‘Dyna Run V3’ Software User Manual

Advanced Dyno Control Software

www.dynapro.co.uk

Dyna Pro Dynamometers Ltd United Kingdom
Tel UK: +44 (0) 8000 4321 68
Tel Int: +44 (0) 1256 363063

E-mail support@dynapro.co.uk

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Introduction

Welcome to the Dyna Pro Dynamometers Software manual for Dyna Run V3. Please carefully read the installation instructions for this software before commencing with the actual software install.

This software manual gives the operator detailed information on program features, functions, menus and system configurations, required for the operation of Dyna Run V3.

Please be aware that this is a general software manual covering all aspects of the Dyna Run V3 software, some of the features, functions, menus and system configurations may not be available to the operator as result of those features being specific to a particular model of Dynamometer.

Keep this reference manual in a convenient place, as it is a valuable reference source in the use of the Dynamometer.

Conventions Used In This Manual

To make reading and understanding this manual more convenient certain naming conventions have been used throughout this publication.

Convention Used	Description
NOTE	The Note icon indicates a special point of notice for the operator.
CAUTION!	The Caution icon indicates a potential hazard to the dynamometer equipment or to the vehicle being tested. Follow all procedures exactly as they are described and use care when performing all procedures.
WARNING!	The Warning icon indicates potential harm to the person performing a procedure and/or the dynamometer equipment.
'Italic'	Italic hyphened items are names, processes and menu names.
Bold	Bold Highlighted, items that you can select on within the software, including buttons, menus, check boxes and radio buttons.

Technical Support

For technical support and assistance please contact Dyna Pro Dynamometers Ltd at +44 (0) 1256 363063 or an appointed agent.

Dyna Pro Dynamometers Ltd can also be contacted by mail at Unit 18, Sherrington Way, Lister Road Industrial Estate, Basingstoke, Hampshire. United Kingdom RG22 4DQ, or visit us on the world wide web at www.dynapro.co.uk, for the latest product release and updates.

Dyna Run V3 Software Installation

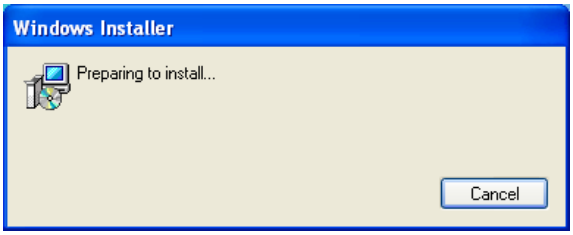
Computer Specifications

Minimum System Requirement	Recommended System Requirement
• IBM compatible Computer	• IBM compatible Computer
• Microsoft® Windows 2000/XP (Home or Professional)	• Microsoft® Windows 2000/XP (Professional)
• Pentium 1.5 GHz processor (Inertia Machines)	• Pentium 2.4 GHz or faster processor (Inertia Machines)
• Pentium 2.6 GHz or faster processor (LC Machines)	• Pentium 3.2 GHz or faster processor (LC Machines)
• 256 Mb of available Ram	• 512 Mb of available Ram or greater
• 1 Free USB 1.1 Port	• 2 Free USB 2.0 Ports
• 800 x 600, 256 colour monitor (SVGA)	• 1280 x 1024 256 colour monitor (SVGA) or better
• 2 Gigabyte hard drive	• 5 Gigabyte hard drive or better
• 150 MB of available hard-disk space	• 250 MB of available hard-disk space or better
• CD-ROM drive (16x or faster)	• CD/DVD-ROM drive (16x/4x or faster)
• Printer (if hard copy prints required)	• Printer (if hard copy prints required) HP Compatible

Software Installation

Installing Dyna Run V3 Application Software

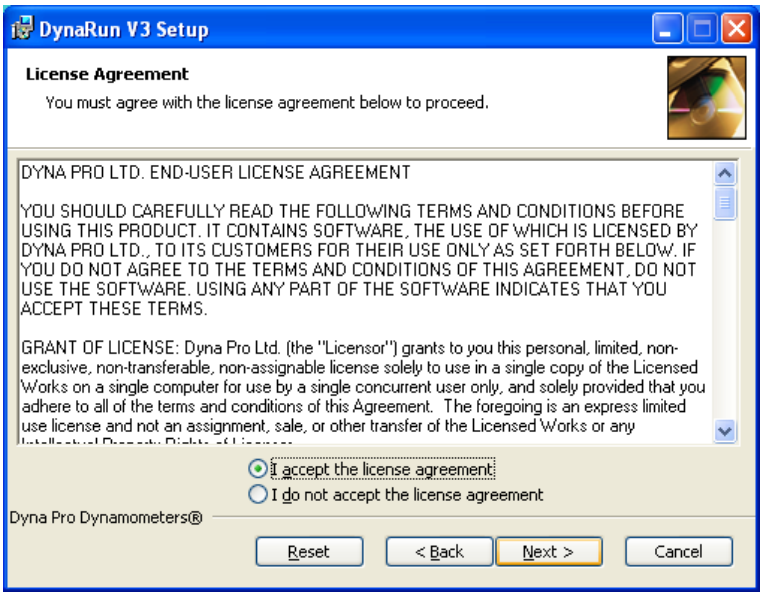
1. **DO NOT** connect the USB cable from the computer to the Dynamometer.
2. Insert the CD-ROM disc into your CD-ROM Drive.



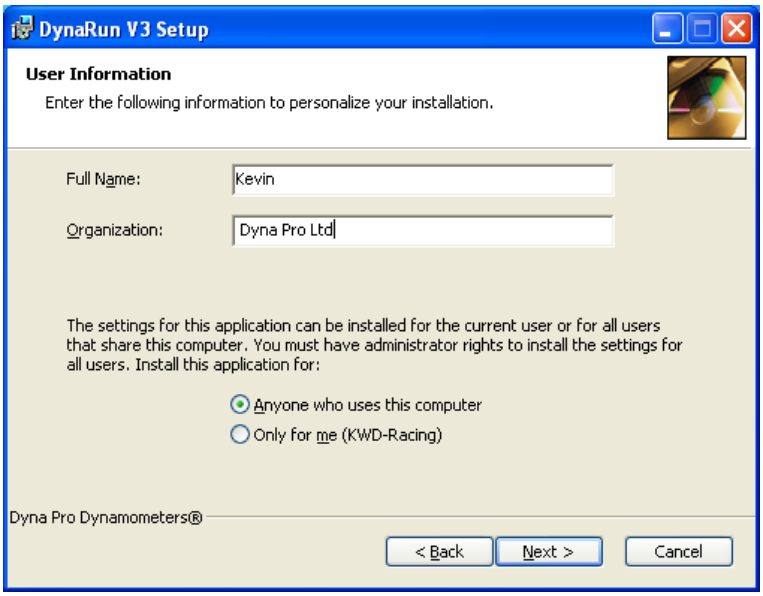
This *'Windows Installer'* dialog box will be displayed.

Press **Cancel** if you wish to *'Quit'* without installing *'Dyna Run V3'*.

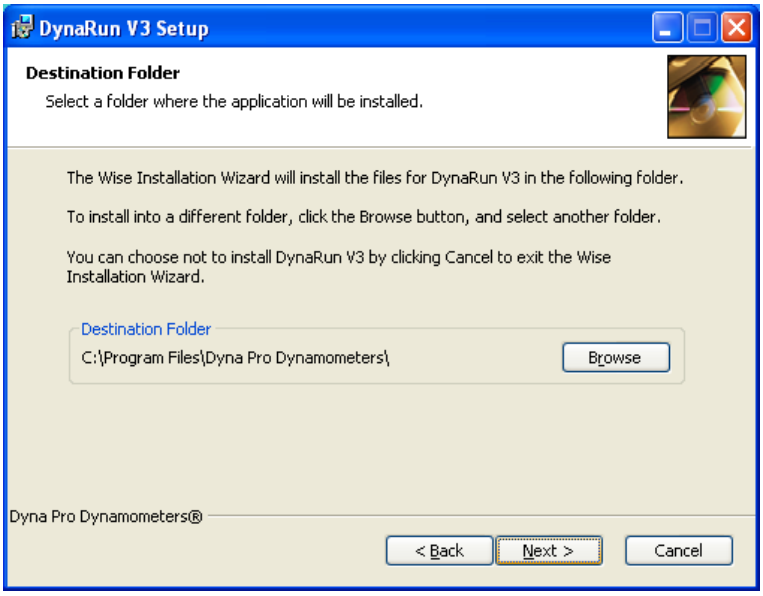
Please read the *'Dyna Run V3 Setup'* dialog box and then when ready press the **Next** button.



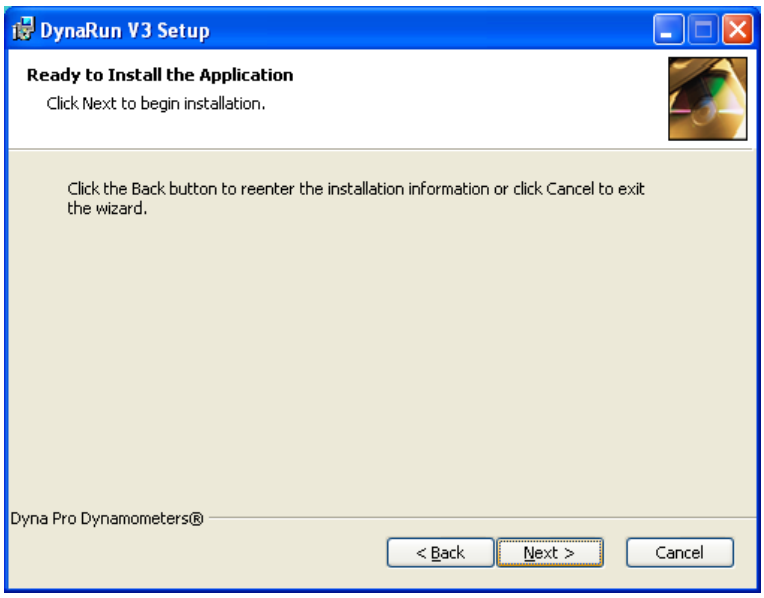
If you agree to the *'Licence Agreement'* the select **I accept the licence agreement** radio button, then press **Next** to continue.



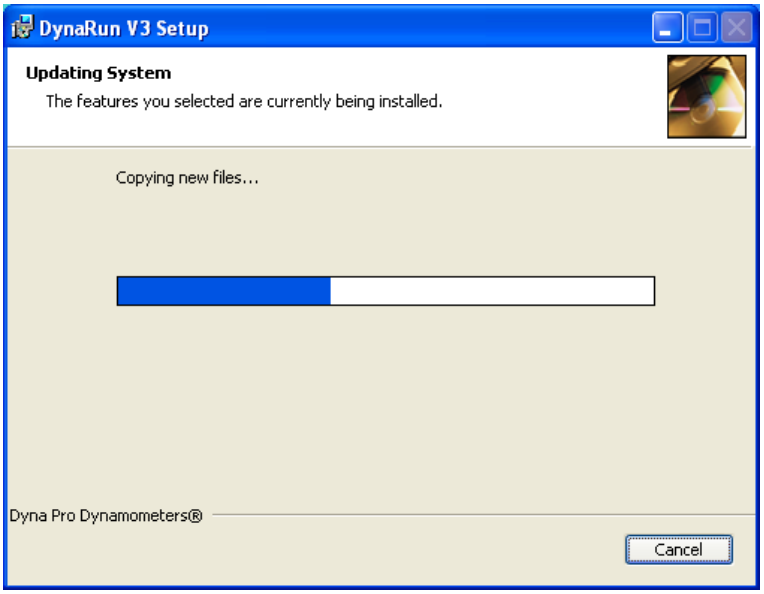
Enter your *'Name'* and *'Company Name'* if you wish, insure that **Anyone who uses this computer** radio button is selected, then press **Next** to continue.



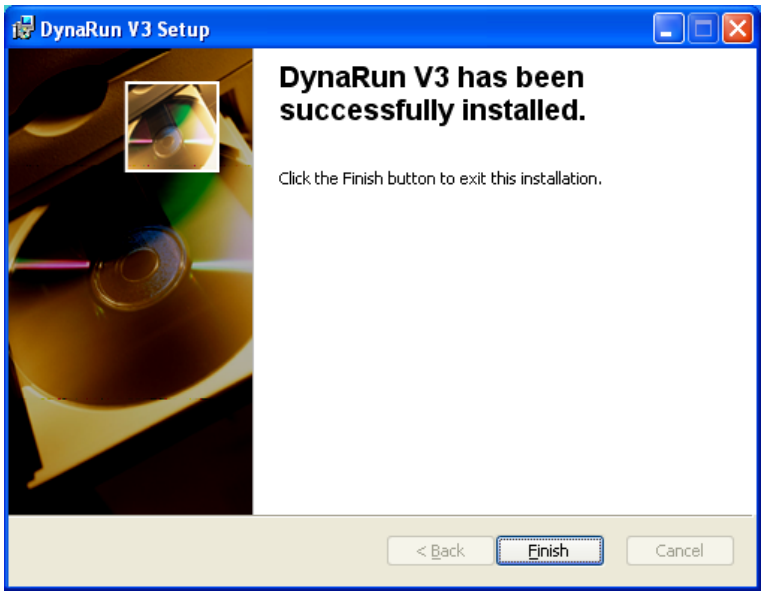
Please leave all these settings as defaulted in the dialog box. Press **Next** to continue.



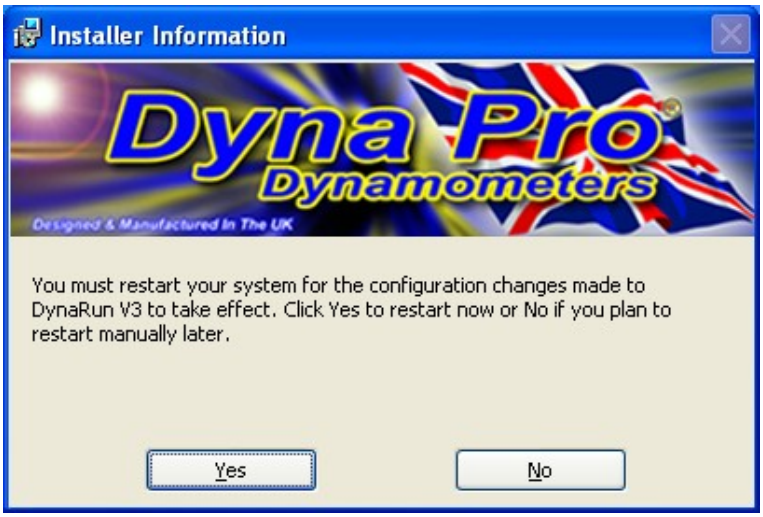
Press the **Next** button to start the *'Dyna Run V3'* installation.



'Dyna Run V3' installation will take a few minutes to complete, the *'Progress Bar'* will show you the current status of the installation.



Press **Finish** to complete the installation.



You will be asked to *'Restart'* your system, press **Yes** to restart your computer.

Uninstalling Dyna Run V3 Application

1. Select **Start**
2. Click **Control Panel.**
3. Look for **Add/Remove Programs** and double-click.
4. Locate *'Dyna Run V3'* and press the **Remove** Button.

Anti Virus Tools (Norton, MacAfee, Symantec etc)

Some anti-virus software may stop the software from installing, if this is the case please temporarily stop the anti virus service during the install procedure.

For best performance from your Dyna Run V3 software please also remove virus file checking from the *'Dyna Pro Dynamometer'* directory and its sub folders.

If you have loaded Dyna Run V3 into the *'Local Drive C:'* then it will be located under the *'Program Files'* Folder.

Dyna View V2 Stand alone Graph Viewing Software

'Dyna Run V3' comes with a stand alone graph viewing software package, that can be included with a customers *'Dyno Runs'* so that they can open and print *'Dyno Runs'* from there own PC, if they are given there *'Dyno Runs'* on a CD-ROM.

The *'Dyna View Installer package'* Named *'DynaView_Setup'* is located under 'My Computer' > 'Local Drive C:' > 'Program Files' > 'Dyna Pro Dynamometers' > 'Dyna View Software'. Copy this file to the customers CD-ROM with there *'Dyno Runs'*.

NOTE **DO NOT install** *'Dyna View V2'* **onto your computer that is Running** *'Dyna Run V3'*

Dyna View V2 Customer Install

1. Insert the CD-ROM, which you have burnt for them into there CD-ROM Drive.
2. Locate and double-click the *'DynaView Setup'* file from their CD-ROM Drive Directory. (Normally the d:\ Drive)
3. Follow the on-screen instructions to install *'DynaViewV2'*

Please note that *'Dyno Run Notes'* cannot be modified if opening *'Dyno Runs'* from the CD-ROM, If the customer wants to modify *'Run Notes'* etc they must copy the *'Dyno Runs'* onto there PC.

For further Help or Instructions please contact Dyna Pro Dynamometers Ltd

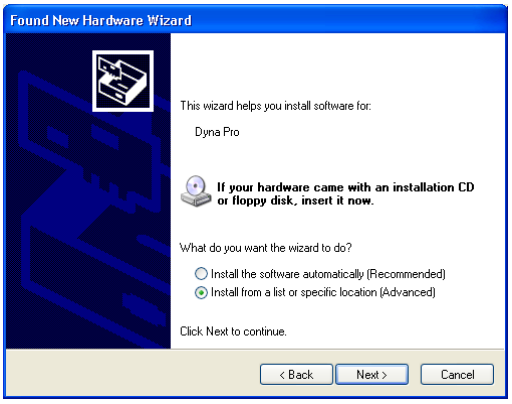
Dyna Pro Driver Installation

Installing Dyna Run Drivers

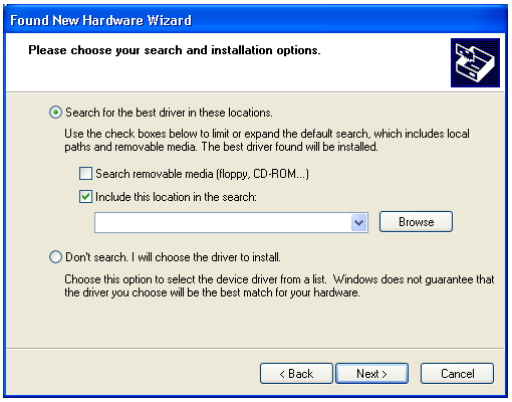
Once the *'Dyna Run V3'* software has been installed and the computer has been rebooted, connect the USB Cable from the Dynamometer to a spare USB port, and switch on the Dynamometer.

NOTE **The USB cable MUST NOT be plugged into a USB multi-port Hub.**

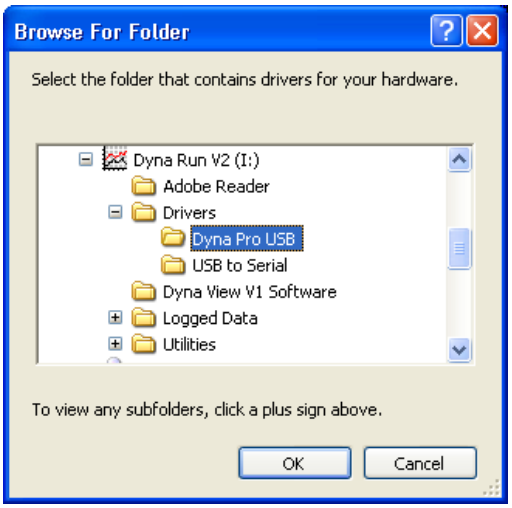
1. Windows will display a message of '*Found New Hardware*' and will display a new window. Select from this window **No, Not this time** and click **Next**.



2. Select **Install from list or specific location (advanced)** and click **Next**.



3. **Search for the best driver in these locations** must be selected, and put a **Tick** in the check box for **Include this location in the search**.



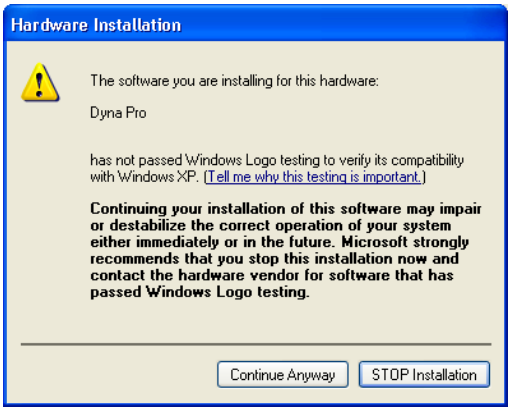
4. Press the **Browse** button, and locate the *'Dyna RunV3'* CD-ROM, which will be under a folder of *'My Computer'* and press the **'+'** box next to it.

Locate the *'Drivers folder'* and press the **'+'** box next to it.

Left click with the mouse the *'Dyna Pro USB'* folder.

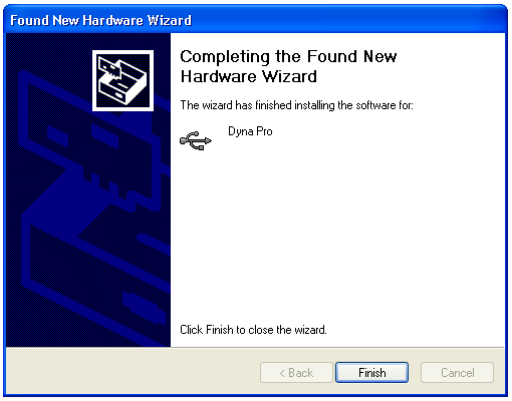
Press the **'OK'** button when finished.

Then press the **Next** button on the returning window.



5. Press the **Continue Anyway** button.

Driver Installation will now take place.



6. Press the **Finish** button.

Windows will then display a message that your *'Hardware is installed and ready to Run'*.

7. Drivers and software are now installed and are ready to run. Double-click on the *'Dyna Run V3'* icon on your Desktop.

8. Select the Model type, and accessories for your '*Dyna Pro Dynamometer'* and press **OK I have Finished**.

Uninstalling Dyna Pro USB Drivers

1. Select **Start**
2. Click **Control Panel.**
3. Look for **Add/Remove Programs** and double-click.
4. Locate *'Dyna Pro USB Drivers'* and press the **Remove** Button.

Starting Dyna Run V3 for the First Time

Double-click on the *'Dyna Run V3'* desktop *'Icon'* or from **Start** > **All Programs** > **Dyna Pro Dynamometers** > **Dyna Run V3**.

The following *'Welcome'* dialog box will be displayed: -

The '*Welcome Language'* dialog box allows the operator to *'Change the Language'*, that *'Dyna Run V3'* will use.

NOTE This dialog box may appear different, and with different languages to what is show hear.

Press **Select** to *'Save'* the language selection made, the *'Dyna Pro System Selection'* dialog menu will then be displayed.

CAUTION!

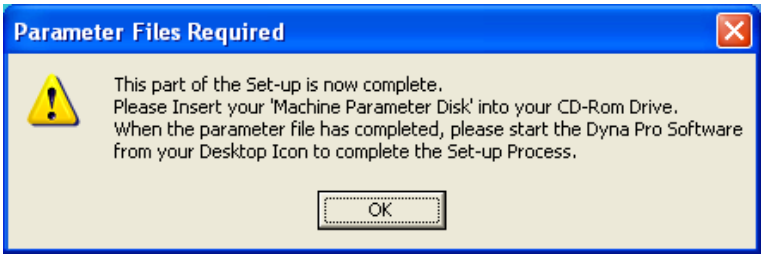
This dialog menu controls your Dynamometers parameters and functions, please carefully select the options of your Dynamometer Model, and Dynamometer options.

If in any doubt please contact Dyna Pro Dynamometers Ltd or your appointed agent.

Press **OK – I have finished** to setup your Dynamometer.

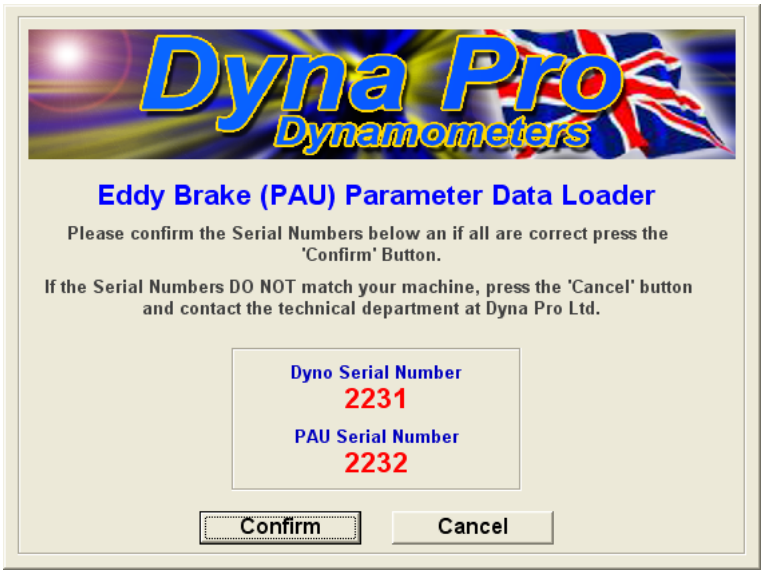
If you have a *'Standard Inertia Only'* Dynamometer then you will taken strait to the *'Make Run Screen'*, Dynamometer installation is now complete.

If you have a *'LC'* or *'Load-Cell'* type machine then the following message box will be displayed.



Please read and understand the message box displayed, then press the **OK** button.

Insert the *'PAU Parameter Files'* disk into your CD-Rom drive, then wait for the following dialog box.

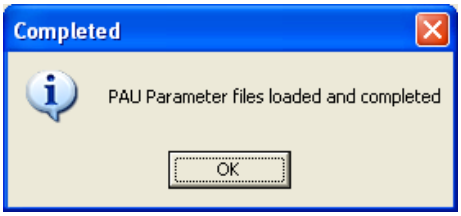


Check that your *'Dyno Serial Number'* and *'PAU Serial Number'* displayed in the dialog box match the serial numbers on your machine.

If the serial numbers are confirmed as correct press the **Confirm** button.

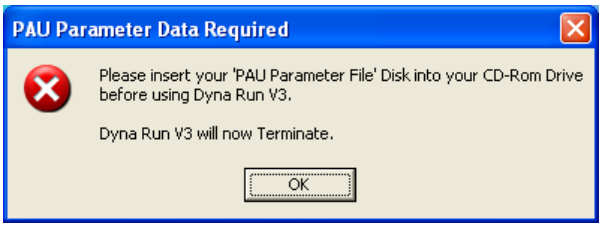
If the serial numbers are incorrect then please contact Dyna Pro Dynamometers Ltd or your appointed agent, and press the **Cancel** button

Once you have pressed the **Confirm** button the following message will be displayed.



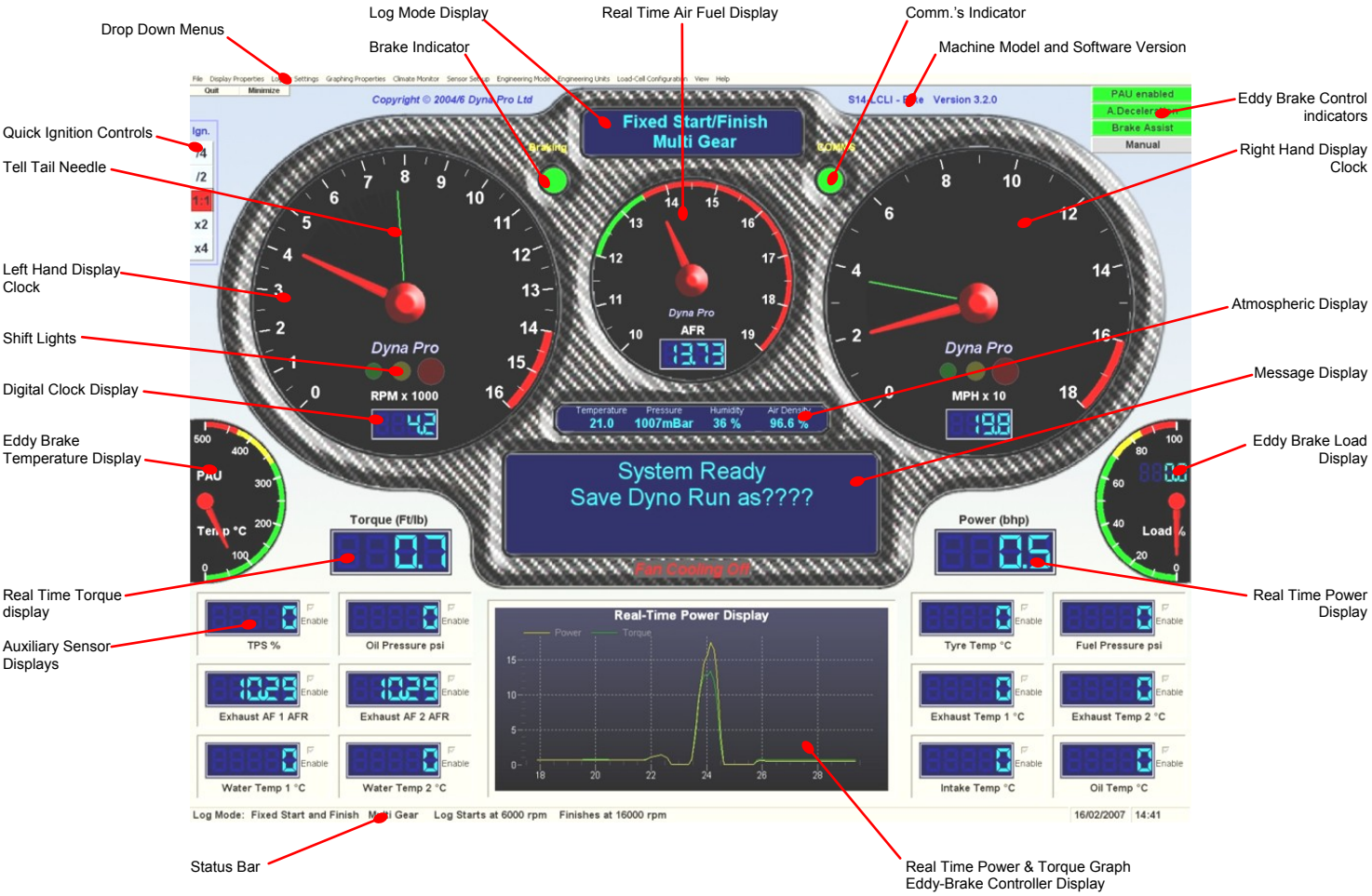
Your Dynamometer installation is now complete.

Double-click on the *'Dyna Run V3'* desktop *'Icon'* or from **Start** > **All Programs** > **Dyna Pro Dynamometers** > **Dyna Run V3**, to start 'Dyna Run V3'

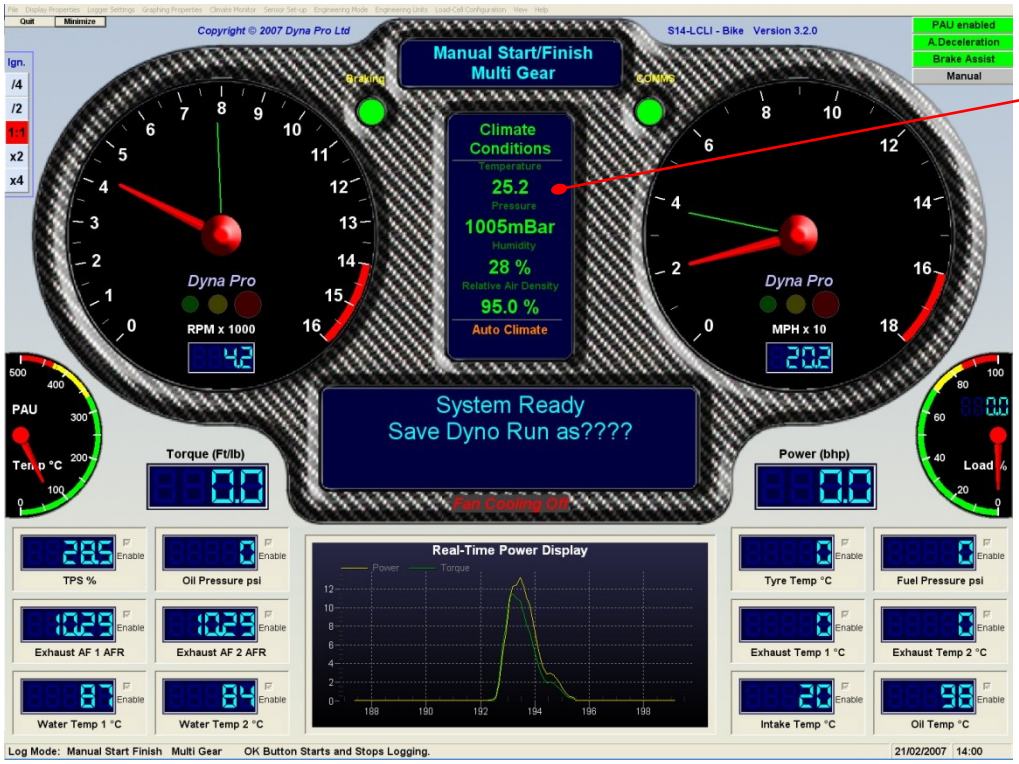


Dyna Run V3 Display Summary (Make Run Screen)

Dyna Run Main Display with Air/Fuel Gauge



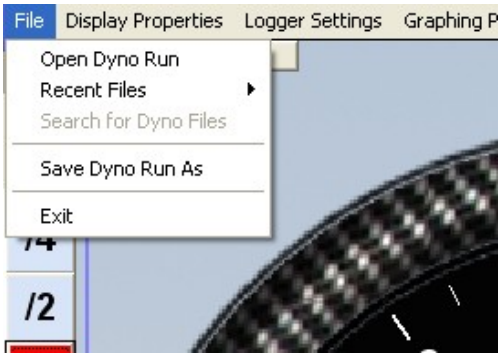
Dyna Run Main Display without Air/Fuel Gauge



NOTE Please be aware that some Functions, Menu Options and Graphic Displays shown above may not be available on all Dynamometer Models.

Software Function & Menus

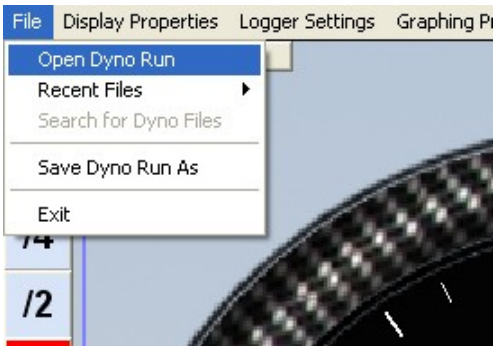
Drop Down Menus - 'File'



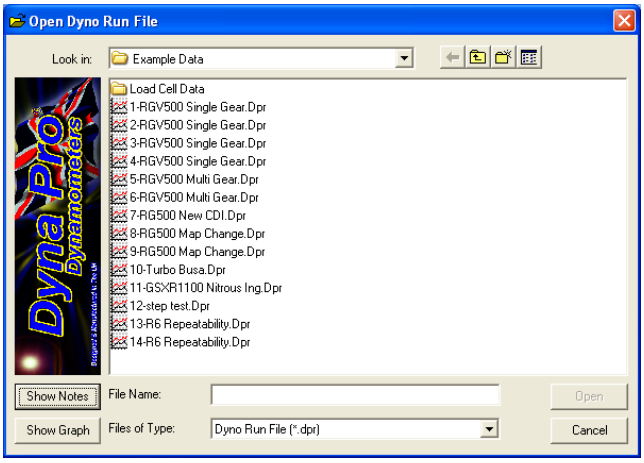
The drop-down File Menu allows the operator to Open and Save 'Dyno Runs', as well as Exiting 'Dyna Run V3'.

Left mouse click on File to show the File drop-down menu.

'Open Dyno Run'



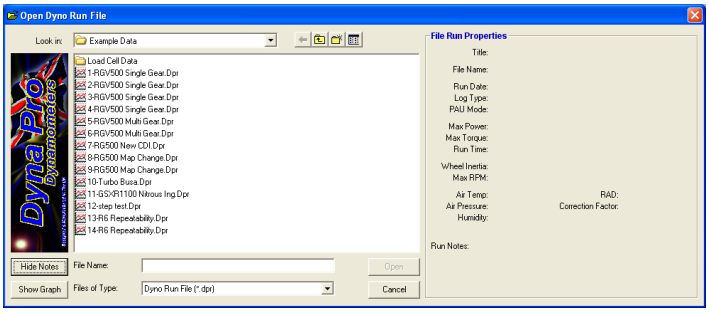
Left mouse click on **Open Dyno Run** to show the *'Open Dyno Run File'* dialog window.



Select the file you wish to view then click on the **Open** button.

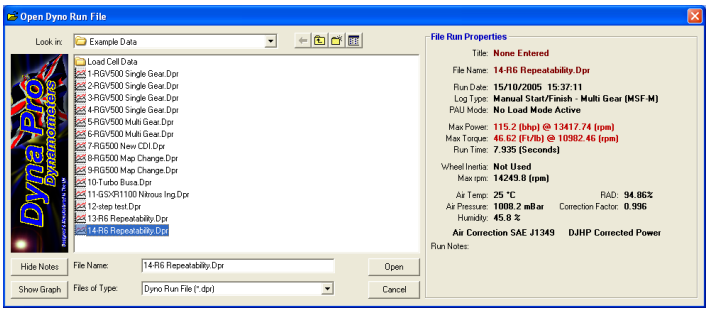
This dialog box is a standard Microsoft Windows dialog box; you can change folders, create folders, rename files, and change directories etc.

There are also two other *'Open File Dialog Modes'*, which are activated by the **Show Notes** button and the **Show Graph** button.



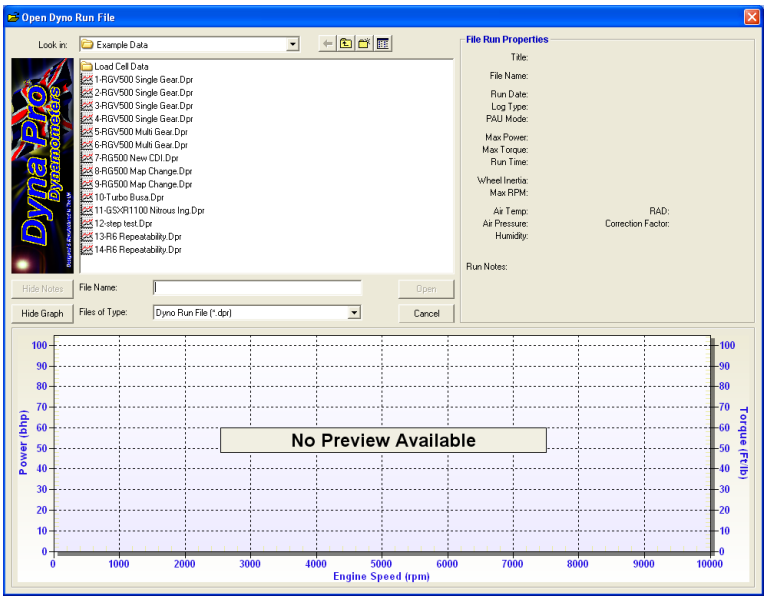
'Show Notes' Mode (**Show Notes** button pressed)

This dialog box is a standard Microsoft Windows dialog box; you can change folders, create folders, rename files, and change directories etc.



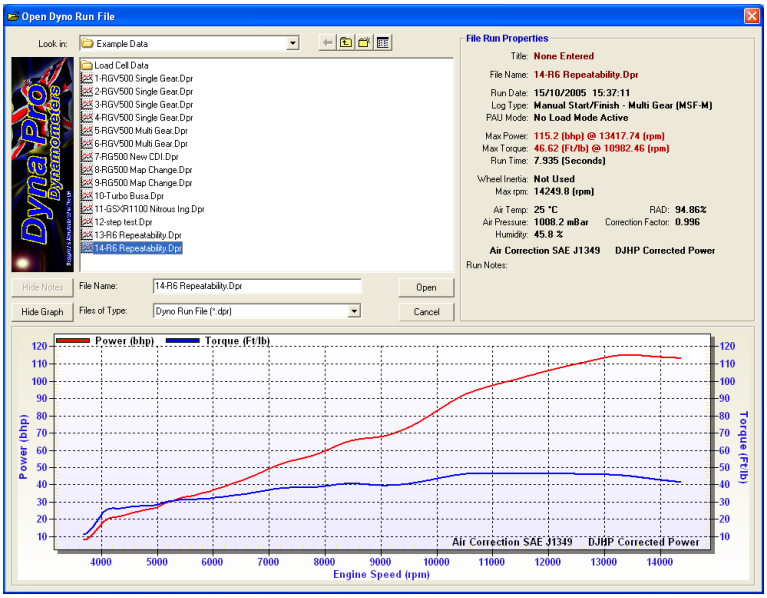
By left mouse click on any of the *'Dyno Run Files'*, the *'File Run Properties'* window will update with the file selected.

Double left mouse clicking or pressing the **Open** button will then open the file in *'Dyna View'*.



'Show Graph' Mode (**Show Graph** button pressed)

This dialog box is a standard Microsoft Windows dialog box; you can change folders, create folders, rename files, and change directories etc.



By left mouse click on any of the *'Dyno Run Files'*, the *'File Run Properties'* window will update with the file selected and a graph preview will be shown.

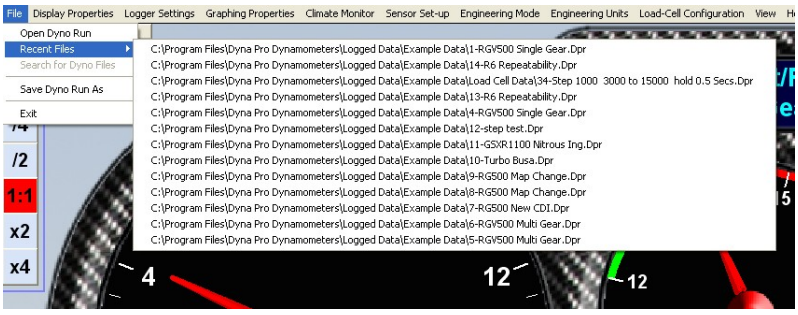
If you try to preview an invalid *'Dyno Run File'* it will display a message informing you that the file is *'Not a Valid Dyno Run File'*.

You can also open multiple *'Dyno Run Files'* by **right mouse button** and **dragging**, or by holding the **ALT** key pressed while individually **left mouse clicking** on a *'Dyno Run File'* .

A maximum of 4 *'Dyno Run Files'* can be opened and shown at any one time.

Double left mouse clicking or pressing the '**Open'** button will then open the file in *'Dyna View'*.

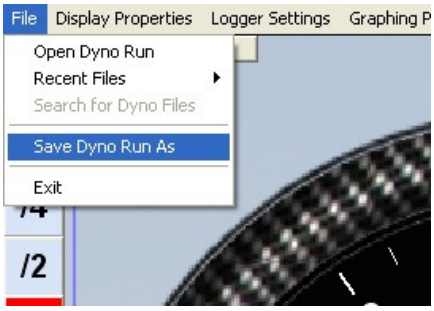
'Recent Files'



The **Recent Files** option will show the operator a list of the last 15 *'Dyno Run files'* that have been opened and viewed.

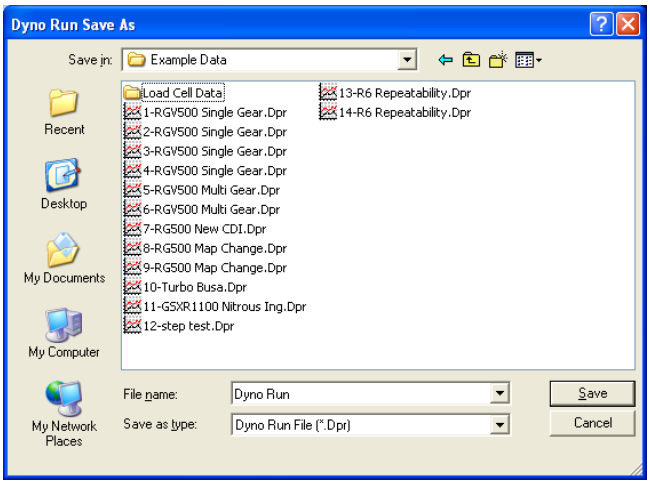
You can left mouse click on any of these files and it will be opened for viewing in *'Dyna View'*.

'Save Dyno Run As'



This Function allows the operator to *'Save'* the name and any additional data for a vehicle, which is about to be tested on the Dynamometer.

Left mouse click on **Save Dyno Run As** to open the *'Dyno Run Save As'* dialog window'.



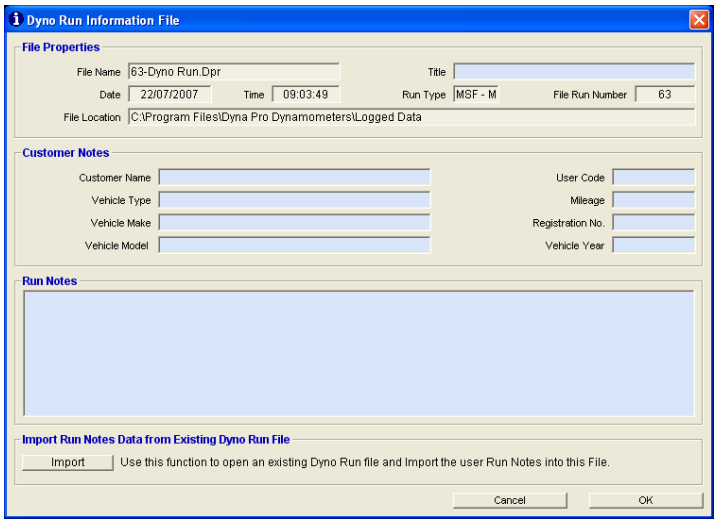
This dialog box is a standard Microsoft Windows dialog box; you can change folders, create folders, rename files, and change directories etc.

Select the folder you wish the *'Dyno Run'* file to be saved in, then enter a file name of your choice.

NOTE Some keyboard characters have special uses, do not use ' ",/ , \ , @ , $, *'

Press **Save** when completed or **Cancel** to exit without saving the *'Dyno Run'*.

Once you press the Save button the following dialog box will be displayed.



The *'Dyno Run Information File'* dialog allows the operator to enter more specific data about the vehicle about to be tested.

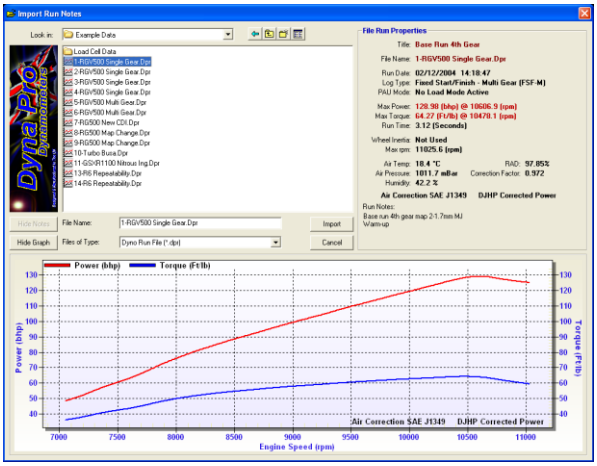
The only data field that must be completed is the field marked as **Title**, all other fields can be left blank if required.

If you leave the **Title** field blank and press the **'OK'** button a message box will be displayed asking you to enter a *'Title Name'*.

Press **'OK'** when completed or **Cancel** to exit without saving.

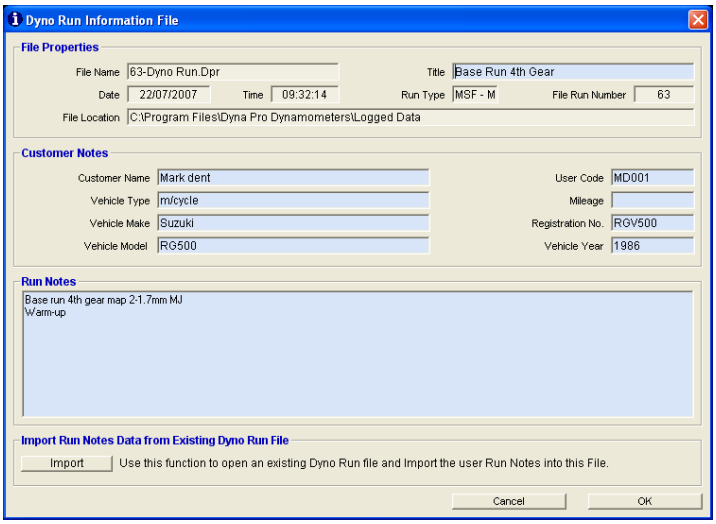
You may also choose to import the *'Dyno Run Information'* from an existing *'Dyno Test'* file. Please see below on how to do this.

'Import Run Notes Data'



By pressing the **'Import'** button from the above *'Dyno Run Information File'* dialog show above, an *'Import Run Notes'* dialog box will be shown.

The *'Import Run Notes'* dialog box looks and acts the same as the *'Open Dyno Run File'* dialog window, but instead of opening a '*Dyno Run Test File'*, when you **'Click'** on the **'Import'** button it will copy all of the *'Dyno Run File Information'* that you have selected into your current *'Dyno Run File Information'* window.

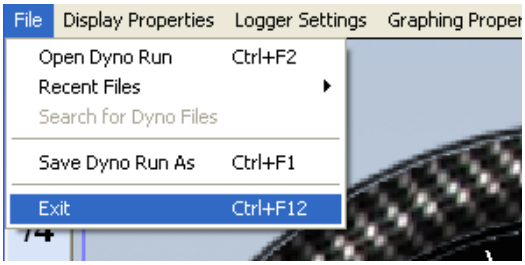


Once you have 'Imported' your *'Run Notes'* then your currently displayed *'Dyno Run File Information'* window will look similar to this.

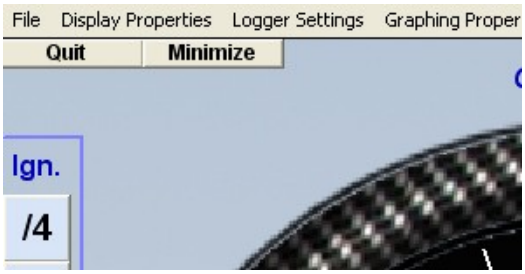
You can still change any of the data that is shown in the **'Dyno Run File Information'** window.

Press **'OK'** when completed or **Cancel** to exit without saving.

'Exit'

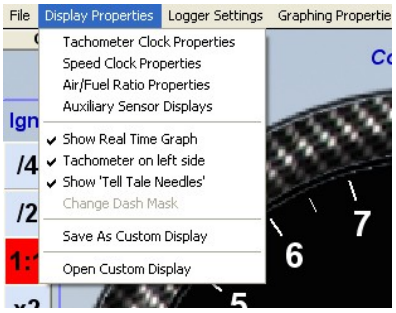


This function will end your session with *'Dyna Run V3'*, *'Dyna Run V3'* will terminate and you will be returned to your desktop screen.



The **Quit** button on the *'Make Run Screen'* has the same function as described above.

Drop Down Menus - 'Display Properties'

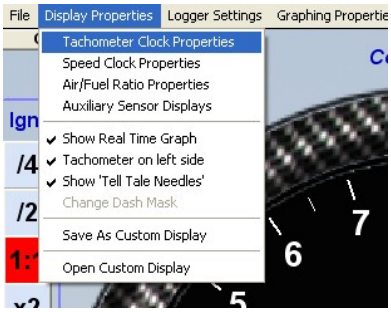


This function allows the operator to change the entire *'Display Clock Properties'*, show or hide *'Real Time' Displays'* and enable and disable the *'Tell Tail Needles'*.

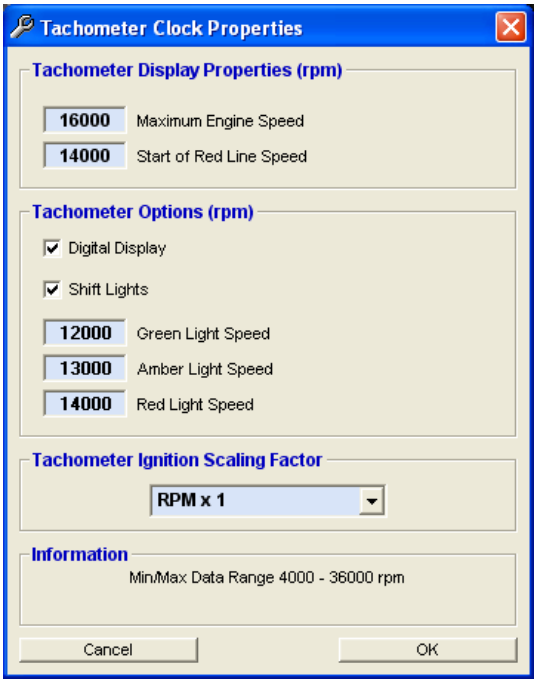
The operator also has the option to *'Save'* or *'Open'* the settings as *'Custom Displays'*

Left mouse click on **Display Properties** to show the file drop-down menu.

'Tachometer Clock Properties'



Left mouse click on **Tachometer Clock Properties** to show the *'Tachometer Clock Properties'* dialog window.



The *'Tachometer Clock Properties'* dialog window allows the operator to change all of the *'Tachometer Display setting'*. These include: -

Maximum Display Clock Engine Speed.

Start of Red Line Engine Speed.

Display or Hide the Digital Display.

Display or Hide the **Shift Lights**, set individual **Shift Light** parameters.

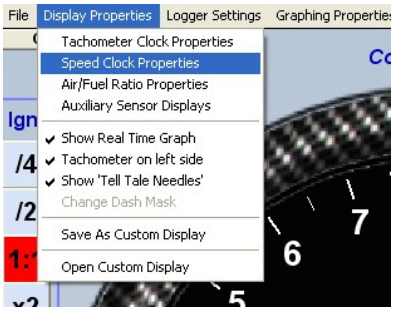
The drop-down menu under the heading of **Tachometer Ignition Scaling Factor**, allows the operator to *'Pre Scale'* the ignition pick-up pulse so that the *'Tachometer Display'* shows the correct engine speed.

'Pre Scaling' ranges are; Divide by 1 to 8, Multiply by 1 to 8 or 1:1.

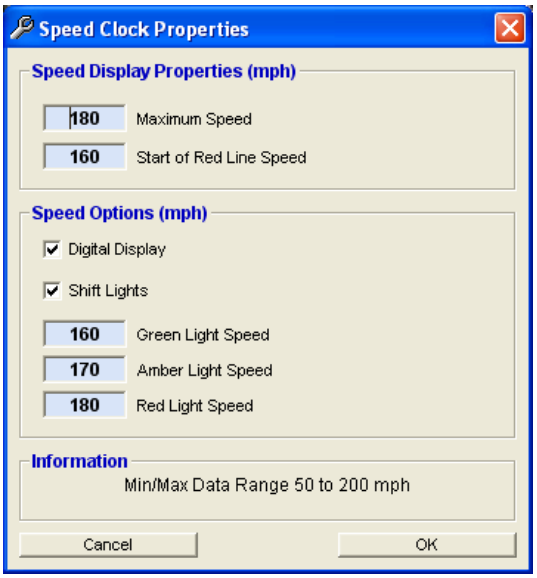
The **Quick Ignition Controls** on the *'Make Run Screen'* have the same effect but are more limited on there *'Pre Scaling'* functions.

Press **'OK'** when completed or **Cancel** to exit without saving.

'Speed Clock Properties'



Left mouse click on **Speed Clock Properties** to show the *'Speed Clock Properties'* dialog window.



The *'Speed Clock Properties'* dialog window allows the operator to change all of the *'Speed Display setting'*. These include: -

Maximum Display Clock Road Speed.

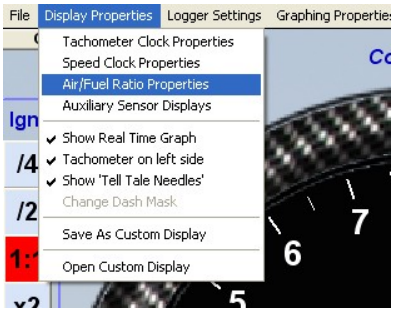
Start of Red Line Road Speed.

Display or Hide the Digital Display.

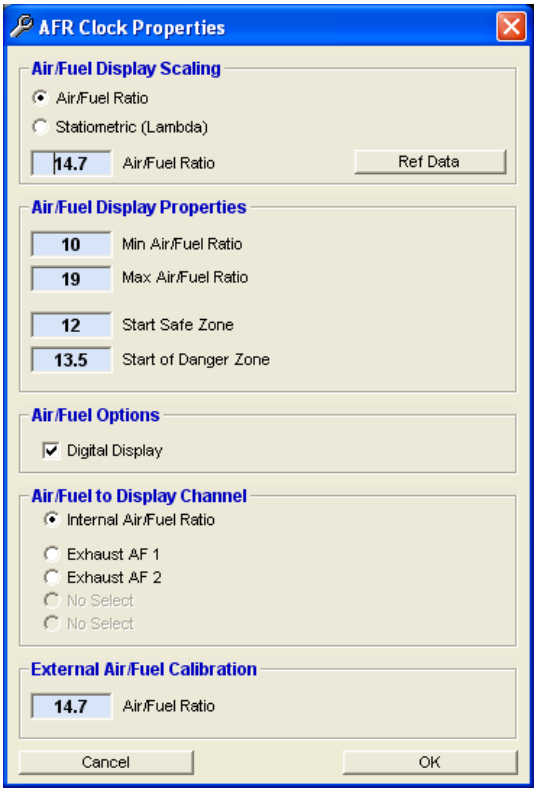
Display or Hide the **Shift Lights**, set individual **Shift Light** parameters.

Press **'OK'** when completed or **Cancel** to exit without saving.

'Air/Fuel Ratio Properties'



Left mouse click on **Air/Fuel Ratio Properties** to show the *'Air Fuel Ratio Properties'* dialog window.



The **Air/Fuel Ratio Properties** dialog window allows the operator to change all of the *'Air/Fuel Display setting'*. These include: -

Display in **Air/Fuel Ratio** or **Statiometric (Lambda)**

Allow the operator to enter the correct **Air/Fuel Ratio** for a given fuel (Petrol is 14.7:1). Note that this function will be *'Greyed Out'* if set to display in Statiometric.

Minimum Air/Fuel or Statiometric value to display on *'Air/Fuel Clock'*.

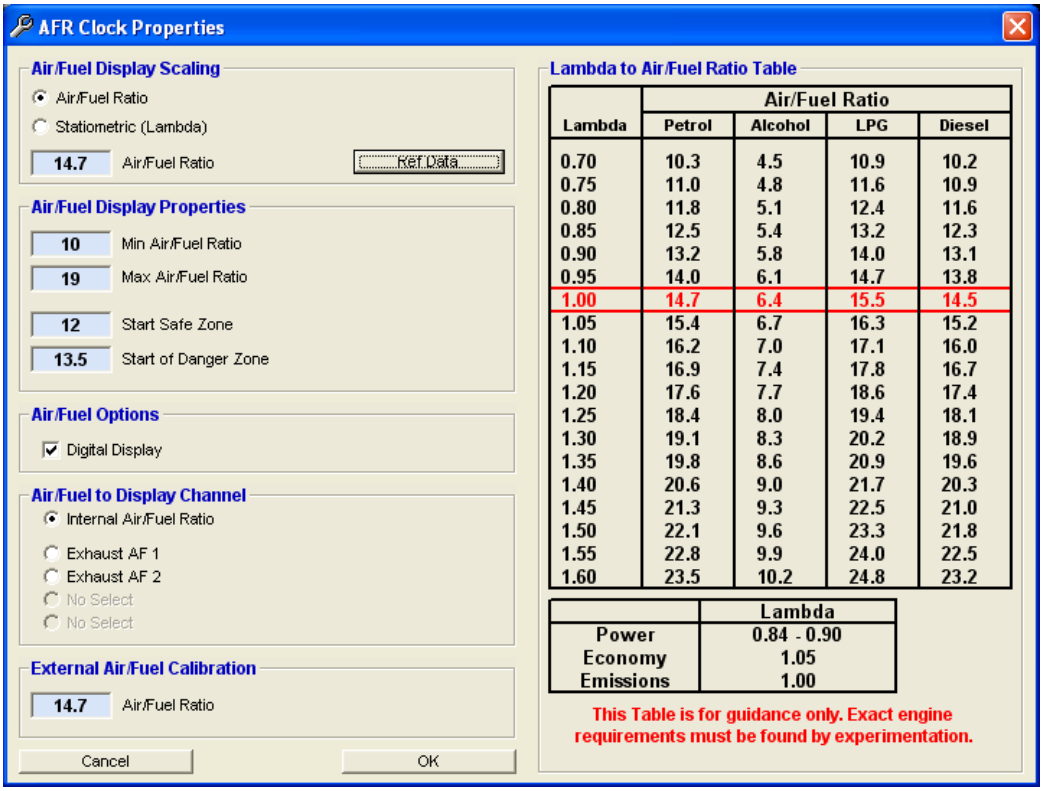
Maximum Air/Fuel or Statiometric value to display on *'Air/Fuel Clock'*.

Air/Fuel or Statiometric value, **Start of Safe Zone**.

Air/Fuel or Statiometric value, **Start of Danger Zone**.

Display or Hide the **Digital Display**.

Air/Fuel to Display Channel and **External Air/Fuel Calibration**, these functions will normally be set to **Internal Air/Fuel Ratio** and **14.7**. The only time these will change is if you have purchased a *'Twin or Quad Channel Air Fuel Unit'*, or are using two *'Single Channel Units'*. Please refer to the installation manual that came with the Air/Fuel Unit for help on these settings.



There is also a **Ref Data** button, this reference data shows the relationships between Air/Fuel values and Statiometric values for certain commonly used fuels.

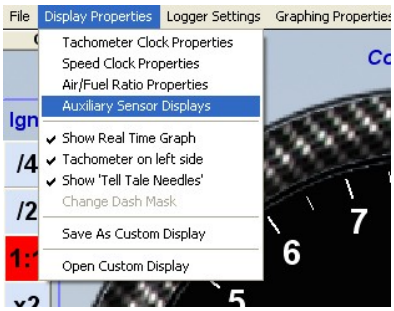
It also gives an indication of what values should be obtained for Power, Economy and Emissions.

CAUTION!

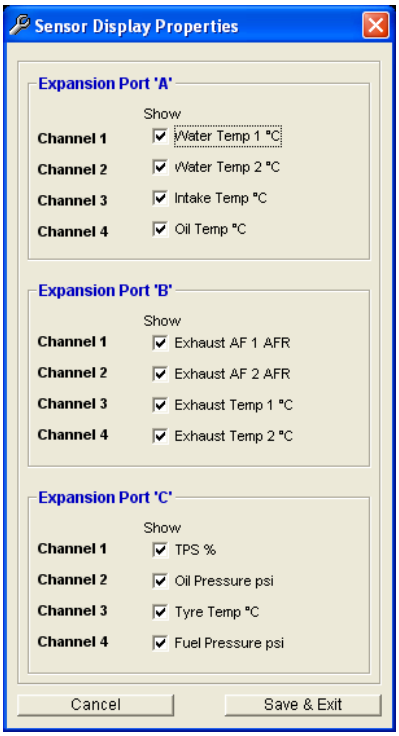
This table is for guidance only. Exact engine requirements must be found by experimentation.

Press **'OK'** when completed or **Cancel** to exit without saving.

'Auxiliary Sensor Displays'



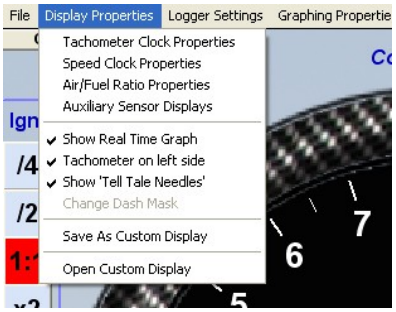
Left mouse click on **Auxiliary Sensor Displays** to show the *'Auxiliary Sensor Displays'* dialog window.



The **Sensor Displays Properties** dialog window allows the operator to select, which *'Auxiliary Sensor Displays'* will be shown on the *'Make Run Screen'*.

Press **'OK'** when completed or **Cancel** to exit without saving.

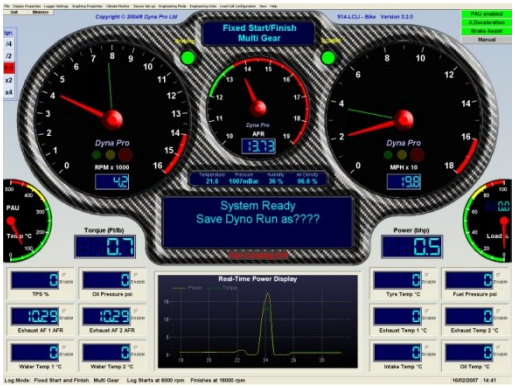
'Show Real Time Graph'



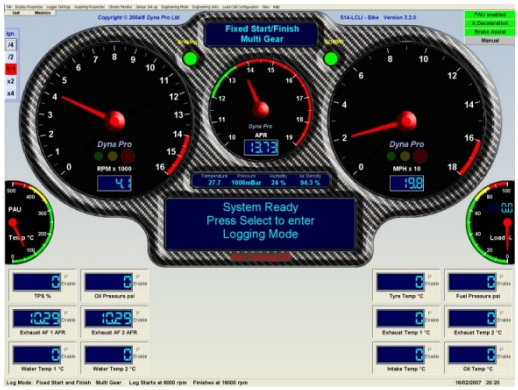
The **Show Real Time Graph** function, if selected, indicated by a **Tick** to the left hand side, the *'Make Run Screen'* will display a *'Digital Real Time Torque and Power Display'*, and will also show a *'Real Time Power and Torque Graph Display'*.

NOTE The *'Real Time Graph'* will only work when the vehicle is moving. When the vehicle stops moving the '*Real Time Graph'* will reset.

Pressing button **'A'** on the *'Hand Controller'* once, will freeze the '*Real Time Graph'*, pressing button **'A'** for a second time will un-freeze the '*Real Time Graph'*.

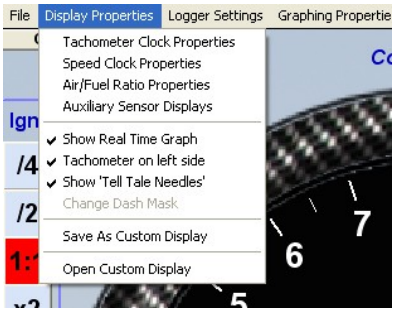


Make Run Screen with 'Real Time' on



Make Run Screen with 'Real Time' off

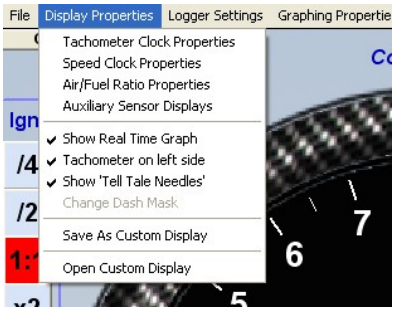
'Tachometer On Left'



The **Tachometer On Left Side** function, if selected, indicated by a **Tick** to the left hand side, the *'Make Run Screen'* will display the *'Tachometer Clock'* on the left hand side of the *'Make Run Screen'*.

Deselecting this function will move the *'Tachometer Clock'* to the right hand side of the *'Make Run Screen'*.

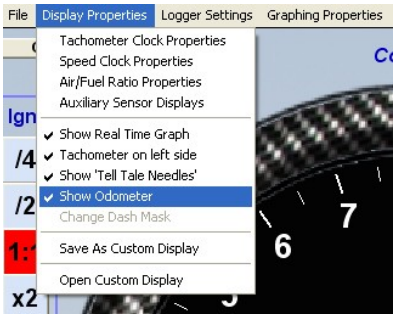
'Show Tell Tale Needles'



The **Show Tell Tail Needles** function, if selected, indicated by a **Tick** to the left hand side, the *'Tachometer Clock'* and the *'Road Speed Clock'* will display green *'Tell Tale Needles'* at their peak speeds. These needles will remain on the *'Display Clocks'* for about 5 seconds before resetting themselves.

Deselecting this function will cancel the *'Tell Tale Needles'* from being displayed.

'Show Odometer'



The **Show Odometer** function, if selected, indicated by a **Tick** to the left hand side, will display the following *'Odometer'* dialog window.

Deselecting this function will cancel the *'Odometer Dialog Window'* from being displayed.

The *'Odometer Dialog Window'* will log the distance travelled and the elapsed time that the Dynamometer has been run for.

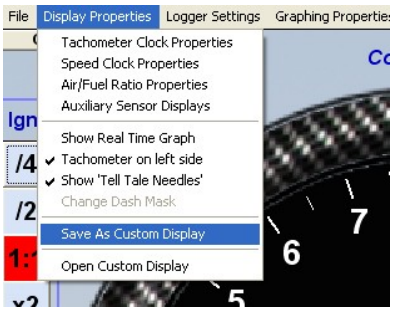
This function is useful for vehicle *'Running-In'* to allow the operator to know what distance and time the vehicle has been running for.

The **Reset** button will reset both the *'Distance'* and the *'Elapsed Time'* back to zero.

The *'Odometer Dialog Window'* can also be moved around the main screen by **Left Mouse button and Drag** in the top **Blue Bar**.

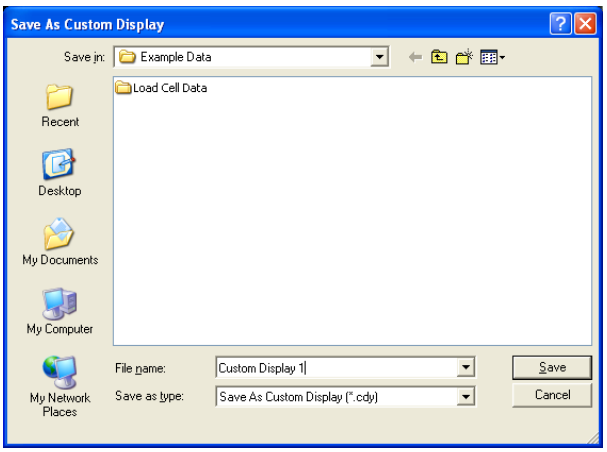
The *'Odometer'* will continue to log even if the *'Odometer Dialog Window'* is not visible or closed.

'Save As Custom Display'



The **Save As Custom Display** function, allows the operator to **Save** all of the above display settings as a *'Custom Display'*, which can then be reloaded at a later date.

Left mouse click on **Save As Custom Display** to show the '*Save As Custom Display'* dialog window.



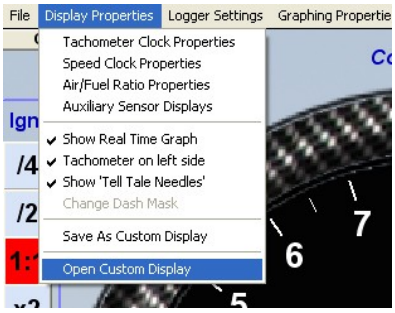
This dialog box is a standard Microsoft Windows dialog box; you can change folders, create folders, rename files, and change directories etc.

Select the folder you wish the *'Custom Display'* to be saved in, then enter a file name of your choice.

NOTE Some keyboard characters have special uses, do not use ' ", / , \ , @ , $, *'

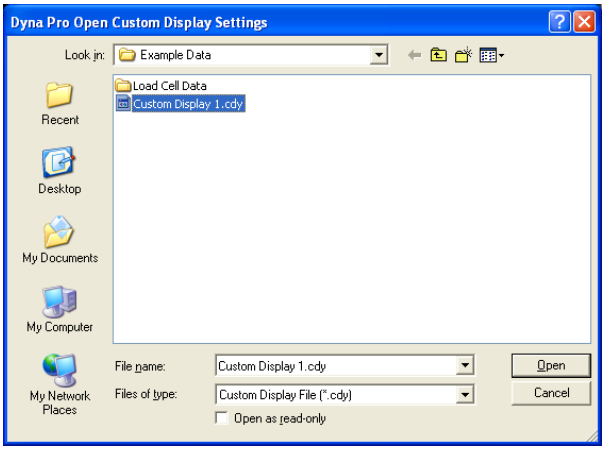
Press **Save** when completed or **Cancel** to exit without saving the *'Custom Display File'*.

'Open Custom Display'



The **Open Custom Display** function, allows the operator to **Open** a previously *'Saved Custom Display'* file.

Left mouse click on **Open Custom Display** to show the '*Open Custom Display'* dialog window.



This dialog box is a standard Microsoft Windows dialog box; you can change folders, create folders, rename files, and change directories etc.

Select the folder and file that you wish to **Open**.

Press **Open** to *'Load the Custom Display'* file or **Cancel** to exit without opening any file.

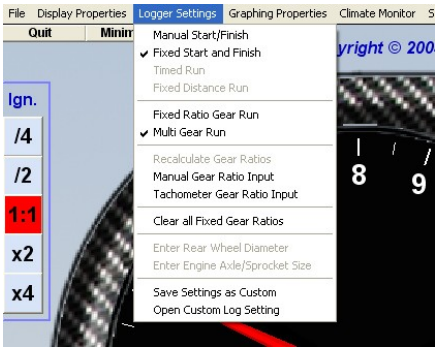
Drop Down Menus - 'Logger Settings'

'Overview'

The **Logger Settings** drop-down menu allows the operator to control the way in which the vehicle being tested will be *'Logged'* during the *'Dyno Test'*. For example the operator may wish to set the **Logger Settings** so that the vehicle will only be logged from 6,000rpm to 13,000rpm when tested on the Dyno or the operator may wish to do the *'Logging'* manually with the use of the *'Hand Controller'*.

This drop-down menu also allows the operator to test a vehicle in which an *'ignition pulse'* could not be found, the operator can calibrate for an ignition pulse (engine speed) by using the vehicle tachometer, an external tachometer or a know *'Ratio'*.

The operator can also **Save** all the logger settings as a *'Custom Logger Settings'* file, which can then be reloaded at a later date.

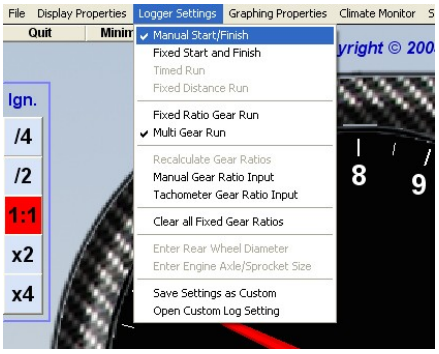


This function controls all of the *'Logger Settings'*.

The operator also has the option to **Save** or **Open** the settings as *'Custom Displays'*.

Left mouse click on **Display Properties** to show the file drop-down menu.

'Manual Start/Finish'

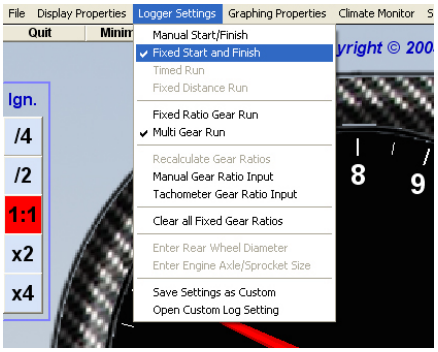


The **Manual Start/Finish** function, if selected, indicated by a **Tick** to the left hand side.

This logging mode allows the operator to manually *'Start'* and *'Stop'* the *'Data Logging Mode'*, by the use of the **'OK'** button on the *'Hand Controller'*.

This function can only be deselected by selecting a different *'Logger Setting'*.

'Fixed Start and Finish'

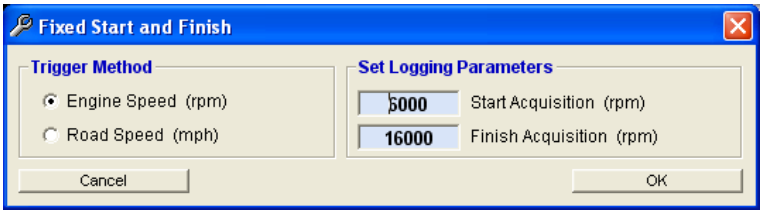


The **Fixed Start and Finish** function, if selected, indicated by a **Tick** to the left hand side.

This logging mode allows the operator to automatically *'Start'* and *'Stop'* the *'Data Logging Mode'*, by the use of *'Engine Speed'* or *'Road Speed'*.

When this option is selected a **Fixed Start and Finish** dialog box will be displayed for the operator to adjust the logging parameters.

This function can only be deselected by selecting a different *'Logger Setting'*.

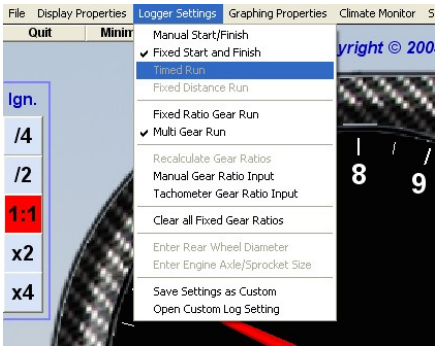


Use the dialog box to change the *'Data Logging Trigger Method'*, either for *'Engine Speed'* or *'Road Speed'*.

Then enter a value at which the *'Data Logging'* will start from and then a value for when the *'Data Logging'* will finish.

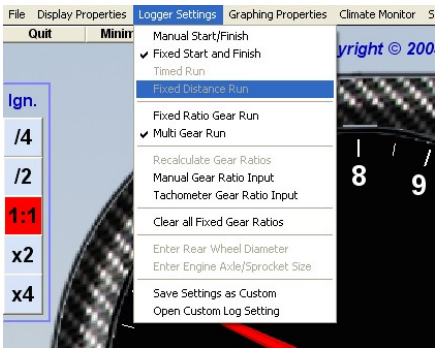
Press **'OK'** when completed or **Cancel** to exit without *'Saving'*.

'Timed Run'



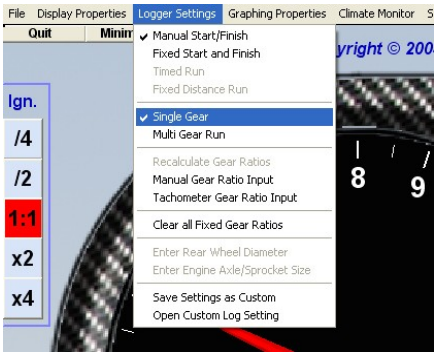
This function is not operational, contact Dyna Pro Dynamometers Ltd for more information.

'Fixed Distance Run'



This function is not operational, contact Dyna Pro Dynamometers Ltd for more information.

'Fixed Ratio Gear Run'



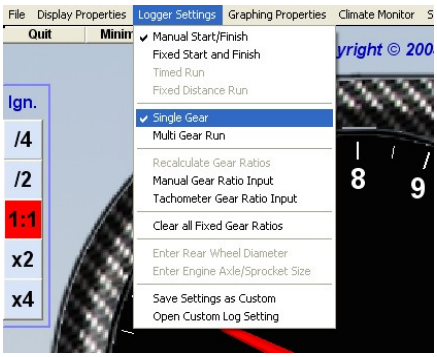
The **Fixed Ratio Gear Run** function, if selected, indicated by a **Tick** to the left hand side.

Fixed Ratio Gear Run Mode is only used when an ignition pulse cannot be found on the vehicle being tested, or to get to the ignition cables (Low tension or High tension) requires dismantling of the vehicle.

This function is used in combination with **Manual Gear Ratio Input**, **Tachometer Gear Ratio Input**, **Recalculate Gear Ratios** and **Clear all Fixed Gear Ratios**.

The operator will be prompted on the *'Message Display'* window on the *'Make Run Screen'* about what to do next.

'Multi Gear Run' - Default

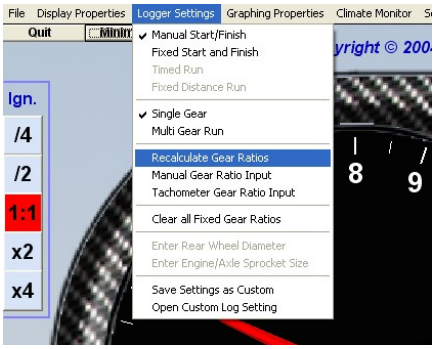


The **Multi Gear Run** function, if selected, indicated by a **Tick** to the left hand side.

The Multi Gear Run function is the default system setting for the data logging, The function is used for both Single Gear Runs and Multi Gear Runs. This function will always be used if the ignition pick-up clip is being used on the vehicle.

The operator will be prompted on the *'Message Display'* window on the *'Make Run Screen'* about what to do next.

'Recalculate Gear Ratios'

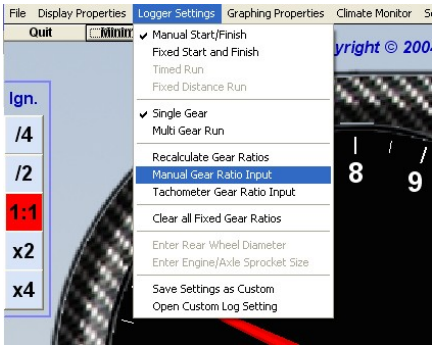


This function is only used in **Fixed Ratio Gear Run** mode.

The **Recalculated Gear Ratio** function, is used in combination with **Tachometer Gear Ratio Input**, to allow the operator to recalculate the *'Engine Speed'* with reference to the *'Rear Wheel Speed'* of the vehicle.

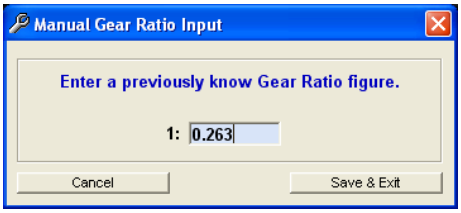
The operator will be prompted on the *'Message Display'* window on the *'Make Run* Screen' about what to do next.

'Manual Gear Ratio Input'



This function is only used in **Fixed Ratio Gear Run** mode.

The **Manual Gear Ratio Input** function, can be used if the *'Engine Speed / Rear Wheel Speed Ratio'* is already know. Selecting this function will then display the *'Manual Gear Ratio Input'* dialog box.



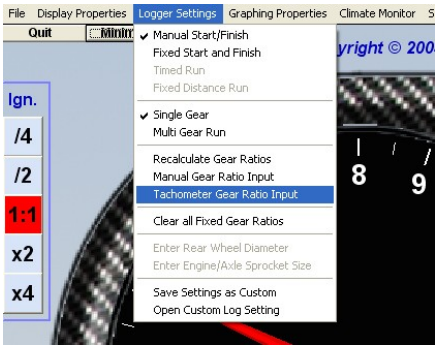
Enter the value for **Engine Speed / Rear Wheel Speed Ratio** into the data box.

Press **Save & Exit** when completed or **Cancel** to exit without saving.

Once the operator has entered the **Engine Speed / Rear Wheel Speed Ratio**, the **Ratio** will then be shown.

'Tachometer Gear Ratio Input'

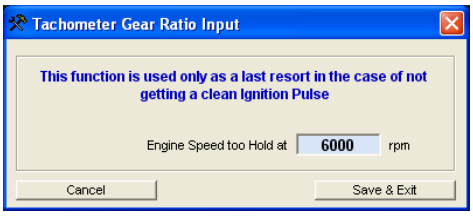
The **Tachometer Gear Ratio Input** function requires the operator to hold the vehicle at a know *'Engine Speed'* on the Dynamometer, in the *'Gear'* that the *'Dyno Test'* will be performed in. The Dynamometer will, when the operator presses the **'OK'** button on the *'Hand Controller'* calculate the ratio between *'Engine Speed'* and *'Rear Wheel Speed'*; this then allows the operator to operate the Dynamometer without the use of the *'Ignition Pick-up Sensor'*.



This function is only used in **Fixed Ratio Gear Run** mode.

The **Tachometer Gear Ratio Input** function, is used to calculate the *'Engine Speed / Rear Wheel Speed Ratio'* against a know *'Engine Speed'*. The known engine speed can be from the vehicles own Tachometer or from an external Tachometer if available.

Selecting this function will then display the *'Tachometer Gear Ratio Input'* dialog box.



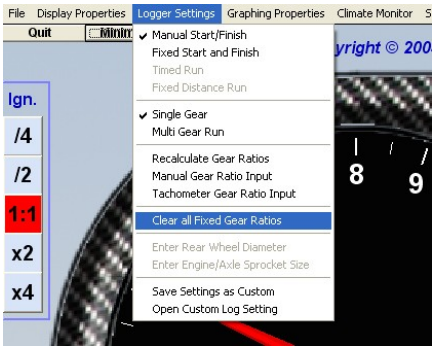
Enter the value for *'Engine Speed'* into the data box.

Press **Save & Exit** when completed or **Cancel** to exit without saving.

The operator will be prompted on the *'Message Display'* window on the *'Make Run Screen'* about what to do next.

Once the operator has calibrated for *'Fixed Ratio Gear Run'* mode, the *'Ratio'* will then be shown.

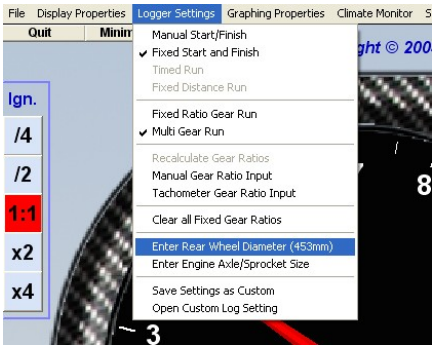
'Clear all Fixed Gear Ratios'



This function is only used in *'Fixed Ratio Gear Run'* mode, to **Clear** all **Fixed Gear Ratios**.

Selecting this function will also change the **Logger Settings** from **Fixed Ratio Gear Run** mode back to **Multi Gear Run**.

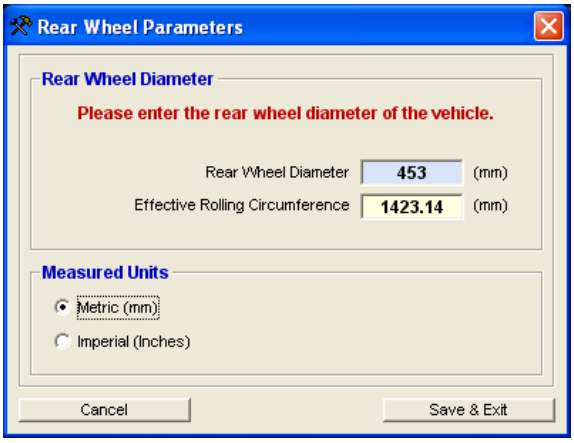
'Enter Rear Wheel Diameter' (EBK Dyno's Only)



This function is only used with the *'EBK'* range of Dyna Pro Dynamometers. With all other Dynamometer Models, this function will be *'Greyed Out'*.

This function allows the operator to enter the **Rear Wheel Diameter**, so that the *'Make Run Screen'* can display the correct *'Road Speed'*.

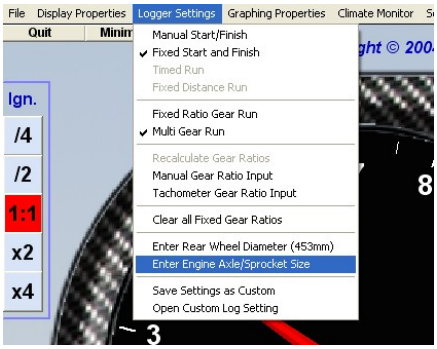
Selecting this function will then display the *'Rear Wheel Parameters'* dialog box.



Enter the value for **Rear Wheel Diameter** into the data box. The operator can also select if to use *'mm'* or *'inches'* for the measure value.

Press **Save & Exit** when completed or **Cancel** to exit without saving.

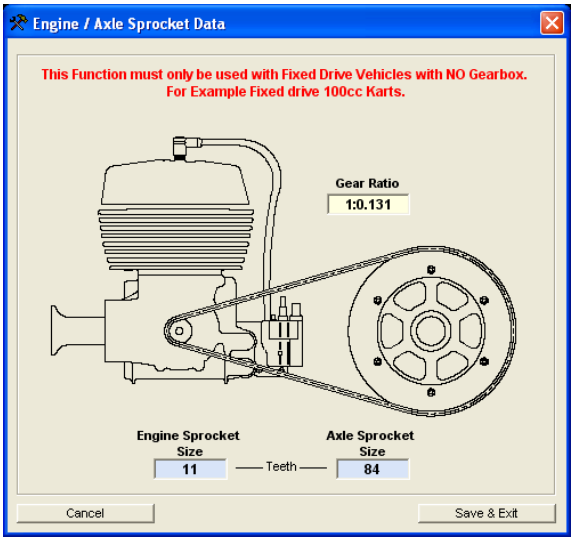
'Enter Engine/Axle Sprocket Size' (EBK Dyno's Only)



This function is only used with the *'EBK'* range of Dyna Pro Dynamometers. With all other Dynamometer Models, this function will be *'Greyed Out'*.

This function allows the operator to enter the **Engine and Axle Sprocket** size, so that the *'Make Run Screen'* can display the correct *'Engine Speed'*.

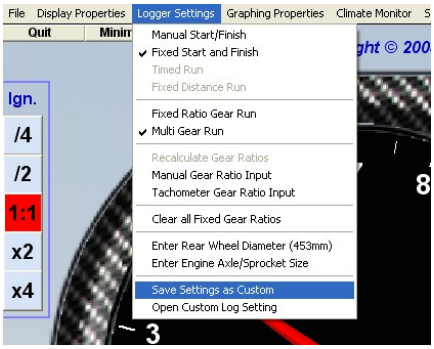
Selecting this function will then display the *'Engine / Axle Sprocket Data'* dialog box.



Enter the value for **Engine Sprocket Size** and **Axle Sprocket Size** into the data boxes. The operator is also informed of the final *'Gear Ratio'*.

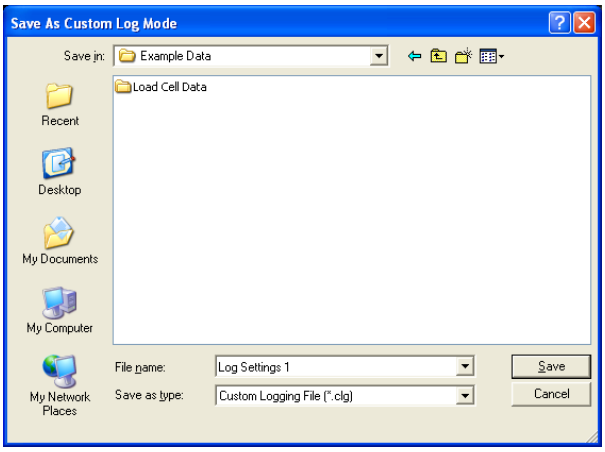
Press **Save & Exit** when completed or **Cancel** to exit without saving.

'Save Settings as Custom'



The **Save Setting As Custom** function, allows the operator to *'Save'* all of the above logger settings as a *'Custom Log File'*, which can then be reloaded at a later date.

Left mouse click on **Save Settings As Custom** to show the '*Save As Custom Log Mode'* dialog window.



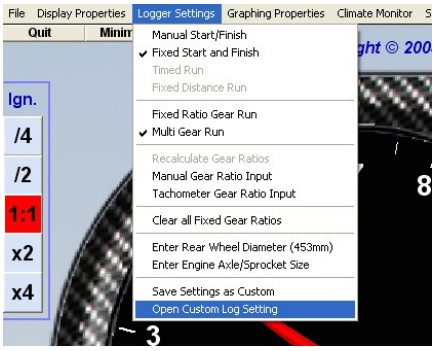
This dialog box is a standard Microsoft Windows dialog box; you can change folders, create folders, rename files, and change directories etc.

Select the folder you wish the *'Custom Log File'* to be saved in, then enter a file name of your choice.

NOTE Some keyboard characters have special uses, do not use ' "./ , \ , @ , $, *'

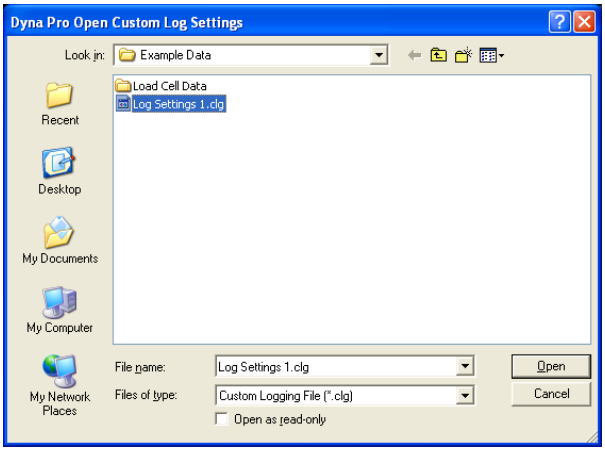
Press **Save** when completed or **Cancel** to exit without saving the Dyno Run.

'Open Custom Log Settings'



The **Open Custom Log Setting** function, allows the operator to *'Open'* a previously *'Saved'*, *'Custom Log'* file.

Left mouse click on **Open Custom Log Setting** to show the '*Open Custom Log Settings'* dialog window.

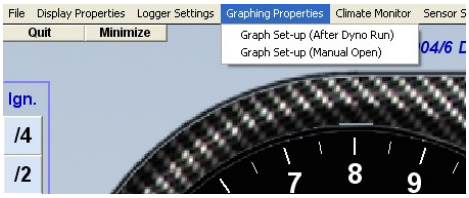


This dialog box is a standard Microsoft Windows dialog box; you can change folders, create folders, rename files, and change directories etc.

Select the folder and file that you wish to *'Open'*.

Press **Open** to *'Load the Custom Log Settings'* file or **Cancel** to exit without opening any file.

Drop Down Menus - 'Graphing Properties'



This function controls all of the *'Graphing Properties'*.

Left mouse click on **Graphing Properties** to show the file drop-down menu.

'Overview'

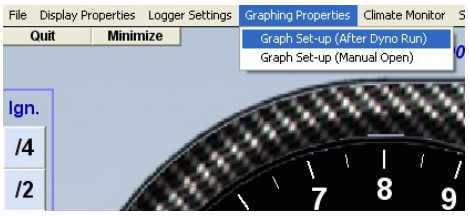
The **Graphing Properties** drop down menu allows the operator the ability to configure how the *'Dyna View V2'* graphs will be initially displayed when opened. Please refer to the *'Dyna View V2'* software manual for the functions, features and options available to use. Almost every function and option can be pre-configured.

There are 2 types of *'Graph Set-up'* that can be used: -

1. **Graph Set-up (After Dyno Run)**, this is how the graph will be displayed after the operator has just finished a *'Dyno Run'*, and has pressed the **'OK'** button on the *'Hand Controller'* to display the graphs.

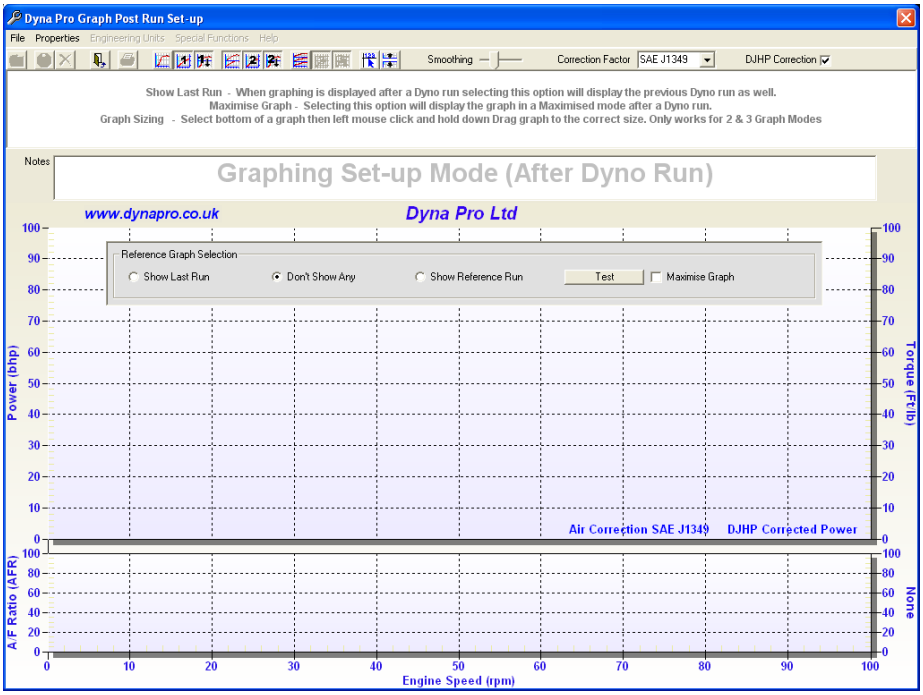
2. **Graph Set-up (Manual Open)**, this is how the graph will be displayed if the operator *'Opens'* a *'Dyno Run File'* manually, as explained earlier in this manual.

'Graph Set-up (After Dyno Run)'



The **Graph Set-up (After Dyno Run)** function, allows the operator to change the way the graph will be displayed after the operator has just finished a *'Dyno Run'*, and has pressed the **'OK'** button on the *'Hand Controller'* to display the graphs.

Left mouse click on **Graph Set-up (After Dyno Run)** to show the '*Dyna Pro Graph Post Run Set-up'* screen.

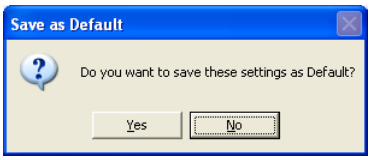


Please refer to the *'Dyna View V2'* software manual for the functions, features and options available to use.

The *'Reference Graph Selection'* allows the operator the ability, when the graph is displayed after a *'Dyno Run'*, to show not only the Dyno test just completed but can also display a second *'Dyno Run File'* of their choosing. These include the last Dyno Run prior to the *'Dyno Test'* just completed, a *'Dyno Run'* that has been marked as a *'System Reference Test'* or just show the Dyno Test just completed.

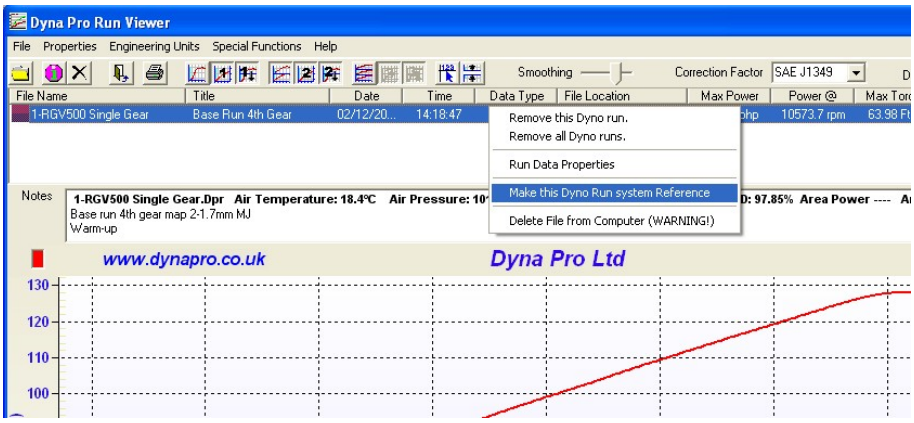
The operator can also select the **Maximize Graph** selection, this function will display the graph in a maximized state without the *'List Box'* or the *'Run Notes Box'*. Press the **Test** button to see how the graph will be displayed in this maximized state.

Select the drop down menu **File**, then select **Exit** to leave the *'Dyna Pro Graph Post Run Set-up'* screen, the operator can also press the **Red 'X' Box** in the top right corner. When *'Exiting'* this screen the operator will be prompted if they wish to *'save these settings as defaults'*.



Select **Yes** to 'Save as Default' or press **No** to abandon any changes made.

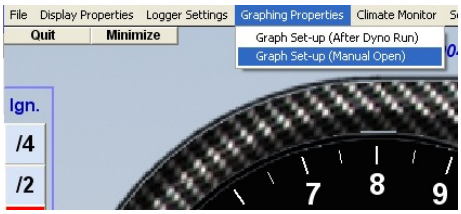
'System Reference Dyno Test'



Any *'Dyno Run'* test file can be marked as a *'System Reference Test'*.

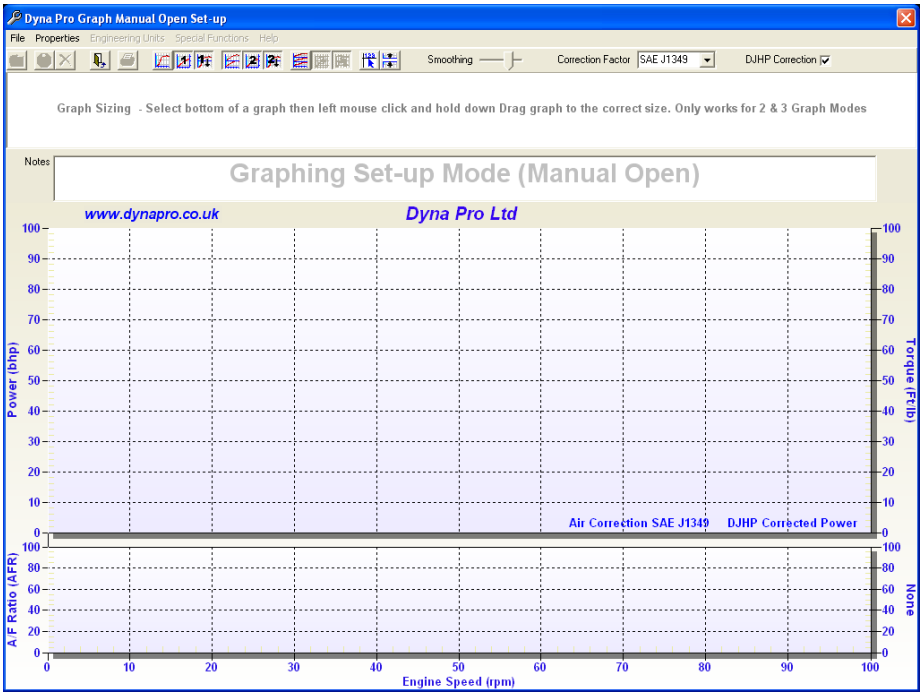
This must be done from within *'Dyna View'* Select the *'Dyno Run file'* from the *'Data List Box'* that is to be used as the reference file, then right mouse click on the selection and then with the left mouse button select **Make this Dyno Run System Reference**.

'Graph Set-up (Manual Open)'



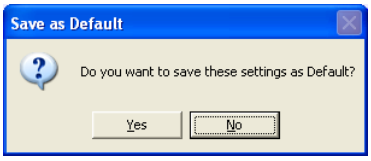
The **Graph Set-up (Manual Open)** function, this is how the graph will be displayed if the operator *'Opens'* a *'Dyno Run File'* manually, as explained earlier in this manual.

Left mouse click on **Graph Set-up (Manual Open)** to show the '*Dyna Pro Graph Manual Open Set-up'* screen.



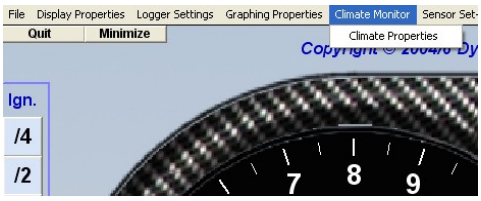
Select the drop down menu **File**, then select **Exit** to leave the '*Dyna Pro Graph Post Run Set-up'* screen, the operator can also press the **Red 'X' Box** in the top right corner.

When *'Exiting'* this screen the operator will be prompted if they wish to *'save these settings as defaults'*.



Select **Yes** to 'Save as Default' or press **No** to abandon any changes made.

Drop Down Menus - 'Climate Monitor'

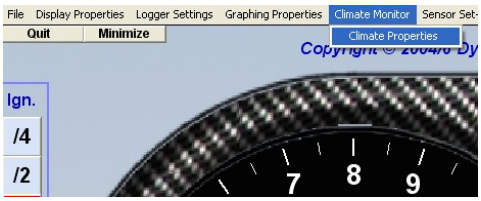


This function controls all of the *'Climate Monitor'* properties.

Left mouse click on **Climate Monitor** to show the file drop-down menu.

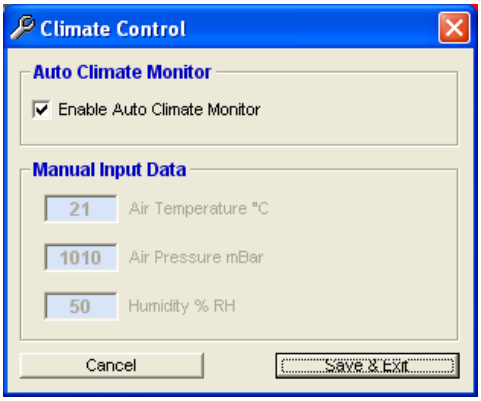
'Overview'

The **Climate Monitor** drop-down menu allows the operator to configure or adjust the climate values. There are two modes of operation; the first mode is fully automatic using the *'Dyna Pro Auto Climate Monitor'*. In this mode all climatic conditions are monitored electronically. The second mode of operation is a *'Manual Mode'*; in this mode the operator must enter the values for *Temperature*, *Air Pressure* and *Humidity*, manually. The repeatability of all *'Dyno Runs'* can be very dependent on the weather conditions.



Left mouse click on **Climate Properties** to show the '*Climate Control'* dialog box.

'Automatic'



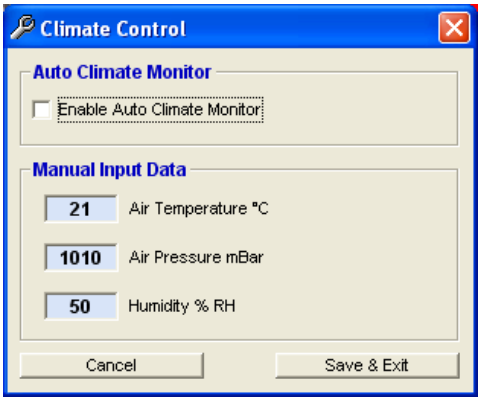
Placing a **Tick** in the ***Enable Auto Climate Monitor*** check box enables the system to operate with the *'Dyna Pro Auto Climate Monitor'*.

This configuration is fully automatic, and once set the operator can forget about this dialog control box.

The **Manual Input Data** text boxes will become *'Greyed Out'*.

Press **Save & Exit** when completed or **Cancel** to exit without saving.

'Manual'



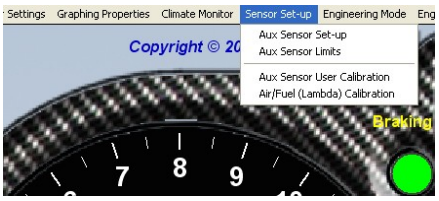
If the **Tick** is removed from the **Enable Auto Climate Monitor** check box, then the system will operate in *'Manual'* mode.

The operator must enter the correct climatic conditions into the **Manual Input Data** text boxes, from their own Barometer.

Every time the operator starts *'Dyna Run V3'*, they will be prompted on the *'Message Display'* of the *'Make Run Screen'* to enter the new climatic conditions.

Press **Save & Exit** when completed or **Cancel** to exit without saving.

Drop Down Menus - 'Sensor Set-up'



This function controls all of the *'Sensor Set-up'* properties.

Left mouse click on **Sensor Set-up** to show the file drop-down menu.

'Overview'

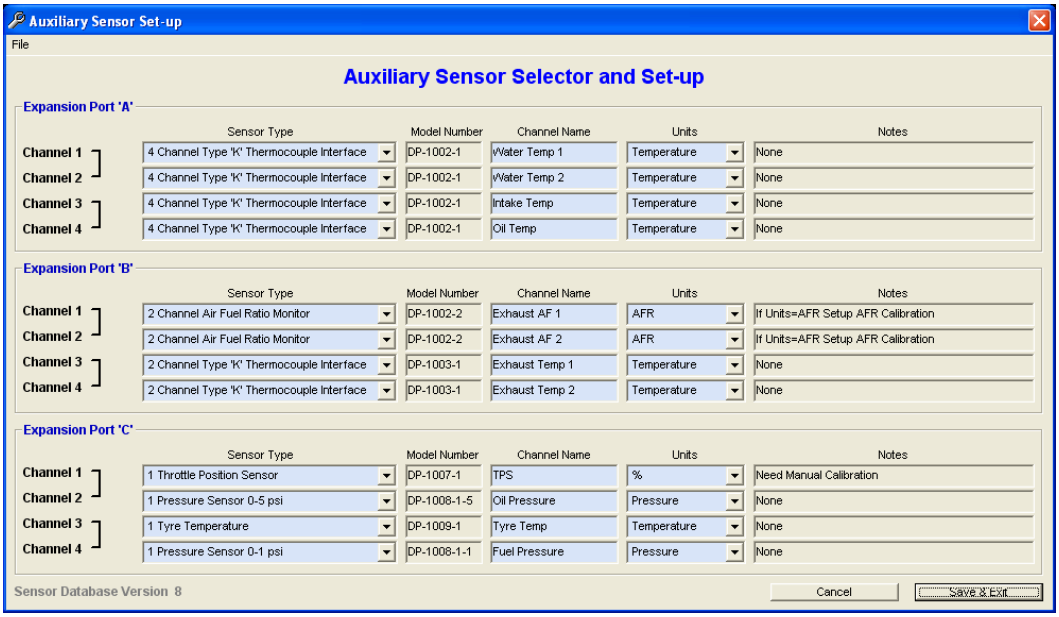
The **Sensor Set-up** drop-down menu allows the operator to add additional *'Sensors'* to the system, for example *'Thermocouple Sensors'*, *'Pressure Sensors'*, *'Tyre Temperature Sensors'*, *'Multiple Air/Fuel System'*, *'Throttle Position Sensors'*, etc.

It will also allow the operator the ability to set-up *'Upper and Lower'* limits on each of the sensor channels, and also to allow the operator to *'Calibrate'* sensors if required.

As standard there are *'12 Auxiliary Operator Sensor Channels'* of which all have 0-5 Volt inputs. These sensor channels are visible on the front panel of the *'Dynamometers Data Acquisition Unit'*, there are the 3 socket marked as *'Expansion Port A / B & C'* each of these 3 sockets have 4 individual sensor inputs. As the operator adds and configures *'Sensor Channels'*, they will automatically become displayed on the *'Make Run Screen'*.

'Aux Sensor Set-up'

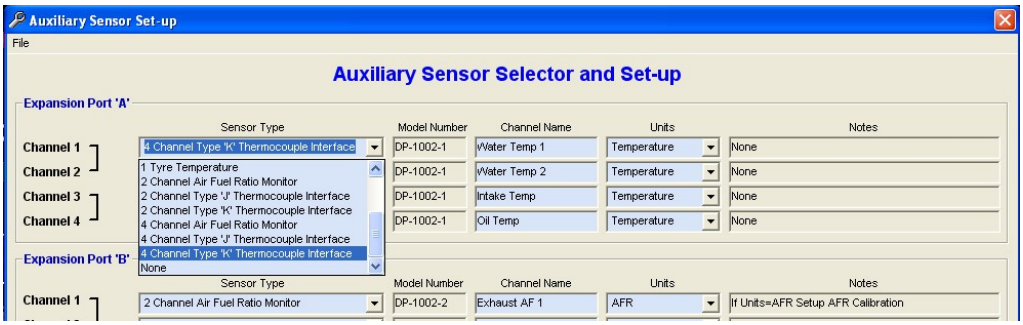
Left mouse click on **Aux Sensor Set-up** to show the '*Auxiliary Sensor Set-up'* dialog box.



This dialog box allows the operator to set-up and configures all *'12 Sensor Channels'*. The operator must first select the **Sensor Type** or *'Interface Unit'* to be used from the drop-down menus. Once the **Sensor Type** or *'Interface Unit'* has been selected, check that the model number shown on the dialog box matches with what is shown on the sensor.

Next, give each channel an individual name, if there are two or more channels with the same name an error message will be given when trying to **Save & Exit** the dialog box.

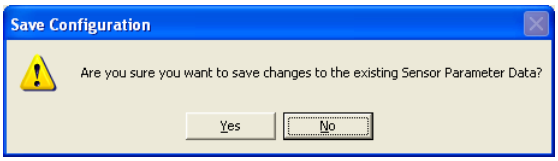
Lastly, select from the **Units** drop-down menu to select what type of engineering units will be displayed for each individual channel. If the **Units** menu is left blank or with *'Select'* written in it, then an error message will be given when trying to **Save & Exit** the dialog box.



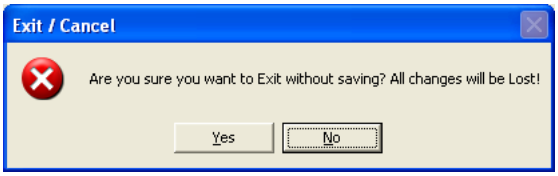
The **Sensor Type** drop-down menu shown, allows the operator to scroll through a list, and to then select the appropriate **Sensor** or *'Interface unit'*.

The notes *'Text Box'* informs the operator of any special requirements for the particular **Sensor** or *'Interface unit'* that has just been configured, this may include a note informing the operator that this particular *'Sensor'* may need to be externally calibrated or that it may have special *'Scaling'* functions.

When the operator has finished configuring all of the required *'Sensor Channels'*, select the **File** drop-down menu from the top left corner of the dialog box and then select **Save**, **Save & Exit** or **Quit**.



If you have selected **Save & Exit** then this message box will be displayed, press **Yes** to save and exit.

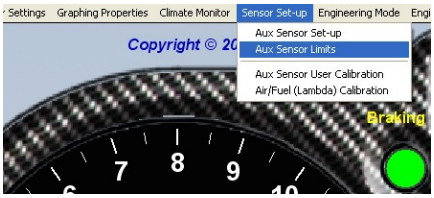


If you have selected **Quit** or the **Red 'X' Box** in the top right corner, then this message box will be displayed, press **Yes** to exit without saving**.**

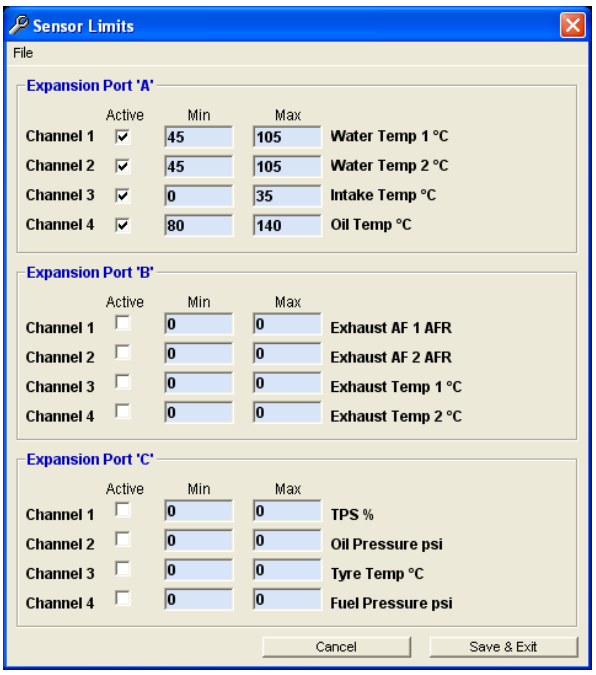
If when exiting the *'Auxiliary Sensor Set-up'* dialog box, there are any error are found with *'Data Channel Names'*, *'Units'*, etc then a message box will appear informing the operator of what error was encounter. The operator will not be able to exit the *'Auxiliary Sensor Set-up'* dialog box until it has become error free.

There may also be a message displayed to the operator when exiting, that one of more of the *'Sensors'* or *'Interface units'* may need to be externally calibrated before use, for example the *'Throttle Position Sensor'*. See *'Aux Sensor Operator Calibration'* later in this section for how to perform this calibration.

'Aux Sensor Limits'



Left mouse click on **Aux Sensor Limits** to show the *'Sensor Limits'* dialog box.



Each of the *'12 Auxiliary Operator Sensor Channels'* can be configured to have an *'Upper Limit'* and a *'Lower Limit'*.

'Upper Limit' and a *'Lower Limits'*, when exceeded are made visually noticeable on the *'Make Run Screen'*. See below for visuals.

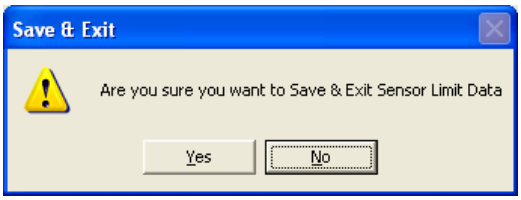
Enter the **Upper Limit** and a **Lower Limit** into each *'Sensor Channel'* and **Tick** the **Active** check box to enable this function.

When the operator has finished configuring all of the required *'Sensor Limits'*, select the **File** drop-down menu from the top left corner of the dialog box and then select **Save & Exit** or **Exit.**

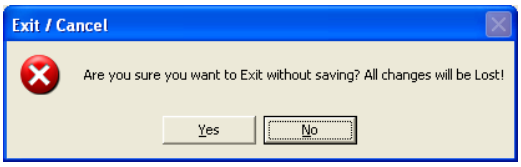
Lower Limit Threshold

Normal Limits

Upper Limit Threshold

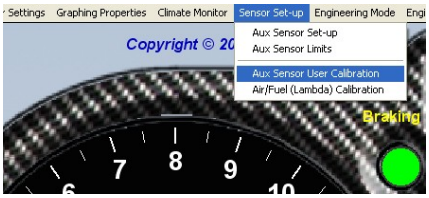


If you have selected **Save & Exit** then this message box will be displayed, press **Yes** to save and exit.

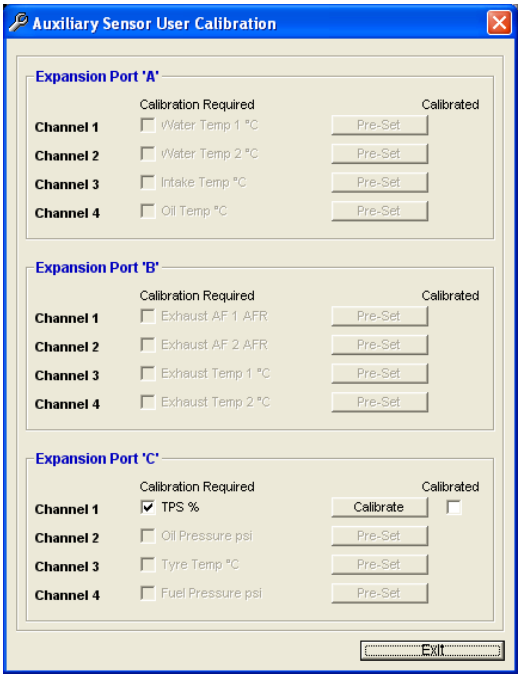


If you have selected **Exit** or the **Red 'X' Box** in the top right corner, then this message box will be displayed, press **Yes** to exit without saving.

'Aux Sensor User Calibration'



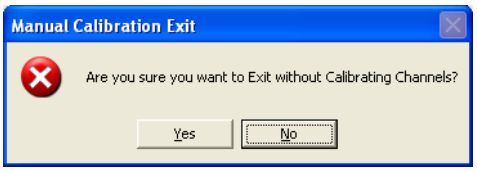
Left mouse click on **Aux Sensor User Calibration** to show the *'Auxiliary Sensor User Calibration'* dialog box.



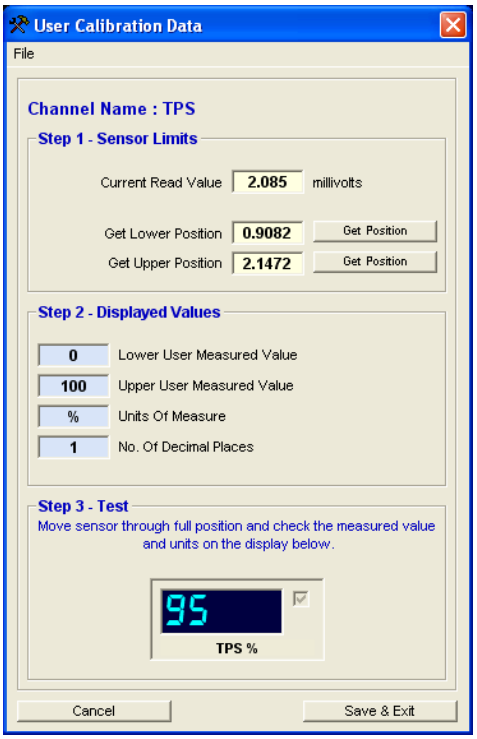
The *'Auxiliary Sensor Operator Calibration'* dialog box shows the operator, which *'Sensors Channels'* are *'Pre-Set'* and which need to be *'Manually Calibrated'*.

Each of the *'12 Auxiliary Operator Sensor Channels'* will be shown in this dialog box, most *'Sensors'* will be *'Pre-Set'* with reference to their calibration status, but some *'Sensors'* may need to be manually calibrated, for example the *'Throttle Position Sensor'*.

Proceed to calibrate the *'Throttle Position Sensor'* by left mouse click on the **Calibrate** button for the *'Throttle Position Sensor (TPS)'* channel, this will then show the *'Operator Calibration Data'* dialog box.



If you have selected **Exit** or the **Red 'X' Box** in the top right corner, before *'Calibrating'* all of the *'Sensor Channels'* that needed to be *'Manually Calibrated'*, then this message box will appear warning the operator that they have not *'Calibrated all of the Sensor Channels'*.



The *'Operator Calibration Data'* dialog box, allows the operator to *'Manually Calibrate'* an individual *'Sensor Channel'*. In this example we will use *'Throttle Position Sensor (TPS)'* channel.

Step 1 – Sensor Limits

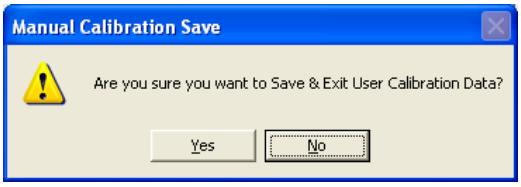
1. With the vehicle throttle *'Fully Closed'* press the **Get Position** button for the *'Get Lower Position'* heading. This will automatically update the *'Text Box'* with the *'Lower Calibration Value'*.

2. With the vehicle throttle *'Fully Open'* press the **Get Position** button for the *'Get Upper Position'* heading. This will automatically update the *'Text Box'* with the *'Upper Calibration Value'*.

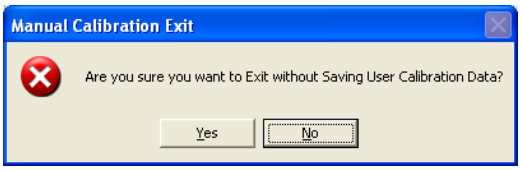
Step 2 – Displayed Values

Enter the values for how this *'Channels'* data readings will be displayed, for example with the *'Throttle Position Sensor (TPS)'* channel, the operator would want to have *'0%'* shown when the throttle was fully closed and *'100%'* when the throttle was fully opened.

When the operator has finished *'Calibrating'* this *'Sensor Channel'*, select the **File** drop-down menu from the top left corner of the dialog box and then select **Save & Exit** or **Cancel**.



If you have selected **Save & Exit** then this message box will be displayed, press **Yes** to save and exit.



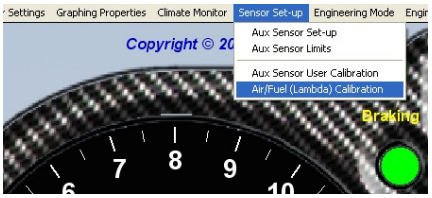
If you have selected **Cancel** or the **Red 'X' Box** in the top right corner, then this message box will be displayed, press **Yes** to exit without saving.

The operator will now be returned to the 'Auxiliary *Sensor Operator Calibration'* dialog box, if more *'Sensor Data Channels'* need to be *'Calibrated'* then repeat the above procedure, else the operator can **Save & Exit**.

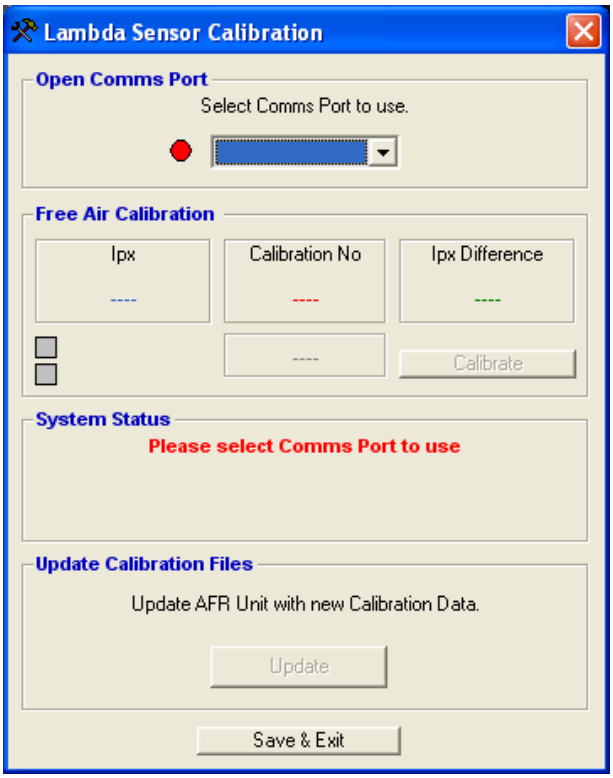
'Air/Fuel (Lambda) Calibration' (Only used on older Units)

NOTE This Air/Fuel Calibration function is only used to calibrate the older Air/Fuel Units (DP-AF-1000 & DP-AF-2000). It must not be used to calibrate the new Digital Air/Fuel Units.

This manual will not go into much detail on the calibration of these older units.



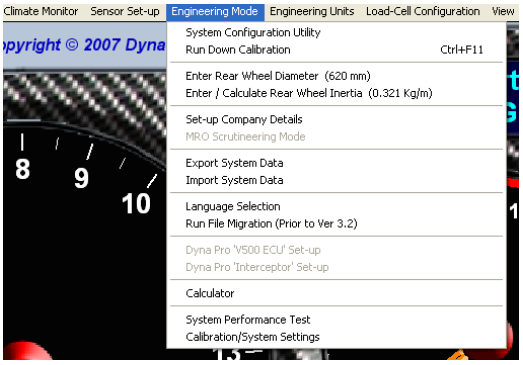
Left mouse click on **Air/Fuel (Lambda) Calibration** to show the '*Sensor Lambda Calibration'* dialog box.



The 'Lambda Sensor *Calibration'* dialog box allow the operator to *'Free Air'* calibrate the *'Lambda Sensor'*.

1. **Open Comm.'s Port** from the drop down menu select the comm.'s port to use, normal comm.'s 3 or comm.'s 4.
2. Once the unit has been found and connected press the **Calibrate** button.
3. When the unit has calibrated press the **Update** button and then the **Save & Exit** button.

Drop Down Menus - 'Engineering Mode'



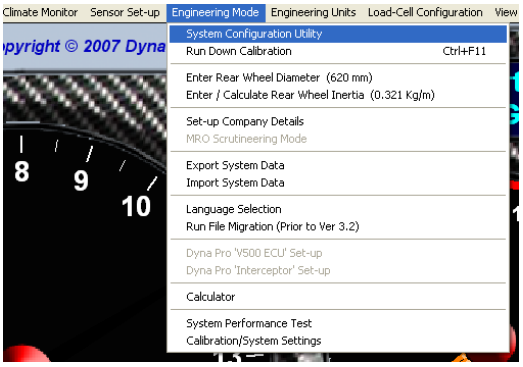
This Function controls all of the *'Engineering Mode'* properties.

Left mouse click on **Engineering Mode** to show the file drop-down menu.

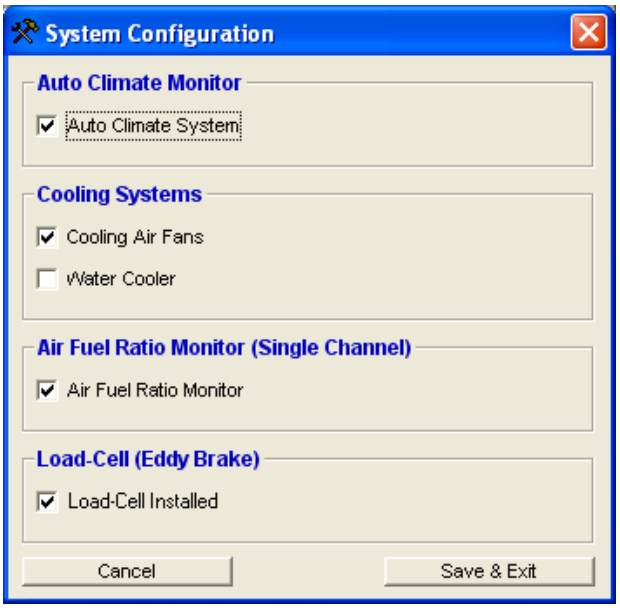
'Overview'

The **Engineering Mode** drop down menu allows the operator to change *'Machine Configuration'*, *'Calibrate'* the Dynamometer and allows other day-to-day operations to be carried out. It also allows the operator to **Import and Export** system files, which can be used when upgrading computers or used for *'Fault Diagnostics'*.

'System Configuration Utility'



Left mouse click on **System Configuration Utility** to show the '*System Configuration'* dialog box.



This '*System Configuration'* dialog box is normally pre-set by the options that the operator selected when the software was first installed.

If there is an *'Auto Climate Monitor'* installed onto the system then the **Auto Climate System** check box must be **Ticked**.

If there are *'Cooling Air Fans'* installed onto the system then the **Cooling Air Fans** check box must be **Ticked**.

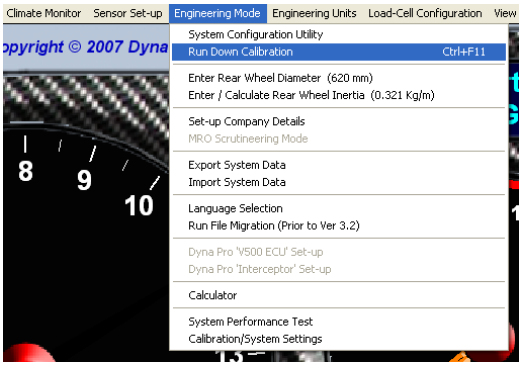
If there is an *'External Water Cooler'* installed onto the system then the **Water Cooler** check box must be **Ticked**.

If there is an *'Internal Air/Fuel Unit'* installed onto the system then the **Air Fuel Ratio Monitor** check box must be **Ticked**.

If there is an *'Eddy Brake or PAU System'* installed onto the system then the **Load-Cell Installed** check box must be **Ticked**.

Press **Save & Exit** when completed or **Cancel** to exit without saving.

'Run Down Calibration'



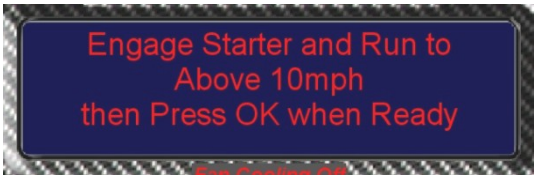
Left mouse click on **Run Down Calibration** to initiate the *'Run Down Calibration'* procedure.

The **Run Down Calibration** should be performed on a daily basis, before the Dynamometer is used. This calibration is used to ascertain the frictional losses of the Dynamometer.

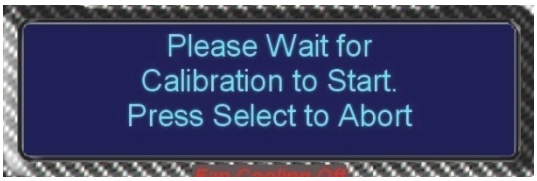
Selecting this function will display the following message box: -

NOTE Please insure that there are no vehicles on the Dynamometer and that the *'Load Cell'*, if installed is *'Switched Off'* when performing this calibration procedure.

Press the **'OK'** button when ready, and wait for instructions to be displayed on the *'Make Run Screen'* in the *'Message Display'* window.

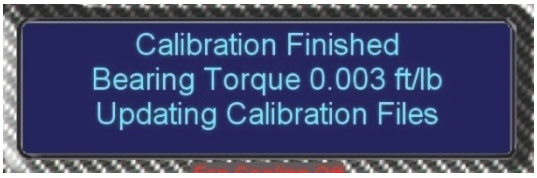


Engage the *'Starter Motor'* by pressing the **Starter** button on the *'Hand Controller'*; keep pressing the **Starter** button until the *'Road Speed'* is above the displayed *'Calibration Speed'* in the *'Message Display'* window.



Once the *'Road Speed'* is greater than the *'Calibration Speed'* shown, press the **'OK'** button to proceed with the calibration, or press the **Select** button to *'Abort'* the Calibration.

When the *'Road Speed'* becomes smaller than the *'Calibration Speed'* the *'Message Display'* window will show *'Calibrating Bearing Torque Please Wait'*, there will also be a *'Progress Bar'* displayed.

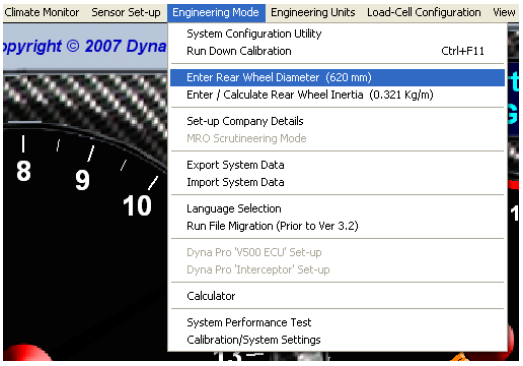


Once the calibration has been completed the following message will be displayed, showing the new frictional losses of the system.

NOTE That the Torque values shown here are not proportional to the Torque figures shown when testing a vehicle on the Dynamometer.

NOTE If the operator does not perform a **Run Down Calibration** for an extended period of time, then a *'Message Box'* will be displayed when starting the *'Dyna RunV3'* software of this fact.

'Enter Rear Wheel Diameter' (S14-LCLI Machines only)



Left mouse click on **Enter Rear Wheel Diameter** to show the '*Rear Wheel Parameters'* dialog box.

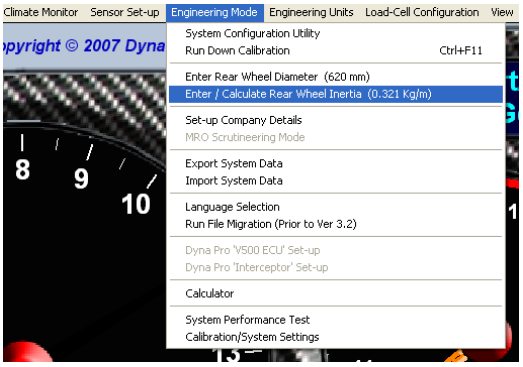
The '*Rear Wheel Parameter'* dialog box allows the operator to enter the **Rear Wheel Diameter** of the vehicle about to be *'Tested'*.

The **Rear Wheel Diameter** can be entered as either *'mm' or 'Inches'*.

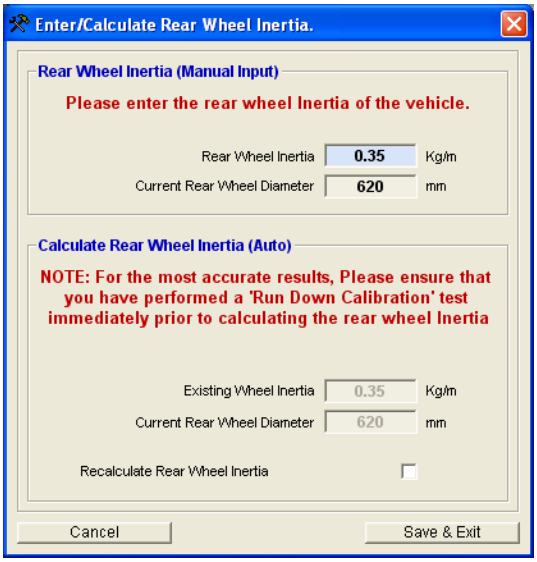
Press **Save & Exit** when completed or **Cancel** to exit without saving.

This Function is currently being reviewed.

'Enter / Calculate Rear Wheel Inertia' (S14-LCLI Machines only)



Left mouse click on **Enter / Calculate Rear Wheel Inertia** to show the '*Enter / Calculate Rear Wheel Inertia'* dialog box.

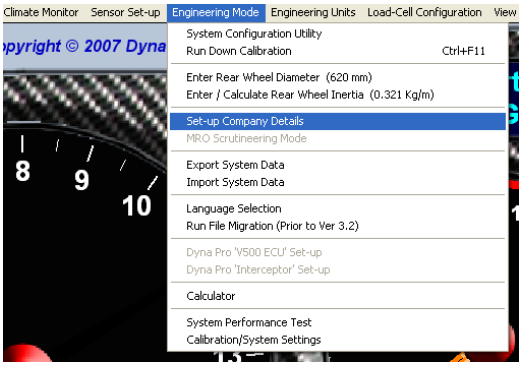


The '*Enter / Calculate Rear Wheel Inertia'* dialog box allows the operator to enter or calculate the *'Rear Wheel Inertia'* of the vehicle about to be *'Tested'*.

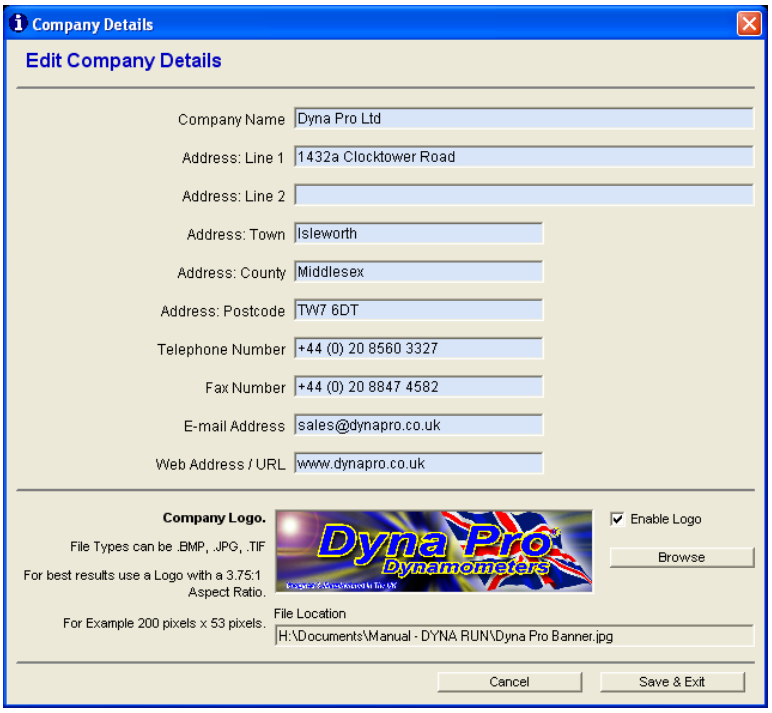
Press **Save & Exit** when completed or **Cancel** to exit without saving.

This Function is currently being reviewed.

'Set-up Company Details'



Left mouse click on **Set-Up Company Details** to show the '*Company Details'* dialog box.



The '*Company Details'* dialog box allows the operator to enter information about there company, including a company logo.

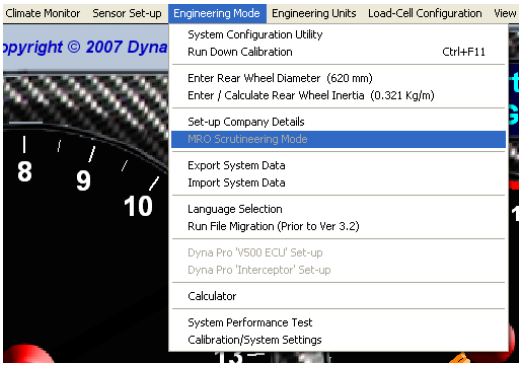
This information is used within *'Dyna RunV3'* and is also used and printed onto *'Graphs'* when in *'Dyna View'*.

The Company Logo can be a .BMP file, .JPG file or a .TIF file.

For best results use a file that has an aspect ratio of 3.75:1, for example 200 pixels by 53 pixels.

Press **Save & Exit** when completed or **Cancel** to exit without saving.

'MRO Scrutineering Mode' (Reserved Function)



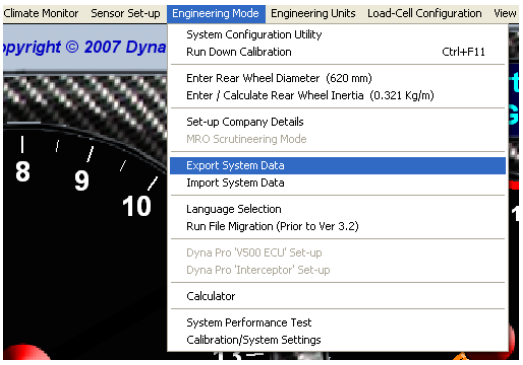
Left mouse click on **MRO Scrutineering** to enter *'Race Scrutineering Mode'*.

NOTE This is a reserved function, for more information please contact Dyna Pro Dynamometers Ltd.

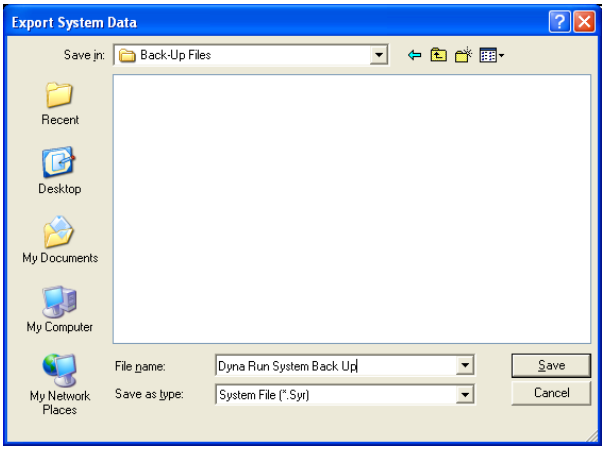
'Export System Data'

It is advisable, once you have your system configured and set-up, to **Export the System Data**, if in the advent of a *'Computer'* failure or *'Hard Drive'* failure it will become quick and simple to reset-up the *'Dyna Run V3'* software and all of the configuration files for the Dynamometer.

It is also advisable to keep a copy of this file away from the computer, for example on a *'Floppy Disk'* or a *'CD-Rom'*.



Left mouse click on **Export System Data** to show the '*Export System Data'* dialog box.



This dialog box is a standard Microsoft Windows dialog box; you can change folders, create folders, rename files, and change directories etc.

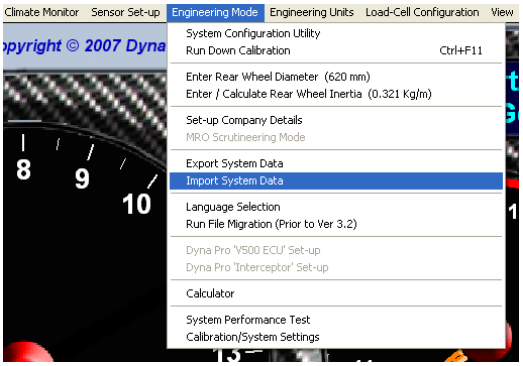
Select the folder you wish the *'System Data File'* to be saved in, then enter a file name of your choice.

NOTE Some keyboard characters have special uses, do not use ' ",/ , \ , @ , $, *'

Press **Save** when completed or **Cancel** to exit without saving the Dyno Run.

If the operator has pressed the **Save** button then the following message will be displayed if the *'System Files'* exported successfully.

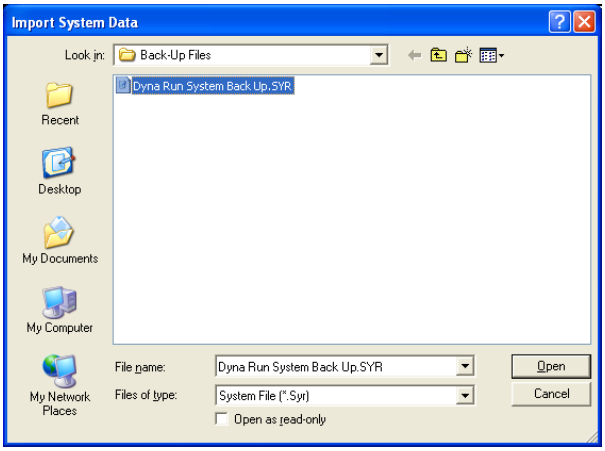
'Import System Data'



CAUTION!

This function allows the operator to **Import a System Data File**. Use this function with caution as the operator can corrupt their *'System Data'*.

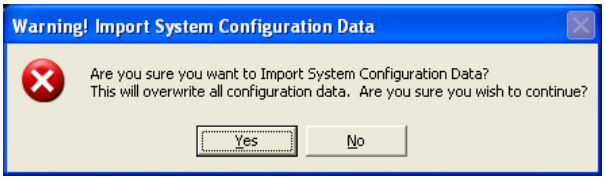
Left mouse click on **Import System Data** to show the '*Import System Data'* dialog box.



This dialog box is a standard Microsoft Windows dialog box; you can change folders, create folders, rename files, and change directories etc.

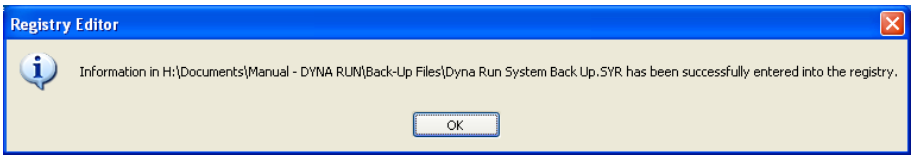
Select the folder and file that you wish to *'Open'*.

Press **Open** to *'Load Selected System Data'* file or **Cancel** to exit without opening any file.

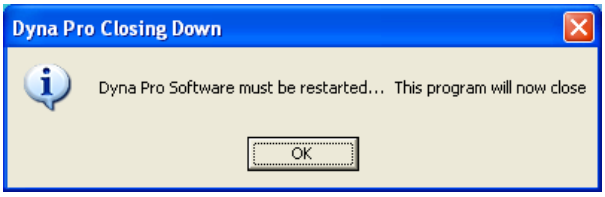


If the operator has selected to *'Open and Import'* the file, the following message box will be displayed asking the operator to confirm that they wish to *'Import System Configuration Data'*.

Select **Yes** to **Import**.



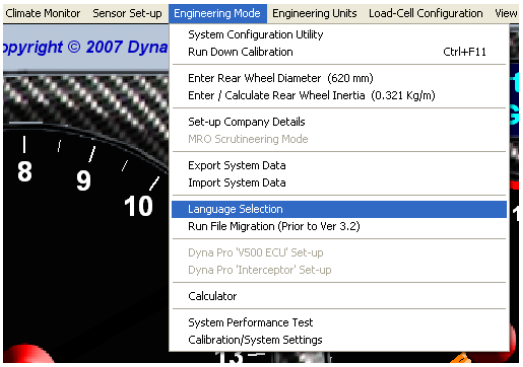
The following message will be displayed showing the operator that the files were *'Imported'* successfully. Press the **'OK'** button to continue.



Lastly a further message box will be displayed telling the operator that the *'Dyna Run V3'* software must be *'Restarted'*. Pressing the **'OK'** button will close the *'Dyna Run V3'* software.

Click on the *'Dyna Run V3'* desktop icon to restart *'Dyna Run V3'*.

'Language Selection'



This function allows the operator to *'Change the Language'*, that *'Dyna Run V3'* will use.

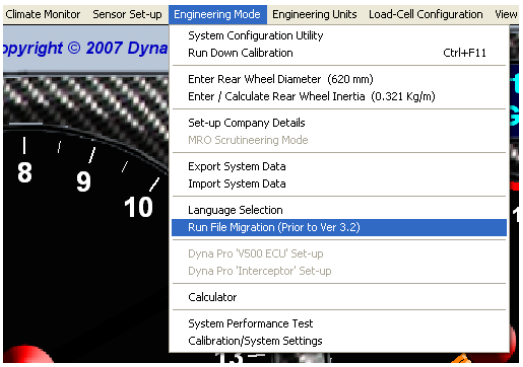
Left mouse click on **Language Selection** to show the '*Welcome Language'* dialog box.

The '*Welcome Language'* dialog box allows the operator to *'Change the Language'*, that *'Dyna Run V3'* will use.

NOTE This dialog box may appear different, and with different languages to what is show hear.

Press **Select** to *'Save'* the language selection made or the **Red 'X' Box** in the top right corner to *'Quit'* without *'Saving'*.

'Run File Migration' (Prior to Version 3.2.0)

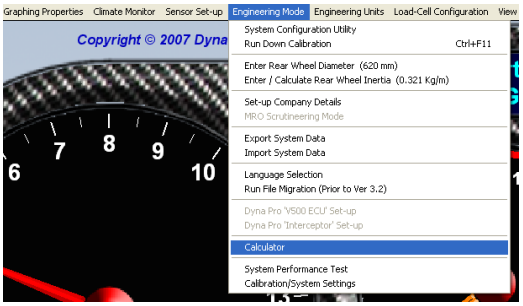


This function allows the operator to *'Migrate Dyno Run Files'* that were created before the software release of version 3.2.0

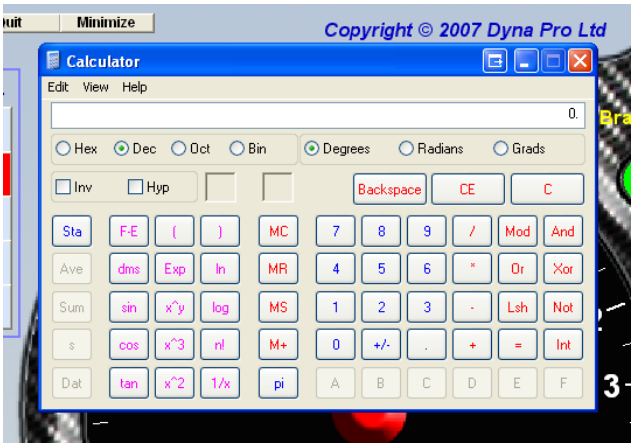
Left mouse click on **Run File Migration (Prior to Version 3.2.0)** to show the '*Migration'* dialog box.

Follow the onscreen instructions to *'Migrate Dyno Run Files'*.

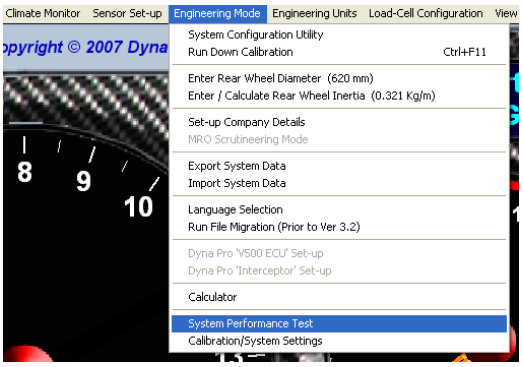
'Calculator'



This function will display the Microsoft™ system calculator.

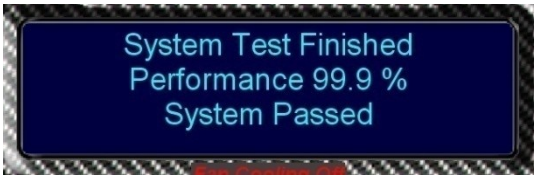


'System Performance Test'



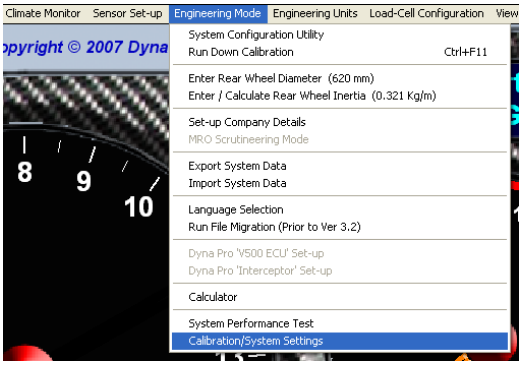
This function allows the operator to *'Check the Performance of their Computer System'*, to ensure that it meets Dyna Pro's minimum specification.

Left mouse click on **System Performance Test** check for operational speeds.



Once the *'System Performance Test'* has completed, around 10 seconds, the results will be shown on the *'Message Display'* on the *'Make Run Screen'*.

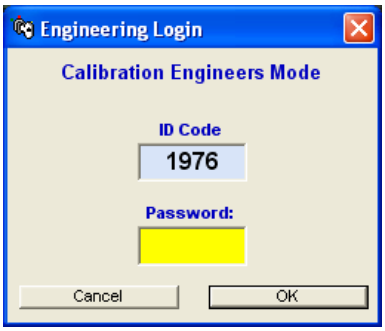
'Calibration/System Settings' (Reserved Function)



This function is for internal fault diagnostics, machine parameters, and software parameters. The operator has no access to the functions on this menu.

However if there is a problem with the Dynamometer, a Dyna Pro technician or appointed agent may wish for the operator to enter this function.

Left mouse click on **Calibration/System Settings** to show the '*Engineering Login'* dialog box.



If a technician requires the operator to go into this menu, he will ask the operator for the *'Login ID Code'* shown here, please note that the *'ID Code'* changes every time that the operator enters *'Engineering Login'*.

The Technician will read back to the operator a *'Password'*, please enter this password carefully, and press the **'OK'** button when asked to do so.

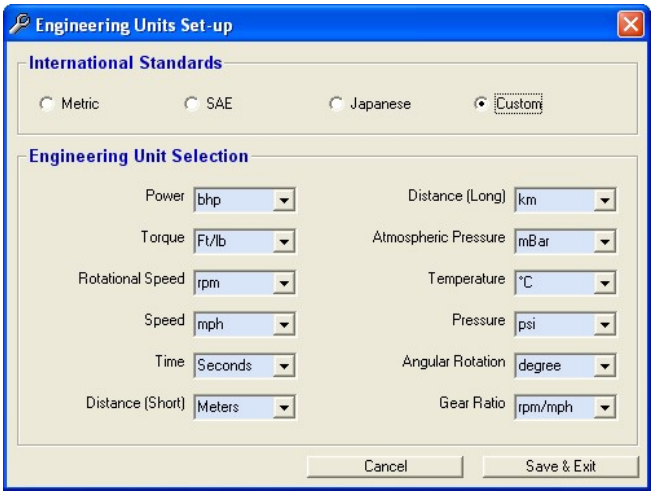
The technician will guide the operator further once they are *'Logged In'*.

Drop Down Menus - 'Engineering Units'

Left mouse click on **Engineering Units Set-up** to show the *'Engineering Units Set-up'* drop-down menu.

The *'In brackets'* part tells the operator what units have been selected, i.e. Metric, SAE, Japanese, or Custom settings.

'Engineering Units Set-up'



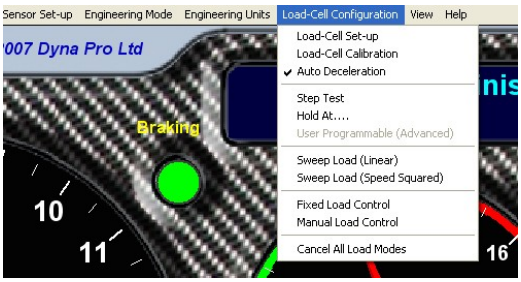
You may wish to choose a *'Standard Unit'* set-up, Metric, SAE or Japanese. If this is the case then just left mouse click one of the options and then all the Unit Fields will be updated.

If you prefer to work in the Units that suit you then, from each of the headings pull down the drop-down menu and select the Units you require.

The Options at the top will now automatically select *'Custom'*.

When you have finished click on the **Save & Exit** button.

Drop Down Menus - 'Load-Cell Configuration'



This function controls all of the *'Load-Cell Configuration Settings'*.

Left mouse click on **Load-Cell Configuration** to show the file drop-down menu.

'Overview'

The Dyna Pro Dynamometer if fitted with a *'Load-Cell'* can perform both *'Sweep Testing and Steady State Testing'*, the *'Load-Cell'* is also equipped with a *'Torque Measuring Device'* and an '*Infrared Temperature Sensor'* both of which are standard fitments on all Dyna Pro Dynamometers. The reason for these items being standard is that they are key to the system operation of the *'Load Cell'*, all Dyna Pro Dynamometers use *'Closed Loop Feedback Techniques'* to accurately control the *'Load-Cell'*.

The **Load-Cell Configuration** drop-down menu controls, configures and calibrates all of the *'Load-Cell'* functions. There are several modes of operation, *'Manual or Automatic'*, and within these modes of operation there are several different ways in which the load can be applied, these are as follows: -

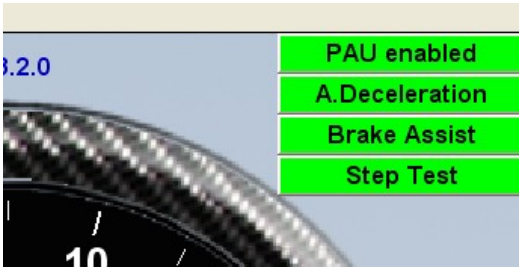
1. *'Static or Fixed Load'* this will apply a constant load to the Dynamometer, for example 10 ft/lb's regardless of what the *'Road Speed'* is. This type of testing is commonly referred to as *'Sweep Testing'*.

2. *'Linear Load'* this will apply a load of which will increase with *'Road Speed'*, for example for every 10 mph increase in road speed, the load will increase by 3 ft/lb's. This type of testing is commonly referred to as *'Sweep Testing'*.

3. *'Speed Squared Load'* this will apply a load of which will increase exponentially with *'Road Speed'*, this type of load is commonly referred to as *'Wind Resistance'*. This type of testing is commonly referred to as *'Sweep Testing'*.

4. *'Holding Loads'*, these are loads that are applied to the Dynamometer to hold the vehicle being tested at a constant *'Road Speed'* or *'Engine Speed'*, regardless of what power the vehicle is producing, this type of testing is commonly referred to as *'Steady State Testing'*.

The *'Load-Cell'* can also perform an *'Auto Deceleration'* at the end of a Dyno Test, *'Auto Deceleration'* will only work after a *'Logged Dyno Test'* has been completed. At the end of the Dyno Test the *'Auto Deceleration'* function will be applied and will automatically slow the vehicle down to the point at which the operator started the *'Logged Dyno Test'*. This feature can be enabled or disabled.

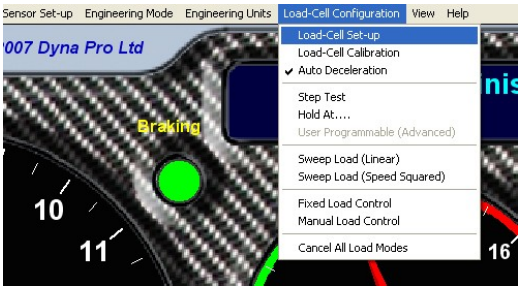


The 4 control indicators in the top right of the *'Make Run Screen'* show the operator which functions are operational, or which mode of operation the *'Load-Cell'* is in.

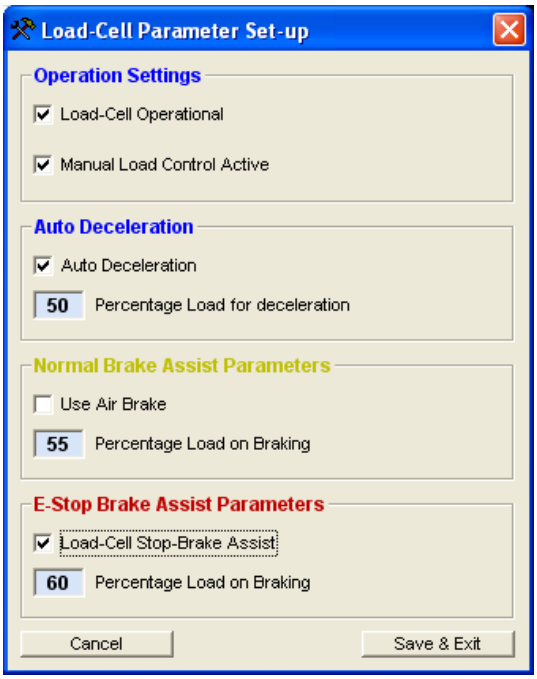
'Green'	Indicates operational
'Red'	Disabled
'Grey'	Not Set

The **Brake Assist** indicator shows the operator if the *'Air Brake'* System will be used for *'Braking'* along with the *'Load-Cell'*.

'Load-Cell Set-up'



Left mouse click on **Load-Cell Set-up** to show the *'Load-Cell Parameter Set-up'* properties dialog window'.



The *'Load-Cell Parameter Set-up'* dialog box allows the operator to configure the *'Load-Cells'* general operational settings.

'Operational Settings'
Load-Cell Operational, Enables or Disables the entire Load-Cell.

Manual Load Control Active, Allows the operator to manually control the *'Load'* applied by the *'Load-Cell'* from the *'Hand Controller'*.

'Auto Deceleration'
'Auto Deceleration', Enables or Disables the Auto Deceleration function.

'Percentage Load for Deceleration', This allows the operator to specify how much *'Load'* is applied to the *'Load-Cell'* when Auto Deceleration is active.

'Normal Brake Assist Parameters'
Use Air Brake, This refers to the *'Yellow Brake Button'* on the *'Hand Controller'* and allows the operator the ability to use both the *'Air Brakes'* and the *'Load-Cell'* for Braking.

Percentage Load on Braking, This refers to the *'Yellow Brake Button'* on the *'Hand Controller'* and allows the operator to specify how much *'Load'* is applied to the *'Load-Cell'* when this button is pressed.

'E-Stop Brake Assist Parameters'
Load-Cell Stop-Brake Assist, This refers to the *'Red E-Brake Button'* on the *'Hand Controller'* and allows the operator the ability to use both the *'Air Brakes'* and the *'Load-Cell'* for Braking.

NOTE that the *'E-Brake'* or *'Emergency Brake'* will always apply the *'Air Brake'* System'

Percentage Load on Braking, This refers to the *'Red E-Brake Button'* on the *'Hand Controller'* and allows the operator to specify how much *'Load'* is applied to the *'Load-Cell'* when this button is pressed.

'Load-Cell Calibration'

'Overview'

Calibration of the *'Load-Cell'* is critical to its operation and accuracy. There are 2 steps to the calibration. First the *'Load-Cell'* must be *'Zeroed'*; and then secondly the *'Load-Cell'* must be calibrated.

The second step of calibration requires the use of *'Calibration Torque Arm'* and the supplied *'Check Weights'* that was supplied with the Dynamometer; this calibration checks that the *'Measured Load Range'* is correct.

It is recommended that the Dynamometer should be *'Zeroed'* on a daily basis **(Step 1)**, and that the *'Measured Load Range'* should be calibrated once per month **(Step 2)**.

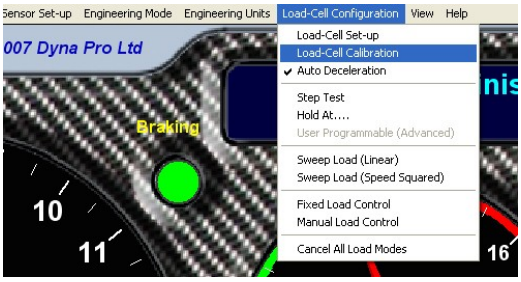
It is also recommended that the *'Calibrations'* be carried out at the start of the working day before the Dynamometer is used.

CAUTION!

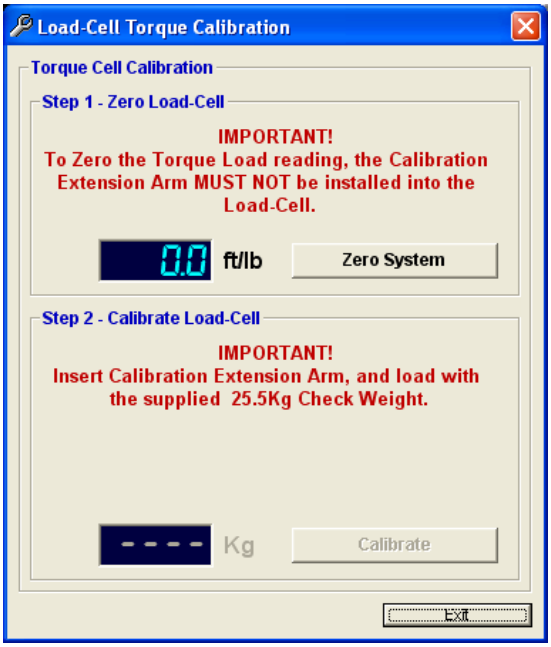
Treat the *'Check Weights'* with care and **ONLY** use the *'Check Weights and Hanger'* that was supplied with the Dynamometer. **DO NOT cut, modify or shorten the** *'Calibration Torque Arm'* **in any way, as this will lead to highly inaccurate calibration.**

CAUTION!

Be aware that the *'Check Weights'* are heavy; please observe normal lifting precautions, when handling the *'Check Weights'*.



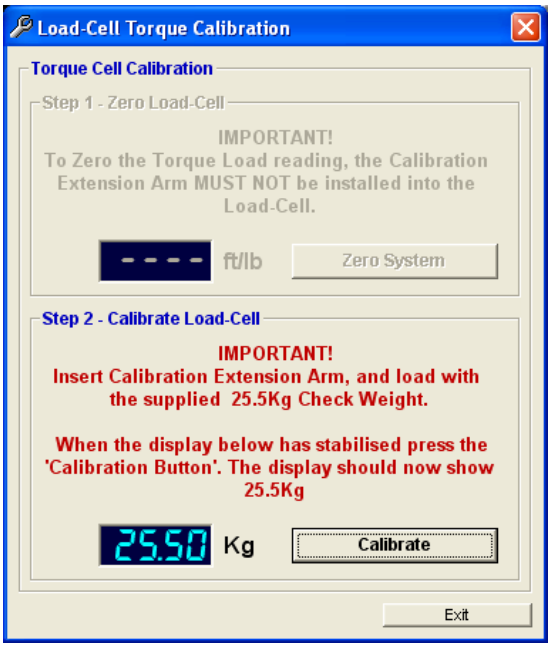
Left mouse click on **Load-Cell Calibration** to show the *'Load-Cell Torque Calibration'* dialog window.



Step 1 Calibration – *'Zeroing'*

NOTE The *'Calibration Torque Arm'* and the *'Check Weights'* are **NOT** used in this *'Calibration'*.

Press the **Zero System** button to calibrate and set to zero.



Step 2 Calibration - *'Measured Load Range'*

Insert the *'Calibration Torque Arm'* into the back of the *'Load-Cell'* and then apply the *'Check Weights'* to the end of the *'Calibration Torque Arm'*.

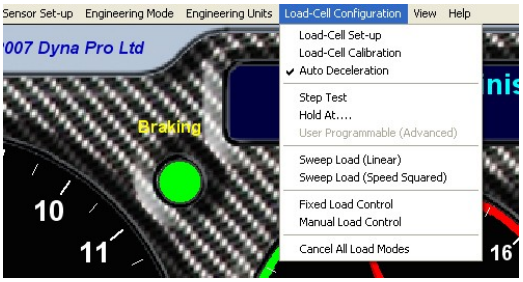
Wait for the Display to *'Stabilize'* before pressing the **Calibrate** button.

Once the *'Calibration'* is complete remove the *'Check Weights'* and then the *'Calibration Torque Arm'*.

WARNING!

The Dynamometer must never be operated when the *'Check Weights'* and the *'Calibration Torque Arm'* are inserted into the *'Load-Cell'*.

'Auto Deceleration'



The *'Auto Deceleration'* function, if selected, indicated by a **Tick** to the left hand side, this will activate the *'Auto Deceleration Mode'*.

Deselecting this function will *'Cancel'* the *'Auto Deceleration Mode'*.

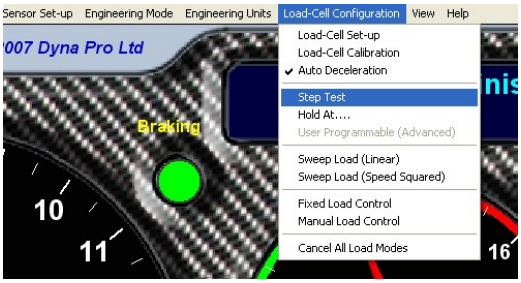
'Step-Test'

'Overview'

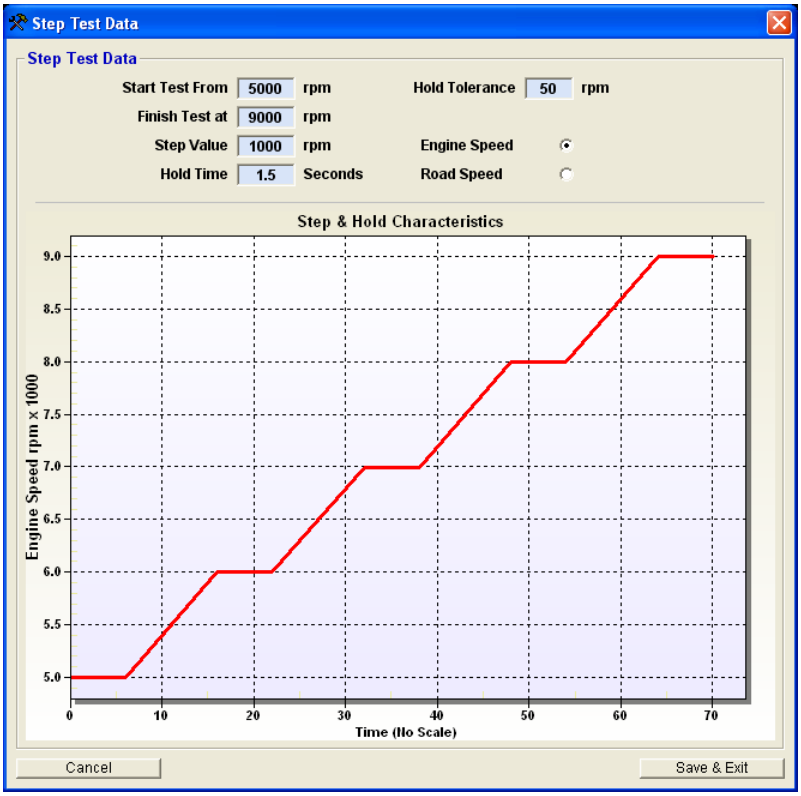
The **Step-Test** function allows the operator to perform a series of *'Steady State Tests'* that will performed at fixed intervals for either *'Road Speed'* or *'Engine Speed'*. These *'Tests'* are performed according to the data that the operator has entered into the *'Step Test Data Properties'* dialog box.

For Example: The operator wants to perform a *'Step Test'* starting at 5,000rpm and then *'Holding'* at 5,000rpm for a period of 1.5 Seconds, once completed at 5,000rpm the system will then *'Step'* by 1,000rpm and then *'Hold'* at 6,000rpm for 1.5 seconds. This *'Stepping'* process will continue until 9,000rpm of which was the operators finishing *'Engine Speed'*.

NOTE The *'Load-Cell'* will become *'Off-Line'* or *'Disengaged'* if the *'Road Speed'* becomes less than 5mph (8kph).



Left mouse click on **Step-Test** to show the *'Step Test Data Properties'* dialog window.



The operator must enter the required parameters for the *'Step-Test'* that is about to be performed.

The operator can select to between *'Engine Speed'* or *'Road Speed'* as the *'Holding'* units.

The operator also has the ability to specify the **Hold Tolerance**. The *'Hold Tolerance'* relates to when the vehicle is in its *'Hold Period'*, if while in the *'Hold Period'* the *'Engine Speed'* or *'Road Speed'* exceed this *'Tolerance'* then the *'Holding Period'* time will be reset.

The *'Graph'* shows a visual representation of the *'Test'* that is about to be performed.

When you have finished click on the **Save & Exit** button.

Once the operator has clicked on the **Save & Exit** button from above, then the *'Real Time Power & Torque Graph'* will be replaced by the *'Eddy-Brake Controller Display'*.

This display informs the operator about the current status of the *'Step-Test'* procedure.

NOTE The *'Load-Cell'* is *'Off-Line'* or *'Disengaged'* until the operator *'Engages'* the *'Load-Cell'* by pressing button **'B'** on the *'Hand Controller'*.

NOTE The *'Load-Cell'* will become *'Off-Line'* or *'Disengaged'* if the *'Road Speed'* becomes less than 5mph (8kph).

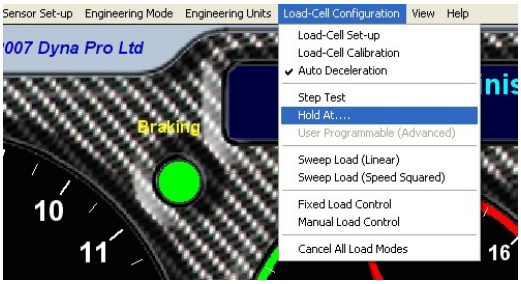
'Hold At….'

'Overview'

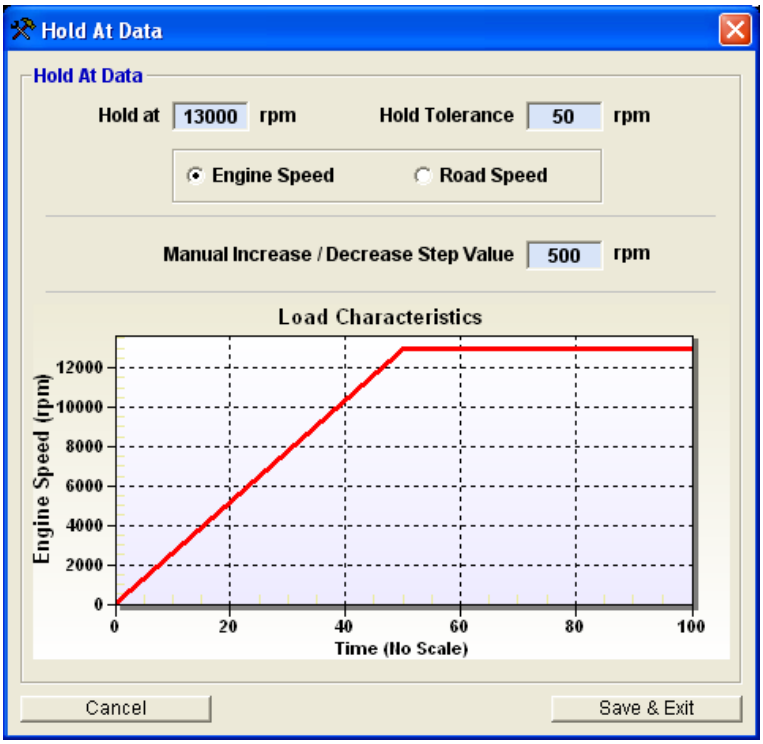
The **Hold At….** function allows the operator to perform a *'Steady State Test'* at a specific *'Road Speed'* or *'Engine Speed'*. This *'Test'* is performed according to the data that operator has entered into the *'Hold At Data Properties'* dialog box.

For Example: The operator wants to perform a *'Hold At Test'* at 13,000rpm, there is no *'Timing Period'* used with this function, the vehicle will remain at the set speed for as long as the operator requires.

NOTE The *'Load-Cell'* will become *'Off-Line'* or *'Disengaged'* if the *'Road Speed'* becomes less than 5mph (8kph).



Left mouse click on **Hold At….** to show the *'Hold At Data'* properties dialog window.



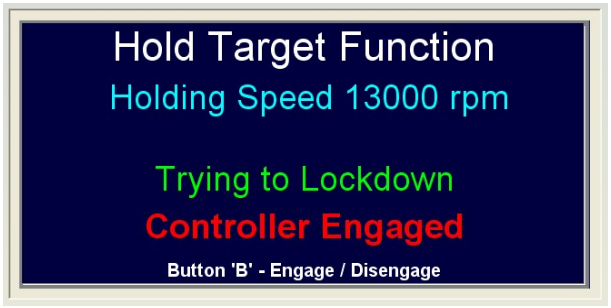
The operator must enter the required parameters for the *'Hold At'* test that is about to be performed.

The operator can select to between *'Engine Speed'* or *'Road Speed'* as the *'Holding'* units.

The operator also has the ability to specify the **Hold Tolerance**. The *'Hold Tolerance'* relates to when the vehicle is in its *'Hold Period'*, if while in the *'Hold Period'* the *'Engine Speed'* or *'Road Speed'* exceed this *'Tolerance'* then operator will be informed on the *'Eddy-Brake Controller Display'*.

The *'Graph'* shows a visual representation of the *'Test'* that is about to be performed.

When you have finished click on the **Save & Exit** button.



Once the operator has clicked on the **Save & Exit** button from above, then the *'Real Time Power & Torque Graph'* will be replaced by the *'Eddy-Brake Controller Display'*.

This display informs the operator about the current status of the *'Hold At'* test procedure.

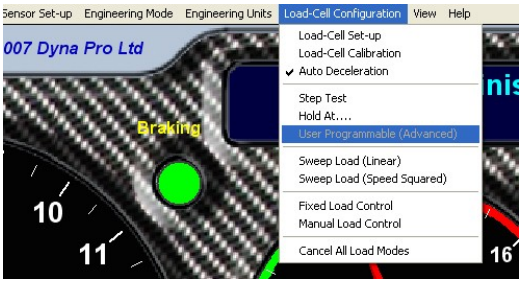
NOTE The *'Load-Cell'* is *'Off-Line'* or *'Disengaged'* until the operator *'Engages'* the *'Load-Cell'* by pressing button **'B'** on the *'Hand Controller'*.

The operator can also adjust the *'Holding Speed'* while performing the *'Hold At'* test by pressing the **Increase** or **Decrease** buttons on the *'Hand Controller'*.

The new *'Holding Speed'* will be shown on the *'Pop-Up'* display. Each time the operator presses the buttons on the *'Hand Controller'*, the 'Holding Speed' will increase or decrease by the value of which was entered into the **Manual Increase / Decrease Step Value** text box.

NOTE The *'Load-Cell'* will become *'Off-Line'* or *'Disengaged'* if the *'Road Speed'* becomes less than 5mph (8kph).

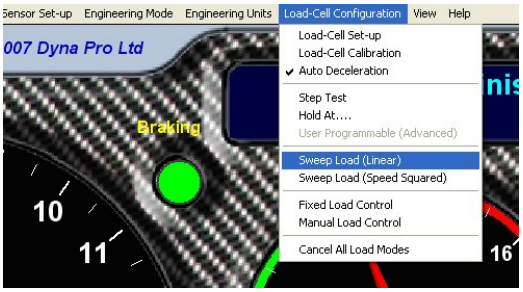
'User Programmable (Advanced)'



Left mouse click on **User Programmable (Advanced)** to show the *'Advanced User Programming'* properties dialog window'.

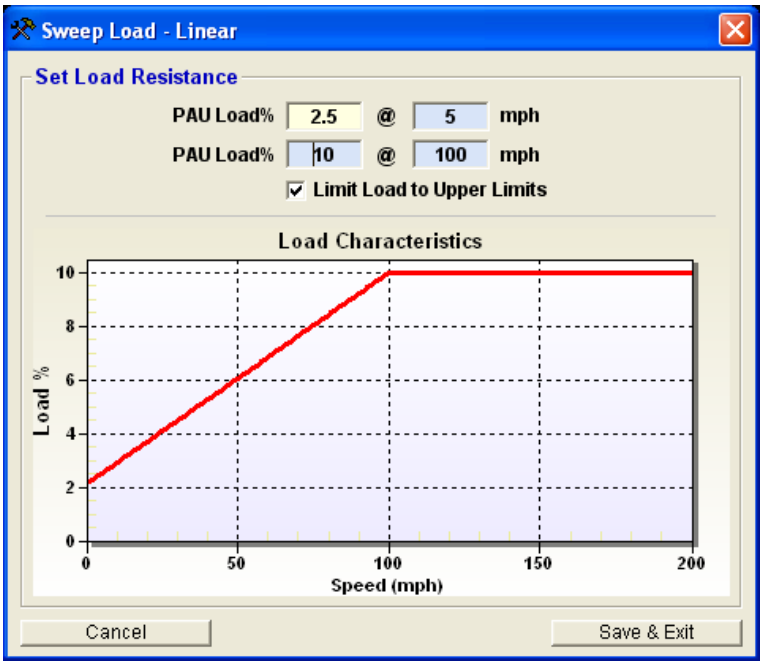
NOTE This is a reserved function; please contact Dyna Pro Dynamometers Ltd for further information.

'Sweep Load (Linear)'



Left mouse click on **Sweep Load (Linear)** to show the *'Sweep Load – Linear' properties dialog window*.

The *'Sweep Load (Linear)'* function applies a *'Linear Load'* to the vehicle being tested.

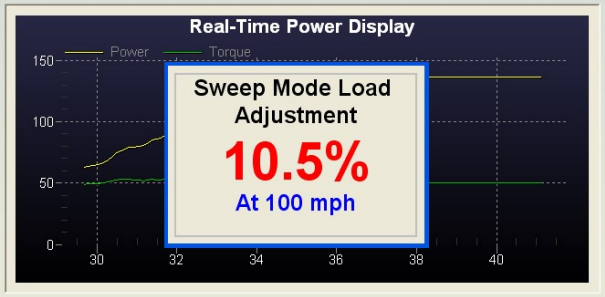


The operator must enter the required parameters for the *'Sweep Load (Linear)'* test that is about to be performed.

The **Limit Load to Upper Limits** check box is used to restrict the *'Load'* to the maximum that is entered into the **PAU Load % & Road Speed** text boxes. In the example to the left, the *'Load'* will not increase past 10% at 100mph.

The *'Graph'* shows a visual representation of the *'Test'* that is about to be performed.

When you have finished click on the **Save & Exit** button.

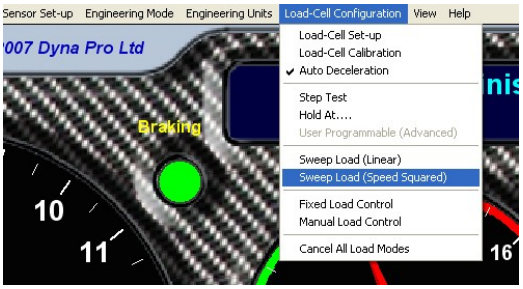


The operator can also adjust the maximum *'Load'* while performing the *'Sweep Load (Linear)'* test by pressing the **Increase** or **Decrease** buttons on the *'Hand Controller'*.

The new *'Load'* will be shown on the *'Pop-Up'* display. Each time the operator presses the buttons on the *'Hand Controller'*, the *'Load'* will increase or decrease by 0.5%.

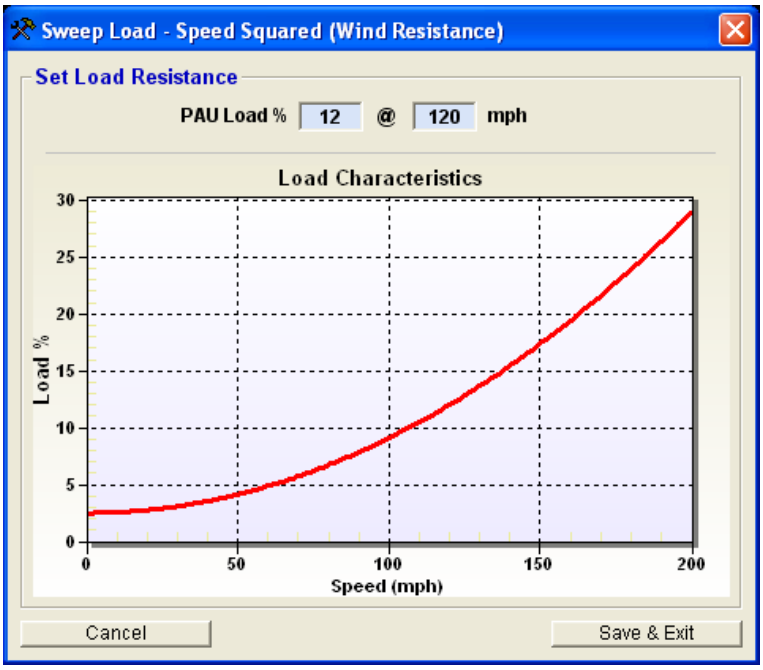
NOTE All *'Loads'* are cancelled if the *'Road Speed'* becomes less than 5mph (8kph).

'Sweep Load (Speed Squared)'



Left mouse click on **Sweep Load (Speed Squared)** to show the *'Sweep Load – Speed Squared (Wind Resistance)'* properties dialog window.

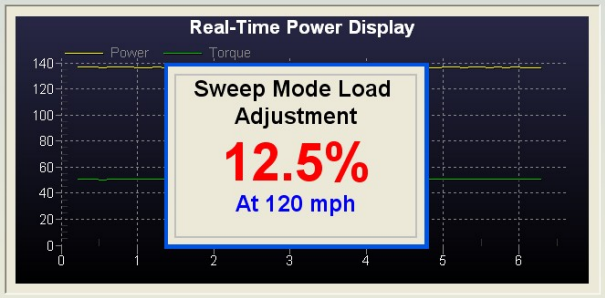
The *'Sweep Load (Speed Squared)'* function applies a *'Non Linear Load'* to the vehicle being tested. The load will increase by the Square of the Speed, commonly known as *'Wind Drag or Wind Resistance'*.



The operator must enter the required parameters for the *'Sweep Load (Speed Squared)'* test that is about to be performed.

The *'Graph'* shows a visual representation of the *'Test'* that is about to be performed.

When you have finished click on the **Save & Exit** button.

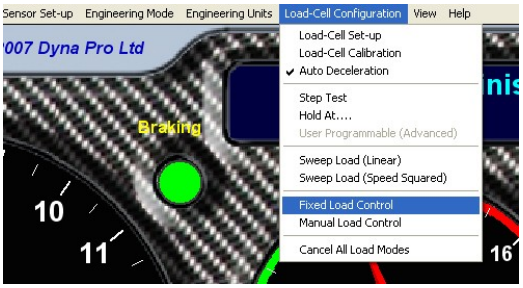


The operator can also adjust the maximum *'Load'* while performing the *'Sweep Load (Speed Squared)'* test by pressing the **Increase** or **Decrease** buttons on the *'Hand Controller'*.

The new *'Load'* will be shown on the *'Pop-Up'* display. Each time the operator presses the buttons on the *'Hand Controller'*, the *'Load'* will increase or decrease by 0.5%.

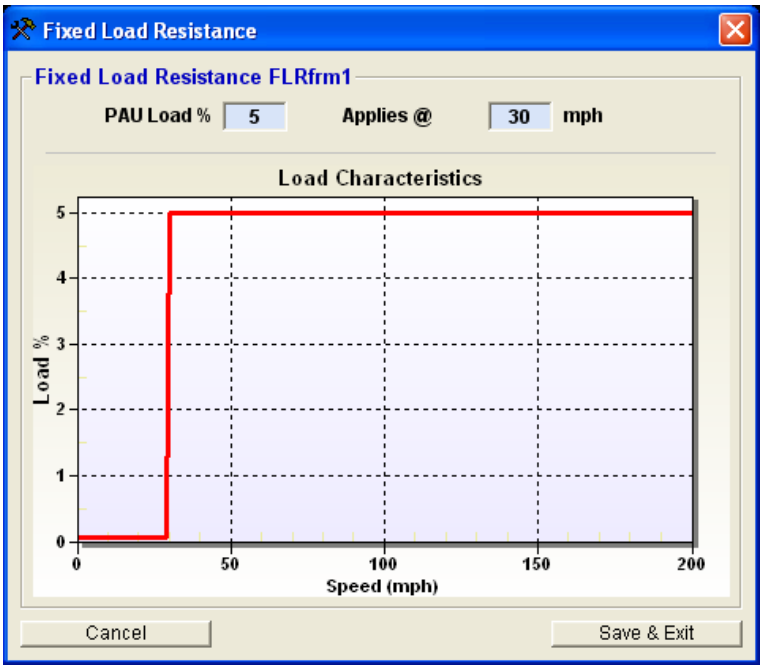
NOTE All *'Loads'* are cancelled if the *'Road Speed'* becomes less than 5mph (8kph).

'Fixed Load Control'



Left mouse click on **Fixed Load Control** to show the *'Fixed Load Resistance'* properties dialog window.

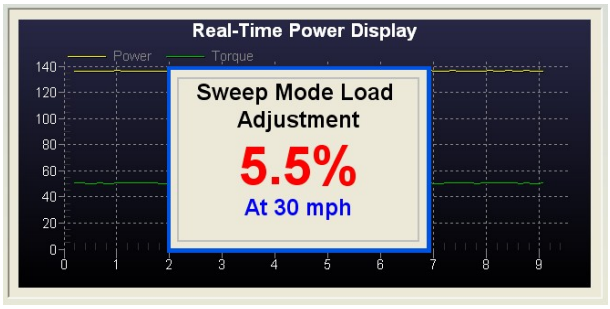
The *'Fixed Load Control'* function applies *'A Static Load from a Specific Speed'* to the vehicle being tested.



The operator must enter the required parameters for the *'Fixed Load Control'* test that is about to be performed.

The *'Graph'* shows a visual representation of the *'Test'* that is about to be performed.

When you have finished click on the **Save & Exit** button.

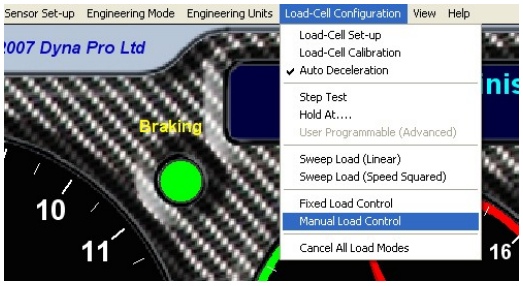


The operator can also adjust the maximum *'Load'* while performing the *'Fixed Load Control'* test by pressing the **Increase** or **Decrease** buttons on the *'Hand Controller'*.

The new *'Load'* will be shown on the *'Pop-Up'* display. Each time the operator presses the buttons on the *'Hand Controller'*, the *'Load'* will increase or decrease by 0.5%.

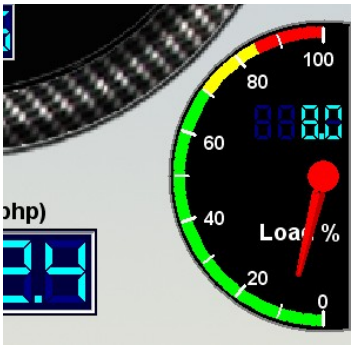
NOTE All *'Loads'* are cancelled if the *'Road Speed'* becomes less than 5mph (8kph).

'Manual Load Control'



This function allows the operator to *'Manually Control'* a *'Static Load'* from the **Increase** or **Decrease** buttons on the *'Hand Controller'*.

Left mouse click on **Manual Load Control** to enable the *'Manual Load Control'*.



When the operator presses the **Increase** or **Decrease** buttons on the *'Hand Controller'*, the new *'Static Load'* will be shown on the *'Eddy-Brake Load'* display, every time the operator presses the buttons the *'Load'* will increase or decrease by 0.5% or 1%.

Also if the operator presses button ***'B'*** on the *'Hand Controller'* then this will also cancel the *'Load'* (0%).

NOTE All *'Loads'* are cancelled if the *'Road Speed'* becomes less than 5mph (8kph).

'Cancel All Load Modes'

This function **Cancels** all Load-Cell, **Load Modes**.

Left mouse click on **Cancel All Load Modes** to cancel all *'Load Mode Operations'*.

'Warning – Load-Cell Temperature'

The *'Load-Cell'* is fitted with an '*Infrared Temperature Sensor'* if the temperature of the *'Load-Cell'* exceeds it first temperature *'Trip Point'* then the following message will be displayed on the *'Make Run Screens Message Display'*.

This reduction in the *'Load-Cell'* will remain in place until the temperature has fallen to bellow the first *'Trip Point'*.

If the *'Load-Cell'* temperature continues to increase, and then exceeds it second temperature *'Trip Point'* then the following message will be displayed on the *'Make Run Screens Message Display'*, this message informs the operator that the maximum *'Load-Cell'* temperature has now been exceeded, and that the *'Load-Cell'* will be '*Shutting Down'* in the displayed amount of seconds. The *'Load-Cell'* will not come back *'On Line'* until the temperature has fallen to below the first *'Trip Point'*.

Drop Down Menus - 'View'

'Status Bar'

Left mouse click on **View** to show the *'View'* drop-down menu.

The **Status Bar** function, if selected, indicated by a **Tick** to the left hand side, will display a *'Status Bar'* along the bottom of the *'Make Run Screen'*.

Drop Down Menus - 'Help'

Left mouse click on **Help** to show the *'Help'* drop-down menu.

'Operation & Software Manuals'

Left mouse click on any of the **Manuals**, **Brochures** or **Parts Lists** to open the PDF files.

NOTE That *'Adobe Reader'* must be installed on the user's computer to be able to view these *'Manuals'*.

'About'

Left mouse click on **About**, to show the *'Software and Hardware Version Information'*.

Key Strokes / Function Keys

Key strokes are a convenient way to navigate around the software without the need for using the mouse. The *'Dyna Run'* and *'Dyna View'* software both accept the use of key strokes for all common tasks.

Dialog windows, Message Boxes, Menu's, etc have also got further controls;

'Tab' Key	Pressing the **'Tab'** Key will move the Data Cursor position to the next logical input box.
'Return' Key	Pressing the **'Return'** Key will has the same effect as press the **OK** button, **Save and Exit** Button.
'Escape' Key	Pressing the **'Escape'** Key within any dialog window will close the window without saving any data that you have entered.

Dyna Run V3 Key Stroke Function List

F1	Help
F2	Step Test Properties
F3	Hold At Properties
F4	Sweep Linear Properties
F5	Sweep Squared Properties
F6	Fixed Load Properties
F7	Manual Load Properties
F9	Load Cell Set-up Menu
F11	Auto-Deceleration (Enable / Disable)
F12	Cancel all Load Modes

Shift + F1	Manual Gear Ratio Input
Shift + F2	Tachometer Ratio Input
Shift + F4	Clear all Fixed Ratio Inputs

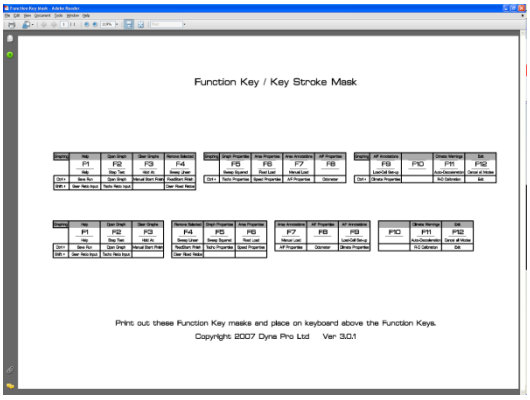
Ctrl + F1	Save Dyno Run As
Ctrl + F2	Open Graph
Ctrl + F3	Manual Start / Finish logging mode
Ctrl + F4	Fixed Start / Finish logging mode
Ctrl + F5	Tachometer Display Properties
Ctrl + F6	Speed Display Properties
Ctrl + F7	Air Fuel Display Properties
Ctrl + F8	Show Odometer
Ctrl + F9	Load Cell Set-up Menu
Ctrl + F11	Run Down Calibration
Ctrl + F12	Exit

Dyna View Key Stroke Function List

F1	Help
F2	Open Graph
F3	Clear All Graph Data
F4	Remove Selected Graph Data
F5	Selected Graph Properties
F6	Area Properties Menu
F7	Area Annotations (Enable / Disable)
F8	Air Fuel Display Menu
F9	Air Fuel Annotations (Enable / Disable)
F11	Climate Warning Menu
F12	Exit

Left mouse click on **Key Stroke / Function Keys** to open a PDF File that allows you to print out the Key Legend Strips, for placing above the function keys on your keyboard.

NOTE That *'Adobe Reader'* must be installed on the user's computer to be able to view these.



Key Legend Strips for 4x3 and 3x4 function key arrangements.

Dynamometer Operation

Health & Safety First

Please insure that all Dynamometer operators fully read and understand the Health & Safety implications of using Dynamometers to themselves and to others.

CAUTION!

Using the vehicle's rear brake to stop the drum, can severely over heat the rear brake parts. The dynamometers brakes should always be used to slow the vehicle and drum to a full stop at any speed. The vehicle's brake should only be used in an emergency.

WARNING!

When the vehicle is operating the exhaust system will become very hot. To avoid serious injury or damage, do not touch or allow anything to come in contact with the exhaust system.

WARNING!

The dynamometer should be located in a well-ventilated area. There is always a carbon monoxide hazard associated with all internal combustion engines. Engine exhaust contains poisonous carbon monoxide gas. Breathing it can cause unconsciousness or even death.

The exhaust extraction system must be in place, and working before starting the vehicle.

WARNING!

Always wear protective clothing, ear protection, and eye protection (goggles, safety glasses) when using and servicing the dynamometer.

WARNING!

Never allow any person(s) to stand behind the Dynamometer or vehicle when it is in operation. Only the dynamometer operator should be near the dynamometer when in operation. Keep person(s) inside the dynamometer test area to an absolute minimum.

WARNING!

Always check tyres for stones and foreign objects and remove from tyre before vehicle testing.

Always check the condition of the chain, and ensure that it is in sound condition before vehicle testing.

Never operate the dynamometer with the covers removed.

Never stand behind the dynamometer when in operation.

Verify brake operation before beginning any dynamometer testing.

Verify the vehicle is properly secured to the dynamometer.

Exercise care with any dynamometer testing; portions of the dynamometer and vehicle may become hot.

As with any equipment using electricity and having moving parts, there are potential hazards. To use this dynamometer safely, the operator should become familiar with the instructions for operation of the dynamometer and always exercise care when using it.

Making a Dyno Run Detailed

'Overview'

It is simple and easy to produce consistent and accurate 'Dyno Runs' with your Dyna Pro Dynamometer and the 'Dyna Run V3' software.

The 'Dyna Run V3' software will try to help you along the way by displaying messages and information on the 'Make Run Screens Message Display', the 'Status Bar' at the bottom of the 'Make Run Screen' and the 'Make Run Screens Log Mode Display'.

There are 16 main points to making a Dyno Run: -

- Power up the Dynamometer and *'Switch On'* all associated equipment.
- Start the *'Dyna Run V3'* software.
- Perform Dynamometer calibration if required.
- Load and *'Strap'* the vehicle securely onto the Dynamometer.
- Install the *'Vehicle Exhaust Extraction'* system.
- Adjust the *'Cooling Fan'* system.
- *'Clip'* the *'Ignition Pick-up System'* onto a High or Low-tension ignition cable on the vehicle.
- Carry out Pre-Run safety checks on both the vehicle and Dynamometer.
- Start and 'Warm Up' the vehicle and then check the Tachometer operation on the 'Make Run Screen'.
- *'Save'* the *'Dyno Run'*.
- Setup your *'Logger Mode'* preferences.
- Setup the *'Load-Cell'* mode if applicable.
- Enter the *'Climatic Conditions'* if applicable.
- Make your *'Dyno Run(s)'.*
- Stop the Dynamometer, and switch of vehicles engine.
- *'Open'* and analyze the *'Dyno Runs'* in *'Dyna View'*.

WARNING!

The dynamometer should be located in a well-ventilated area. There is always a carbon monoxide hazard associated with all internal combustion engines. Engine exhaust contains poisonous carbon monoxide gas. Breathing it can cause unconsciousness or even death.

The exhaust extraction system must be in place, and working before starting the vehicle.

'Power Up Dynamometer'

Switch On the Dynamometer PC and sign-in if required.

Switch On all circuit breakers and Isolators connected to the Dynamometer.

Switch On the air compressor systems used for the Dynamometer.

Switch On any Dynamometer Machine Isolators.

Switch On the MPU (Data Acquisition Unit)

Switch On the Battery Charger if required.

Switch On and Reset the Load Cell or Eddy Brake (if fitted).

Switch On any associated equipment, Gas analyzers etc, and calibrate if required.

'Start Dyna Run V3 Software'

Double Click on the **'Dyna Run V3'** desktop icon.

Or

Select **'Start'** > **'All Programs'** > **'Dyna Pro Dynamometers'** > **'Dyna Run V3'.**

Dynamometer Calibration

The Dynamometer Calibration should be performed on a regular basis; it is recommended that the Dynamometer should be calibrated before testing any vehicles.

Inertia Only Dynamometers – Run Down Calibration.

Run Down Calibration should be performed at least once per week or after 20 hours of Dynamometer running time. The Run Down Calibration will calibrate the Dynamometer to ascertain the frictional losses of the Dynamometer.

If the user fails to perform a Run Down Calibration for an extended period of time then *'Dyna Run V3'* will inform the user when they start the software.

Please read the *'Run Down Calibration'* section earlier in this manual for more information.

Load Cell (Eddy Brake) Dynamometers – Calibration

Calibration of the *'Load-Cell'* is critical to its operation and accuracy. There are 2 steps to the calibration. First the *'Load-Cell'* must be *'Zeroed'*; and then secondly the *'Load-Cell'* must be calibrated.

The second step of calibration requires the use of *'Calibration Torque Arm'* and the supplied *'Check Weights'* that was supplied with the Dynamometer; this calibration checks that the *'Measured Load Range'* is correct.

It is recommended that the Dynamometer should be *'Zeroed'* on a daily basis **(Step 1)**, and that the *'Measured Load Range'* should be calibrated once per month **(Step 2)**.

It is also recommended that the *'Calibrations'* be carried out at the start of the working day before the Dynamometer is used.

Please read the *'Load-Cell Calibration'* section earlier in this manual for more information.

Once the *'Load-Cell'* has been calibrated is then necessary to perform a *'Run Down Calibration'*.

Run Down Calibration should be performed at least once per week or after 20 hours of Dynamometer running time or directly after the *'Load-Cell Calibration'*. The Run Down Calibration will calibrate the Dynamometer to ascertain the frictional losses of the Dynamometer.

If the user fails to perform a Run Down Calibration for an extended period of time then *'Dyna Run V3'* will inform the user when they start the software.

Please read the *'Run Down Calibration'* section earlier in this manual for more information.

CAUTION!

Treat the *'Check Weights'* with care and **ONLY** use the *'Check Weights and Hanger'* that was supplied with the Dynamometer. **DO NOT cut, modify or shorten the** *'Calibration Torque Arm'* **in any way, as this will lead to highly inaccurate calibration.**

CAUTION!

Be aware that the *'Check Weights'* are heavy; please observe normal lifting precautions, when handling the *'Check Weights'*.

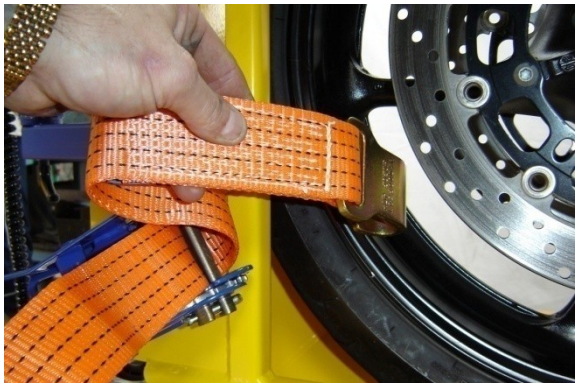
Loading the vehicle

Use the following procedure below to load the vehicle onto the dynamometer.

• Push the vehicle onto the dynamometer, keeping the vehicle in a balanced position. It is not recommended that the vehicle be driven onto the dynamometer.

• Place the front wheel of the vehicle firmly into the tyre stop.

• Strap the front wheel in place using the ratchet strap or the control buttons for the Auto-Wheel locking system. Ensure that the strap is not placed over a tyre valve as this could damage the valve.



• Adjust the carriage position to align the rear wheel centrally onto the drive roller; this can be done by turning the carriage handle or by the use of the power carriage buttons.

• To align the rear wheel (centrally Left/Right), and with the bike in neutral, press the starter motor button on the hand controller. Once the wheel is aligned you can press the Brake button to stop the drive roller.

• Tie down straps must be used to secure the vehicle onto the dynamometer. There are several tie-down loop rings fitted to the dynamometer for this purpose. The tie-down straps should be placed towards the rear of the vehicle to pull the vehicle forward when tightened. Ensure that the tie-down straps do not interfere with any of the controls on the vehicle or come into contact with any Hot (exhaust System), or moving parts (brake disc, rear wheel, etc).

• While sitting on the vehicle, with your full weight, tighten both the left-hand and right-hand tie down straps incrementally from both sides of the vehicle. Do not over tighten the straps as this would increase the vehicle weight.

WARNING!

Keep vehicle balanced while loading and unloading from the dynamometer.

WARNING!

NEVER engage the Drive Roller starter motor if the vehicles front wheel is not secured and locked into the tyre stop.

WARNING!

NEVER operate the Dynamometer without the tie-down straps in place and adjusted correctly.

WARNING!

The dynamometer should be located in a well-ventilated area. There is always a carbon monoxide hazard associated with all internal combustion engines. Engine exhaust contains poisonous carbon monoxide gas. Breathing it can cause unconsciousness or even death.

The exhaust extraction system must be in place, and working before starting the vehicle.

WARNING!

Always wear protective clothing, ear protection, and eye protection (goggles, safety glasses) when using and servicing the dynamometer.

Vehicle Exhaust Extraction

The vehicle exhaust extraction system must be fitted, secured and switched on before the vehicle is started.

WARNING!

The dynamometer should be located in a well-ventilated area. There is always a carbon monoxide hazard associated with all internal combustion engines. Engine exhaust contains poisonous carbon monoxide gas. Breathing it can cause unconsciousness or even death.

The exhaust extraction system must be in place, and working before starting the vehicle.

Cooling Air Fans

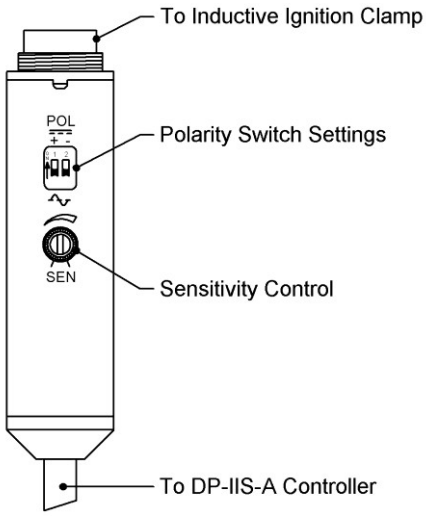
Adjust the cooling fan position as required. The cooling fans are switched on/off from the hand controller.

Ignition Pick-up System

CAUTION!

The inductive pickup contains a fragile Ferrite Core that is very sensitive to vibration. Do not drop the inductive pickup or snap the pick-up closed. Use extreme care in handling and placement of the pickups. Keep mating surfaces of the ferrites clean. ***The Ferrites cores are not covered under your warranty.***

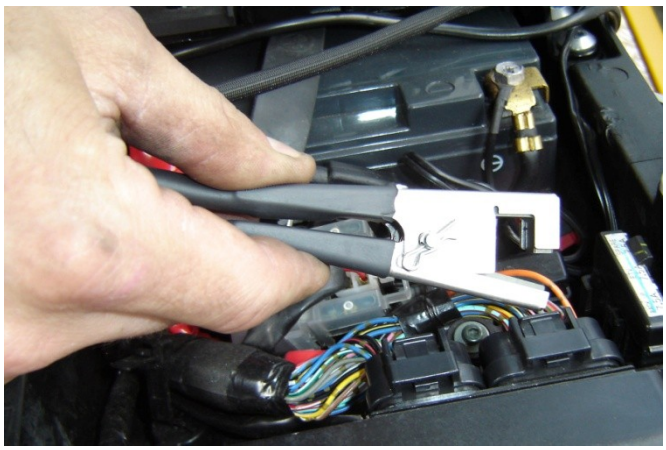
Overview

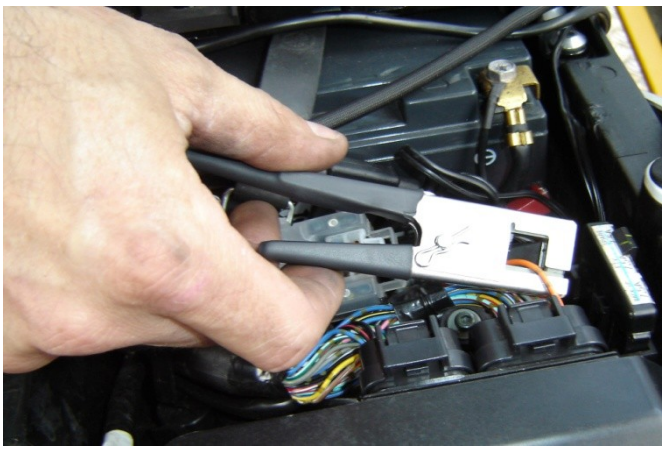


The Dyna Pro intelligent ignition pick-up sensor is a microprocessor-controlled system designed for ignition sensing on virtually any ignition system. This system will work on low tension AC ignition feeds, DC CDI ignitions, HT Plug wires and will even deal with multi-spark ignition system. The microprocessor will try to distinguish between an actual firing pulse and unwanted noise or Electro Magnetic interference (EMI).

On certain types of ignition systems the inductive clamp can be put around multiple cables to obtain an ignition pick-up, for example, to place the clamp around all of the cables coming from a plug top coil.

In some cases it is also possible to clamp around one of the battery cables.



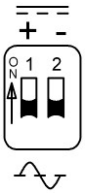


Ignition Pick-Up Clip being placed around the Primary Cable from the ECU of vehicle.

Polarity 'POL' Switch Settings

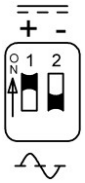
The *'POL'* switch settings are used to set the ignition system type, HT, CDI, ECU, Low Tension, AC or DC. The switch settings bellow give an indication for how these switches should be set according to the ignition type but are not a definitive setting.

PLEASE NOTE: These setting positions are for guidance only. Incorrect switch positioning can do no damage.



Full AC ignition pick-up

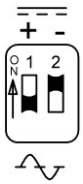
1. Normal for HT Pick-up Usage
2. Low Tension Non CDI Ignitions



DC Ignition pick-up (Clamp Direction 1)

1. Low Tension Non CDI Ignitions
2. CDI / ECU Low Tension Ignitions

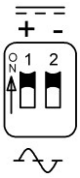
Note: Pick-up will only work in one Direction on a DC System.



DC Ignition pick-up (Clamp Direction 2)

1. Low Tension Non CDI Ignitions
2. CDI / ECU Low Tension Ignitions

Note: Pick-up will only work in one Direction on a DC System.



Incorrect (Ignition Pick-up switched off)

Sensitivity 'SEN' Setting Adjustment

To set the sensitivity, with the vehicle running and the inductive clamp in place, decrease the sensitivity (anti clock-wise) slowly until the RPM needle drops to zero. Slowly start to increase the sensitivity (clock-wise) until the RPM needle shows constant on the display, adjust the RPM scaling for correct ignition speed in the *'Dyna Run'* software.

Troubleshooting Tips

Problem	Likely Root Cause	Fix
Cannot get any readings (Basic)	1. Plugs not fully seated. 2. Incorrect 'POL' Switch settings. 3. 'SEN' Setting is set to low. 4. System Lock-up. (Rare) 5. Not an ignition Signal Cable.	1. Verify all connectors are fully seated. 2. Insure that the 'POL' Switch settings ARE NOT both in the 'ON' position. 3. Increase the 'SEN' setting (turn clock-wise) 4. Unplug from the MPU Unit wait 10 seconds and then reconnect. 5. Find another ignition signal cable.
Get an RPM reading but the needle keep '***Dropping Low***'	1. 'SEN' Setting is set to low.	1. Increase the 'SEN' setting (turn clock-wise)
Get an RPM reading but the needle keep '***Flicking High***'	1. 'SEN' Setting is set to High. 2. Incorrect 'POL' Switch settings.	1. Decrease the 'SEN' setting (turn anti clock-wise) 2. Change the 'POL' Switch settings.
Pick-up clamp only works when placed on cable in one orientation.	1. 'POL' Setting incorrect.	1. When one of the 'POL' switch setting are switched to the 'ON' position the clamp becomes polarity sensitive, Reverse the clamp on the cable or make the two 'POL' switch settings vies-versa.
Erratic tachometer operation	1. Electro Magnetic Interference (EMI) 2. Clamp detecting signals from other cable (i.e.: clamp is around a cable coming from the ECU). 3. Spark plug breaking down.	1a.Using a jumper wire, ground the metal case of the inductive clip to the motorcycle chassis. 1b.Keep the computer as far away from the Dyno as possible. 1c.Rout the inductive wire 90 degrees (perpendicular) away from the vehicle. When laid alongside (parallel) to the motorcycle they can act as an antenna. 2. Move ignition clip to another part of the wiring loom. 3. Replace Spark Plugs.
No USB Communication	1. Electro Magnetic Interference (EMI) 2. No Resistor plug caps.	1a.Same as above. 1b.USB Cable from Dyno to Computer Longer than 5 Metres. 1c.Keep the USB Cable away from the Ignition pick-up cables or mains power cables. 2. Replace with Resistor Plug caps.

Pre-Run Safety Inspection

- Before performing a Dyno Test Run it is essential to carry o out a few vehicle and dynamometer safety checks.
- Check vehicle coolant levels if applicable.
- Check vehicle oil levels in both the engine and gearbox.
- Check for vehicle chain condition, tension, lubrication, master links etc.
- Check tyres for any stones lodged into the tread pattern that could come out during testing.
- Check tyres for general condition (tyre wall cracks, tread life, etc)
- Check Tyre speed rating, vehicles can be driven at a higher speed on a dynamometer than on the road, as a result of no wind resistance.
- Check Tyre pressure, an under inflated tyre, can become excessively heated when used on the dynamometer.
- Check that there is enough fuel in the tank to perform the dyno tests.
- Check vehicle for any other defects that could make the vehicle unsafe for dyno testing.
- Check that the front wheel is secured in the tyre stop.
- Check that the tie-down straps are in place and tension correctly.
- Check that the drive tyre is correctly centred onto drive roller.
- Check that exhaust extraction system is attached and running.
- Check that no other person(s) are behind the dynamometer.

WARNING!

Never allow any person(s) to stand behind the Dynamometer or vehicle when it is in operation. Only the dynamometer operator should be near the dynamometer when in operation. Keep person(s) inside the dynamometer test area to an absolute minimum.

WARNING!

All person(s) in the Dynamometer Test Area must always wear protective clothing, ear protection, and eye protection (goggles, safety glasses) whenever the dynamometer is in operation.

Engine Warm Up

Before commencing with any dyno tests, ensure that the vehicle and drivetrain have been warmed up to normal operational temperatures. Failure to do so could result in permanent engine damage of inconsistent dyno test results.

During the engine warm up procedure check for any coolant, fuel, oil leaks or any unusual engine or transmission noises. In the event of any of the above, stop the vehicle and diagnose the problem before commencing with a dyno test run.

If all is OK the operator can now commence with a Dyno test run.

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Dyna Pro Dynamometers Ltd
Unit 18, Sherrington Way
Lister Road Industrial Estate
Basingstoke,
Hampshire
United Kingdom
RG22 4DQ

Important Notice

NOTE Please be aware that some *'Functions'*, 'Menu Options' and *'Graphic Displays'* shown above may not be available on all Dynamometer Models.

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www.dynapro.co.uk

Dyna Pro Dynamometers Ltd United Kingdom
Tel UK: +44 (0) 8000 4321 68
Tel Int: +44 (0) 1256 363063

E-mail support@dynapro.co.uk