VCMTUNER DISABLE VCM/ ECO FAQ – version 1

We have added additional detail in terms of how the product operates so you can fully understand how this modification could affect your vehicle.

GENRAL QUESTIONS

- **Do I really need to disable VCM?**
  If you can afford some potentially high-dollar engine and transmission related repair bills and don't mind spending time at the dealership, then leaving VCM enabled is an option. There are many reasons why you might want to disable it. Honda settled a class-action lawsuit that affected some 1.9 million vehicles in 2014 from years 2008-2013. The lawsuit did not include owners of 2005-2007 models, but those models are still affected by the same problems as the 2008+ models. The total number of VCM enabled vehicles is estimated to be over 4 million today. The VCM technology has serious defects, which include drastic oil consumption, fouled spark plugs, failed engine mounts, vibration problems, worn out cylinder rings and premature torque converter failures and is well documented. VCM operation may drastically increase your total cost of ownership of your Honda/Acura costing you thousands of dollars in unnecessary repair bills over the lifetime of the vehicle and may decrease the overall reliability of the vehicle. Users who have made the decision to disable VCM have reported improved drivability with only a minor reduction in fuel efficiency as a tradeoff. The solution to disable VCM is not perfect, but is a nice work-around that requires some effort and understanding to those who are willing to go down this road and protect their investment.

- **Is my vehicle coolant temperature actually modified with this product?**
  No, the actual operating temperature of your vehicle is unmodified. This product simply modifies the feedback loop that reaches the ECU by at least 8-13 degrees F, so that the computer logic will not engage VCM operation.

- **Will use of this product reduce my oil consumption?**
  If the cylinder rings are not completely worn out from VCM operation, disabling VCM should reduce oil consumption on your vehicle. If excessive oil consumption is a new problem for your vehicle, the sooner you apply VCMTUNER the less wear and damage to your engine. On my personal vehicle, I saw oil consumption about 1 qt for every 2500 miles. My engine started burning an accelerated amount oil at about 115,000 miles. With VCM disabled I have minimal oil level changes every 5,000 miles. Reducing Oil Consumption should greatly enhance the lifetime of your engine. With oil change intervals of 5,000 miles, you could be some 2-3 quarts low before your next oil change. Honda should be embarrassed with their decision to continue installing VCM in even new vehicles today. Honda recommends checking the oil every single time you fill up for gas. Operating with low engine oil levels will substantially reduce the useful life of your engine.

- **Will my temperature gauge operate properly?**
  Your temperature gauge will be slightly lower than normal on the dash, and will be a factor in your resistance setting. This is one area where the variable resistance used in this product shines. If you are concerned about the temperature gauge operating near-factory levels, you can adjust the setting to where the VCM is disabled on the freeway and the temperature gauge at operating temperature is visually unaffected on the dash temperature gauge. There are tradeoffs in terms of how often VCM is re-enabled temporarily for in-town driving between stop-and go traffic. Since the VCMTUNER product can be modified in increments of 1-2 ohms, you can decide what you are comfortable with.

- **Is my vehicle fan speed operation modified?**
  The fan speeds are controlled by the ECT2 sensor documented back as far as 2014-2015. This product plugs into the ECT1 sensor, so the fan speeds are independent of this modification and will work normally.

- **Will I lose some fuel efficiency by disabling VCM?**

In certain flat-land freeway driving scenarios, your fuel consumption will go up some 1-2MPG when VCM is enabled. For users doing 50/50 highway and in-town driving, the MPG may not change at all. My 2007 Honda Odyssey averaged about 17-18MPG for 50/50 in-town and highway driving, and the MPG is unchanged with VCM disabled. Recently a youtube user documented use of disabling VCM over a week on near 100% highway driving had less than a 1MPG reduction in fuel consumption.

- **My vehicle suffers from lots of vibration- will this fix these issues?**
  If the engine mounts are extremely worn, they may still need to be replaced. Some users with engine mounts that have failed still have vibrational issues primarily when accelerating or going up steep grades. Depending on how much wear the mounts have suffered, this product may drastically improve the vibration problem only when the VCM/ECO mode engages and disengages. Reports of VCM enabled engines replacing engine mounts every 55-60k miles are not uncommon. College Hills Honda in Northern California claims this is normal from their web blog.

  Disabling VCM long-term should have the new engine mounts lasting the lifetime of the vehicle. Engine mount replacement normally runs about $1200 for a front and rear set at the dealership. VCM operation is also hard on the transmission torque converter, and has been known to cause failure of the torque converter prematurely compared to non-vcm enabled vehicles. Some users have spent upwards of $1800 on replaced torque converters to find out that was not the vibrational problem.

  I recommend doing a drain/fill on your transmission every 10k miles to reduce wear on your vehicle, as the cost of replacing the entire transmission at the 10 year mark may exceed 50% of the value of your vehicle. Other vibrational issues have been known to happen from unbalanced tires, front drive axle wear, and warped disc brake rotors. Before you spend money at the dealership, this product will help you determine if the engine mounts are the primary culprit in the vibrational

problems and should be used as a diagnostic tool in troubleshooting these types of problems.

- **Will VCMTUNER stop CEL codes P0301,P0302, P0303, P0304 and Fouled Spark Plugs?**

  It will definitely help with these problems. The Engine Misfire Settlement with Honda in 2014 describes part of this problem is the engine seals (rings) that keep the oil from blowing out of the cylinders have worn due to a mixture of fuel and gas causing buildup from VCM operation. The Misfire Settlment Lawsuit also states that VCM causes the cylinder rings to spin and this can damage the rings over time. With VCM Disabled, your plugs will no longer get soaked in umcombusted fuel and oil. If you already have problems with recurring fouled plugs, VCMTUNER may very well double the life of your spark plugs or completely alleviate these problems. Depending upon how much damage you have sustained and how much oil you are burning, VCMTUNER will at a minimum stop the mixture of uncombusted fuel and oil mixing together. Google 'Honda Engine Misfire Settlement' for more information. If you have a 2008-2013 Engine with VCM you may be entitled to certain extended warranties.

Will use of this product violate my vehicle's warranty?

Honda does not officially endorse any method to disable VCM at this time. Honda will not acknowledge the substantial problems with the technology, even though they settled a massive class-action lawsuit that says otherwise. VCMTUNER has been designed that if your vehicle is still under warranty you can remove it before going to dealership for maintenance. The vehicle should sit at a minimum some 50 minutes before removing the tuner harness to avoid triggering a Check Engine Light Code. VCMTUNER cannot be held responsible for any damage or problems this product could potentially cause your vehicle as Honda has not officially endorsed any method to disable VCM/ECO mode. You use this product at your own risk. The manufacturer of this product cannot be held liable for any damage,

warranties or defects you think the product could possibly cause to your vehicle. For those w/ 3 year 36,000 mile warranties, it's better not to give the dealership an excuse to not honor the warranty by removing the device when going in for service.

Has there been any problems or damage to vehicles with VCM disabled?
Feedback from thousands of users who have modified their vehicles VCM operation show no negative impacts to the vehicle since about 2014, only improved drivability and reduced damage to the engine/transmission of the vehicle. The biggest issue users face adding too much resistance due to temperature fluctuations, which in some scenarios can generate a check engine light (code P0128). Some vehicles in really cold climates take longer to warm up because of the temperature offset.

- **Can VCM be disabled 100% of the time?**
  Current fixed resistance products on the market will not disable VCM 100% of the time without a check engine light, as this would require adding too much resistance – somewhere around 150 -160 ohms, and would generate a check engine light P0128. The temperatures under the hood can swing drastically from a 176F coolant temperature on the freeway all the way up to a 206F temperature sitting in traffic for 3-4 minutes with the A/C off. The climate controls on the vehicle are a factor in how much VCM stays off in stop and go traffic. When the climate controls are set to auto, an extra fan will normally be on which stabilizes the coolant temperatures some 1-2 minutes when sitting in traffic. At the default setting of 82 ohms (clockwise of position 40) there is about a 3-6 degrees (F) buffer for the temperature to temporarily climb. If your ECO light or VCM comes back on in stop and go traffic, this can be normal in some situations and you should not be alarmed. This is why it is difficult to disable VCM operation some 100% of the time. Disabling VCM some 95%+ of the time and not generating a check engine light is the goal, because this reduces the wear on your vehicle some 95% percent on engine mounts, transmission torque converter, spark plugs, and the vehicle will have improved drivability without the vibration. You also have more instant power with all 6 cylinders

available. Disabling VCM improves drivability of the vehicle, and feels like a sport mode.

- **How does the actual temperature coolant sensor modification work?**
  The computer sends a 3.3v-5v signal to the coolant temperature sensor (ECT1), and as the vehicle heats up the coolant sensor adjusts the resistance and the circuit voltage drops. The computer then reads the new value and determines the actual operating temperature. The voltage is basically looped through the coolant sensor and the computer reads the post-value. Since the vehicle will not engage VCM with less than a 167 degree temperature (F), the variable resistor used with VCMTUNER offsets the coolant sensor resistance and increases the effective voltage that the ECU feedback loop sees. The computer will start to engage VCM operation with a voltage slightly less than .94 volts. Normal operating temperature of 176F (assuming a 180 degree thermostat) has a voltage of approximately .74 volts, and VCM is enabled.

- **What is the expected useful life of the product?**
  The tuner port plug uses a variable resistor. The data sheet for this particular part lists stability from -55 degrees F -> 257 degrees F with less than a 1% delta. The tuner plug is glued to the back of the connector plug and sealed with a liquid gel which is stable to 250 degrees F. We expect the tuner plug to last the lifetime of your vehicle assuming the installation is done properly. Under-hood Engine operating temperatures under normal conditions never exceed 230 degrees even in very hot climates. There are no exposed pins and they are sealed within the honda OEM waterproof connectors. The remainder of the product uses a wiring harness with 18 gauge automotive copper wire, which is rated for the under-hood temperatures and is thicker than the Honda factory wire harness, which uses 20 gauge wire. The harness should more durable and bendable than your factory wiring.

- **Why won't Honda fix VCM or provide an off-switch?**

Honda states certain MPG estimates for the EPA/CAFÉ standards, and would have to inform all consumers that the data they provided may not be accurate with VCM/ECO mode disabled. They could easily modify the firmware on their vehicles to disable the mode permanently. If Honda/Acura did this, they would likely face a class-action lawsuit for fraud over their advertised MPG estimates. Instead Honda has attempted to band-aid the problem with software updates that reduce the vibration problems with transmission shifts and some minor modifications to the timing of VCM. To date, Honda is still producing brand new vehicles w/ VCM that will likely suffer from many of the same engineering problems since the technology has flaws that will increase the cost of ownership of these vehicles.

- **Did VCMTUNER invent the method to disable VCM using the temperature offset?**

  No, we did not. Users on the piloteers automotive forums who were determined to find a way to disable VCM figured out that an operating temperature below 167F as seen by the system computer would disable VCM operation before the vehicle was warmed up. There are other possible ways to disable VCM at this time, but they require a more precise way of controlling voltages on certain sensors.

  The engineers who wrote the VCM code on all honda/acura ECU's used the 167F value to make sure VCM was not engaged until the vehicle reached near a full operational temperature so that the cylinders were adequately lubricated with oil before engaging/disengaging 3-6 cylinder changes.

  Other methods such as splicing resistors into the factory harness and products with modular resistor values preceded our approach to use a variable resistor. Our solution was the first on the market allowing you to deal with all variances in vehicles to get VCM disabled on your vehicle, as no two vehicles have the exact same operating temperature, and you no longer needed 3-4 resistors to make sure you could disable VCM.

The range of resistance for disabling VCM on the freeway ranges from 68 ohms all the way up to 120 ohms depending upon the vehicle. Fixed resistance values were not going to adequately solve these problems, which is why we pursued a method to give users full control without having to purchase additional parts. Our method also allows you to re-enable VCM without removing the product from the vehicle, and also allows real-time adjustment even when the vehicle is operating without a check engine light between position 0 - > 60 from our testing.

- **I don't want to mess with changing the resistance value – do you have an alternative solution?**

  We are currently working on a digital version of the product which can disable VCM 100% of the time without ever needing to adjust the threshold in the future. The digital solution will require more installation time as wires would need to be fished through the firewall, and is recommended for enthusiasts and professionals. It will be more expensive as a computer board is involved, but is more of an OEM style solution and will include a dash switch to turn on/off ECO. We currently do not have an ETA when the digital product will be mass-produced, but is in the works at this time. A prototype board currently exists with a digital potentiometer and an interface to read the data from the coolant temperature sensor.

Do you accept returns? What if the product does not work with my vehicle?

One of the main reasons we created the variable resistor solution was so that all of the variances could be dealt with in a single solution where other options have failed. We want all customers to be 100% satisfied and will accept returns within 10 business days after you received the product. If for some reason you cannot get the product to work after contacting us and walking through some troubleshooting steps, we will accept a return minus shipping expenses beyond this timeframe on a case-by-case basis.

INSTALLATION ISSUES

- **I have a 2007 vehicle. The 2007+ harness connectors are slightly different from my vehicle. How is this possible?**
  90% of the 2007 vehicles utilize the top-rib style connector. We have seen some really early 2007 models have center-rib style connectors that are used on the 2005-2006 models. If you have a 2007 model vehicle and want to order, you should first take a look at the ECT connector on your vehicle and see if the female connector has a slot near the top of the connector or the center of the connector. If you order the wrong product, we can ship you the other harness style and you will need to ship back the harness we sent you for an exchange.

- **How long does it take to install the product?**
  It should take you 5-10 minutes to install the product when using the supplied Velcro to make sure the harness and tuner plug are not making contact with the engine. You will need a screwdriver to remove the engine cover for the first time installing the product.

  Temperature gauge does not move after 5 minutes of driving

  Ensure all connectors are seated properly and connected to the system.

  Remove the vcmtuner harness and ensure the factory connector works properly, then reinstall. If no temperature is available after some 5 minutes of driving, contact us for assistance. A replacement unit may be required from damage to the harness and/or dial from too much bending/twisting.

  I have twisted the VCMTUNER harness too much and pulled a wire out of the plug socket – can this be fixed?

We want all of our customers to be happy with the product, and if this occurred while installing the product the first time we will ship you a new harness. You will need to ship the old harness back to us.

- **Do I need to modify the factory preset setting when purchasing the VCMTUNER?**
  The tuner plug comes preset at 82 ohms, just a hair setting normally past the 40 notch. This setting was chosen as the early community of vcm hackers who spliced harnesses found this value to be a good mid-point. However we have seen some 2005-2006 Odysseys that will still have the ECO light on by default even on freeway driving at 82 ohms. So far, we see about 15% of vehicles needing adjustment from the factory 82 setting to keep the ECO light off on freeway driving. Your first goal after installing the unit is to make sure the ECO light is off on the freeway, then adjust from there if necessary. For some users, disabling VCM year round using the factory setting is possible with only freeway driving. Some of the 2005-2006 users must go to setting 50 on the dial to get the ECO off on the freeway either due to tolerances in coolant sensors, the coolant sensor has been replaced, or the vehicle is actually running slightly warmer than normal by some 10-13 degrees. If the factory setting of 82 ohms (just right of the 40 position) does not work for you out of the box, it is recommended you get a scanning tool that works with a mobile phone like a VeePeak scanner w/ the torque app to view your coolant temperatures without the unit installed to see what is going on.

ECO LIGHT STILL COMES ON

- **My ECO light is still on while driving on the freeway.**
  You likely need to increase the resistance value. If you are at the factory default setting just clockwise of 40, you might need to bump this up to setting 50. In these situations users have been successful in disabling VCM but will need to fiddle with the setting until they find the right spot. This is one area where VCMTUNER shines over fixed resistor solutions.

My ECO light is still on at setting 50 for freeway driving.

This is an unusual situation and your coolant temperature sensor may have been replaced and not calibrated back to factory settings, or could be going bad. In this situation I would suggest you get a scanner tool to monitor the coolant temperatures, as you could have a vehicle that is slightly overheating. If your coolant sensor needs replacing, only use an OEM Honda product. Other third party products will have problems if you cannot calibrate yourself. You might need to purchase an infared scanner temperature scanner or borrow one. Get your vehicle up to full operating temperature (should be 176-180F) and point it at the radiator hose to determine the actual temperature value. You may also need an odb2 scanner to monitor the coolant temperatures so you can identify a mismatch. If both temperatures match, your cooling system likely has a problem if it exceeds 185F on the highway. Since VCMTUNER uses a variable resistor you can also accomplish disabling VCM and re-calibrating your temperature sensor at the same time in this scenario if you are comfortable with working on your own vehicle. Otherwise have a mechanic fix the calibration problem before using the product to be safe. If you have engine overheating problems, this product will not work properly and VCM will still be engaged.

- **My ECO light comes on occasionally, but only for in-town stop and go driving**

  This might be acceptable if this only happens after some 2-4 minutes stopped in traffic. You might want to tune the dial clockwise a half or full click to fix the problem if the ECO light engages when only sitting some 20-30 seconds in traffic consistently. (e.g. rotate Position 40 clockwise to Position 45). With the A/C off and stopped in traffic, your coolant temperature can spike some 30F compared to highway operating temperature over 2-4 minutes. This product is designed to modify the temperature as seen by the ECU some 13F-25F depending on the season. It was not designed to disable VCM 100% of the time, but will allow you to

disable VCM in all climates on freeway driving without having to purchase additional resistors.

- **I have a newer model vehicle that does not have an ECO light. How do I know if VCM is not engaging?**
  It would be recommended that you purchase an ODB2 VeePeak scanner for your vehicle. This is a relatively inexpensive utility (less than $20 shipped on amazon) and will work with android operating systems over Bluetooth. It will also allow you to clear engine codes. This way you can use the free "Torque" app downloadable from the google play store to actually see the vcmtuner modifying the engine coolant temperature as reported to the ECU. During freeway operation, if the Engine Coolant Temperature sensor feature on Torque shows less than 167 degrees, VCM is not engaging on the freeway. If you utilize this tool I would recommend a desired freeway operating temperature of about 163-164 degrees max. Any higher than this and VCM operation will likely be occurring quite often in stop and go traffic.

CHECK ENGINE LIGHT

If you get a check engine light, do not panic. This can occur for many reasons, if you happen to get the following codes, it could be due to the setting you have chosen. You will need a code reader to clear and/or check the code.

- **I have a check engine light P0118 ECT Sensor 1 Circuit High Voltage**
  This can occur if you remove the adapter harness or tuner dial plug while the engine is still warm and the ECU is active. Even after removing the key from the ignition on the vehicle, there is still some residual voltage keeping the ECU awake for a period of time on some Honda/Acura models. If you have a code reader, you can clear it. If you are planning on taking your

vehicle in for major service and want to remove the tuner harness to avoid any warranty issues, wait until the engine has cooled down for some time ~ in the 30-50 minute ballpark before removing said harness.

- **I have a check engine light P0128 - Coolant Thermostat below regulating temperature**

  Also can be seen as a "Check Emission System" light on the dash. This can occur if too high of a resistance setting is chosen. Also, the ambient temperature outside could have changed between seasons and now it's time to re-adjust the tuner. Occasionally, this is a fluke and will go away on its own if the daily temperature range has wide variances. You have a few options if you get this code:

  1. Turn down the resistance setting a half notch and reset the code. (e.g. position 50 -> 45)
  2. Turn the tuner to position 0 (re-enables VCM without removing the wire harness to see if your vehicle really has a coolant problem)
  3. Remove the VCMTUNER Harness from the vehicle, hook back up your standard connector to the ECT1 port and see if the code comes back. If the code comes back without the tuner installed, then this would prove 100% if you had a thermostat stuck open or a cooling system related problem.

  Make sure you clear the code w/ a code reader, if you do not have one autozone can sometimes do it for free. Select one of the options above and re-test to see if the check engine code persists.

TEMPERATURE QUESTIONS

HOW DOES THE VCMTUNER DEAL W/ SEVERE DAILY WEATHER CHANGES?

Currently, VCMTUNER allows you to dial in the best average for each situation. In climates where there are extremes in temperatures, these are difficult situations to deal with as the coolant temperature will swing quite

a bit. The VCMTUNER offsets the feedback loop to the ECU by approximately 13-16F at the 82 ohm setting (approximately position 40 on the dial). Keeping the feedback temperature as seen by the ECU below 167F will keep the VCM / ECO mode disabled. (176F – 16F = 160F).

In the winter/spring months, the default setting should normally keep the VCM operation off on the highway. As stated above, some vehicles have a wide variance of calibration issues which can affect this default setting. Different makes/models have different behavior w/ in-town driving coolant temperature spikes. This product is designed to help you keep the ECO light off some 95+ percent of the time, and you can adjust this to your choosing. I have noticed many Honda Accord users have quicker coolant spikes when sitting in traffic and the ECO light still comes on w/ the 40 setting. Most accord users need to utilize the 45-50 setting any time of the year. Users of Odyssey, Pilot and Ridgelines seem to have more coolant buffer, either due to thermostat variances or a larger radiator size.

Leaving the A/C setting to auto in the vehicle will also improve keeping the ECO light off. When the climate controls are set to auto, the secondary fan will assist as a buffer to keep the coolant temperatures more stable, and you can sit some 1-2 minutes in traffic before the ECO light comes back on.

Leaving the A/C setting to off will cause substantially quicker coolant temperature spikes in stop and go traffic, and this is why it is quite difficult to disable the VCM / ECO mode 100% of the time.

As an example, sitting in traffic with the A/C off some 3-4 minutes will cause the actual coolant temperatures to spike from 176F all the way up to 206F. This is a 30 degree swing, and the resistance setting position 50 will basically compensate 20F that the ECU sees, in this situation the ECO light will come back on momentarily for some 30-60 seconds until the coolant temperatures normalize after driving.

The position 50 setting is a really nice option to have some buffer when sitting in traffic, it is approximately 100 ohms. However, on a really cold

day this extra buffer could generate a CEL P0128. If this situation occurs slightly turn-down the resistance value with a screwdriver and clear the check engine light. The position 60 setting should not be used unless you are in a hotter climate like Northern California or Phoenix for in/town and freeway driving and outside temperatures exceed 110F.

Some users of the product just choose to focus on keeping VCM off on the freeway, and leave the tuner as position 40-45. Others who want a bit of buffer for in-town driving can utilize position 50 any time of the year with minimizing the ECO light coming back on in stop and go traffic w/ the AC climate setting off. Keeping VCM / ECO off some 95+ percent of the time means 95% less oil burning, transmission torque converter wear, and substantially reduces engine mount wear. With VCMTUNER you can basically choose how you want the ECO disabled. This is not a perfect solution, but you can at least now adjust the resistance without taking out the harness on the vehicle, and even do it with the vehicle running (not recommended due to safety). You can even re-enable VCM if you want the possible MPG improvement for a long-trip. Some users may find a sweet-spot in terms of the resistance that works year round without issues in more mild climates.

END OF DOCUMENT

If you feel other topics should be covered here, please send suggestions to info@vcmtuner.com

Updates of this document will be posted to the VCMTUNER websiste.