

EMS Feature Legend:

File-

- Open – This command allows you to load a saved EMS file to the map editing software.
- Save As – This command allows you to save the fuel and timing tables that are currently being viewed/modified on the map editing screen.
- Print – This command will allow you to print all of the current map tables on the EMS map editing screen.
- Exit – Closes the EMS Software

Edit-

- Copy – Use this command to copy cell values in the fuel and timing tables
- Paste – Use this command to paste copied cell values into their new locations on the fuel and timing tables.
- Display options – Allows the user to change the colors of the map editing page.

Serial Port-

- This menu allows the user to select which Com Port to use when communicating with the EMS controller.

EMS Utilities-

- Calibrate TP Sensor – Allows the user to calibrate the EMS software to the Throttle Position Sensor on the bike.
- Calibrate Gear Position – This command allows you to calibrate the EMS software to the gear position sensor on the bike (if so equipped)
- Calibrate Map Switch – This command allows the user to set-up the Map Selection Switch to work with the EMS.

Advanced Options-

- Set Shift Kill Time – This feature allows the user to specify how long the fuel cut-off lasts for the clutchless upshifting system. The time is specified for each gear.
- Set Default Tables – This feature allows the user to select which table is the default table. In the absence of a handlebar switch this is the table that the bike will use.
- Setup Shift Light – This feature allows the user to select at what RPM the shift light begins to flash a warning and what RPM it goes solid.
- Setup Gear Offset Table – This feature allows the user to selectively trim the fuel, timing or both maps for each individual gear. A gear position sensor is required.

Real-time readouts-

- TPS% – Throttle Position Sensor; percentage of throttle opening.
- RPM – Engine current RPM (Crankshaft Revolutions Per Minute)
- Duty Cycle % – Percentage of time the injectors are on in relationship to the crankshaft revolution.
- Fuel Adj. % - Percentage of adjustment from the zero map (stock) at current RPM and throttle position.
- Timing Adj. – Degrees of timing adjustment from zero map (stock) at current RPM and throttle position.

Map Editing Area

- This is the area of the screen where your fuel and timing tables are displayed.
- On fuel tables the values denote a percentage richer or leaner. For example a value of 5 is 5% Richer while a value of -5 is 5% Leaner.
- On timing tables the values denote degrees of spark timing advance and retard. For example a value of 3 is 3 degrees of timing advance while -3 is 3 degrees of timing retard.
- Each box or cell on the table corresponds to a specific RPM and Throttle Position displayed along the left side and the top of the table respectively.

EMS Controller Optional Features-

- Shift Light – High-intensity LED that is mounted to the instrument cluster using a carbon-fiber bracket. It will flash at a user defined RPM and then turn solid at a higher RPM that is also defined by the user.
- Clutchless Shifter – Gearshift pedal actuated engine kill switch that senses when the pedal is being loaded and cuts the fuel for a user defined amount of time allowing the transmission to engage into the next gear without using the clutch or letting off the throttle.
- Three Position Map Toggle – Handlebar mounted switch that allows the rider to switch between 3 stored maps while riding.
- Gear Position Offset – Allows the user to trim the fuel and timing maps for each individual gear.
- EMS Controller Cowling Extension – Water-tight EMS communications port mounted to an easy to access location on the bike makes it unnecessary to open the rear storage compartment to access the EMS controller.

Notes:



Fig 1.1



The notes feature allows you to type in notes pertaining to your map files.

1. Make sure you have a map file open and displayed on the editing screen.
2. Click on the “Notes” button. *Fig 1.1*
3. A window will be displayed in which you can type your notes. When you have completed entering notes click on “Hide.” *Fig 1.2*

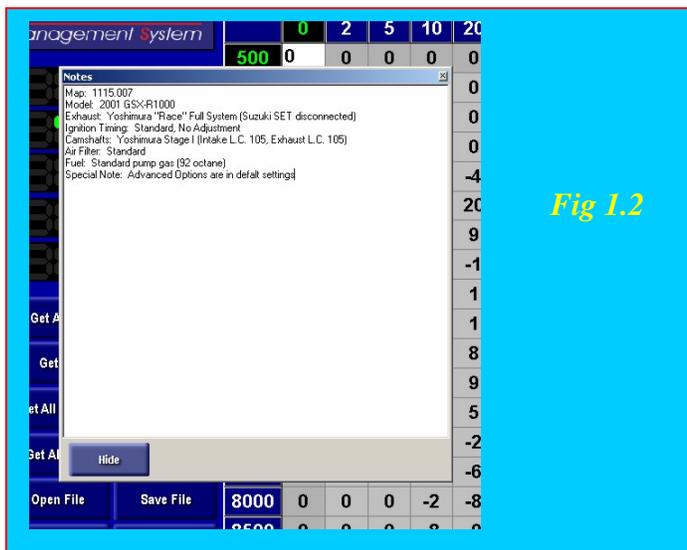


Fig 1.2

Your notes will only be saved until you save the file.

Note Tips:

- Make sure your notes are as descriptive as possible.
- Remember: Your notes are only saved when you save the file.
- Remember that the notes apply to all 3 fuel/timing tables in the file. Because of this, it would be a good practice to describe all 3 tables in your notes.

Save File:

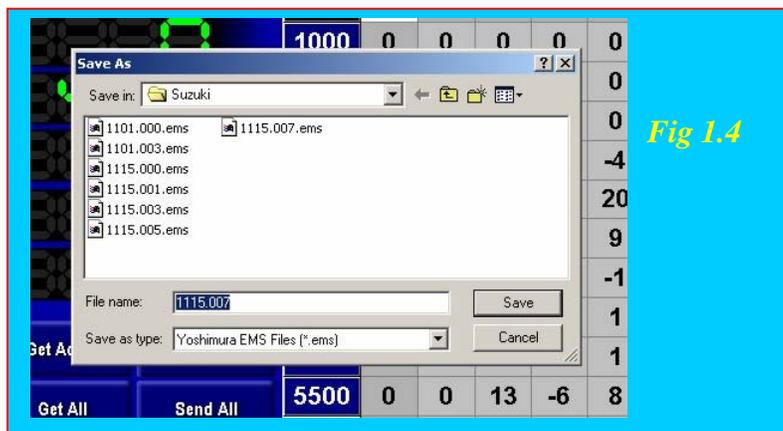
After you are satisfied with your map and have sent it to the bike you should save it for future use.

1. Click on the “Save File” button. *Fig 1.3*



2. This will bring up the Save As window. Here you will assign your file a name.

Fig 1.4



3. Once you have named your file click on the “Save” button.

Tips for saving:

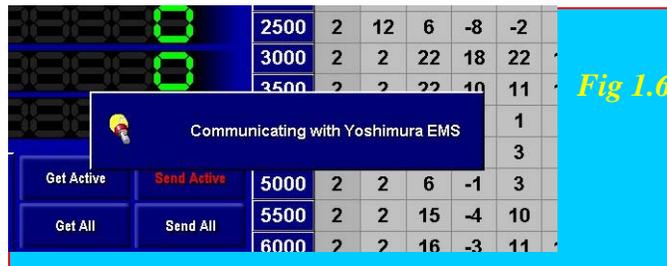
- It is usually a good practice to save often.
- Save your modified files under different names so that you do not accidentally overwrite other files.
- To further differentiate your files it is good to have a unique and comprehensive Notes section on each file describing what application the file is for. For more info see the Notes section.
- The Save File feature **saves** all 3 Fuel and all 3 Timing maps as well as the Com Port setting, EMS Utilities settings, and Advanced Options settings.

Sending Map files to the EMS controller

1. Make sure that you have the correct map file loaded and that it is visible on the editing screen.
2. Check that the EMS controller has power and that it is communicating with the software. Click the “Send All” button. *Fig 1.5*



3. While the map file is being sent you will see “Communicating with EMS” displayed. *Fig 1.6*



Once the map file has been sent “Table Verified” will be displayed in the lower left-hand portion of the screen. *Fig 1.7*



- You can send either all the fuel maps (Send All Fuel) or all the timing maps (Send All Timing) by clicking on the respective button.
- You can send the active map only by clicking on “Send Active.” This command only sends the map that you have selected at the top of the map editing area (e.g. Fuel 2, Timing 2, or Fuel 3) *Fig 1.8*

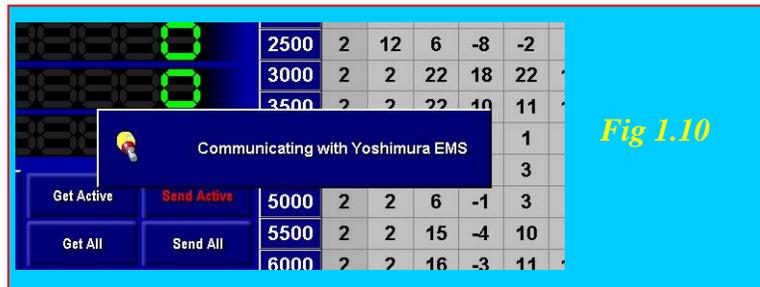


Getting Map files from the EMS controller

1. Open a map file so that it can be viewed on the editing screen.
2. Check that the EMS controller has power and that it is communicating with the software.
3. Click the “Get All” button. *Fig 1.9*



4. While the map file is being retrieved you will see “Communicating with EMS” displayed. *Fig 1.10*



Once the map has been retrieved “Table Retrieved” will be displayed in the lower left-hand portion of the screen and the map will be shown in your editing area. *Fig 1.11*



Tips for retrieving files:

- You can retrieve either all the fuel maps (Get All Fuel) or all the timing maps (Get All Timing) by clicking on the respective button.
- You can get the active map only by clicking on “Get Active.” This command only retrieves the map that you have selected at the top of the map editing area (e.g. Fuel 2, Timing 2, or Fuel 3) *Fig 1.12*



Fig 1.12

Calibrating the Throttle Position Sensor (TPS)

Calibrating the Throttle Position Sensor tells the EMS software and controller when you are at 100% throttle and 0% throttle. Using these values the EMS is able to determine all the values in between.

The Yoshimura EMS is packaged with the TPS settings for your bike already set. If your bike has had its TPS sensor replaced due to failure or adjusted as part of routine maintenance you may need to confirm that the EMS has the correct TPS calibration. Follow the procedures outlined below.

(Note: If the TPS has been moved to induce a rich or lean condition in the interest of performance, it must be set back to the factory spec outlined in your service manual for the EMS system to work properly).

Confirming your TPS calibration (without the use of a PC):Fig 1.13

1. Turn the ignition on without starting the bike.
2. Check that the EMS controller on the bike is receiving power (green LED is lit)
3. With the throttle closed the green LED in the *lower* left-hand area of the EMS controller will be lit.



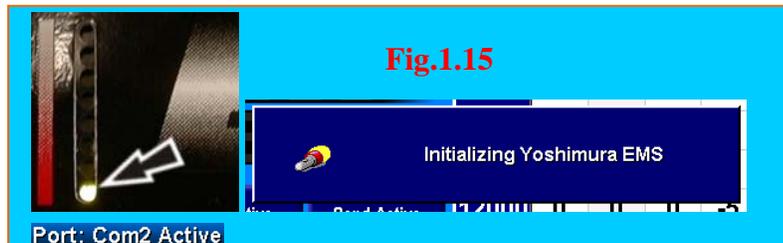
4. With the throttle at 100% the green LED in the *upper* left-hand area of the EMS controller will be lit. *Fig 1.14*



There should be no flicker of the LEDs at closed throttle or 100%. If this is the case then you need to calibrate your TPS using the EMS software and a PC.

Calibrating your TPS using the EMS software and a PC:

1. Turn the ignition on without starting the bike.
2. Check that the EMS is receiving power (green LED is lit) and that it is communicating with the EMS software on your PC (“Initializing Yoshimura EMS” briefly appears and “Port: Com# Active” is displayed at the lower right-hand portion of the screen) *Fig 1.15*



3. Open the EMS Utilities by clicking on the “EMS Utilities” pull-down menu at the top of the screen. *Fig 1.16*



4. Click on “Calibrate TP Sensor”
5. With the throttle closed click on the “<< Set” button to the right of the “Closed Throttle” value. *Fig 1.17*



6. While holding the throttle at 100% (Wide Open Throttle) click on the “<< Set” to the right of the “Open Throttle” value.
7. Close the throttle and click “Ok.” *Fig 1.18*

The “Communicating with EMS” window will appear briefly as the new settings are sent to the controller. Now when you return to the map editing screen with the throttle closed the TPS % value should be 0 and with the throttle wide open it should read 100.

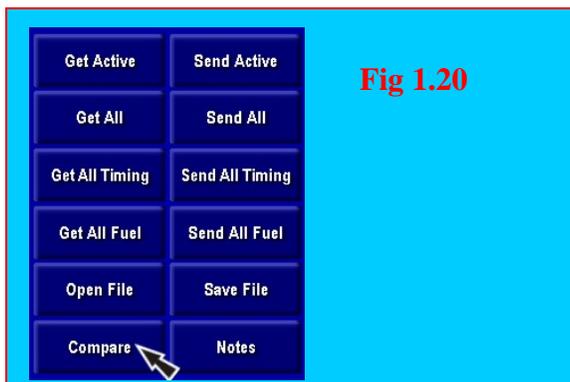
Compare:

The Compare feature allows you to see the difference between the map you are editing and anyone of the maps currently loaded into the EMS controller.

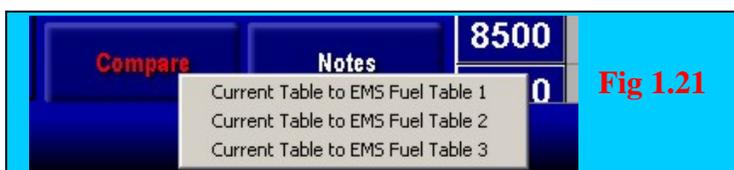
1. Make sure the map you want to compare is the currently highlighted table.

Fig 1.19**Fig 1.19**

2. Check that the EMS software and controller are communicating with each other.
3. Click on the compare button. *Fig 1.20*

**Fig 1.20**

4. Select the table you want to compare to and click on it. *Fig 1.21*

**Fig 1.21**

Compare(continued):

5. After a brief moment a window will open with the title “Comparing current table to EMS.” This shows you the differences between the tables. All the cells in red contain a different value than the corresponding cells on the editing screen. The value displayed in red represents the difference in the values. Example: your file has a value of 5 in a cell and the map in the controller has a value of -2 for the same cell. Then the number displayed would be **7 indicating 7% richer**. If the values were reversed then the number would be **-7 indicating 7% leaner**. Fig 1.23

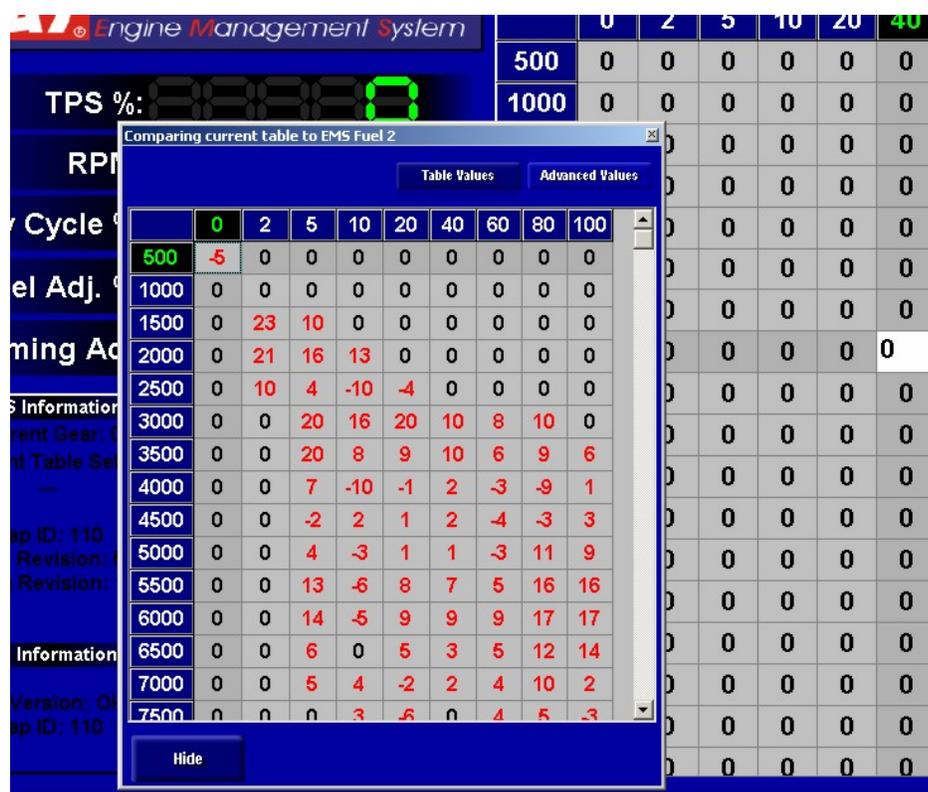


Fig
1.23

6. You can then click on the “Advanced Values” button. This will show you the Advanced Values stored in the EMS Controller (EMS) and the ones stored in the map file you are editing (File). These values only have an effect if the EMS Accessory Hub is installed.

Troubleshooting: Communicating with EMS

Problem	Possible causes
<p>Connection Error: The Yoshimura EMS software is not communicating with the EMS controller.</p> 	<p>Check to make sure that the key is turned on and that the handlebar mounted kill switch is in the “run” position.</p> <p>Check that the green LED lower left-hand portion of the EMS controller is lit. This indicates that your EMS controller is receiving power. If it is not lit and all your connections are good then you may need to start the motorcycle in order for the EMS controller to receive power.</p> <p>Make sure that your serial cable is in good condition and it is securely plugged into the EMS controller and your PC.</p> <p>Make sure that the correct Com Port (typically Com1 or Com2) is selected on your EMS software by clicking on the Serial Port pull-down menu at the top of the screen. You will know you have a good Com Port if you see “Port: Com# Active” (# = 1, 2, 3, or 4) in the lower right-hand portion of the map editing screen. Otherwise the message “Port: ComPort Inactive” will be displayed.</p>
<p>I have tried all the Com Ports on the Serial Port menu and I still cannot communicate with the EMS controller.</p>	<p>This usually means that some other program or device is using the Com Port that is needed by the EMS. These are usually infrared ports, palm-top sync-managers, etc. This device or program may have to be disabled in order to communicate with the EMS controller. See tips for disabling some of these below.</p>

Disabling programs that are using Com Ports

On Windows 95/98/2000 you can check the system tray for active devices or programs. The system tray is located in the lower right-hand portion of the screen near the clock. Each of the icons in this area represents a program or device that is loaded during Windows start-up and is running continuously. These programs can usually be disabled by right-clicking on the icon and selecting “disable” or “exit.” Consult your user

manuals for these programs/devices to determine for certain the correct way to disable a given program or device.

Troubleshooting: No start / Runs Worse

Problem	Possible causes
The motorcycle will not start.	Make sure the EMS is receiving power as indicated by a green LED being lit on the Controller.
	Check all the connections between the EMS Controller and your motorcycle.
	Unplug the EMS Wiring Harness from the crank trigger of your motorcycle. Reconnect the stock crank trigger plugs. If you motorcycle runs verify that your wiring is correct. If it is your crank signal generator may be out of spec. Have it checked by a factory technician.
	Load a Zero Map into the EMS Controller. The bike should operate as if the EMS was not there.
	Disconnect the EMS controller from your motorcycle and reconnect the factory harness. If the motorcycle runs then verify your connections.
The motorcycle runs worse now than without the EMS.	Unplug the EMS Wiring Harness from the crank trigger of your motorcycle. Reconnect the stock crank trigger plugs. If you motorcycle runs better verify that your wiring is correct. If it is your crank signal generator may be out of spec. Have it checked by a factory technician.
	Load a Zero Map into the EMS Controller. The bike should operate as if the EMS was not there.
	Disconnect the EMS controller from your motorcycle and reconnect the factory harness. If the motorcycle runs like it did without the EMS then verify your connections.

