



PLATINUM series

CAN WIDEBAND CONTROLLER

WBC 1

YAMAHA PWC KIT

(HT-010730 - HT-010731)

QUICK START GUIDE



LIMITED WARRANTY

Lockin Pty Ltd trading as Haltech warrants the Haltech™ Programmable Fuel Injection System to be free from defects in material or workmanship for a period of **12 months** from the date of purchase.

Proof of purchase, in the form of a bill of sale or receipted invoice, which indicates that the product is within the warranty period, must be presented to obtain warranty service. Lockin Pty Ltd trading as Haltech suggests that the purchaser retain the dealer's dated bill of sale as evidence of the date of retail purchase.

If the Haltech™ Programmable Fuel Injection System is found to be defective as mentioned above, it will be replaced or repaired if returned prepaid along with proof of purchase. This shall constitute the sole liability of Lockin Pty Ltd trading as Haltech.

To the extent permitted by law, the foregoing is exclusive and in lieu of all other warranties or representations, either expressed or implied, including any implied warranty of merchantability or fitness. In no event shall Lockin Pty Ltd trading as Haltech, be liable for special or consequential damages.

DISCLAIMER

Haltech will not be held responsible for any damage caused by the incorrect installation or tuning of this product. It is the installers responsibility to ensure the wiring connections and pinouts match that of the vehicle the unit is being installed into.

Haltech has taken all care to make sure the connections match the specified vehicles listed, but variations in wiring and connections on vehicles can occur and therefore this should be checked BEFORE the unit is installed.

Haltech highly recommends installation and tuning of this product is to be carried out by a professional, with an understanding on installing and tuning engine management systems. Misuse of this product can destroy your engine.

WARNING

This ECU is designed and sold for Racing use only. Using this product for street / road use may be prohibited by law. Please check with your local vehicle authority before using this product.

GENERAL INSTALLATION WARNING

Avoid open sparks, flames or operation of electrical devices near flammable substances. Always disconnect the battery cables when doing electrical work on your vehicle.

Do not charge the battery with a 24 Volt truck charger or reverse the polarity of the battery or any charging unit. Do not charge the battery with the engine running as this could expose the ECU to an unregulated power supply that could destroy the ECU and other electrical equipment.

All fuel system components and wiring should be mounted away from heat sources, shielded if necessary and well ventilated. Disconnect the Haltech ECU from the electrical system whenever doing any arc welding on the vehicle by unplugging the wiring harness connector from the ECU.

After completing the installation, make sure that there are no fuel leaks, and no wiring left un-insulated in case a spark or short-circuit occurs and causes a fire. Also make sure that you follow all proper workshop safety procedures. If you're working underneath a jacked-up car, always use safety stands!

Haltech CAN Wideband Controller ***(WBC 1-YAMAHA PWC KIT)*** **Quick Start Guide**

Congratulations on purchasing a Haltech CAN Wideband Controller. This *Plug and Play* product allows the user the ability to increase the functionality of their Haltech ECU by using the Haltech CAN system which is fitted to all Elite and Platinum Series of ECU's.

The Haltech CAN Wideband Controller allows the user to accurately measure air/fuel ratios over a wide range from rich to lean via the Haltech CAN system for precise engine tuning.

This quick start guide will walk you through installation of the Haltech CAN Wideband Controller (WBC1) into a Yamaha PWC.

This guide is accompanied by the full service manual located on the software CD provided with the ECU that you or your tuner will need to refer to before completing your installation and configuration.

Included in Haltech Single Channel CAN Wideband PWC Kit (HT-010730)

- Haltech Single Channel CAN Wideband Controller - WBC1
- Single Channel WBC1 - Yamaha PWC wiring harness
- CAN Connection Cable (300mm)
- 1 x Wideband Sensor – Bosch LSU 4.2
- 1 x PWC O2 Sensor fitting adaptor
- 2 x 300mm cable ties
- Quick Start Guide

Included in Haltech Single Channel CAN Wideband PWC Gauge Kit (HT-010731)

- Haltech Single Channel CAN Wideband Controller - WBC1
- Single Channel WBC1 - Yamaha PWC wiring harness
- Haltech Single Channel Digital Gauge
- CAN Connection Cable (300mm)
- 1 x Wideband Sensor – Bosch LSU 4.2
- 1 x PWC O2 Sensor fitting adaptor
- 2 x 300mm cable ties
- Quick Start Guide

Installation

Installing the Haltech CAN Wideband Controller into your PWC is simple. Installation notes are based on a new installation in conjunction with the Haltech Plug and Play PWC Kit (HT-150980)

STEP 1: Using the mounting screws provided with your Elite ECU, mount the Elite ECU to the mounting bracket included with the Haltech Plug and Play PWC kit.

Feed the supplied 300mm cable ties through the holes in the mounting bracket, leave approximately 70mm of cable tie on the ECU side as shown below.

Do not mount the WBC1 to the bracket at this time.



**Figure 1 – Elite ECU Mounted to the custom PWC mounting bracket.
Note orientation of bracket and ECU.**

STEP 2: Install the ECU to the PWC in the OEM Location using the 4 x M6x12mm socket cap bolts and washers supplied with the kit. OEM ECU is located under the splash cover located at the rear of the engine bay / hull.
A suitable thread locker compound can be applied to the threads of the mounting bolts at this time to help resist against loosening due to vibration.



Figure 2 – Mounting Elite ECU to PWC



Figure 3 – Elite ECU Mounted

STEP 3: Install the WBC wiring harness to the PWC.

No modification of the harness is required as the harness is designed to fit your PWC. Route the gauge wire if required up to the front of the Jetski, the length of the cable is designed to be enough to mount the gauge in the front small storage/drink compartment. Route the O2 Sensor connection up to the O2 sensor location. Pass the battery connections through the main loom hole through to the battery. Connect the Red wire to Battery (+) terminal via the inline 10A Fuse. Connect the Black wire to Battery (-) terminal.

Ensure the Haltech CAN Wideband Controller is NOT connected to the wiring harness until installation of the harness has been completed.

The harness connections are outlined below:

1. Optional Gauge Connection
2. O2 Sensor Connection
3. Fuse holder -10A fuse fitted
4. Battery Terminal Connections
5. WBC1 Main Connection



Figure 4 – Wideband O2 Controller Yamaha PWC Harness

STEP 4: Install main ECU patch harness.

Install the ECU patch harness supplied with the Yamaha PWC Kit (HT-150980)
Connect the patch harness between the OEM plugs and the Elite ECU.

STEP 5: Install WBC1 and perform free air calibration.

Connect the WBC1 to the installed harness.

Connect the supplied CAN cable from the ECU CAN connector in the patch harness to the WBC1.

Connect the supplied O2 sensor to the harness in preparation for the free air calibration.
Connect the link on the program/setup connection on the patch harness and perform the free air calibration as outlined below.

Free Air Calibration

After installation, a free air calibration is required, preferably with the O2 sensor removed from the exhaust and in free air.

Calibration Procedure:

Turn the free air calibration trimpots on the WBC1 full counterclockwise.

Turn ignition on and wait for 60 seconds so the system can fully stabilize.

Slowly turn each free air calibration trimpot clockwise until the corresponding LED starts flashing at a rapid rate.

Set the trimpot at the point where its LED just starts to flash.

If you cannot get an LED to flash when its trimpot is turned full clockwise, you either have a damaged sensor or very high hydrocarbon levels in your environment.

A fault indication will cause the status LED to blink at a slow rate.

Fault conditions include less than 11 volts or greater than 16.5 volts of battery voltage, sensor open circuit, and sensor short circuit conditions.

Remove the program/setup link and proceed to install the O2 sensor.

Please Note: The O2 sensor may be hot, ensure time is allowed for the sensor to cool before handling.

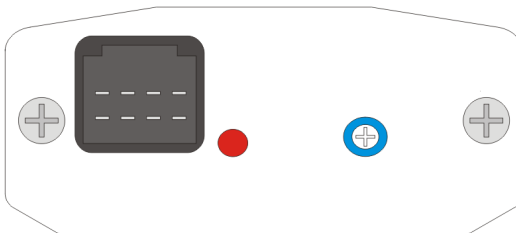


Figure 5 - Haltech WBC1 LED and calibration trim pot location

STEP 6: Secure and complete WBC1 Installation

With the WBC1 now calibrated, it's time to secure the WBC1 to the PWC using the cable ties on the Elite Mounting bracket as shown below.



Figure 6 – Securing the WBC1 to the Elite Mounting Bracket



Figure 7 – Location of WBC1 on PWC Installation

STEP 7: Install the O2 sensor

The location and installation of the O2 sensor varies between year models. Early models have the O2 sensor fitting located on the top of the exhaust manifold. Remove the block off fitting and insert the Haltech supplied adaptor to install the sensor. Later models have the O2 sensor fitting located at the rear of the exhaust manifold and do not require the Haltech adaptor, just remove the block off fitting and fit the O2 sensor.

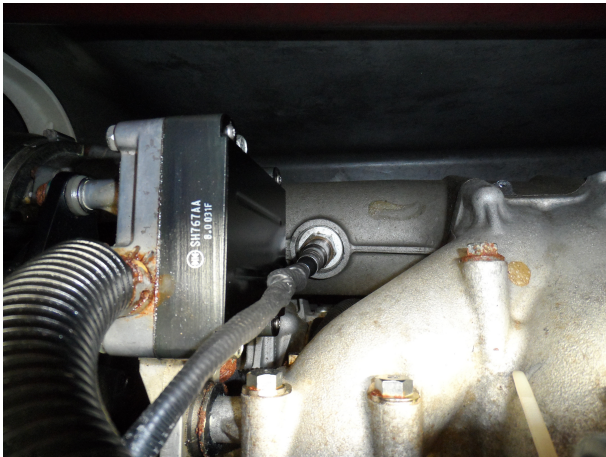


Figure 8 – Early Model Yamaha PWC O2 Sensor Location

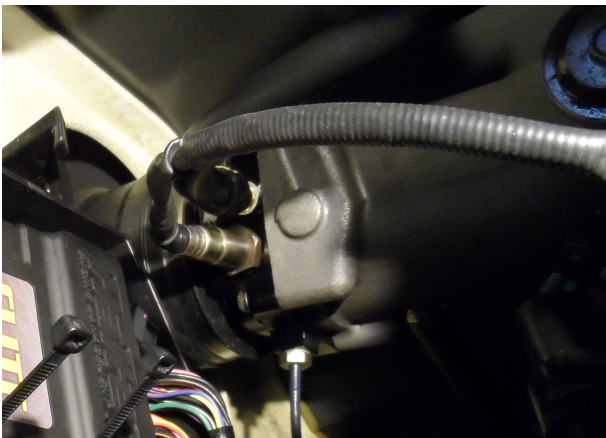


Figure 9 – Late Model Yamaha PWC O2 Sensor Location

Optional Digital Display Gauge Installation

Installation of the optional Haltech digital display gauge will allow the user to see the Air / Fuel Ratio of the engine without the need for a laptop.

Installation is simple as all the necessary wires are bundled together in the included wiring harness labeled as "Gauge"

Please refer to the diagrams below for correct termination.

Connection of the green wire is not required for this PWC application.

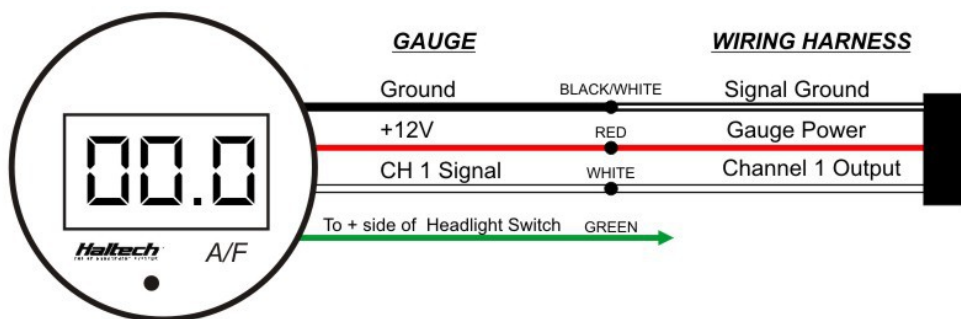


Figure 10 Haltech Single Channel Digital Display Gauge # HT012000

Software Setup

With your new Haltech CAN Wideband Controller installed it's now time to setup the software.

When powered up and connected to Haltech Elite Software Programmer your Haltech ECU will automatically recognize the new device which will be shown in the devices tab (Figure 10).

To enable the device right click on the “*Options*” tab and select “Enable Device”, alternatively you can enable the device by accessing the device page within the Main setup menu.

When the device is enabled you will have the ability to setup and assign the input sensor within ESP Setup functions page.

If you have uploaded the Yamaha PWC basemap to the Haltech Elite ECU then your new WBC1 will already be enabled and ready to use.



Figure 11 – Haltech ESP Wideband device tab status indicators

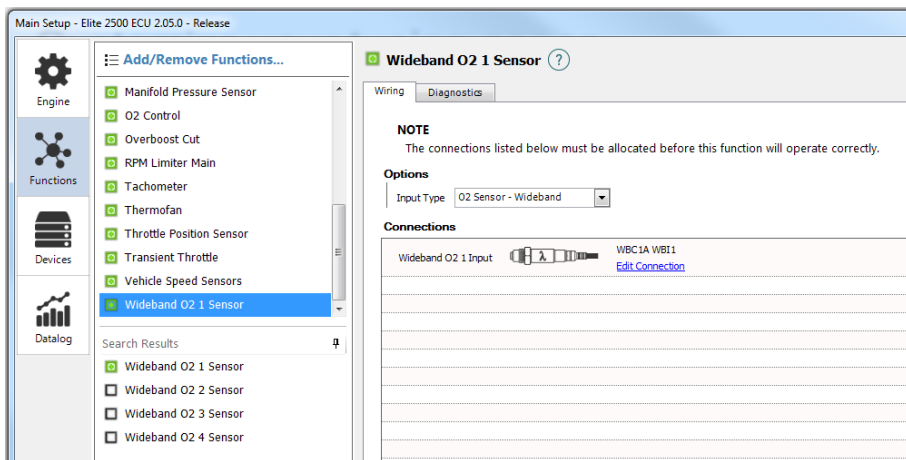


Figure 12 – Haltech ESP Wideband sensor input setup page

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