DISCLAIMER: My car is a 2006 Monte Carlo SS with the 5.3L LS4, and I am using Predator model U7191. The instructions that follow are based on my personal experiences, several hours, days, months spent learning the ins and outs of tuning my own car with my Predator, and also from information I have collected from other online users as well as from the folks here at Diablosport. While these instructions should apply to other engines/platforms, I titled it as for LS4's since that's what I have. Even though we may have the same car and/or engine, every one of them is different and will not run exactly the same - what adjustment percentage that works for me may not work for you, you could need less or more. I am not responsible for any issue or damage that occurs to your vehicle by your own tuning adjustments. You are responsible for your own actions and do so at your own risk. While MY car now runs like a bat-outta-hell, as well as some other people's that I've helped and continue to help - your mileage may vary, as they say. Now, on to the goodies...

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ITEMS YOU WILL NEED FOR THIS CLASS: (LOL)

To log data and view the results on your PC, you need to have the power adapter and serial (or usb) cable, and download the Dataviewer application from Diablosport's site and install it on your PC. You'll also want to download and install **DSLogRedux** to analyze your .csv log file afterwards and get the recommended adjustments to make to your tune.

DSLogRedux can be found at http://www.dslogredux.com

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INSTALLING A TUNE:

The first thing we want to do is to install one of the "No DOD" tunes (for Monte/Impala/GXP LS4's only) - either the "Diablo Tune No DOD" (for 93 octane) or the "91 Octane No DOD" tune. The reason we want one of the No DOD tunes is because I have seen the log/data numbers be really screwy when the DOD kicks in, and it makes it more difficult to go through the log and figure stuff out. After your car gets dialed in, you can then install a tune with the DOD still enabled if you wish, and just apply the same adjustments that were made to the No DOD tune.

So anyway, after the No DOD tune is installed, drive for about 50 miles to let the ECM re-learn and settle in the new adjustments the tune has made. For those of you who don't have a DOD (displacement on demand) equipped vehicle, just install the Diablo Tune (which is for 93 octane) or the 91 octane tune.

If your vehicle/Predator only has a "Diablo Tune" (or "Performance Tune") and an "87 Octane Tune", then your Diablo/Performance tune is for 91 octane or higher.

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LOGGING:

Now, before we start making any adjustments to anything, we need to get a log of what

your car is actually doing with the fueling.

NOTE: You want to have been driving the car for about 15-20 minutes before you start to record a log, so that everything is up to normal operating temps.

To do a log, here's what I do...

I start up my car and let it warm up for about 5 minutes, and with it already running - I hook up the Predator. Let it boot up, and then select the Diagnostics menu. Then choose the Real Time Data menu, then select the "gas general short" option (less items to scroll through compared to Complete), then on the next menu, choose the "select from a list" option. This will give you a list of all the parameters it can log. Use the up/down keypad arrows to highlight a parameter to log, then select it by clicking the center button... it will put an asterisk next to that parameter to show you that it's selected for logging. then scroll down through the list and select any others you want to log. Some of the parameter names are long and you can press the right arrow button to have the text scroll to the right so you can read it. Remember, the less you select to log, the better the log will be - because you will get a better/faster sampling rate and a longer log. With the parameters I list below, I am able to get a good 20-25 minute log file.

Here's what I log:

air fuel ratio (Equivalence Ratio) *
commanded throttle position (or Accelerator Pedal Position) *
engine speed (RPM) *
long term fuel trim bank 1 *
spark advance
total knock spark retard

**** -- these parameters are REQUIRED in order to use the DSLogRedux application!***

**** HOWEVER - those of you with the older model tools - 7192, 7193, 7195, 7198 - you don't have the AFR parameter... nor do they all have the commanded throttle position (or Accelerator Pedal Position) either... so you don't need to select those... when you load your 7192/93/95/98 log and verify parameters, it will prompt and ask you if the log was done with a 7192, 7193, 7195, or 7198... Answer YES to that, and you'll be fine. It will still go through and filter the log correctly, based on the RPM ranges.**

Occasionally, I'll log Intake Air Temp as well to see how that's affecting my spark/timing at WOT...

For those with duals (goats, vette's, trucks, etc), you'll also want to log "Long Term Fuel Trim Bank **2**"...

Once you have them all selected (and have driven for 15-20 mins), hit the ESC button until it asks you if you want to "log the data?" and choose "yes" to start recording the log. If you choose "no", it will just show you the data on the Predator screen but won't actually save it to a log file.

Now go do some good steady driving on the highway. The manual says to drive at 55mph, but I do mine at normal highway speeds - 65-70mph. You do not want to log in the top/highest gear - as this goes into overdrive, lower rpm's, and creates more of an engine load and will give you false KR. If you have an A4, do your logging in 3... if you have an M5, do it in 4th... if you have an M6, do it in 4th or 5th.

You need to do steady driving so that your RPM's are between 2000 and 2300!

After about 20 minutes or so, you'll get a notice on the Predator screen that says the "log is full". click the center button to select "continue", hit the ESC button until you're back at the main Predator screen, then unplug it from your OBD port.

Your log is done!

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REVIEWING YOUR LOG:

To get the log off the Predator and onto your PC, hook up the power adapter and serial (or usb) cable to your Predator and let it boot up to the main menu. Now start up the Dataviewer. It'll tell you it can't read the VIN of the vehicle (duh! cus it's not connected to the vehicle LOL) and to click the download icon to get the log from the Predator. So go ahead and click that icon and wait a few minutes for the log to download from your Predator.

Once it's downloaded, you will see a list of the parameters you selected to log on the left-hand side of the Dataviewer screen. You can click the checkboxes to the left of each one to have it show up in a graph on the right side, but it's much easier to go through the data in Microsoft Excel (or DSLogRedux!). To do that, go up to the "file" menu and choose to save it as a .csv file to your PC. Then you can close the Dataviewer app and disconnect your Predator from your PC.

I and a great guy name Frank (GrumpyAeroGuy) collaborated and created/built a custom app that will automatically go through your .csv log files and show you what your average LTFT's are at and tell you what you should make adjustments to and by how much! It eliminates all of the labor of drudging through the .csv Excel file manually.

You can get it here: http://www.dslogredux.com

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USING DSLOGREDUX:

After you have downloaded and installed DSLogRedux, start the application.

At the main screen, click the "Select Log File" button and choose your .csv file that you previously exported from the Dataviewer.

Next, click the "Verify Log Parameters" button - this is to make sure that you have logged the necessary required parameters in order to properly analyze the data. The required parameters, as listed in the above section, are:

air fuel ratio *
commanded throttle position (or Accelerator Pedal Position) *
engine speed (RPM) *
long term fuel trim bank 1 *

If you do not have the required parameters logged, you will get a popup error window telling you so. If you DO have all of the necessary parameters, then the "Analyze Log File" button will become active.

So, click the "Analyze Log File" button, and in about 3-5 seconds, you'll have your results!! (Note, for very large log files, the app may actually take longer than 3-5 seconds).

Once it has finished analyzing your log data, it will go to the "Recom. Cruise Adustments" tab and show you the results of your normal driving/cruise data. It will show you your average LTFT's, other info as well, and also tell you what you should adjust your injector slope to!

You want to adjust the injector slope in order to get your fueling dialed in correctly - so that your average LTFT's are in the 0 to -2 range.

On to the adjustments!

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ADJUSTING INJECTOR SLOPE

Adjustments are made when you re-install a tune. When you choose the tune to install, you would select "Modify Tune" instead of install tune. After changing a parameter, you press the ESC button to back out of a parameter menu, and when you're done, keep pressing it until you get back to the screen where it will ask you if you want to "Install Tune Now?". Select "Yes" and it will re-install the tune with the adjustments/changes you made.

The injector slope adjustment is used to bring the LTFT's in line to where they should be. For example, if your average ltft was +6%, then you would change the Injector Slope setting to -7%. With the injector slope now set to -7% to compensate for the +6% ltft's we had, this should effectively put us right in the range we want to be in.

You want to adjust the injector slope in order to get your fueling dialed in correctly - so that your average LTFT's are in the 0 to -2 range.

Going NEGATIVE on slope tells the ECM that your injectors are SMALLER and to spray MORE fuel.

Going POSITIVE on slope tells the ECM that your injectors are BIGGER and to spray LESS fuel.

Therefore, we want to adjust the slope before we adjust the PE ranges, because slope

adjustments WILL affect the WOT/PE fueling.

After you make an injector slope adjustment, you will want to do another log to verify the average LTFT's again. Drive for about 30 miles to let the adjustment settle in and get re-learned by the ECM, then do another log following the info up in the **"LOGGING:"** section above.

Save out that new log to a .csv file and run it through DSLogRedux. If everything is in order, it will tell you "No adjustments necessary" in the "Recom. Cruise Adustments" tab.

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ADJUSTING PE (POWER ENRICHMENT):

NOTE: Ideally, to check your AFR at WOT and adjust your WOT/PE fueling, you should use a wideband O2 sensor. But if you don't have one (I don't either), this will get you close and in a safe range so you're not too lean at WOT.

INFO: *After speaking with the fine tune programmers here at Diablosport, and having another buddy dyno tune his car with a wideband and comparing that AFR to the Predator's AFR - it has been found and stated that the Predator AFR value is pretty damn accurate (for N/A cars). Based on this information, I now tune my PE settings based on the AFR value, not the stock narrowband O2's - since they are not accurate at WOT and it made me pig rich when I did. We want to have an AFR value between 12.5 to 12.8.*

UPDATE: I no longer adjust my PE fueling for WOT... For ME and MY car, after getting the part-throttle LTFT's dialed in to the proper range, your fuel injectors are now spraying the correct amount of fuel. So, at WOT (PE), they are still spraying the correct amount of fuel. So after adjusting my injector slope and getting my LTFT's into the correct 0 to -2 range, I don't adjust the PE fueling at all - I leave it at the default setting of 0 in both RPM adjustment ranges, and my WOT AFR is now at 12.6 to 12.8, which is right where we want to be.

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END OF CLASS

As I think of anything else, I will update this tutorial, but I think this about covers it. If anyone has anything else to add or has any questions, let me know.

Thanks, and happy tuning!!

-Lew

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As I think of anything else, I will update this tutorial, but I think this about covers it. If anyone has anything else to add or has any questions, let me know.

Thanks, and Stay Tuned!!

-Lew (06MonteSS)

COPY YOUR CURRENT TUNE FILE OUT OF YOUR VEHICLE

So, you want/need a custom tune for your vehicle?? And your tuner asks you to send them your tune file from your vehicle but you're not sure how??

Well, here's what you do:

1. install the Diablo tune (or whatever preset tune you're going to use) from the predator into your car...

2. after completing the tune install, with your predator hooked up to your car, go to OPTIONS > CUSTOM TUNE > READ EXTRA TUNE. -- This will copy the diablo preset tune from the car into the predator.

3. Make sure you have installed the GMLS2InterfaceInstaller app on your PC.

4. then hook up your predator to your PC

5.. then after the predator boots up, go to OPTIONS > CUSTOM TUNE > EXPORT TUNE > EXTRA TUNE -- the predator will start the transfer process of copying the tune file to your PC, and will pause at 5%

6. start up the GMLS2InterfaceInstaller app (the E40 Interface app)

7. click the GET FILE button - it will give you a popup window to select where to save the file, and the option to change the filename. Enter that info and click OK. then it will tell you to start the xmodem transfer process before clicking ok - we already did that with the predator - so just click OK.

8. the copy process will begin and it will copy the tune to your PC to the location you selected. When it's done, it will give you a popup saying Download Completed OK.

9. Then, email that tune file to your tuner.

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they'll make the custom tune for you with whatever changes you needed, and then email it back to you.

Now you'll need to load that custom tune into your predator, so...

1. hook up your predator to your PC

2. go to OPTIONS > CUSTOM TUNE > IMPORT TUNE -- the predator will start the transfer process of copying the custom tune from your PC to the predator, and will pause at 5%

3. start up the GMLS2InterfaceInstaller app (the E40 Interface app)

4. click the SEND FILE button - it will give you a popup window to select the tune file to import.

5. select that custom tune file that your tuner sent you back and click OK.

6. the copy process will begin and it will copy the custom tune from your PC to your Predator.

7. once it's done, it will say download complete / file transfer complete.

now the custom tune is in your predator.

After the custom tune is loaded in your Predator, you will now have CUSTOM TUNE in the main menu instead of Performance Tune.

Select Custom Tune > Install Tune.

You can also still modify the custom tune just like any of the performance tunes.

do the install just like any other performance tune, and you're good to go with your new custom tune.

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