



INSTALLATION INSTRUCTIONS

MSD Charge FI Fuel / Ignition Controller PN 4245

Parts Included:

- 1 - Fuel / Ignition Controller 4245
- 1 - Micro-USB Cable
- 1 - MSD View CD-Rom

WARNING: When installing the Charge FI, disconnect the battery cables. When disconnecting, always remove the negative cable first and re-install it last.

WARNING: The Charge FI Controller is a performance device that allows the vehicle or engine to operate at increased power and speed. Follow all OEM safety recommendations and use extra care when operating at increased power and speed.

CAUTION: The Charge FI Controller will raise the maximum rev/speed limit of the engine. Note that factory components may not be designed for the increase in rpm and may require modifications to achieve the best performance and durability.

Note: Do not plug the MSD into PC until the MSD View Software has been installed first.

INTRO

The Charge FI system has been designed to install directly on Yamaha 700cc Rhinos. This is an in-line (“piggy-back”) system that plugs directly in to the factory wiring harnesses. Using the Charge FI the Rhino can be tuned with custom maps for ignition timing and fueling options. In all nine custom tunes can be created and saved to the device. The last tune, setting 9, remains as a factory setting that cannot be edited.

MSD VIEW

The MSD View software controls all of the functionality of the Charge. The following information gives a brief explanation of each function or feature in the system as well as the settings that control it. While using the program, hover the mouse over a Function to display a brief explanation.

When the system controller is connected to a PC via USB, MSD View will automatically recognize it and load the settings stored in it.

Note: Insure that MSD View is installed on the PC prior to connecting the Charge FI.

INSTALLATION OF THE VIEW SOFTWARE

DO NOT CONNECT THE UNIT TO YOUR PC PRIOR TO INSTALLING THE SOFTWARE!

1. Insert the installation CD Rom into the CD drive, wait up to 30 seconds, the CD will auto run, IF THIS DOES NOT OCCUR:
 - Locate and open the CD Drive.
 - Double click on the Setup file.
2. Select “Click here to Install Version X.XX”.
3. Once loaded, your monitor will have an MSD View X.XX logo. Accept the agreement. Drive the installation to your program files folder, press the enter key. The installation will complete, select OK.
4. A window will be opened with two aliases, double-click on the MSD View alias to launch the software.
5. Connect the system controller via USB. If the software does not recognize the controller and auto-connect, manually select the Charge FI in the popup window and click Connect.

SAVES AND TRANSFERS

Using the Charge changes are in real time if the computer is linked to the ignition.

You can create and save numerous files on your PC and transfer them for testing purposes or to use for various locations and conditions.

The following instructions will go through a general description of the use of the Charge following the tab system that you will see in the software.

INSTALLATION

The Charge FI system is a piggy back system that will plug directly into the factory electronic system. The unit can be placed on top of the battery next to the ECU with no cutting, drilling, or other permanent modification required.

1. Open the hood of the Yamaha Rhino 700
2. Take the cover off the top of the battery compartment (Found directly in front of the passenger)
3. Unbolt the stock ECU (small black box in the front, outside corner of the battery compartment [10mm wrench required])
4. Take both pin connectors out of the ECU and plug them into the MSD Charge FI unit.
5. Plug the pin connectors from the MSD Charge FI unit into the ECU.
6. Bolt the stock ECU back into original location.
7. Select the desired tune using the small White selector.
8. Take off the rubber strap holding the battery in place.
9. Set the MSD Charge FI unit on the battery where the rubber strap will cross over it.
10. Replace the rubber battery strap, battery compartment cover, and close the hood.
11. Enjoy.

PROGRAMMING

When MSD View is installed, opened, and connected to the Charge FI, PN 4245, setting options will immediately appear. To start, the user will see 10 tunes (0-9) as tabs across the top of the screen. Each tab represents a Tune that has the same setting and table options. Tune 9 matches the machine's stock settings to act as a bypass and is closed to editing. Tunes 0 – 8 are each programmed to meet the needs or a variety of riding styles.

To select a specific tune, turn the White knob of the end of the Charge FI unit so that the engraved arrow points to the desired tune number. The White knob is easy to mar, be gentle while adjusting tunes so that the arrow will be able to be read the next time it is needed.

PREPROGRAMMED TUNES

Below each tune on the 10-position dial is described so that you can select which is the best starting point. All tunes are editable except for the last position (9) so that the vehicle can always be returned to stock.

Note: Users who have performed significant modifications to the vehicle will need to edit the tuning for safe functioning. MSD has not altered any Fuel or Timing tables by default and running on stock settings could cause damage in some modified vehicles.

DIAL POSITION	SPEED / REV LIMIT	FUEL / TIMING CHANGES	USER EDITING NOTES:
0	Stock: 41 MPH / 6,500 RPM	. . . . Stock: No Changes	Stock
1	MSD: 50 MPH / 8,000 RPM	. . . . Stock: No Changes	
2	MSD: 50 MPH / 8,000 RPM	. . . . Stock: No Changes	
3	MSD: 50 MPH / 8,000 RPM	. . . . Stock: No Changes	
4	MSD: 50 MPH / 8,000 RPM	. . . . Stock: No Changes	
5	MSD: 50 MPH / 8,000 RPM	. . . . Stock: No Changes	
6	MSD: 50 MPH / 8,000 RPM	. . . . Stock: No Changes	
7	MSD: 50 MPH / 8,000 RPM	. . . . Stock: No Changes	
8	MSD: 25 MPH / 6,500 RPM	. . . . Stock: No Changes	Chaperone
9	Stock: 41 MPH / 6,500 RPM	. . . . Stock: No Changes	STOCK SETTINGS LOCKED

ADJUSTING TUNES

Each tune has a variety of settings that can be adjusted to customize how the engine handles. Not all tunes will need to be changed for all riders and riding styles. The MSD Charge FI will prescribe parameters exactly as they are entered by the user. The unit will not protect the engine from damage if setting parameters are made outside of safe operating range.

SETTINGS

In this tab users can put in the basic parameters for the engine.

- Engine Speed Limit** - This is the overrev limit and is always active in order to help protect the engine from damage. The engine will not be allowed to go faster than this setting at any time.
- Vehicle Speed Limit** - This is the maximum speed (mile per hour) the vehicle will go. When the ECU sees the given speed a rev limiter will be activated even if it is below the Engine Speed Limit.
- Decel Fuel Cutoff** - This setting allows the user to automatically shut off the fuel during deceleration. Doing so can help with fuel efficiency, depending on driving habits. The user defines the lowest rpm at which the fuel should be cut off. There are a number of other parameters, such as engine temperature that cannot be controlled by the user. After all parameters are met, the fuel will be shut off when the throttle position is fully closed and the engine is revving over the set speed.

ADVANCE

This tab allows users to set change the factory prescribed ignition timing for the engine. The table allows changes to be made in single degree increments based on engine RPM per MAP PSIA. Using the table a tuner can adjust the timing anywhere from 30° of retard up to 30° of advance. See “Table Features” below to learn about using and editing data tables in MSD View.

FUEL

The Fuel table in MSD View can add or subtract a percentage of the factory fuel injection signal based on engine RPM per Throttle Position. All values entered to the table act as a percentage change to the original signal from the ECU. The values in this table can range from -50% to 80%. At the lowest value, fuel will be cut in half. The highest enterable value will nearly double the amount of fuel injected in the engine. See “Table Features” below to learn about using and editing data tables in MSD View.

FUEL ACCEL

The Fuel Accel plot offers users the ability to recreate the functions of a carburetor’s accelerator pump (pump squirt) in a fuel injection system. This feature monitors the signal sent to the fuel injector for changes. Each time the signal increases an extra percentage is added to the prescribed amount to assist the engine in acceleration. The extra percentage, prescribed by the RPM based line in MSD View, lasts only during the time where fuel requirements are rising.

To plot a line, click and hold a dot to drag it to a new location. New dots can be added by right clicking within the plot, or by entering coordinates in the table. The table shows the exact position of each dot and can be found in the lower left corner of the MSD View window. The Fuel Accel plot includes changes in 50 rpm increments and fuel additions of 1% at a time. A maximum of 4 points can be set.

The line designates a percentage of fuel to be added to the fuel system that is originally prescribed by the stock ECU. The highest possible plot, 200%, will add two times the originally designated amount of fuel. With the addition, three times the original amount of fuel will be injected during the specified conditions under the 200% setting.

NOTES

The Notes tab allows users to keep basic information with a particular tune. The notes section works the same way as a simple Notepad program. This area offers the ability to name tunes, explain reasoning for changes, keep notes on the location or conditions when a tune was used or any other plain text items the user would like to enter.



INSTALLATION INSTRUCTIONS

MONITORS AND GAUGES

The pane on the right side of the MSD View window allows users to see a variety of engine parameters in real time. The top of the pane shows selected items in either list or gauge form. The bottom of the pane lists all available items to be checked for monitoring. When the engine is running, users can watch changes occur as they are entered into the software.

TABLE FEATURES

To edit the data in the table users can select a single cell at a time or select a group of cells to all be changed to the same value. To change timing or fuel data in a table the sign (+/-) of the new number designates what type of change occurs. Use a negative dash (-) immediately before a number to retard timing or decrease fuel supply. No positive sign (+) is required when entering a number to advance timing or increase fuel supply. When a cell or group of cells is highlighted, use the keyboard to enter the desired number. When a new value is being entered, the Up and Down keyboard arrows will change the entered value by one value, respectively. To finish a change, click in a new cell or press enter.

Data can be copied and pasted from one table to another. To do so, copy the required cells using Edit on the Menu Bar, right click in the highlighted area, or use Ctrl + C on the keyboard. Copied data can be pasted in any table. The data will paste in the cells that correspond to those from which it was originally copied.