



QUICK START GUIDE 199R10546

1.0 Overview

This contains detailed information on how to use Holley EFI software and perform tuning that is included within the software itself. Once you load the software, you will be able to access all "Help" and "Installation manuals."

The following is designed to be used as a "Quick Start" guide for some HP and Dominator EFI system applications. It is designed for the following applications:

- HP or Dominator TBI and Multiport Fuel Injection Systems used on mild to moderate performance applications. If you have a "race engine", it will require proper tuning.
- Engines **NOT** using power adders (supercharger, turbo charger, nitrous).
- Engines **NOT** using features such as electronic transmission control, drive by wire throttle body control, an added distributorless ignition system (will work for OEM DIS applications where Holley has a base calibration file), or uses input and output controls.



If your application meets these guidelines, you can follow this "Quick Start" guide. It is designed to get your vehicle up and running quickly. However, it is NOT designed to include information that will increase your understanding of tuning Holley EFI systems and does not include information on using many of the features this system offers. It is only intended to get a vehicle running with one of the base calibrations provided. If you have any problems when following this quick start guide, STOP, and follow the detailed step by step instructions to address the issues.

There are base calibrations shown below that are for mild to moderate performance applications. It is likely that these can be used with none to minimal tuning modifications (resulting in "good" vehicle operation). To reap all the benefits EFI offers, a vehicle should be fine tuned (which the other manuals cover). This Quick Start guide will take you through the process of installing a base calibration and performing the absolute minimum required setup steps.

If these calibrations are not suitable for you application, you must select a different base calibration or create your own.

2.0 First Steps

Perform all steps in the specific "Hardware Installation Manual" that was included with your Holley EFI system. This includes installation of the fuel system, throttle body and injectors, complete wiring harness and sensor installation.

3.0 Software Installation

Holley EFI software is designed to run on Windows XP, Vista, or Windows 7 operating systems.

1. Insert the CD Rom (included with the ECU) into the CD drive of your laptop. The CD should run automatically. If it does not go to "Start" and "Run" and select "Browse". Select the CD drive the install disk is located on and search and select the setup executable file.
2. Follow on screen prompts to load the software.
3. Once the software is installed, a Holley EFI icon (below) should appear on the main computer screen. When you double-click on this icon, the software should open. You will see a main menu. Click "Cancel" at the bottom for now. If you are running Windows Vista or Windows 7, you need the software setup such that you are the "administrator". If you have any problems opening the software or otherwise, you must perform the following steps:
 - Select the "Start" button
 - Select "Computer" and select drive "C".
 - Select "Program Files" or "Program Files (x86)"
 - Select "Holley" and then select "EFT"
 - Right click your mouse on "Holley.exe"
 - Select "Run as Administrator" and the software should run properly.



EFI Icon

- Note in the software on the top toolbar where it says "Offline". Offline will always show when the USB communications cable is not connected to both the laptop and ECU.
- There is a USB communications cable (included with the ECU) that needs to be hooked up to the ECU and laptop. Plug it into the ECU (remove blue USB cap) and laptop.
- When the USB cable is plugged in to both the ECU and laptop, the "Offline" should change to "USB Link".

At this point, the software is installed and the Laptop recognizes the ECU.

4.0 Using the "Help" Files

There are a lot of help files that can be of assistance. Help files are located within the software. Read the "Help/Instructions Overview" on how to use the Help files. To view them, click on "Help" and "Contents". On the left side of the screen there is a tree of the help files. Click the "+" icon on the "Help/Instructions Overview". Then click on the "Help/Instructions Overview" manual. This will open up instructions on how to use the "HELP" and "HELP ?". Read it and use as necessary.



5.0 Downloading a Base Calibration

Next we will load a base calibration file.

- In the software, select "File", and then "Open Global Folder". This will bring up a directory/file structure.
- The file path that should currently be open is – C:\Program Files\Holley\EFI\Global Folders. If this is not the path open, you must select it.
- Double click on the "Base Cals" folder. Once opened, you should see the following folders. Review which one is closest to your application. They are divided by Multi-port (MPI) and Throttle Body (TBI) type fuel injection. Then they are sorted by engine displacement (below and above 410ci) and they camshaft type. If you are unsure of our engine camshaft, select the one for "stock" camshafts.



5.1 Multi-Port Base Calibrations

Engines up to 409 Cubic Inches:

- MPI36SB215HE** – Set for Holley 36 lb/hr injectors, and stock type camshafts (up to 215 degrees duration at .050" lift). Ignition type set to GM Small Cap HEI.
- MPI36SB225HE** – Set for Holley 36 lb/hr injectors, and mild camshafts (215 to 225 degrees duration at .050" lift). Ignition type set to GM Small Cap HEI.
- MPI36SB245HE** - Set for Holley 36 lb/hr injectors, and performance camshafts (226 to 245 degrees duration at .050" lift). Ignition type set to GM Small Cap HEI.

Engines 410 Cubic Inches and larger:

- MPI48BB215HE** – Set for Holley 48 lb/hr injectors, and stock type camshafts (up to 215 degrees duration at .050" lift). Ignition type set to GM Small Cap HEI.
- MPI48BB225HE** – Set for Holley 48 lb/hr injectors, and mild camshafts (216 to 225 degrees duration at .050" lift). Ignition type set to GM Small Cap HEI.
- MPI48BB245HE** - Set for Holley 48 lb/hr injectors, and performance camshafts (226 to 245 degrees duration at .050" lift). Ignition type set to GM Small Cap HEI.

5.2 TBI Base Calibrations

NOTE: These are for use only with 4 bbl Holley TBI units with progressive throttle linkage.

Engines up to 409 Cubic Inches:

- **TBI85SB215HE** – Set for Holley 85 lb/hr injectors, and stock type camshafts (up to 215 degrees duration at .050" lift). Ignition type set to GM Small Cap HEI.
- **TBI85SB225HE** – Set for Holley 85 lb/hr injectors, and mild camshafts (216 to 225 degrees duration at .050" lift). Ignition type set to GM Small Cap HEI.
- **TBI85SB245HE** - Set for Holley 85 lb/hr injectors, and performance camshafts (226 to 245 degrees duration at .050" lift). Ignition type set to GM Small Cap HEI.

Engines 410 Cubic Inches and larger:

- **TBI85BB215HE** – Set for Holley 85 lb/hr injectors, and stock type camshafts (up to 215 degrees duration at .050" lift). Ignition type set to GM Small Cap HEI.
 - **TBI85BB225HE** – Set for Holley 85 lb/hr injectors, and mild camshafts (216 to 225 degrees duration at .050" lift). Ignition type set to GM Small Cap HEI.
 - **TBI85BB245HE** - Set for Holley 85 lb/hr injectors, and performance camshafts (226 to 245 degrees duration at .050" lift). Ignition type set to GM Small Cap HEI.
4. Once you have determined which one is best, click once on that folder name. Then click the "OK" button. This will load this file into the laptop.
 5. Next, we will view several parameters that may be required to be changed from these base calibrations. We will modify the base calibration selected above as necessary for the actual application.

Click once on the "System" icon at the top of the screen. Select the "Ignition Parameters" tab. You need to select the proper ignition type. If you are not using one of the following three, refer to the standard tuning and installation manuals. Select the proper one for your application.



System Icon

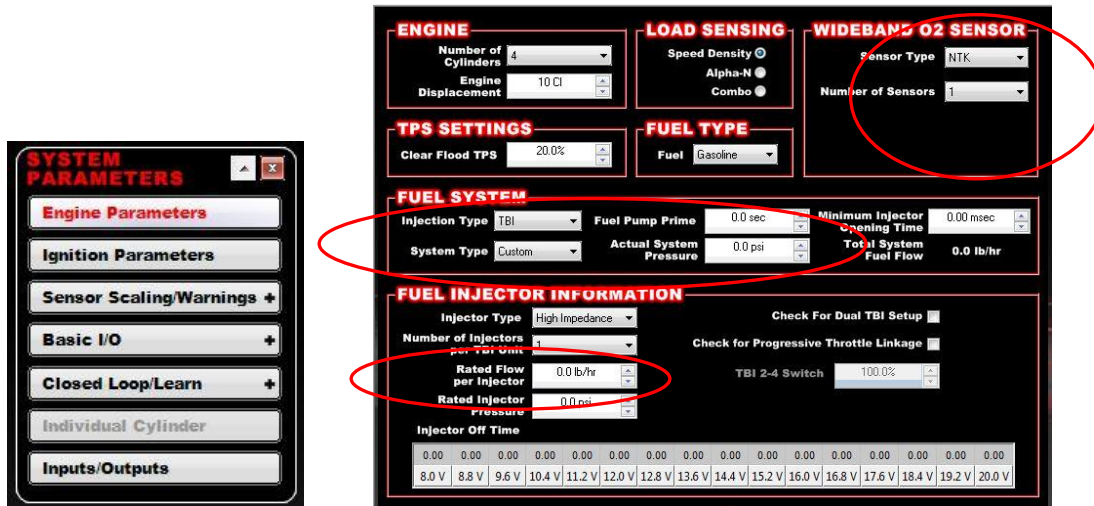
The screenshot displays the 'SYSTEM PARAMETERS' window with the following sections:

- SYSTEM PARAMETERS** (Main window title)
- Engine Parameters** (Tab)
- Ignition Parameters** (Selected Tab)
- Sensor Scaling/Warnings** (Tab)
- Basic I/O** (Tab)
- Closed Loop/Learn** (Tab)
- Individual Cylinder** (Tab)
- Inputs/Outputs** (Tab)

The **IGNITION TYPE** section is highlighted with a red circle and contains a dropdown menu set to 'Coil (Inductive Coil Only, No Timing Control)'. Other sections include:

- REV LIMITER - MAIN OVER-REV**: Type: Fuel Only, High RPM: 1 RPM, Low RPM: 0 RPM.
- REV LIMITER #1**: Enable: [], Type: Fuel Only, On RPM: 1 RPM, Off RPM: 0 RPM.
- REV LIMITER #2**: Enable: [], Type: Fuel Only, On RPM: 1 RPM, Off RPM: 0 RPM.
- FIRING ORDER**: Drag Cylinders To Reorder, Firing Order: Cyl #1, Cyl #2, Cyl #3, Cyl #4.
- KNOCK SENSORS**: Type: Resonant (1 Wire), Number: 1, Sensitivity: 0.
- CRANKING PARAMETERS**: Timing: 0.0°, Crank to Run RPM: 0 RPM.

- “GM HEI (Computer Controlled)” - If you have a computer-controlled (has NO mechanical or vacuum advance) GM HEI (1981 and up), select.
- “Coil (Inductive Coil Only, No Timing Control)” - If you are not using timing control and DO NOT have a Capacitive Discharge ignition system, select. NEVER connect the yellow wire to the coil on a Capacitive Discharge ignition system, such as an MSD. This will destroy the ECU.
- “CD Box Tach Output or any 12V Square Wave (No Timing Control)” - If you have an MSD or other CD ignition box and are NOT controlling timing, select.
Next, Select the “Engine Parameters tab on the left of the screen. Review the following and make sure they are properly selected:



“Wideband O2 Sensor” – “Sensor Type” – Select whether you are using an NTK or Bosch sensor.

“Fuel System” – “Actual System Pressure” – Enter the pressure your regulator is set at. Holley TBI systems are pre-set to 21 PSI and Multiport to 43 PSI.

“Rated Flow per Injector” – Located at the bottom of the screen under “Injector Set 1” if you are using a MPFI system or “Fuel Injector Information” if you are using a TBI system. Enter the static flow rating of your injector used. Note that it is beneficial to enter the proper “Injector Off Time Curve”. This is explained in the standard tuning manuals. If you do not know these values, leave the base values as-is.

- At this point, you have edited the minimum amount of parameters necessary for a base calibration file. You now want to save the calibration you have created. Select “File” and “Save Global Folder As...”. At the end of the folder name (C:\Program Files\Holley\EFI\Global Folders) type a back-slash (\). Then type in the same you want to name this file. If you are running Windows 7, and you get an error when you are trying to save a folder, your computer is not setup to give you “write” (save) privileges. To fix this, perform the following steps:
 - Select the “Start” button.
 - Select “Computer” and select drive “C”.
 - Select “Program Files” or “Program Files (x86)”.
 - Select “Holley”.
 - Right click your mouse on “EFI”.
 - Select “Properties”.
 - Select the “Security” tab.
 - Look at the “Group or user names”. You need to select the Group or user that is running the EFI software. This is likely the “Users” name.
 - Click on the proper “Group or user names” and look at the “Permissions for Users” at the bottom of the properties screen. If you are having a save problem the “Write” area is likely not checked in the “Allow” column. To correct this click the “Edit” button then click on the Allow “Full Control”. Hit “Apply” and “OK”.
 - You should then be able to save a file.
- Next you will download this file to the ECU. First, is an explanation of the terms used to describe the “communication status” between the ECU and the laptop. This status is indicated at the top of the screen between the “Toolbox” and “Help” items. It can read as follows:

- **Offline** – Is shown when the ECU is not powered or the USB cable is not connected.
- **USB Link** – Is shown when the ECU is powered and USB connectivity is established. However, the user has not chosen to select the “online” mode and the Laptop and ECU are not communicating with each other. Changes made at this time on the laptop, are not being updated in the ECU.
- **Online** – Is shown when the Laptop and ECU are communicating. At this point changes made with the laptop are real-time updated in the ECU. To enter “Online” mode, simply depress the “USB Link” button with the cursor.
- **Editing Online/What is and is Not Real-Time Programmable** – All “tuning” parameters are editable, real-time in online mode. Certain “configuration” parameters are not editable when online. Examples are the Engine and Ignition Parameters section. If an area is not editable online, it will be grayed out.

IMPORTANT: In addition to this, many of these grayed out parameters are “initialized” when the ignition key is first turned on. This means that after these parameters are changed (or a new Calibration File is sent with new parameters), the ignition key must be cycled. So, after any of these parameters are changed, OR a new calibration file is sent where any of these parameters are different, simply shut the ignition power off, and turn it back on.

8. Plug in the USB cable to the ECU and Laptop. At this time, communication status should change from “Offline” to “USB Link”. Next, turn the vehicle’s ignition power to “run” (not start). Click the “USB Link” once. A screen should appear that will compare the files in the ECU with the file in your laptop. They will not be the same. You want to select the “Send To ECU” button at the bottom of this screen. This will send the new file you created to the ECU.
9. Once this is done, leave the ignition powered. At the top of the screen, select the arrow on the “Sync” button. Select the “Perform TPS Autaset” function. It will guide you through steps to set the TPS. Slowly depress the throttle from closed to fully open twice.



SYNC button

NOTE: IF YOU DO NOT PERFORM A TPS AUTOSET, THE ECU WILL NOT FIRE THE INJECTORS OR THE IGNITION AND THE CAR WILL NOT START! IF THE TPS IS NOT SET, YOU WILL SEE A WARNING AT THE TOP OF THE SYNC SCREEN AND THE TPS WILL SAY “NEEDCAL” ON THE MONITOR SCREEN.

NOTE: ANY time you adjust the throttle linkage (in the future), you must perform a TPS Autaset after adjusting the linkage.

10. Shut the ignition off. Turn the ignition back on (do not start). You should hear the fuel pump start and stop after about 5 seconds. If you do not, diagnose problem.
11. Next, we will verify that the main sensors are reading properly. Turn the ignition on. Look at the bottom left hand portion of the screen. You will see the “Data Monitor”. It can show all the parameters from the entire EFI system. The first screen you should see is entitled “Sensors”. With the ignition on, look at the following and make sure they read properly:
 - TPS** – Should be 0%. Depress gas pedal to floor - Should read 95-100% a full throttle.
 - MAP** – Should read between 90 – 104 kPa (or less at high altitudes)
 - MAT** – Should read what the air temperature is
 - CTS** – Should read what the engine coolant temperature is
 - AFR Left** – Should read “Heating” when key is turned on - Should then change to a value of 20 or higher after 10-15 seconds.
 - RPM** – Should read “Stall!”. When the engine cranks or is running, it should read the proper engine speed. You will be asked to view the “RPM” once the engine is started.

If any of these sensors are not reading properly, STOP and diagnose. Do NOT start the engine.

12. Next, you should verify the ignition timing when cranking. If you removed the distributor and are not sure if it is the correct position, you may want to do the following:
 - Disconnect the fuel injector connector.
 - Crank the engine over (it will not start with the injectors disconnected). Look at the timing with a timing light when cranking. If you are using a computer controlled HEI, it should read 15 (or whatever the cranking timing is programmed to be). If you are using a mechanical advance distributor, it should read what you want the idle timing to be (usually 8-15).
 - Make sure the timing is close before starting the engine.
13. Next, you will start the engine. **NOTE:** Make sure you plug the fuel injectors in (if you disconnected them). Turn the key off, and turn it on. Go “online”. Crank the engine over. It should start and run.

If the engine does not start, you should refer to the complete startup manual for detailed instructions and troubleshooting. Something has not been installed or setup properly.

14. After the engine starts, check for fuel or water leaks. Once everything appears to be ok, let the engine warm up. If the engine appears to be struggling for air, you may have to open the throttle plates up. You just want to have the engine get up to operating temperature.
15. At this time, it is advisable to check the timing with a timing light. If the ECU is controlling the timing, you want the actual timing as measured with the timing light, to match the timing being commanded by the ECU. Look at the data monitor. There will be a parameter called "Ignition Timing". Note this value. Now look at the timing of the engine with a timing light. These need to match. If the engine timing is more or less, turn the distributor and increase or decrease it until it matches what the distributor says. Once they match, do not move the distributor again. If you want to change the timing, you change the timing table via the laptop.
16. After the timing is set, wait until the engine is up to operating temperature (over 160 degrees). Next you will adjust the throttle plate position. Look at the data monitor parameter called "IAC Position". You want this value to be between approximately 5 and 15%. If it is stuck at 0, you need to CLOSE the throttle plates until the value is between 5 and 15%. If it is above 15%, you need to OPEN the throttle plates. HOWEVER, if you open them, you may need to do a TPS Autoset if the TPS value is NOT 0 at idle during this process. Open the screw slightly, shut the engine off, perform a "TPS Autoset", and restart. The other option is to loosen the TPS and set it such that reads "below 0% TPS" during this process. This will allow for you to open the throttle plates while maintaining a TPS value of 0%.
17. At this point the throttle plates should be adjusted (meaning the "IAC Position" is reading 5-15%) and the ignition timing as indicated on the laptop ("Ignition Timing") matches what is measured with a timing light. You are now ready to drive the vehicle and have the ECU perform the self-tuning fuel process.
18. On the "Data Monitor" views you will see a left and right arrow in the upper right corner. Toggle the screens until you get to the "Learn" view. On this you will see the following parameters:
 - AFR Left – Indicates the present, actual A/F ratio
 - Target AFR – Indicates the target A/F ratio
 - CL Comp – Indicates how much fuel the ECU is adding (positive number) or removing such that the "AFR Left" meets the "Target AFR"
 - CL Status – If blue, Closed Loop is not operating. Green indicates it is active. Closed loop means the ECU is adding or removing fuel to meet the target A/F ratio. It is normal for the engine to NOT be closed loop when the accelerator pedal is pressed or you are decelerating with the vehicle.
 - Current Learn – This indicates how much fuel the Learn Table is adding or removing
 - Learn Status – Indicates if Learning is active (green) or inactive (blue).

Open the following screen: Click on the "fuel injector" in the upper left. Select the "Learn Table" tab. This opens up the learn table. When the system is "learning" (tuning the fuel table), you can see it add or subtract fuel where the engine is operating (you will see a small orange oval showing the point on the learn table you are at when the engine is running and you are "online").

19. Start the engine and let it idle. Then slowly open the throttle and move to higher RPM points. What you want to look at is look at the "CL Comp" value. You want this number to be between -3 and +3. When in this area, the learning is complete in that area. Keep moving to different locations to tune all areas. Then drive the vehicle around on the open road. What you want to do is keep the vehicle at the same RPM and load points until the "CL Comp" value is in the -3 to +3 range.
20. Although the learning process is very fast, it is beneficial to drive around for a while under different operating conditions (several hundred miles under different operating conditions). Once the CL Comp is minimized (between -5 and +5% when the engine is warm), you can disable the learning process. To do so, select the "System" icon (looks like the ECU at the top of the screen), select the "Closed Loop/Learn" tab, and select the "Learn Parameters" tab. Un-check the box that says "Base Fuel Learn Enabled".
21. At this point, if the vehicle performance is satisfactory, you are done. If you feel that any area can be improved through further tuning, it is advised you read, understand and follow the instructions of the 199R10504 Beginner's Step by Step Tuning Manual.

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