# DeltaDash

ECU Data Logging

Software Guide

v1.1g

# Index

# Introduction

DeltaDash is a powerful data logging and diagnostic tool. DeltaDash supports all Model Year 1999 to Model Year 2006 Subaru ECUs. This includes WRX, STI, Forester, Legacy, Outback, Baja and Tribeca (Turbo and non-turbo variants).

It enables you to examine exactly what is going on with your car. You can generate detailed log files, which allow clear and unequivocal data to be accumulated with or without a chassis dyno. Log files can be given to the customer to prove the performance of your work or can be mailed to a tuner for assistance.

The USB Vehicle Interface Cable must be plugged into the USB port of your PC in order for the software to run with all featured enabled.

# Getting Started

## Package Contents

Your DeltaDash package contains a number of components. Before attempting to install or use the system, please check that you have everything required:

### EcuTeK USB Vehicle Interface

The Vehicle Interface plugs into the diagnostic port of the car, and allows communication with the ECU. The hardware license key is integrated into the Vehicle Interface.

### Users Manual

This will be a valuable reference for using the DeltaDash.

### Software CD

This contains the DeltaDash software the Vehicle Interface drivers.

## Installation Prerequisites

The following criteria must be satisfied before attempting to install DeltaDash:

### Software

- Windows 98SE, Windows ME, Windows 2000 or Windows XP

### Hardware

- An IBM compatible PC is required.
- 64MB RAM required as a minimum for Windows 98 or 128MB for Windows 2000 and Windows XP.
- 1024x768 minimum display resolution. 1280x1024 or higher recommended for ease of use.
- USB port. Normal or high speed ports are acceptable.
- Serial port for support of old RS-232 Vehicle Interface cbles.

# Software Installation

## IMPORTANT

DO NOT PLUG IN THE USB CABLE UNTIL YOU INSTALL THE DRIVERS. IF YOU PLUG THE USB CABLE IN BEFORE YOU INSTALL THE DRIVERS YOU WILL HAVE TO UNINSTALL THE HARDWARE BEFORE INSTALLING THE CORRECT DRIVERS. FOLLOW THE INSTRUCTIONS BELOW.

## EcuTeK USB-OBD2 Driver Installation

**NOTE: Windows will not detect the USB cable correctly if the USB cable is inserted before installing the EcuTeK drivers and software. Always install the drivers from the EcuTeK installation CD before inserting the USB-OBD2 cable into the PC or Laptop. Ensure that the EcuTeK installation CD is inserted when you connect the USB cable for the first time.**

Inserting the USB cable before installing the EcuTeK drivers can cause the USB hardware driver installation to fail. This is caused when the user selects the 'Don't prompt me again to install this software' box after Windows has detected the unknown device, as illustrated in the below screenshot:
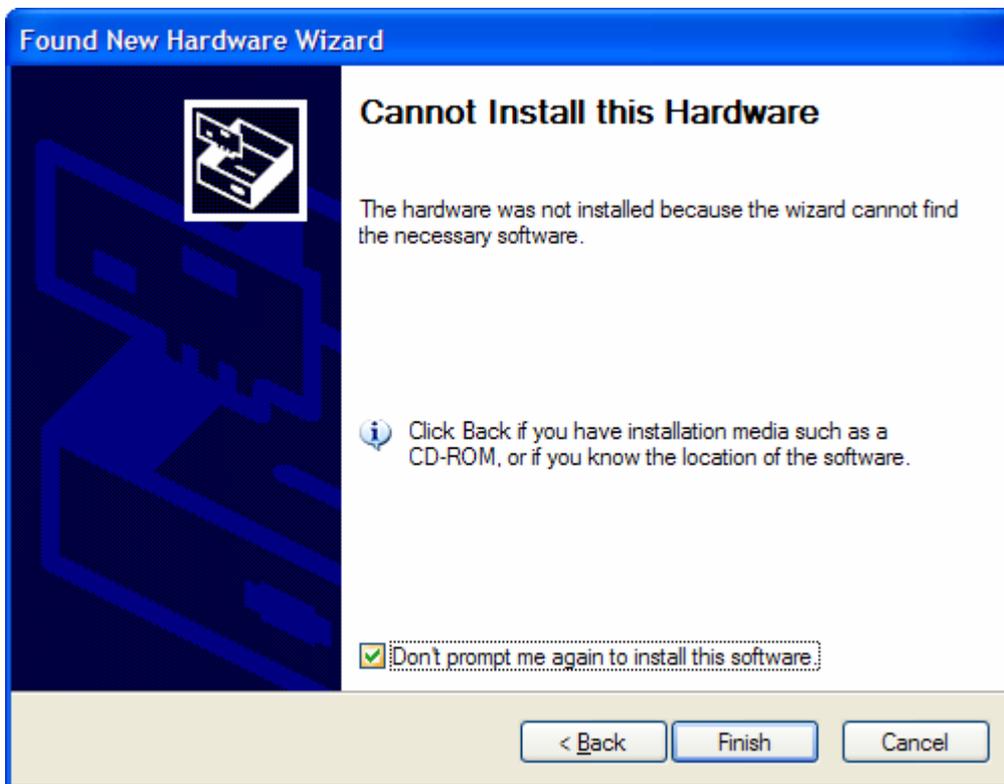
The unknown devices must first be removed from the Windows Device Manager before the EcuTeK drivers can be install successfully. **Refer to the steps in the Troubleshooting section at the end of this manual for steps on how to remove incorrect USB drivers.**

## Installing the EcuTeK USB-OBD2 Drivers

- Insert the EcuTeK installation CD and click on the 'Install Driver' option (first line on the EcuTeK Installer)
  **NOTE**: See the '*Downloading drivers from the website*' section under the Troubleshooting section if the original EcuTeK CD is unavailable

- When the above driver installation is completed, click on the 'Install DeltaDash' option (second line on the EcuTeK Installer)

- Plug in the USB-OBD2 cable into the PC/Laptop after DeltaDash installed successfully.

- When prompted with the Found New Hardware Wizard, select 'No, not this time' and click Next



- On the next screen select 'Install the software automatically (Recommended)' and click Next. **Make sure that the installation CD is inserted.**
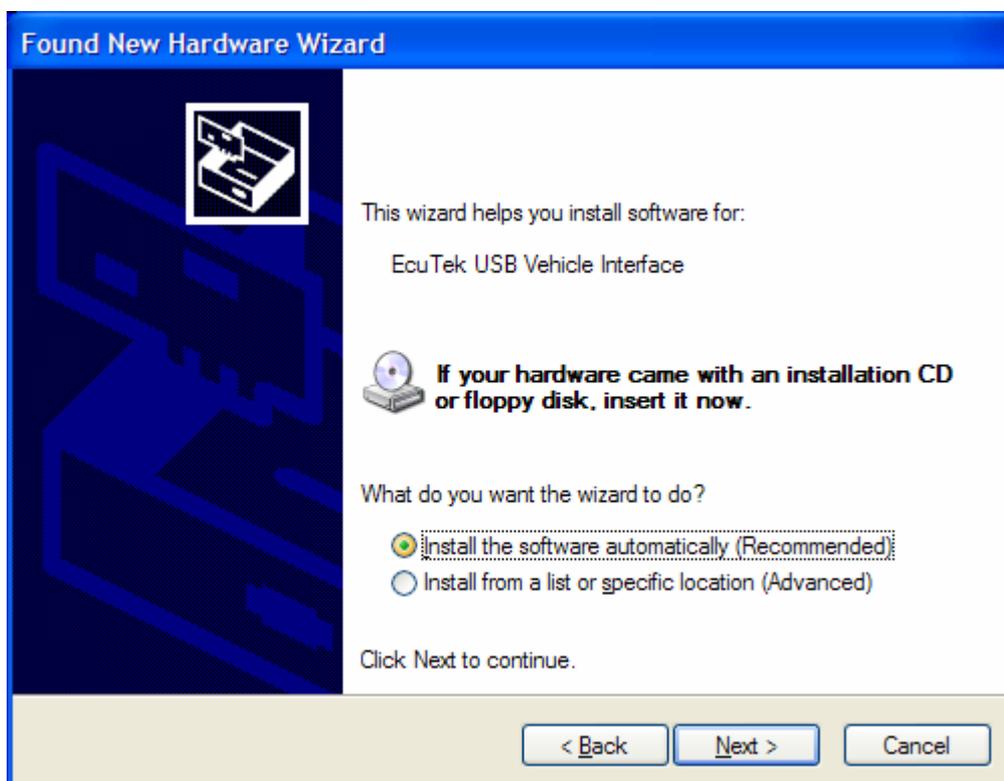
- When prompted with a warning message, click on Continue Anyway



- The driver installation completed successfully when the USB Dongle is installed as an 'EcuTeK USB Vehicle Interface'. Click Finish to complete the installation process.
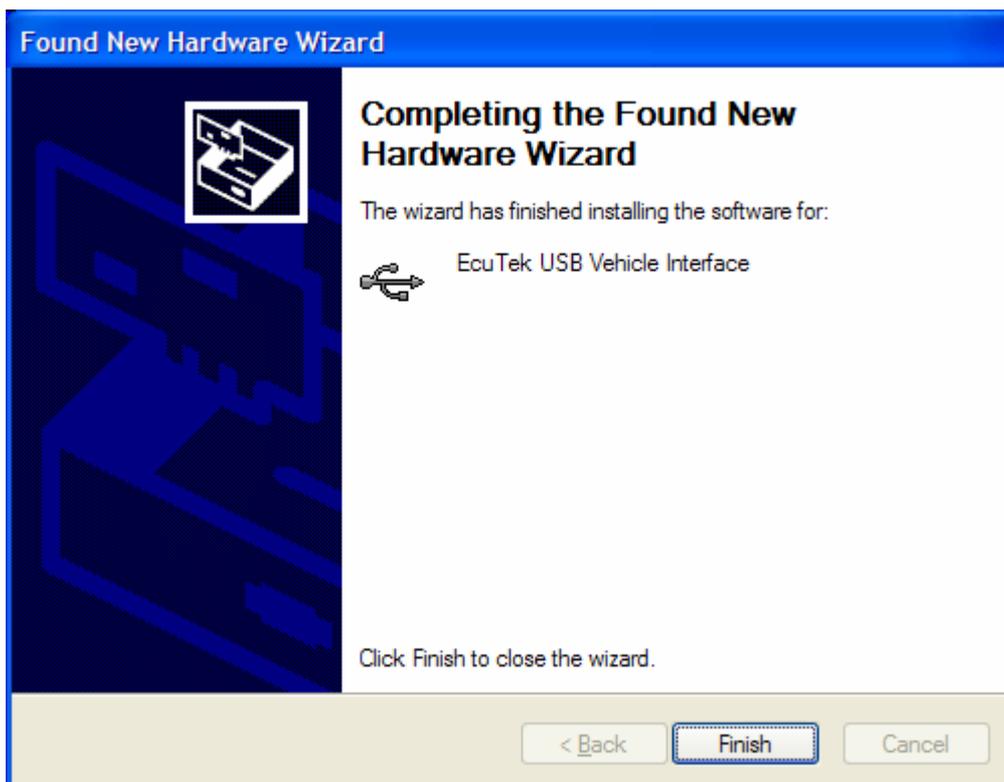


## USB-OBD2 Cable Testing

Check the following to verify that the USB-OBD2 cable is working after installing the drivers:

- Start DeltaDash with the USB-OBD2 cable plugged in. Check that the status bar of DeltaDash is saying 'Using EcuTeK USB Vehicle Interface'.

- Recheck the Device Manager (as described above) to check that neither the EcuTeK USB Vehicle Interface, nor the DK2usb DESkey has a yellow question mark next to them.

## Connecting the Cables

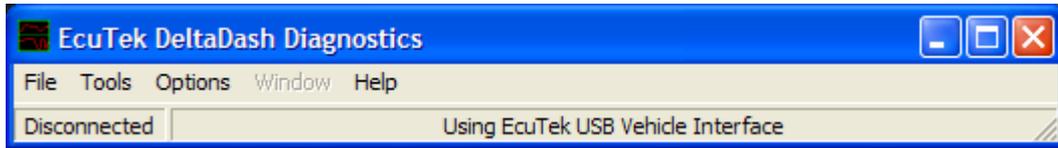DeltaDash may be used standalone without being connected to the car. In this mode, the software can read previously recorded log files and will also emulate a connection to an ECU, allowing you to practise using the software without access to a car. Obviously, in order to communicate with a real car, you must correctly connect your PC to the car, and this is what this section describes.

The USB-ODB2 cable must now be plugged into the diagnostic port of the car. The car diagnostic socket is located at the base of the dash assembly, between the pedals and the steering wheel. Note the orientation of the socket, since the connector will only fit in one way. Plug the black ECU interface into the diagnostic socket, and ensure that the USB cable is plugged into the PC or laptop.



Turn on the ignition switch of the car fully, so that the electrical systems are powered. You are now ready to use DeltaDash with the car.

# Using DeltaDash

To run DeltaDash, simply double click on the icon for the application. Depending on which options you chose during installation, the icons will be on the desktop and/or the start menu.

When the software is connected to a live ECU, the name of the ECU will be displayed on the status bar. If the status bar says the software is in demo mode, then the license key is not present, or the software is not correctly installed. You can revert to demo mode at any time by clicking on 'Demo Mode' in the 'Options' menu.
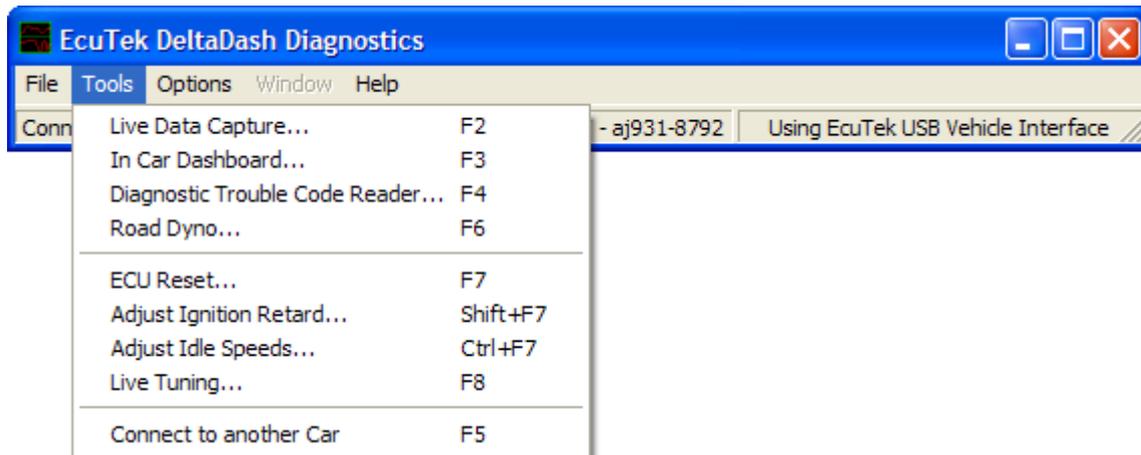


## Live Data Capture

You can view and record live data by selecting 'Live ECU Data Capture' from the 'Tools' menu. The displayed window contains several tabs to maximise use of screen space.
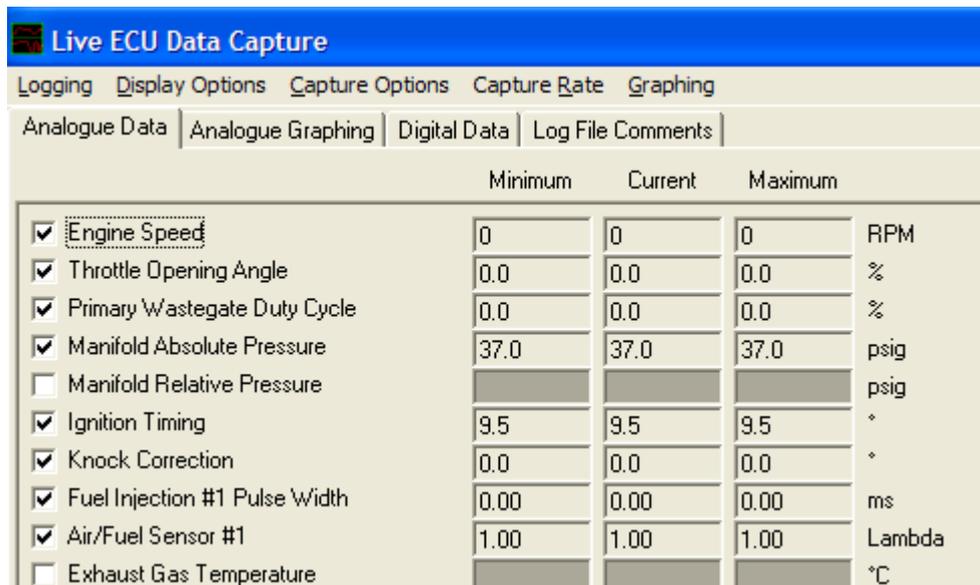


### Analogue Data

From this tab, you can select any number of analogue parameters to retrieve from the connected ECU. Current, minimum and maximum values for each parameter are displayed. In demo mode, these values are randomly generated.

The most popular selection of channels for Analogue Data would be:

- Engine Speed

- Throttle opening angle (to make sure you are seeing full throttle)

- Primary Wastegate Duty Cycle

- Manifold Absolute Pressure

- Ignition Timing

- Knock Correction

- Fuel Injection #1 Pulse Width %

- Air/Fuel Sensor #1

- Exhaust gas temperature

- Advance Multiplier

## Analogue Graphing

This allows the display of up to four graphs from data currently being retrieved from the ECU. To choose the parameter displayed on a graph, right click on the graph and select the parameter from the popup menu. If the parameter you wish to graph is greyed out, this means that it has not been selected to be retrieved from the ECU. Go back to the 'Analogue Data' tab and tick the parameter you need.

As you use the graphing features, you will see that the both axes of the graphs are self scaling to make best use of the available screen space. On the right of the graphs are displayed minimum, current and maximum values for each parameter. These min/max values may be cleared at any time using 'Clear Min/Max values' button.

You have the option of selecting 2 channels to be displayed on one graph, but chose 2 channels with fairly similar numbers or you will not see a useful graph.

For example: Select Fuel injection duty and wastegate duty on the same graph as they show similar numbers.

The 'Clear Graphs' button will clear all graphs and reset the scaling on the graphs. This will not reset the min/max values.

The 'Pause Graphing' button pauses the graphing, whilst letting data capture continue. In this mode each graph can be zoomed in using shift+click and dragging the mouse over the range of interest. On slow PCs, this option may also be used to slightly increase data capture rates - without the overhead of drawing the graphs, some PCs will capture data faster.

## Digital Data

From this tab, you can select any number of digital parameters to retrieve from the connected ECU. Digital parameters are retrieved from the ECU in blocks of up to eight at a time. This means that ticking a single digital parameter may result in more than one parameter being retrieved. However, only the parameters that you have ticked will actually be logged to file if requested. In demo mode, these digital values are randomly generated.

## Log File Comment

Here you can enter in general comments regarding the log file being created, such as current engine configuration. This allows you to store details about the testing you are carrying out in a file that will be stored with the log file.

NOTE: Remember that the fewer channels you select the faster the data capture and better the resolution of the log, Turn off all digital data parameters, these are just switches and are used for fault diagnostics

## Capture Options

When capturing data from an ECU, there are several options that may be selected. These are accessed from the various menus in the Live Data Capture window:

### Logging
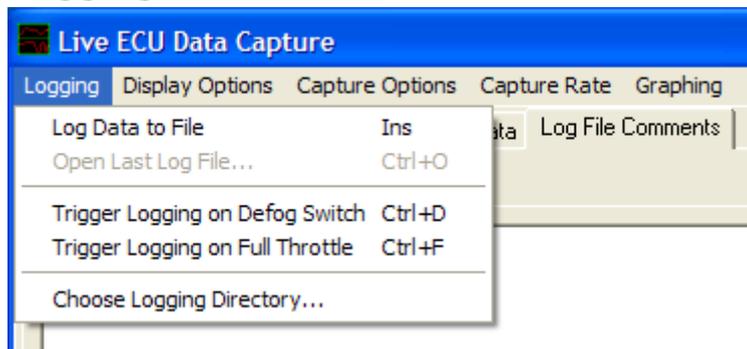


The logging features of DeltaDash have been made as straightforward as possible. Simply clicking on the 'Log Data to File' button will begin logging data. Then clicking on the 'Stop Logging' button will end the logging session. Alternatively press the Insert button on your keyboard to start and stop the logging. Each log file is automatically named, based on the date, time and ECU to which DeltaDash is connected.

Remember, only analogue and digital parameters that have been ticked will be recorded. This allows the highest possible capture rates and minimises the load on the PC too.

At any time during logging, comments may be recorded under the 'Log File Comments' tab. By default, only a description of the ECU that is connected will be recorded. You are free to add any other comments you will find useful.

Each log is actually saved as two separate files a TXT (text file) and a CSV (comma separated variable) file. Because of the standard formatting of these files, they may easily be imported into other applications such as spreadsheets and word processors. The text file contains any comments noted during logging, whilst the CSV file contains the logged data. The data file name and location is shown on the status bar.

At any time, the last log file may be opened by clicking on the 'Open Last Log' button. This takes you directly to the 'Log Viewer' where further analysis of both analogue and digital data can be performed.

The directory in which log files are recorded may also be chosen from the Logging menu, if you want to organise your log files.

## Opening Log Files
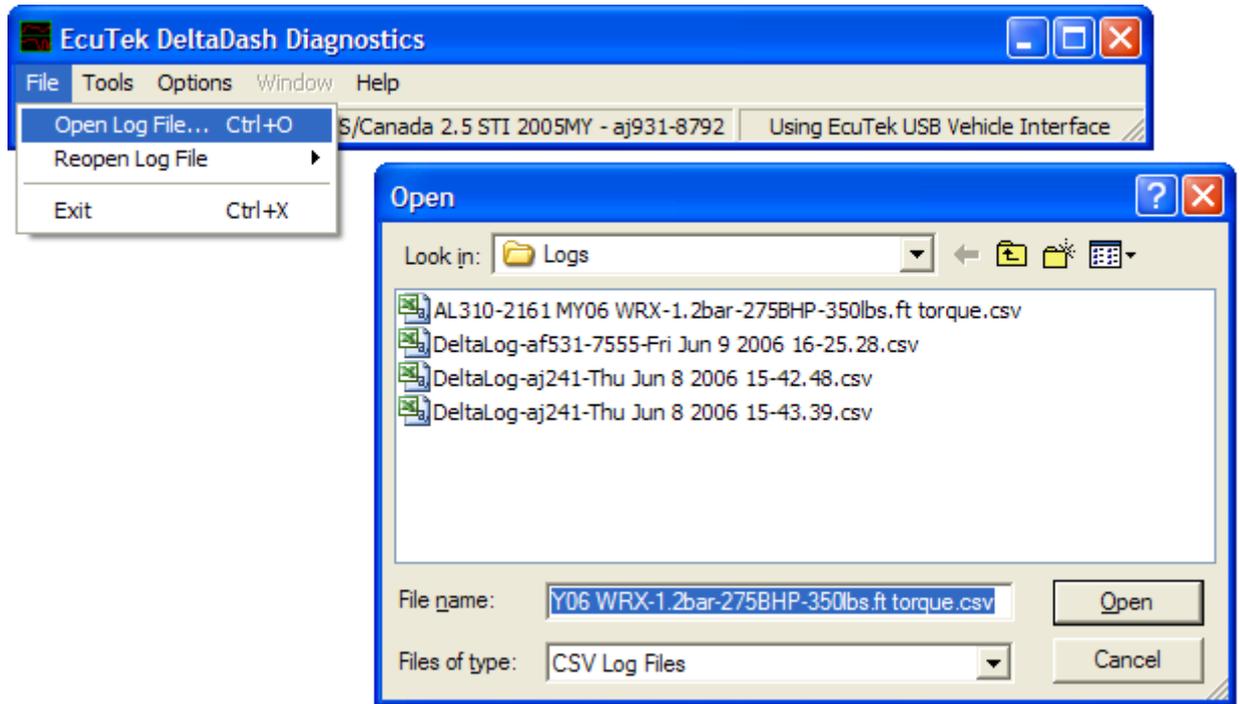


Previously recorded log files may be opened by selecting 'Open Log File...' from the file menu. The selected file is opened in a 'Log Viewer' window, allowing analysis and interpretation of logged data. Several log files may be open simultaneously if required.

The Log Viewer allows more detailed analysis of previously logged data:
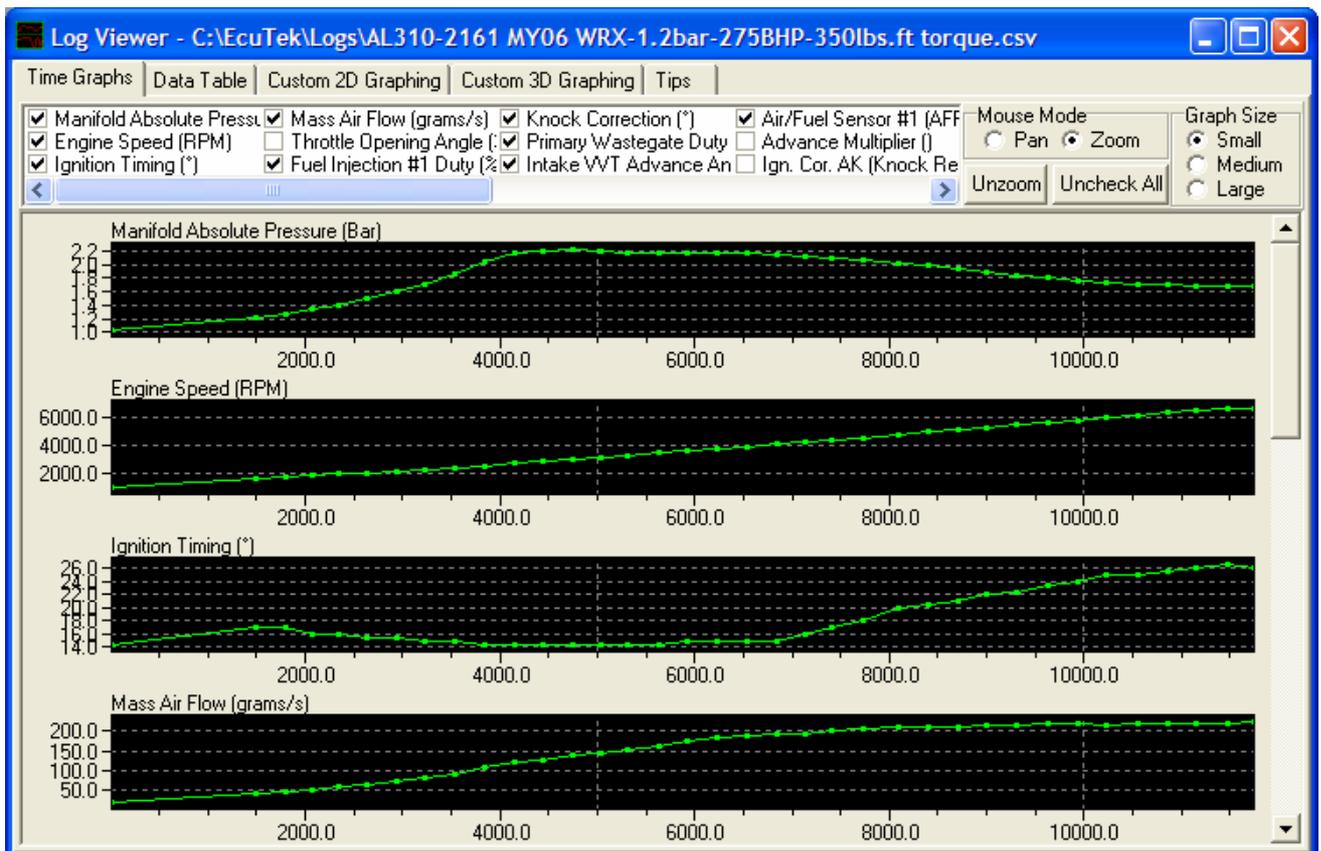
The 'Time Graphs' tab displays all logged data in graph format and automatically scales X and Y axis to give maximum resolution. The vertical scroll bar allows the list of graphs to be scrolled through, in case they do not all fit on the screen at once. To zoom into a time slice of a particular graph, drag the mouse pointer from the left (start point) right to the end point of the zoom. The X and Y scaling is altered, giving a more detailed display. Right-click anywhere in the graph to clear the zoomed display.

The 'Data Table' tab shows all recorded data in numerical format. This is very useful for finding exact data values and precisely when they occurred.

The 'Custom Graphing' function is one of the most powerful features of the software. It allows any logged parameter to be plotted against any other. This versatile tool will prove invaluable during data analysis. For example, boost pressure may be plotted against RPM to show the boost curve, as shown below:
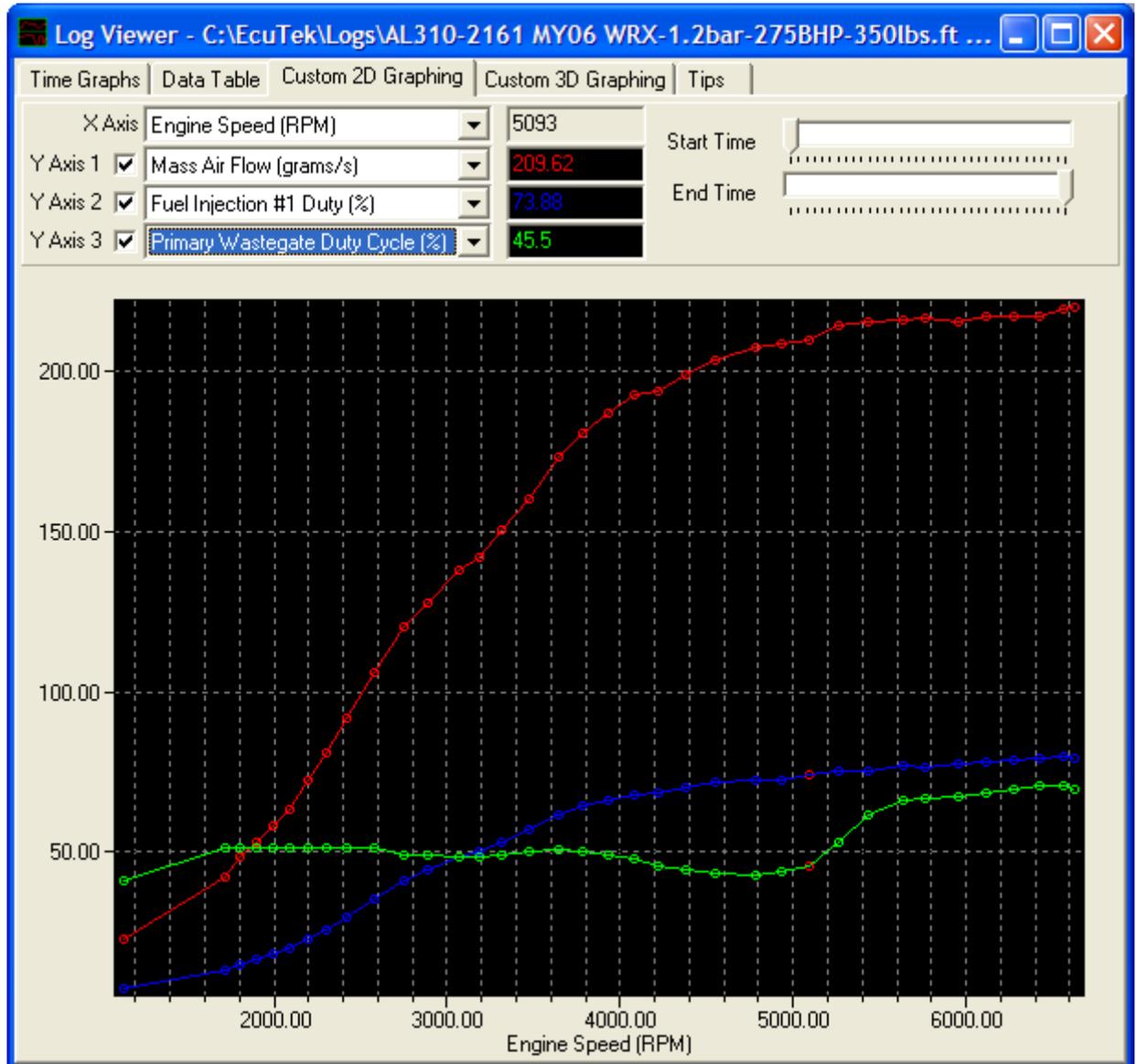


The comments tab shows any comments that were recorded by the operator during logging. This is very useful to record reminders of events or changes made to the car for particular logging sessions.

## Display Options
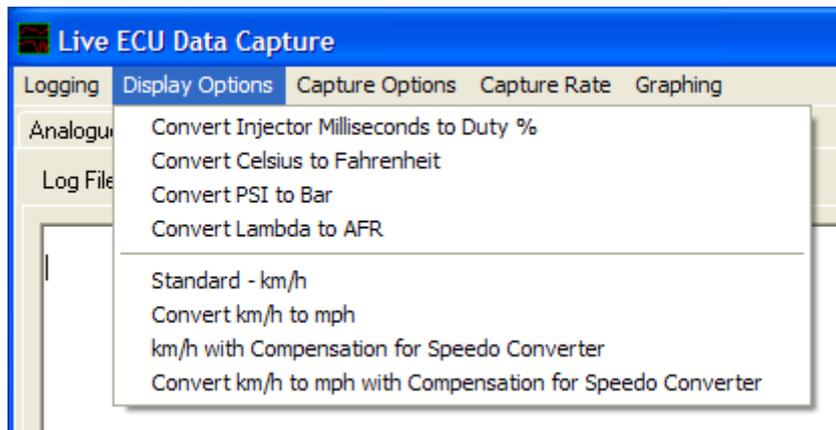


If your vehicle is fitted with a Vehicle Speed Converter then you can adjust the Vehicle Speed Input here accordingly.

## Capture Options
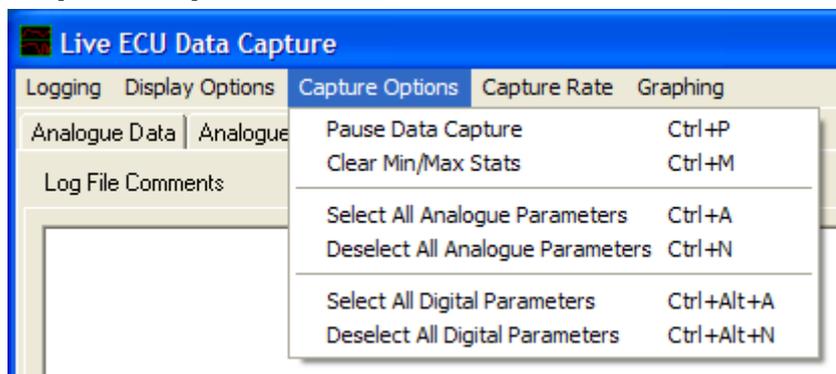


Changes to Live Data Capture selections can be made from this menu, or by using the shortcut keys shown next to each item.

## Capture Rate
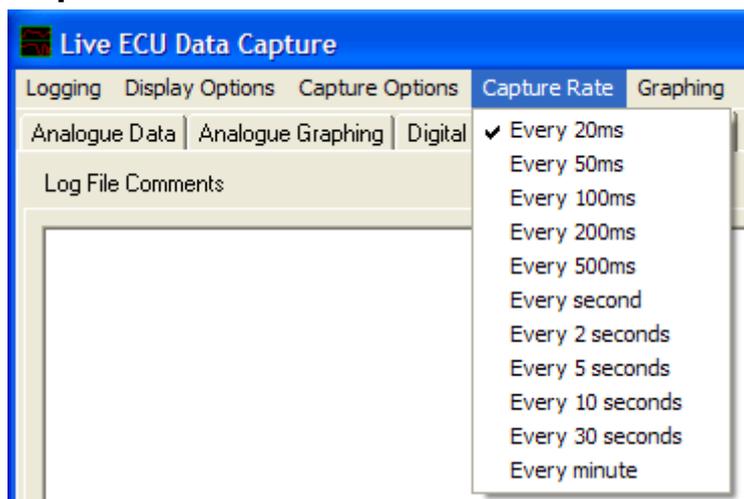
The capture rate may be chosen to suit the type of logging required. The selected data capture rate is displayed at all times on the left hand side of the status bar. The more frequently data is captured, the more disk space will be required for any log files that are recorded. Having selected the data required for display and the data required for logging, go to the "Data Capture Options" tab and select the required capture rate. If you are logging a track session of 30 minutes then a slow capture rate is probably most suitable. However if you are dyno testing, trying to find a hesitancy or other problem, each test may only take 30 seconds, so log as often as possible. Remember also that the more channels logged the slower the capture rate.

If you encounter any problems when capturing at high rates, reduce the capture rate until data capture works reliably. This generally only occurs on particularly slow laptops when capturing at very high speeds.

# In Car Dashboard

This feature of DeltaDash allows custom screens to be created for display of data from the ECU (and any external sensors that may be present).

The creation of custom screens requires thought and effort. Experience will be built up as the user explores the features and options available. If you get into difficulty, visit the EcuTek forums where other users will be able to assist you – support of this feature is via the EcuTek forum only. Well designed screens (with permission from the author) may be incorporated into DeltaDash as some of the standard screens, so get designing!

## Designing Custom Screens

DeltaDash allows up to 10 custom dashboard screens to be created, numbered from 0 to 9. When the in car dash screen is selected from the tools menu of DeltaDash, the display will default to screen 0. The user may then switch between screens by using the number keys 0 to 9 or the cursor keys. Hitting 'Enter' reloads the current dashboard screen - this is useful when designing screens. Press 'Esc' to close the dashboard display.

Each dashboard screen is stored in directory named '0' to '9' within a subdirectory named 'InCarDashScreens' within the DeltaDash directory. E.g. A typical directory for a custom screen would be: 'C:\DeltaDash\InCarDashScreens\0\'. All files relating to a single dash screen must be present in its numbered directory. At a minimum, a custom dashboard screen consists of a single configuration file named 'Form.cfg', though other files may be present, such as bitmaps and sounds.

When DeltaDash is run for the first time on a PC without any custom screens defined, it will generate 10 sample screens that may then more easily be edited by the user.

## The Dashboard Configuration File – Form.cfg

This file contains all configuration information for a single custom dashboard screen. In order to create each custom dash screen, a form.cfg file must be edited. The format of the file is described on the EcuTeK website at:
http://www.ecutek.com/products/incardash/

# Diagnostic Trouble Code Reader
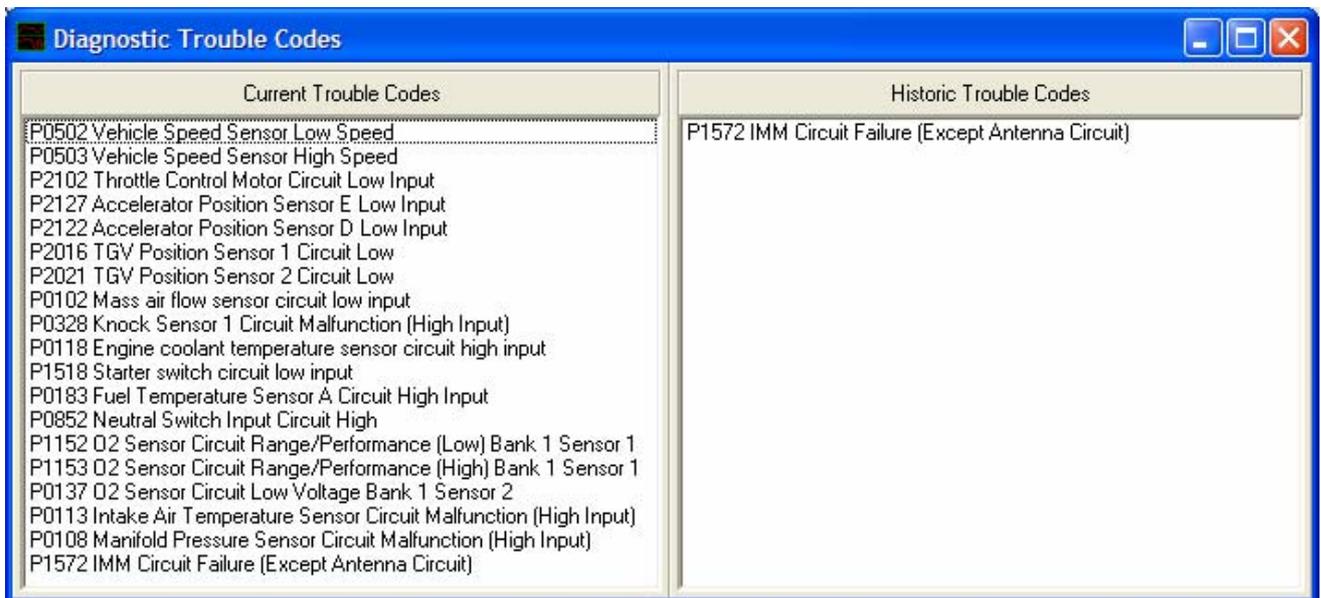


This displays current and historically saved fault codes, enabling accurate fault diagnosis. Note that if 'piggy back' ECUs or signal modifiers are fitted, it is quite possible that these devices will generate repeated fault codes.

Historic trouble codes may be cleared using the ECU reset function.

# Road Dyno

EcuTek DeltaDash Road Dyno feature (from hereon abbreviated to DDRD) allows real life performance testing of any manual transmission Subaru vehicle supported by DeltaDash. In addition, due to the way the DDRD does its calculations, it is unaffected by any piggyback ECUs or speed delimiter modules. Further support for DDRD is available from our dedicated support Forum.

## How it Works

DDRD measures engine speed reported by the ECU, many times per second. Based on this, and additional data about the car, such as tyre, gearbox, drag and weight, DDRD can calculate many statistics about the vehicle's performance, based on a simple full throttle in gear test of the engine on the road surface of choice.

## Statistics

DDRD will calculate the following statistics:

- Wheel power and torque. Peak figures are displayed, plus graphs.

- In gear acceleration times e.g. 30-50, 50-70, 70-90mph.

- Vehicle acceleration in graphical form.

- See best gear shift points. By plotting vehicle acceleration against vehicle speed for a number of gears, you can see the ideal speed at which to change gear.

- Terminal velocity due to power developed. A vehicle stops accelerating at the point where the power produced by the engine equals the power consumed by the drag on the car. This useful feature calculates the maximum achievable vehicle speed, assuming ideal gearing.
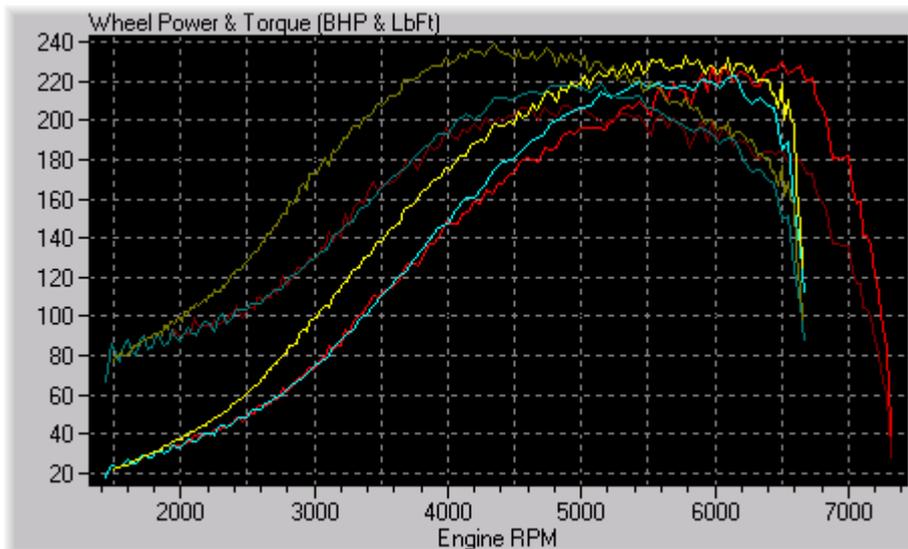


DDRD will also compare up to 4 tests simultaneously, which allows comparison of the performance of different gears, cars and states of modification.

## Setting up DeltaDash Road Dyno



Use of DDRD is very simple. Before driving the car, the software must be setup with various physical characteristics of the vehicle in question, such as tyre size, gearbox type, rev limit, mass and drag data. These vehicle characteristics may be selected simply from lists of available options for the various car models. As long as you know the model of car you are driving, this is very simple to do.

Once this data has been entered, DDRD will display a graph showing the vehicle speeds achievable in each gear. This is as much as DDRD can tell you about your car until you perform an in gear test of the engine - see below.

## Testing

Gathering performance data about the vehicle involves driving the vehicle from low engine revs (say 1000 RPM) up to any higher RPM that you choose. Before testing, ensure that you have selected the gear you have decided to test in - this is labelled 'Test Gear'. To perform the test, select the 'Setup & Data Capture' tab and from a steady cruising speed, when you are ready, click on start test. You must then reduce speed until the engine drops below 1250 RPM. Once the engine revs have dropped low enough, the test will begin. At this point, the driver must accelerate in the chosen gear. No gear changes, braking or clutching should be performed during this test - the test is from low revs to high revs in a single gear.

This will require two people - one to drive and one to operate the laptop. Do not try to do this alone.

## Viewing Results Graphs

Once the performance test has been done, clicking on the 'Data Analysis Graphing' tab will display a vehicle performance graph. The axes of this graph may be altered to show a wide variety of statistics. The most common graph for comparing vehicles will be Power & Torque against Engine RPM or Vehicle Speed. Preferred units of measure may be selected at any time - Power in BHP, PS or kW, torque in Nm, lbft or kgm. When viewing power & torque, the power is the bright line, whilst the torque is the more feint line.

## Viewing Results Statistics

Selecting the next tab, 'Performance Report' shows various facts and figures about the car. These may be cut & pasted for use elsewhere.

## Saving Results

Test data and the entered vehicle characteristics may be saved at any time using the 'Save Data…' button. Files may then be reloaded and edited using the 'Open Data File' button - this allows editing of the vehicle characteristics, should any previously entered data be found to be incorrect.

## Comparing Results

Up to four data files may be viewed simultaneously by using the 'Compare Files' panel to load in three further data files. The colours of each graph line are shown next to the name of each file loaded.

## Getting Accurate Results

### Test Gear

It is absolutely essential that the correct test gear is chosen in order to get accurate results. Using 'Test Gear', you must select the gear in which the test was performed.

### Tyres & Gearbox

Since DDRD uses engine RPM data to calculate vehicle performance, the characteristics of the gearbox & tyres must be specified so that DDRD can translate measured engine RPM into the correct vehicle speed. Tyre data is easy to ascertain. Simply look at the tyres on your car - they will have their dimensions printed on the side wall. Gearbox data, unless you've been doing serious modifications to your car, will be the same for all cars of a particular model - simply select the correct model from the list. If you have modified your car's gearbox, then you are the only one who should know this information!

### Vehicle Mass

In order to calculate the power & torque that the engine is generating based on this speed data, DDRD must also know the mass of the car - it is important to get this figure accurate, since the calculated power will vary in proportion to the mass entered. The mass specified should be the current mass of the vehicle at the time of the test.

The following variables will affect the current vehicle mass:

• Number of occupants

- Fuel tank level

- Modifications e.g. replacement exhaust, roll cage etc.

- Any items being carried in the car.

The book kerb weight should not be used. Get your vehicle weighed with a known amount of fuel in the tank. This may be done at a weighing bridge or by using corner weight scales for a really accurate reading.

Overestimating the vehicle mass will give a power figure that is too high. Underestimating the vehicle mass will do the opposite.

## Aerodynamics

DDRD takes into account aerodynamic drag when calculating engine performance. Vehicle drag co-efficient and frontal area are the parameters required to calculate power lost to aerodynamic drag. Whilst important for accurate power calculations, these vehicle characteristics are far less important to measurement accuracy than the vehicle mass. Aerodynamic drag is quite small in 2nd & 3rd gear and so inaccuracies in these figures will only result in a small (2 or 3 BHP) error in calculated power. If power tests are performed in higher gears e.g. 4th, 5th or 6th, then the importance of these values becomes much greater. In the absence of definitive data, use a frontal area of 2.2 sqm and a drag co-efficient of 0.35.

## Rev Limit

The ECU's rev limit is only relevant when calculating the maximum speed possible in each gear. It is not used for any other performance calculations. Unless your car's ECU has been modified, then simply select the rev limit matching the model of your car.

## Comparison of Road Dyno & Chassis Dyno Power Testing

DDRD gives real world performance figures - plain and simple. There is no disputing performance figures that are calculated on the road, in the true driving environment. There are many variables that affect the results of power testing for both chassis (rolling road) and on road dyno testing. These include:

- Air temperature - when road testing, this is the temperature out on the road. When rolling road testing, this is the temperature found inside the building. Depending on the complexity of the rolling road, it may be possible to regulate air temperature (e.g. MIRA), but dynos with this facility are well beyond the budgets of enthusiasts.

- Intercooler cooling effect - greater cooling effect means denser charge air, more power, faster spool up and larger boost spikes.

- Coolant system cooling effect - greater cooling effect enables better regulation of engine temperature.

- Exhaust cooling effect - greater cooling effect of exhaust manifold/headers worsens turbo spool up due to reduced exhaust gas velocities at the turbo.

- Load impedance - this determines how fast the engine is allowed to accelerate. On the road, this is determined by the gearing, drag and vehicle mass. On the rolling road, this is determined by the dyno operator and the setup of the rolling road. On a rolling road, perform the test too quickly, and the turbo spool up will be inaccurately poor and the car will not achieve a high enough boost pressure. Perform the test too slow, and the turbo spool up will read unrepresentatively high and heat build up will impair the top end power figure.
  This is one of the main reasons why comparing results from two dissimilar dynos is a waste of time. It is meaningless to say that one dyno 'reads' higher or lower than any other dyno unless the characteristics of the test are known, and the effect of these characteristics is known and understood.

- Wheel slip - on a rolling road, it is normal to test vehicles in quite high gears. This helps to reduce wheel slip on the knurled steel rollers on which the car sits. When road testing, there are higher levels of friction between the tyres and road surface, which allow tests to be performed in lower gears if required.

When testing on the road, you know that the above variables are all real world quantities encountered on the road. Only if the operator of the rolling road can reproduce all of these effects as seen on the road will the rolling road performance figures be close to those actually encountered on the road. Having said that, in order to get accurate results using a road dyno method, it must be setup correctly, though this is much easier to achieve.

Power Engineering assisted in the development of this product. Power runs of the development vehicle were taken on the rolling road. A figure of 227 wheel horse power was produced in 4th gear. Out on the road, using DDRD, figures of 222 & 233 horse power were produced in 2nd & 3rd gears respectively. From this test, it is clear that both methods of testing can produce very similar results. It is worth noting that rolling road tuning centers have extremely powerful cooling fans on their rolling roads - these fans help to mimic the air flows seen on the road. They are so powerful that walking in front of these fans can make you lose your balance - it is worth checking the cooling equipment that is employed by your chosen rolling road test centre, since this can have a significant effect on results.

For various technical reasons, it is not possible to accurately calculate flywheel horsepower using DDRD. All performance figures are quoted in wheel power & torque - the actual power seen at the wheels. Most rolling roads are able to calculate flywheel horsepower reasonably well - this is one reason why a visit to your local rolling road is worthwhile. Having said that, it is wheel horsepower that is relevant to the real world - this is the power that the vehicle is putting down onto the road. Just don't get flywheel and wheel power confused. If you get quoted two power figures, the wheel power is always the lower of the two.

## Disclaimer & Safety Considerations

**DDRD should only be used on private roads and test tracks. Under no circumstances should the product be used on the public highway or in any other situation where its use may break speed limits or contravene any laws. EcuTek take no responsibility for inappropriate use of the product.**

# ECU Reset

This feature allows clearing of the ECU's memory. Be careful with this if you have been logging data your ECU and have recorded knock correction activity. The ECU "learns" knock and looks to retard the timing in areas where it has come to expect knock. Resetting the ECU will erase the memory and have the effect of advancing the timing.

# Adjusting Engine Idle Speed

This window allows the idle speed of the car to be adjusted. Any changes made here are cleared when the ECU is reset or the vehicle's battery is disconnected.

# Live Tuning



Live user tuning allows the enthusiast to tailor the operation of their car's ECU to the circumstances in which it is used. This allows optimum use of race fuels and adjustment of the car's performance in several ways.

Live tuning allows adjustment of fuelling, ignition and boost in real time via DeltaDash. Live tuning also allows switching between multiple boost maps and custom rev limiting for valet mode, with control via both DeltaDash and the car's own dash controls.

Live tuning is available for the following Subaru's:

- 2001 - 2004  Euro, Aus and USA spec WRXs

- 2001 - 2004  Euro, Aus and Jap spec STI vehicles including Variable Valve Timing Adjustment

**NOTE: 2004 US WRXs are not supported at this time and will be a future development.**

For more information on live tuning, visit the EcuTeK website: http://www.ecutek.com/products/usertune/

# Connecting to Another Car

Different cars can report different analogue and digital parameters, as well as varying amounts of trouble code information. When plugging DeltaDash into a different car, click on 'Connect to another car' to ensure that these differences are registered.

# Support

## Product Information

The Help menu gives access to information about DeltaDash:

The About box displays the version of DeltaDash that you have installed on your PC.

The 'Feature and License Information' window shows the list of ECUs supported by the installed version of DeltaDash, and also the ECUs for which your copy is licensed. It also shows information on the registered user of the product. If there are further vehicles for which you require support then please contact sales@ecutek.com for further updates.

## Applying License Updates

License updates may be applied from the options menu. Updates are generally to add additional features to the product, and will be emailed to you on request.

## Software Updates

DeltaDash is being continually updated and improved. You can download the latest version at any time free of charge, to take advantage of any added features or bug fixes.

As we test make DeltaDash compatible with more vehicles, new software versions will be released. If you have an 'all cars' license, then you will be entitled to all cars added within one year from the date of purchase of DeltaDash. After this period, annual support updates are available.

## Reporting Bugs

As you can see, this software has undergone an enormous amount of testing and development. However, like in any software product, it is possible that bugs still exist. Before contacting EcuTek, please check the FAQs on the web site to see if the problem you have has been seen before. If you do discover a new problem please e-mail technical@ecutek.com with as much information as possible so we can fix it as quickly as possible.

## DeltaDash Support Forum

User support for DeltaDash extends to the correction of bugs only. EcuTek do not provide tuning advice or help with engine fault diagnosis for cars, other than what is provided on the web site. If you require technical help with you car, consult one of the Internet bulletin boards or a professional car engineer. Think of it like this: When you bought your car, you didn't expect the dealer to give you driving lessons - the same goes for EcuTek.

http://forum.ecutek.com/

We hope you enjoy using the DeltaDash software and learn a lot about your car(s). It is an immensely powerful tool and the more you use it the more you will learn.

# TROUBLESHOOTING

In the unlikely event of DeltaDash not working on your car, the software will not recognise the ECU and will give you a screen with some instructions. Please note the instructions and e-mail us the full ECU number and the ECU log code and we will then fix it and update your software by return e-mail without charge.

## Upgrading DeltaDash

DeltaDash is being continually updated and improved. You can download the latest version at any time free of charge to take advantage of any added features or bug fixes, from: http://www.ecutek.com/downloads/

As we test make DeltaDash compatible with more vehicles, new software versions will be released. If you have an 'all cars' license, then you will be entitled to all cars added within one year from the date of purchase of DeltaDash. After this period, annual support updates are available.

## Car Logging Produces Strange Results

When logging a car generates different results than expected, check that Demo Mode is not enables, as it generates values randomly.

# Removing Incorrect USB drivers

NOTE: Only follow these steps if you plugged in the USB-OBD2 cable before installing the drivers. Otherwise skip to the next section (*Installing the EcuTeK USB-OBD2 drivers*)

- Plug in the USB-OBD2 cable into the PC/Laptop

- From the Start Menu, right click on My Computer and select Manage

- Select Device Manager in the left panel

- On the right panel right click on USB Vehicle Interface and select Uninstall
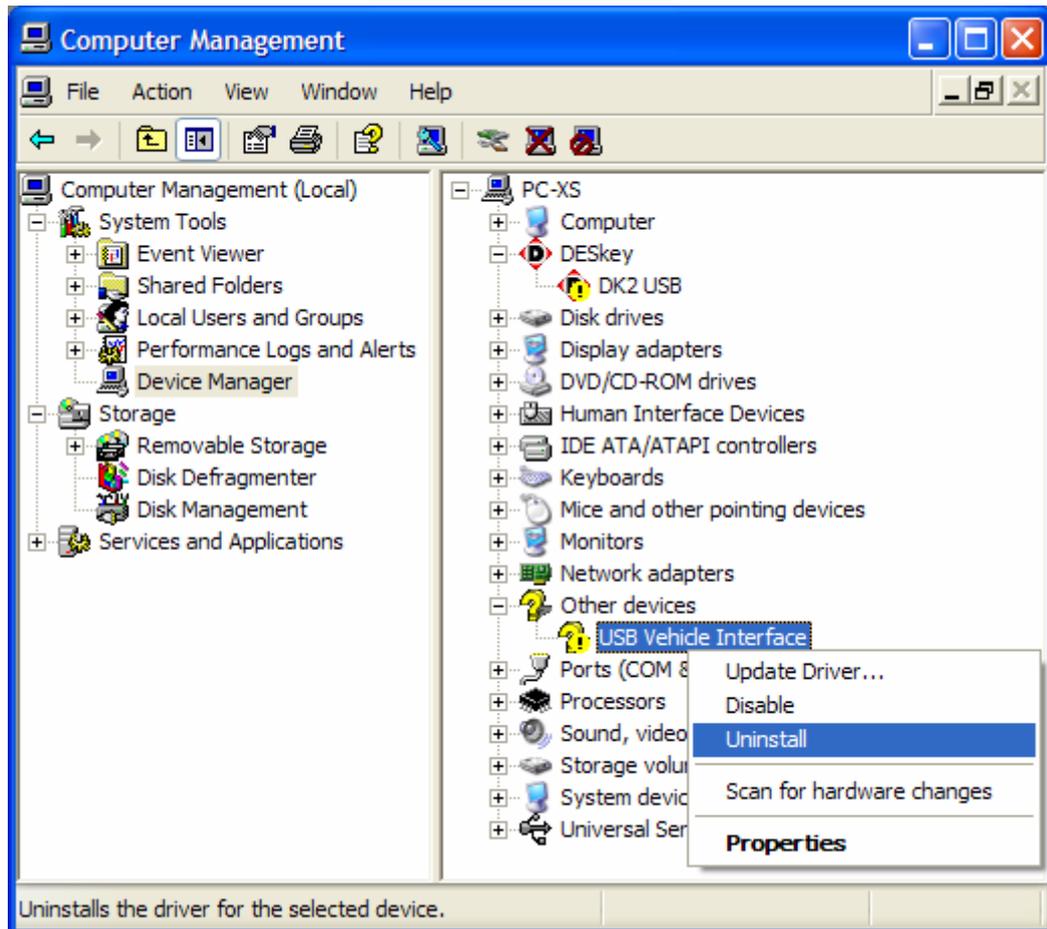


- Repeat the above step for the DK2 USB device (if applicable)

- Unplug the USB-OBD2 cable from the PC/Laptop

- Complete the USB-OBD2 installation steps described in the beginning of this manual.

## Downloading Drivers from the Website

If the EcuTeK software installation CD is unavailable, download the drivers from the EcuTeK website by following these steps:

- Go to http://www.ecutek.com/downloads/

- Click on the 'Click here to download all hardware drivers if you have lost your install CD' link on the top of the page, and save the file to the hard drive or memory stick

- Extract the contents of the Drivers.zip file to a folder, which will create two sub-folders called 'DESkey Drivers' and 'USB Vehicle Interface Drivers'

- Open the 'DESkey Drivers' folder and run the 'dk2wn32.exe' executable. This will install the USB-OBD2's DESkey DK2 Dongle drivers.

- From the Start Menu, right click on My Computer and select Manage

- Select Device Manager in the left panel

- On the right panel right click on USB Vehicle Interface and select Update Driver…

- When prompted with the Hardware Update Wizard, select 'No, not this time' and click Next

- On the next screen select 'Install from a list or specific location (Advanced)' and click Next

- On the next screen check the 'Include this location in the search:' then click on Browse, and browse to the location of the 'USB Vehicle Interface Drivers' folder. Then click Next
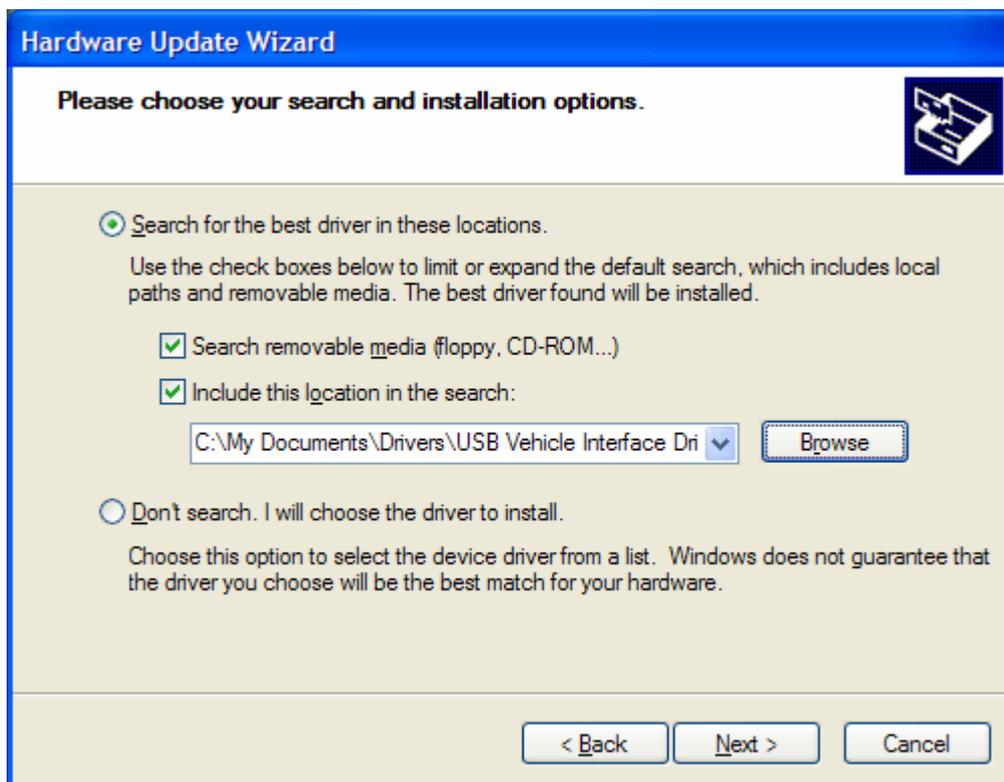


- When prompted with a warning message, click on Continue Anyway

- The driver installation completed successfully when the USB Dongle is installed as an 'EcuTeK USB Vehicle Interface'. Click Finish to complete the installation process.

# Other Bugs or Feature Requests

If you are experiencing problems, have a feature request or believe you have found a bug, please download the latest software and dongle drivers before contacting us. The updated software and drivers are available from here:

- Download and install the latest version of DeltaDash from the EcuTeK website: http://www.ecutek.com/downloads/

- Download and install the latest DESkey DK2/DK38 drivers from: http://www.deskey.co.uk/deskey_downloads.php

The latest release at the time of writing this manual is: DESkey Release 6.21.0.169

You can check your DESkey driver version by opening your Windows Control Panel, then selecting DESkey, and selecting the 'File Versions' tab.