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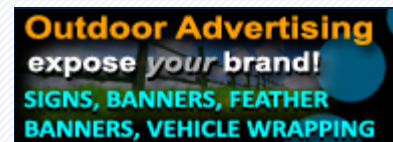
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Wheels Jamaica | Manufacturer Specific | Honda/Acura (Moderators: [ChanR](#), [WILDCAT - R](#), [Don Gotti](#), [DrifterK](#)) | Topic: **Apexi VAFC (Vtec Controller) Info!**

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Author Topic: Apexi VAFC (Vtec Controller) Info! (Read 2374 times)

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Flextour Type R Senior Member
 ☆☆☆☆ [→ Apexi VAFC \(Vtec Controller\) Info!](#)
 « on: September 23, 2010, 11:22:33 PM »

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First.. do up the wiring... follow the wiring diagrams... for B16A ecus follow the diagram.. earlier versions (like the one I had is missing the VTM wire diagram) but later versions should have it already in the manual. If you're having check light issues or whatever.. always check the wiring first. I recommend buying a harness so you don't butcher your original ECU wire harnesses.. Fields harness adaptor is quite cheap, and a worthy investment if you're going to install many many meters like the RSM, VAFC, etc, etc, that requires butchering the original wiring.

If you're unfamiliar.. PAY someone to do it.. you can cause some expensive damages with improper wiring.

First of all.. after installing, DO NOT START THE ENGINE IMMEDIATELY ...

Just turn the ignition to on.. so you can get the display out....

So, first you need some basic settings input into the unit. You can delete the old settings if you want. Use the [Initialize] option to do this. It will ask for confirmation... say yes and viola! a blank VAFC unit without any settings.

You can do a sensor check first for fun. this is under the [Etc] > "4. Sensor Check" menu. Just check

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various sensor readings.. usually I just check the TPS and be done with it.. just to make sure that the sensors are okay and not reading absolute zero.. which usually means wiring problems/improper connections.



Now, choose the sensor values, car type, etc. This is in the [Etc.] -> "1. Sensor Type" menu. This one refers to the the MAF sensor, if I'm not wrong.
The Sensor Type is 06/06 for hondas.. It's stated in the manual.

Then go to [etc.] -> "Car Select"

CYL (number of cylinders, this is for the RPM reading off the ignition signal, if I'm not wrong) which is of course 4, unless you're running a V6 in a civic.. 😊

Thr. This is the TPS sensor. TPS sensor type is the arrow pointing up to the top right corner.. (0-3/5V) for honda (that's why you do the sensor check first... in case you have a TPS sensor that's 'lain daripada yang lain' (i.e. problematic one) after set.. calibrate the throttle position.

It's not written in the manual, but the throttle position calibration is done like this.
(in case depressing full throttle isn't getting VAFC to read 100% in the [monitor] mode. Sometimes you don't even need to do this.. I think it's because some TPS sensors aren't giving voltages close to 5V, so it doesn't read that 4.5V as full throttle.)

With the highlight on the Thr. setting.
Don't depress the throttle pedal... Count to ten.. then press full throttle and don't release for ten seconds. (I forget which one came first, so just reverse the procedure if it doesn't work).. use the [monitor] mode to check the throttle position (it will be in %)

With that set up.. you're ready to start your engine.

Start it up, and it should either idle properly (like stock lah!) or sputter (if you jacked up the fuel pressure/bigger injectors)

Considering you're new to this.. I won't begin with trimming fuel off modded engines with fuel pressures at 4 bar and up, or using bigger injectors.

With your engine idling properly.. go to the [monitor] functions and explore... This won't screw up anything.. and it just displays various stuff for the 'ooooohh!!! aaaaaahhh!!!' effect.. 😊

Section 1

First thing you might need to set at this stage is the VTEC unmatched point if your VTEC isn't engaging at the right RPM.

Firstly set the "V/T Cont" to a RPM you want VTEC to open. In this example... I set mine to 5500rpm on, 5400 off.

Go to the [monitor] mode... and choose the two relevant channels (RPM and VTo) that will be used for this.. (you can choose all four if you like, personally I choose only two for the bigger letters/numbers)

Run and read the VTo (VTEC output signal) and see where it light up.. it should highlight at some RPM.. release throttle, and note at what rpm the VTEC signal turns off. Compare the RPM to the number you set in "V/T cont."

Go to [setting] -> "V/T Unmatch" You can use these as a baseline.. but might have to add or reduce 1% or more.. Remember that VTEC point for H22A, and other VTEC engines are different due to different ECUs, that's what this setting is for in VAFC.

Hi<<Lo = ±2%

Lo>>Hi = +3%

The proper way of doing it is noting the RPM differences when VTi and VTo light turn on and off in [monitor] mode and getting a percentage out of that.. but in reality.. that takes too much brain power and calculation....

So you can simply "wing-it!" (i.e. balun aja!) and you'll get it roughly right after a couple of tries.

Modify these numbers until you get VTEC to turn on (and off) at the right RPM. (note that all RPM readings I'm asking you to read from are from VAFC, not your DASHBOARD TACH!)

The time which VTEC opens on the engine is the VTo signal (VTEC output signal from VAFC) and the signal for the VTEC from the ECU is the VTi (VTEC input signal) Strangely the manual never mentioned about

this... Apexi really sucks at making manuals. 😊

Section 2

With that VTEC unmatched point done.. your VTEC cross-over point should be spot on.. which means if you set to 5500rpm, the VTO will turn on at 5500 rpm, and will turn off at whatever RPM you set. That's it for [Setting] -> "V/T Unmatch"

I follow the rules from hondadata, which means that VTEC hi cam should not be turned on before 3K rpm, and should not be turned on too late at 6K rpm and up. (Hondadata states that the it causes some problems due to the rocker arm configuration in Honda engines. I don't know the exact details.. but I consider hondadata people to be more knowledgeable than me.. y'know?

Now we progress on to the T/H point.. this is the setting for part throttle and full throttle. What it means exactly is this.

Quote:

VAFC has dual maps.

The full throttle air correction map' [Setting] -> Wide Thr.

The part throttle air correction map, [Setting] -> Narrow Thr.

This will become clearer later!

The T/H point setting is simply this. (I put an example setting)

Lo = 50% / Hi = 80%

What it means is this.. If your TPS position is 50% or less, it will use the air correction map from [Setting] -> Narrow Thr.

If your TPS position is more than 80%, it will use the air correction map from [Setting] -> Wide Thr.


So you can tune for fuel economy for part throttle, and more power at full throttle.

So what happens if the TPS position is 60%? (I know this question will come, since this was what I wondered at first as well!)

Answer: The VAFC will calculate the air correction based on the air correction map from [Setting] -> Narrow Thr. AND [Setting] -> Wide Thr The calculation on how VAFC 'extrapolates' the air correction % is inside the manual (I never bothered to remember.. look it up yourself!)

As for the "T/H Point" Setting.. there is no correct setting.. it's up to the individual.. For me.. I set relatively mild air correction, sometimes up to 15 A/F on part throttle on lower revs (1-3K rpm) for fuel economy.. so I set mine at 50%.. where most of my daily driving is done... while at 80% and up.. I give quite high air correction rates for more fuelling and top end power.

If you want a recommendation.. I'd put 50% and 80% as a good setting for T/H point (feel free to set it to whatever.. just remember how it affects which air correction maps VAFC will use like I said above)

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Senior Member



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Re: Apexi VAFC (Vtec Controller) Info!

« Reply #1 on: September 23, 2010, 11:23:20 PM »

Section 3

Now on to the tuning..

Using an A/F meter (you can go without it, if you just want to tune for fuel economy, and you



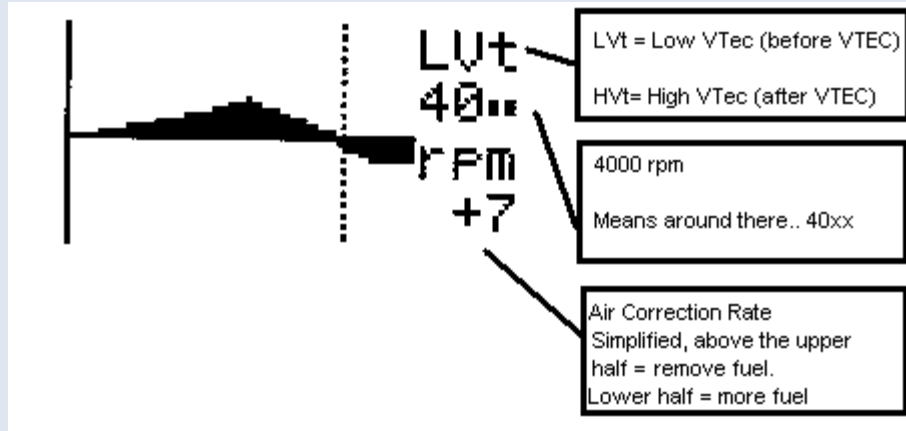
UNDERSTAND the LIMITS of 'leaning out' your engine's A/F) Just be sure that you know how to identify sounds of knocking...

AS ALWAYS... LEANING OUT YOUR ENGINE AFTER VTEC IS A BAD IDEA!!! Unless you have an A/F meter so you know how much fuel you're REMOVING! (sure.. you can play around with -1% or slightly more.. but I'm not responsible if you detonate your engine at high RPM)

The map should look something like this (Without settings.. there should be just a flat line.. I took this out of a screenshot in google..)

Under [Setting] -> "Wide Thr."

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Simply put.. since the VAFC uses air correction rates to increase / decrease fuelling, you should be able to see the effect on the A/F meter each time you tweak the air correction rates.

For purposes of explaining.. consider that each time I say add fuel, that means I added more air correction on the LOWER part of the graph.. when I say remove fuel.. I added more air correction on the UPPER part of the graph.

So.. let's begin with the full throttle map which is under [setting] -> Wide Thr.

If you don't have a dyno.. you can do it on an empty street (hopefully without people that will complain of excessive noise).. Since this was initially for people without a dyno set.. here goes.

Get a guy with a timer.. and time how fast the RPM climbs (at a higher gear than usual.. maybe about 3 for 2-3000rpm test, 4, for a 3-4000 test.. etc.)

So from XXXX rpm to XXXX rpm.. set that air correction value for those two RPM points.. try again.. gained time? then set some more till you get the shortest time to get from xxxx rpm to xxxx rpm.. (means your torque increased)

Move on to the next range. Finish everything up and to check fuelling for the highest RPM, do a few passes, reach 8K... slow down and check the plugs.. are they fouling? If yes, you're running to rich (remove fuel a bit).. if whitish tip, too lean.. . (add more fuel)

After setting the [setting] -> Wide Thr.. you can go on to [setting] -> Narrow Thr. (part throttle).. since you already have the baseline for the Wide Thr... you can roughly set this by seat time in the car.. (Means you drive around and tweak till you get just nice pickup and smooth acceleration) It won't be much different from [setting] -> Wide Thr air correction maps.. but you can play with sub 3000-4000 rpm air correction to get some fuel economy.. (jimat minyak).. Again.. don't go overboard.. 1-3 percent from the Wide Thr. settings is a very safe adjustment to make (if you're running Lo = 50% at [Setting] -> "Th-point"

All rules still apply.. make sure you know that you AREN'T REMOVING TOO MUCH FUEL! ESPECIALLY ON THE HIGHER END OF THE RPM RANGE!

Okay.. that's it for the important parts. The other parts.. well.. they're not very important, but feel free to ask if you want to know.

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➔ **Re: Apexi VAFC (Vtec Controller) Info!**

« Reply #2 on: October 21, 2010, 10:08:21 AM »

INSTALL diagram here you go: Plus I have the Factory electrical manual on our cars

all but one of these wires can be located under the capret on the passenger side The map sensor wire.

connect these two in this order:

brown wire (ground connects to the black wire going to the ECU)

black wire (ground connects about 4 inches behind the brown wire, make sure that the brown wire is closer to the ecu than the black)

gray wire (connects to the red w/black stripe, this may also be found under the hood off of the TP Sensor) Thottle Sensor

green wire (connects to the baby blue wire at ECU) RPM Signal Wire

This is where it gets tricky. Pull 2 wires through the fire wall to the map sensor. connect one to the white wire of the V-AFC and the other to the yellow wire. DO NOT GET THESE WIRES MIXED UP.. Unsheathe the harness and cut the green w/red stripe wire. This is the wire that sends the signal to the ECU. Remember to leave enough wire to butt connect to. With this in mind. Here we go....

white wire (connects the green w red stripe wire (that you cut) that goes into the map sensor itself.)

yellow wire (connects to the green w/ red stripe wire (that you cut) that goes back to the ECU)

The reason for pulling the wire is this. There are 5 green w/ red stipe wires that come through the firewall and you do not need to cut the wrong one.

Next is the VTEC wires:

Here we go again. This time pull 2 more wires (one connected to the purple wire and one connected to the pink wire of the V-AFC)through the firewall to right under the air box and the resonating box. It has a gray connector with a single blue wire coming out of it. This is where the VTEC solenoid valve is.... Once again cut the blue wire remember to leave enough to but connect to....

pink wire (connects to the blue wire (that you cut) that goes to the VTEC solenoid valve)

purple wire (connects to the blue wire (that you cut) that goes from the VTEC solenoid valve to the ECU)

Now to power it:

red wire (connets to the yellow w/ black stripe wire that goes into the ECU)

orange wire (connects to the yellow w/ black stripe wire (behind the red wire that is closer to the ECU than this one) that goes to the ECU)

Here is the 2nd option to the power. Remember that your car will not run unless the V-AFC is on. So either you can hook up the power wire as above, or you can hook both wires up to a switch that is hot at all times (this is how I have mine, since I have push button ignition in my car).

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Flakes

Junior Member



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➔ **Re: Apexi VAFC (Vtec Controller) Info!**

« Reply #3 on: November 6, 2010, 05:22:04 PM »

Thanks Good info although I drive a nissan. I have a VAFC 2 and this info is a good place to start. Respect.....



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