

ELITE 1500 PATCH LOOM ECU KIT YAMAHA WAVERUNNER FX, FZS, FZR (2008-2014) HT-150980

FEATURES:

- Direct Fire Ignition
- Sequential Injection
- Electronic Throttle Control (DBW)
- Knock Control
- Idle Control
- Kill Switch
- O2 control (When used with a Wideband O2 sensor kit)

ENGINE SUITABILITY:

Yamaha Waverunners with the 1.8L 4 cylinder engine including:

- FX
- FX Cruiser
- FX Cruiser High output (FXHO)
- FX Cruiser SHO
- FX Cruiser SVHO
- FZS SVHO
- FZR SVHO
- FX High output (FXHO)
- VX
- FZR
- VXR

Tested year models include 2008 – 2015.

This engine / ECU is used in the Yamaha Waverunners from 2006 to 2015

FACTORY SENSORS INCLUDE:

- Air temperature
- Coolant temperature
- Drive by wire
- Ignition input via Start button
- Over temp switch
- Tip over switch
- Muffler temperature
- Oil pressure switch
- Kill switch
- Stop button
- Knock sensor
- MAP sensor



HT-150980 - Elite 1500 Patch Loom ECU Kit



Optional Expansion - HT-159977 - Yamaha WaveRunner FX, FZS, FZR (2008-2012) WB1 - Kit

PERFORMANCE, INSTALLATION AND ENGINE CONTROL STRATEGY

PERFORMANCE:

The Yamaha 1.8L Supercharged engine goes 70mph with a RPM limit of 7700RPM.

Being a supercharged direct drive engine simply raising the Rev limiter will increase the maximum speed, as well as the boost pressure. Common RPM limits being used include:

8250RPM – 75-76mph

8550RPM – 77-78mph

8650RPM – 80-82mph

8850RPM – 82-83mph

When revving this engine above 8500RPM it is recommended to fit a higher grade Valve spring and retainer kit.

The engine uses a return-less constant pressure referenced fuel system. The fuel system will require upgrading when trying to achieve around 77mph+

Yamaha 1.8L Supercharged engines used 440cc injectors until 2013, while 2014 onwards use 555cc injectors. The supercharger is also upgraded on the 2014 onwards model which requires a different base map.

Real world testing with the Elite 1500 kit on a 2015 stock PWC has seen the maximum speed at 68.8mph. By fitting the Elite on the base map the ski went 78.8mph, and then with tuning went 82mph.

It is recommended (and common) to remove the thermostat from the engine (located at the back of the cylinder head toward the rear of the ski) when running at extended RPM and high power for long periods of time is expected.

POWER CONTROL:

When the momentary start button is pressed power is supplied to the starter motor relay and the 12v ignition input (for the time that the start button is held on). During this time the ECU boots up and latches the Engine control relay output on, in turn keeping the ECU power on until the Engine Control Relays "Stop Condition" is met. This stop condition is a Timer (Labelled "Timed Stop") based on Engine RPM, when the kill button on the handlebars is pressed (momentary switch) the engine will stall, when Engine RPM reaches 0 the timer will start counting and turn the engine control relay off after the programmed 5 seconds.

PROGRAMMING LOOP:

Because the PWC uses the latching engine control relay there is no IGN on state as such. This makes going online with the ECU impossible without the PWC running. We have added the Programming loop to temporarily power the ECU without it running in order to make tuning adjustments. This Programming loop connects the ECR output to ground. If this programming loop is left in the ECU will be permanently powered and will drain the battery. The PWC will still start and stop as expected.

WIDEBAND O2 CONTROLLERS AND SENSOR POSITION:

We offer a CAN based wideband O2 kit specific for the Yamaha Waverunners. This kit comes with a terminated wiring harness to suit the lengths for the ski. It also includes a threaded O2 adaptor allowing the installation of an O2 sensor in the exhaust inspection port of skis up to 2013.

2014 models onwards no longer have this inspection port and require the addition of an aftermarket spacer which is installed between the exhaust and joiner to the water box (just next to the rear firewall) – This part is available through Riva racing item # RY15040-TP-O2.

HALTECH PART NUMBERS:

HT-150980 – Elite 1500 Patch Loom ECU Kit Yamaha WaveRunner FX, FZS, FZR (2008-2014)

HT-140980 – Elite 1500 Patch Loom ONLY Yamaha WaveRunner FX, FZS, FZR (2008-2014)

HT-159977 - WB1 - Single Channel CAN O2 Wideband Controller Kit (No Gauge) Yamaha WaveRunner FX, FZS, FZR (2008-2012)