disconnect from the PC, click the Unlink button (turns to red), remove the USB cable and snap the weather seal plug into the USB cable port. Position the retainer plate over the weather seal and tighten the retainer plate screw.



Congratulations!

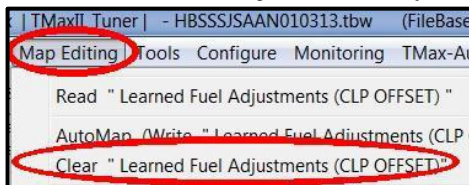
You have successfully installed and set up your ThunderMax ECM. Now it's time to ride the bike and let ThunderMax optimize your EFI system! Several riding sessions that allow the engine to reach normal operating temperature should be completed with as much variation in terrain and RPM as possible. Your ThunderMax customizes your map based on your engine, ambient conditions and your riding habits. For an automatic evaluation of your systems tuning, after several sessions have been logged, you can link to your ThunderMax and select **[TMax Module Control Center]** for a complete analysis of the ***Air Fuel Ratio*** adjustments that have been made. If more optimization is suggested just follow prompts to complete the process.

a prompt that the chosen map has settings applied for either an air or liquid cooled engine; only if the system does not recognize your model through the VIN, the following window will appear: Choose the correct application and click **[OK]**.



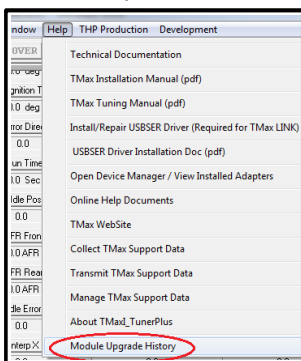
The transfer bar then appears during the map load. Once the Base Map has been written to the module, clear any active Diagnostic Code readings and Learned Fuel Adjustments that may have been created during the live module testing session that each ThunderMax module must pass. While linked, from the Tuning Tree select **[Module Configuration] [Diagnostic Codes]**. When the Diagnostic Codes window appears, select **[Clear Diagnostic Codes]**. After completing this step, proceed to **[Map Editing]** menu on the tool bar and select **[Clear "Learned Fuel Adjustments (CLP OFFSET)"]**.

These steps ensure you will be starting with a "clean slate" Base Map.

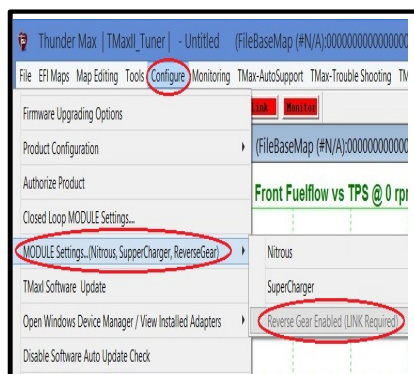


Step 6a: Skip if not a trike or Freewheeler or if your Firmware is version 5.12 or higher (Reverse is controlled by the VIN with newer firmware).

Link to verify firmware version click Help then Module Upgrade History. For reverse; go to the **[Configure]** Tree and then click **[Module Settings, Nitrous, Super Charger, Reverse Gear]** tab to reveal the listed options to choose. While linked (Link button is green) click Reverse Gear enabled option.



Verify firmware version



Toggle on reverse

Need Help?

We have included many easy-to-use features for supporting and enriching your ThunderMax experience. A full tuning manual, links to online support documents and sites as well as the ability for you to easily attach a map or recorded engine monitoring log to an email directly to our support department are found here. In the future to assist with tech support help, please follow the instructions on performing a data collection to send to our tech support staff via email. This information is valuable to help diagnose any issue.

