Veypor Fuel Toolbox

Description

The Fuel Toolbox is a free firmware upgrade found in VR2 firmware releases v1.20+ and Veypor firmware releases v2.20+.

To use the new features you must upgrade your Veypor or VR2 with the latest firmware from the website.

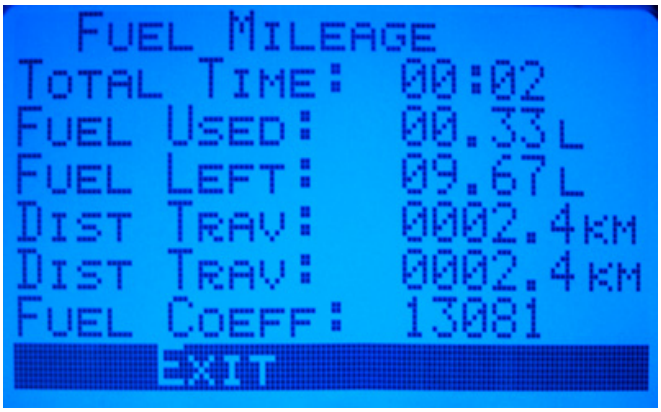
New Features

There are two major changes in the new firmware:

1. The Driving screen can now be toggled between two display screens by pressing the ENTER key.
    a. The first screen is the user selectable graphics mode that displays speed, RPM, gear and more. The second screen is new. It displays the odometer, a fuel gauge, fuel statistics and the time and date (for VR2 models only).
    b. Pressing ENTER cycles between the two screens. Holding down enter for 2-3 seconds on the graphics driving screen will reset the tripmeter.
    c. The new fuel statistics consist of:
        i. **Fuel Gauge**: Shows an estimate of your gas tank fuel level
        ii. **Instantaneous Mileage**: A large 2-digit value showing your average mileage during the last 10 seconds. If using imperial units, this value is in miles per gallon. If using metric units, this value is in litres per 100km.
        iii. **Dist Trav**: This is the total distance covered on the current tank. It can be used as a trip meter specifically for your fuel tank.
        iv. **Dist Left**: This is an estimated value of the distance remaining on your tank given the estimated fuel remaining and your overall mileage.
        v. **Mileage**: This is your overall average mileage estimate for the entire current tank.
2. The Main Menu has a new option labeled “Fuel Mileage” where the “Roll-on” run used to be. The Roll-on timing mode is now part of the Run Timing Menu.
    a. Selecting the Fuel Mileage menu option and pressing ENTER brings up the Fuel mode screen. This screen shows several statistics:
        i. **Total Time**: This is the total amount of time in HH:MM that your bike has been running during the current tank of gas.
        ii. **Fuel Used**: This is an estimate of the amount of fuel used so far.
        iii. **Fuel Left**: This is an estimate of the amount of fuel remaining in the tank.
        iv. **Dist Trav**: This is the total distance covered on the current tank. It can be used as a trip meter specifically for your fuel tank.
        v. **Dist Left**: This is an estimated value of the distance remaining on your tank given the estimated fuel remaining and your overall mileage.
        vi. **Fuel Coeff**: This is the fuel coefficient value calculated during the last “Fill & Calib.” It is for information purposes only.

b. At the bottom of the screen the current fuel option is displayed. By default this option is “Exit”. To cycle to other options press the ENTER key. To choose an option, press the MENU key.
c. The various options are:
    i. **Exit**: Return to the Main Menu
    ii. **Fill Tank**: Use this option everytime you fill up with gas but don’t want to recalibrate your fuel curve/coefficient. It prompts you to enter the total fuel in the tank.
    iii. **Fill & Calib**: Choose this option when you are filling your tank and want to use the data collected during the past tank to calibrate your fuel curve. You first enter the fuel added during this fill-up and then you enter the total fuel in the tank.

Fuel Mode Operation



For accurate fuel predictions you must train the Veypor to memorize your fuel curve. By automatically measuring your RPM during idling, cruising and under acceleration and by measuring the time and distance elapsed the Fuel Mileage mode can calculate, with high accuracy, your fuel consumption curve under different driving conditions for your vehicle.

The training process consists of driving the vehicle through most of a full tank of gas.
Start by completely filling your tank with gas. Go to the Fuel Mileage menu and choose the “Fill Tank” option. Enter the amount of gas in the tank (the total tank size, if the tank is filled completely). The Veypor will now start recording all relevant fuel data for this new tank of gas. Drive the bike as you normally would. The next time you fill up with gas, go to the Fuel Mileage screen and choose “Fill and Calib.”. This will first prompt you to enter the amount of fuel put in the tank during this fill and then for the total amount of fuel in your tank (the tank size). By entering the amount of fuel put in the tank, the Veypor knows exactly how much fuel was burned since the last fill. It uses this value to calculate your fuel coefficient

Warning: If you choose “Fill & Calib” you will lose your current fuel coefficient value and a new one will be calculated based on the information recorded during your previous tank.

Example:

Assume a motorcycle with a 4 gallon (18 litre) tank.

1. Go to a gas station and fill the tank completely full. Choose the “Fill Tank” option in the Fuel Mileage mode. For the “Fuel In Tank” value, enter 4.00 gallons.
2. Drive the bike as you normally would. It may take several hours, days or weeks, but try to use up at least ½ to ¾ of your tank before filling up again.
3. When you next need to fill up, go to a service station and fill the tank completely full again. Let’s say you required 3.57 gallons to fill the tank. After topping up the tank go to the Fuel Mileage mode and choose the option “Fill & Calib.”. When prompted for “Fuel this Fill” enter the value 3.57 gallons. When prompted for “Fuel in Tank” enter 4.00 gallons (since the tank is full). The Veypor will use these values to calculate a fuel curve. It will use this curve from now on unless you perform another Fill and Calib cycle.

4. The Veypor will now perform fuel estimates properly. The next time you need gas, choose the “Fill Tank” option. When prompted enter the total fuel in the tank.

After calibrating the fuel curve at least once, whenever you need gas, you only need to choose the “Fill Tank” option. Simply enter the fuel in the tank (this will always be the size of your tank if you always fill the tank completely full).

Warning: All fuel calculations are estimates only. Nonlinear Engineering Inc. is not responsible for any inconveniences that arise due to improper or innacurate estimates.