(Preliminary)

Tech Edge Calibration Guide

For the version 1.5 WideBand O2 Kit.

Required Items:

1. A reasonable quality multimeter.
2. A 12 volt DC power supply.
3. A small flat-bladed screwdriver (insulated handle preferred).

Recommended Items:

1. A set of IC test clips for your multimeter.

O.K, let's get started..

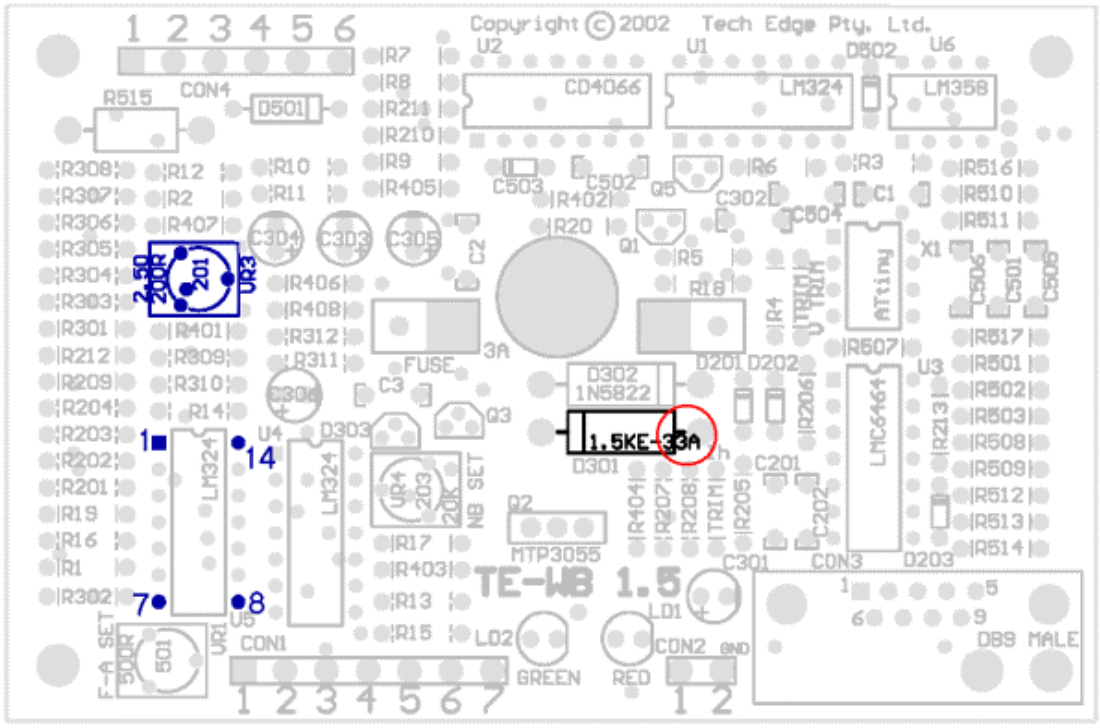
Firstly, connect your completed WB 1.5 kit to a 12-15 volt power supply, with nothing else (no sensor, no 5301, no DA cable) connected.

Check that the Green Power LED comes on, and the RED Heater LED remains dark. This is normal behaviour.

Now we can check that the Internal Power Supply voltages are correct, and set the 2.50v reference voltage Pot.

Attach your Multimeter's Ground IC test clip to a convenient Ground source on the 1.5 unit, The right-hand leg of the 1.5KE-33A Diode is a good Ground source. (Red Circle in Fig 1.)

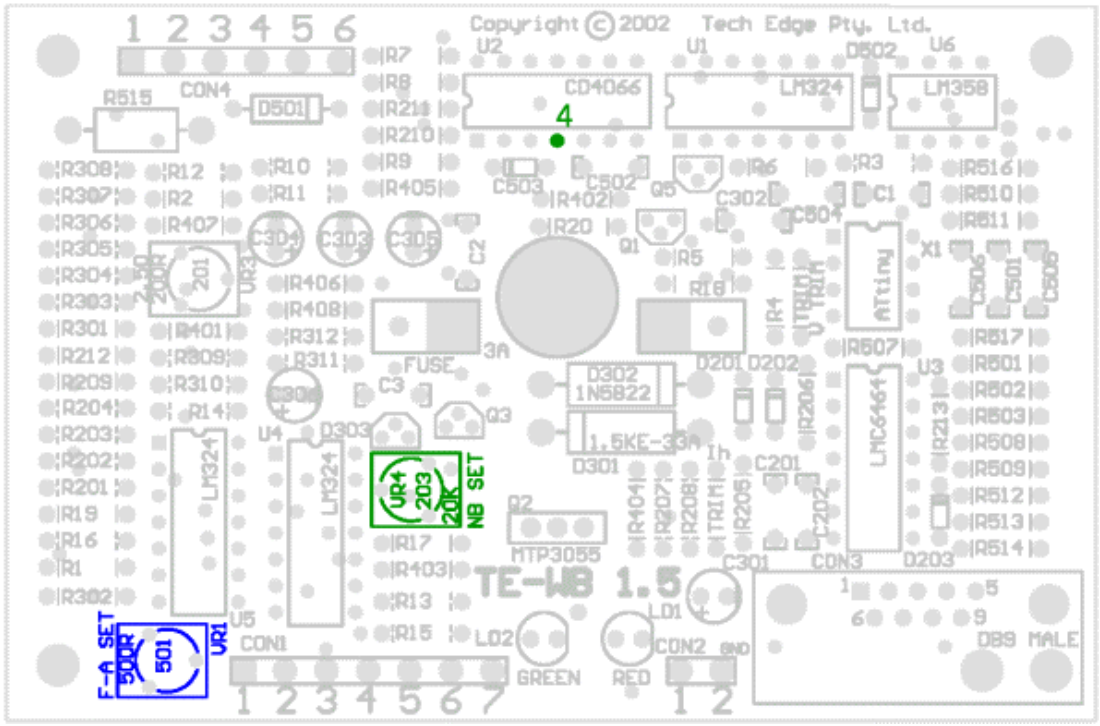
1. Attach the Multimeter's Positive Test Clip to **pin 8** of **U5** (the leftmost LM324), check that this pin is roughly 2.50 volts, adjust the **2.50 SET** pot until **pin 8** of **U5** is exactly **2.50v**.



2. Next attach the Test Clip to **pin 1** of **U5**, It should be at **4.45v** (± 0.05v)
3. Attach the Test Clip to **pin 7** of **U5**, It should be at **4.00v** (± 0.05v)
4. Attach the Test Clip to **pin 14** of **U5**, It should be at **5.00v** (± 0.1v)

The next step is to calibrate the Narrowband Output, and the Free-Air Sensor compensation.

Fig 2.



1. Attach your Multimeter Ground Test Clip to the right-hand leg of D301, as before.
2. Attach the Positive test Clip to **pin 4** of **U2** (The CD4066 IC), adjust the **NB SET** Pot (Green on Fig 2.) until the Multimeter reads **0.50v** (± 0.1v). This will take a steady hand, as the adjustment is quite sensitive. (This is the 0-1v transition point for the Narrowband, and simulates a normal O2 sensor)

The Free-Air Sensor Compensation is adjusted with your sensor connected, to get a **4.00v** ideal output **in free air**, The adjustment has a fairly narrow range, and is provided for slight compensation only, some individual sensors may not be able to be adjusted to **4.00v** exactly.

Attach your sensor to the WB 1.5 Unit, and let the Heater warm up, When the Red HEATER LED comes on, attach your Positive Test Clip to **pin 14** of **U4**, or to **pin 7** of the **DB9** connector. Adjust the **F-A SET** pot to attain a Free-Air voltage as close to **4.00v** as possible.

It is **highly** recommended that you test your Narrowband Output before attaching the unit to an Engine Management Computer, as the WB 1.5 Narrowband output is capable of a (relatively) large range.

***** WARNING *****

Deliberately fooling your ECU into running your engine too rich, or too lean, can cause **serious engine damage**, You utilise the Narrowband output **AT YOUR OWN RISK!**

A simple way to test the Narrowband output on the bench is to squirt Butane from a common cigarette lighter into the end of the sensor whilst on the bench.
Observe the AFR on the 5301 display, and the Narrowband output on a multimeter, It should have a sharp transition from 0-1v at the 14.7 AFR point.