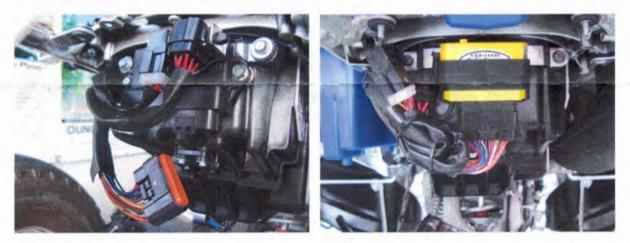# YFZ450R 09-17 VORTEX X10 ECU
INSTALLATION INSTRUCTIONS

Thankyou for purchasing your Vortex X10 ECU (Engine Control Unit). We hope you will enjoy the benefits of our product. Please read and follow the below mounting and operation instructions carefully.

Step 1: Remove the bikes Seat and ECU plastic cover plate at the rear of the ATV.

Step 2: Remove the Standard ECU from the rear of the airbox by undoing the two mounting bolts. **CAREFULLY** unplug the 34 Way connector on the ECU. **Note: These connectors have a locking tab that needs to be pressed before carefully unplugging the connector. BE CAREFUL NOT TO PULL ON THE WIRING HARNESS WHEN UNPLUGGING THIS CONNECTOR.**

Step 2: Remove the mounting frame and two modules mounted to it. These modules will be zip tied back along the main harness as per the below picture.

Step 4: Remove the Vortex ECU from its package and slide into the Vortex rubber mounting boot. Slot the ECU and Mounting boot onto the stainless mounting bracket provided and bolt onto the back of the airbox. See above picture.

Step 5: Carefully plug the main connector onto the VORTEX ECU and push firmly until the locking tab clicks. Be careful not to get dirt in connectors!

Step 6: Bunch up the additional wiring and use zip ties to secure together. Replace the plastic cover removed in Step 1. Note: Do not over tighten zip ties on any wiring

NOTE: There are additional cables coming out of the ECU. One is for programming the ECU and the other introduced in Version B of the ECU-6 is used for additional programmable features such as Launch control, Dual Map, Dual Injector operation etc.

Step 7: Replace the plastic cover removed in Step 1 and seat. The trim switches of the ECU should be visible through the seat catch for easy adjustment. Installation is now complete. Enjoy!

See next page for additional information on trim switches.

MAP SELECTOR & FUEL TRIM Switch Operation:

The Vortex X10 ECU has 10 Pre-programmed Power settings from "Mild to Wild". By changing the position of the X10 Switch on the ECU the user can change the type of power delivery for different rider styles or track conditions. See Map listing chart for explanation of the power type expected from each setting. In addition there are three switches which will modify the fuel supplied to the motor through the EFI system. These switches are divided as follows:

LO: 2.5-25% Throttle …..(Like a Pilot Jet on a Carby)
MID: 33-66% Throttle ….(Like a Needle Jet on a Carby)
HI: 75-100% Throttle …..(Like a Main Jet on a Carby)

Each switch position is either + or – fuel in 2.5% increments. The base position is "5,5,5" with position 6 through 0 adding fuel (richer) and position 4 through 1 is subtracting fuel (leaner) from the selected X10 Map. For example if a fuel trim switch is on position 6 then 2.5% fuel is added to the selected map in that throttle opening. If a fuel trim switch is in position 3 then 5% fuel is subtracted from the selected map throttle opening.

NOTE: The "LO", "MID" and "HI" switches are fuel trim based on throttle opening and NOT RPM

NOTE: It is not advisable to go leaner on any setting unless you are an experienced engine tuner or are monitoring the Air/Fuel ratio with a wideband sensor / reader. Air / Fuel Ratios great than 15:1 can cause serious engine damage.

INDEMNITY

Note: This is a performance product and is designed for competition use only. The manufacturer or their distributor accepts no responsibility for damage or injury caused by this product. Because we cannot control the application or use of this product, the buyer assumes all risks of any and all damage that may occur to their self, their machinery or third party due to the use of this product. The product is guaranteed against manufacturing defects.

DATE: 27/08/2010

See below the VORTEX X10 ECU Fault Flash Codes. The Vortex ECU will flash the Handlebar LED or the FI light (on applicable models) when there is a fault condition in one of the sensors.

This Code will flash until the ECU is reset by being powered down and restarted.

NOTE: These are a tool for fault finding a problem only and cannot be considered absolute.

Fault Code	Fault Condition	Troubleshooting Suggestions
1	Tip over sensor activated - High	Vehicle is not upright - Engine won't start
		Tip Over Sensor is faulty - Engine will not start
2	Tip over sensor activated - Low	Vehicle is not upright - Engine won't start
		Tip Over Sensor is faulty - Engine will not start
3	TPS sensor input voltage low	TPS connector unplugged.
		TPS wiring short or open circuit.
		TPS sensor wrong position adjustment.
		TPS sensor faulty.
4	TPS sensor input voltage high	TPS connector unplugged.
		TPS wiring short or open circuit.
		TPS sensor wrong position adjustment.
		TPS sensor faulty.
5	MAP sensor input voltage low	MAP connector unplugged.
		MAP wiring short or open circuit.
		MAP sensor faulty.
6	MAP sensor input voltage high	MAP connector unplugged.
		MAP wiring short or open circuit.
		MAP sensor faulty.
7	IAT sensor input voltage low	IAT wiring short or open circuit.
		IAT sensor faulty.
8	IAT sensor input voltage high	IAT connector unplugged.
		IAT wiring short or open circuit.
		IAT sensor faulty.
9	ECT sensor input voltage low	ECT wiring short or open circuit.
		ECT sensor faulty.
10	ECT sensor input voltage high	ECT connector unplugged.
		ECT wiring short or open circuit.
		ECT sensor faulty.
11	BARO sensor input voltage low	BARO connector unplugged.
		BARO wiring short or open circuit.
		BARO sensor faulty.
12	BARO sensor input voltage high	BARO connector unplugged.
		BARO wiring short or open circuit.
		BARO sensor faulty.

FIRMWARE VERSION ECU_0_2_XXX

IMPLEMENTED FOR ECU WITH DATE CODE ON OR LATER THAN 100820

DATE CODE 100820 is date 20th AUG 2010

X10 ECU SETTINGS
YFZ450R 09-17
ATV

VORTEX IGNITIONS

X10 Map File Name: YFZ450R_09-17 RELEASE-13 (FWe006.4.07) 23-2-17_BASE MAP.Vecu1

X10 Switch Position	IGNITION MAP DESCRIPTION	FUEL MAP DESCRIPTION	Rev Limit RPM	Rev Limit Style
1	POWER MAP 1 (STD ENGINE)	FUEL MAP 1: STD MOTOR (PIPE & FILTER) NEW 14-4-15	11,200	SPARK CUT / 100
2	TRACTION MAP 1	FUEL MAP 1: STD MOTOR (PIPE & FILTER) NEW 14-4-15	11,200	SPARK CUT / 100
3	TORQUE MAP 1	FUEL MAP 1: STD MOTOR (PIPE & FILTER) NEW 14-4-15	11,200	SPARK CUT / 100
4	POWER MAP 2 (WAS RELEASE-10 MAP 1)	FUEL MAP 2: STD MOTOR (PIPE & FILTER)	11,200	SPARK CUT / 100
5	POWER MAP 2 (WAS RELEASE-10 MAP 1)	FUEL MAP 3: GYTR MOTOR (PIPE & FILTER)	11,200	SPARK CUT / 100
6	POWER MAP 5 - Hi COMP (18-5-11)	FUEL MAP 4 : SAME FUEL MAP 5 + RICHER by 12.5%	11,500	SPARK CUT / 100
7	POWER MAP 5 - Hi COMP (18-5-11)	FUEL MAP 5 : DRI MOTOR & PIPE (18-5-11)	11,200	SPARK CUT / 100
8	POWER MAP 4 HI COMP (1-5-12)	FUEL MAP-6 : DRI MOTOR & PIPE & FILTER (1-5-12)	11,500	SPARK CUT / 100
9	POWER MAP 5 - Hi COMP (18-5-11)	FUEL MAP 5 : DRI MOTOR & PIPE (18-5-11)	11,500	SPARK CUT / 100
0	BASED ON STANDARD MAP	FUEL MAP 3: GYTR MOTOR (PIPE & FILTER)	11,200	SPARK CUT / 100

Date	Revision Record
20/12/2010	Release Date
14/04/2011	Change Start / Run settings
18/05/2011	NEW POWER MAPS 7,8,9 Modified Motor - Hi Comp+ Starting Trim Changed, New Fuel Timing
5/04/2012	CHANGE COLD STARTING TRIM
23/08/2012	NEW MAP 8 and REVISED IDLE IGN & FUEL ALL
11/12/2012	UPDATE TO FW 0-3-10
18/12/2013	UPDATE TO FW 0-3-18 ADD DRIVER FOR EMISSIONS CONTROL VALVE
7/07/2014	UPDATE TO FW 0-3-23 FOR HARDWARE CHANGE ECU-6B - NEW PROGRAM AND OPTIONS CABLES
14/04/2015	RELEASE-11 NEW MAPS 1,2,3,4,5 & 7 (MAP 7 SAME AS MAP 9 WITH LOWER REV LIMIT
27/04/2015	RELEASE-12 NEW MAP 6 (SAME AS MAP 9 WITH RICHER FUEL +12.5%) & NEW MAP 10 NEW FUEL
23/02/2017	RELEASE-13 FW UPDATE (FW e006.4.07)

Standard Rev Limit: 10,450

WARNING: HIGH REV LIMITS ARE FOR SPECIALLY MODIFIED ENGINES AND MAY REDUCE ENGINE SERVICE LIFE
WARNING: ALL MAPS HAVE BEEN TESTED WITH AND WE RECOMMEND USING 98 RON OR HIGHER FUEL
IF FUEL LESS THAN 95 RON FUEL IS USED WITH THIS PRODUCT MAY CAUSE DETONATION AND ENGINE DAMAGE

USA	AKI = (R+M)/2 = 92
AUSTRALIA & NZ	RON = 98
EUROPE	RON = 98