Mainline DynoLog Dynamometers

2WD, 4WD, AWD, Light Commercial, Motorcycle & Heavy Vehicle Applications

PREMIUM RANGE DYNAMOMETERS

Proudly manufactured in Australia by

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INTRODUCTION

Welcome to the world of the new-generation, truly professional chassis dyno. A Mainline DynoLog Dynamometer is the perfect choice for the astute, professional operator who wants the most technically advanced, and innovative featured chassis dynamometer available, to ensure their business and technical expertise progresses to a new level.

A Mainline DynoLog Dynamometer represents a distinct step forward in dynamometer technology. While other manufacturers continued to produce equipment that simply measured torque/power, speed, Air: Fuel Ratio and little else for the last ten years or more, Mainline DynoLog have pioneered a new direction and has led the way in adapting the chassis dyno from a simple measuring device to being a highly sophisticated diagnostic instrument.

All dynamometers are not comparable and there are huge differences in their design, functionality, and capabilities. Avoid making the mistake of using price as the only factor in considering a chassis dyno. Take the time to look closely and appreciate what each brand of dyno is capable of doing for you and your business.

If you are used to using a competitor's dyno, be prepared for a host of extra pleasant surprises. Mainline DynoLog are the innovators of the dyno industry, and are at the forefront of dynamometer technology, featuring state-of-the-art All Wheel Drive hardware and multitasking Windows 7® software, and offering the ultimate in flexibility with a 2WD version that is engineered for easy conversion to AWD/4WD.

The Mainline DynoLog Dynamometer has innovative vehicle testing concepts, advanced on-screen graphics and performance-plus characteristics. From its comprehensive, user-friendly Windows 7® software platform, heavy-duty roller construction and total in-car operation, the Mainline DynoLog system will maximise your workshop's professional image, your profit potential, and your dyno satisfaction.

Mainline DynoLog Dynamometers are fully designed and manufactured in Australia at their head office facilities in Sydney and subsidiary premises located in Melbourne.

QUICK FEATURES OVERVIEW

- Proudly Australian Owned and Manufactured in Australia.
- Microsoft Windows 7® operating system.
- Professional Dynamometer program software suite.
- Heavy Duty Reinforced Construction – No Chassis Flexing – High Axle Loadings.
- Optional Medium or Large Roller Diameter.
- Optimum knurled drive rollers, for maximum traction and extended roller service life.
- Quality Frenelsa Retarders used – recognised as the world's best.
- Software controlled wheel base adjustment (AWD Models) from 2300mm to 3250mm.
- Speed ceiling of 250kph on standard models.
- Durable Powder Coating and/or high anti-corrosive finish to all dyno beds, rollers & cover plate assemblies.
- Choice of Above Ground Operation or Ground Pit Installation.
- S Beam Load Cell; Repeatable Force & Torque Measurement; Bi-directional operation.
- Deluxe Professional Workshop Cabinet with Wheels, Twin Boom Arms and Nudge Bars
- Highly Accurate Digital Speed Measurement
- Dedicated Speedometer & Odometer Tests
- Precise load control for general diagnostic road load simulation, ECU mapping, performance enhancement, research and development or technical training applications.
- Dynamic Power & Torque Graphing over vehicle Speed or Engine RPM.
- High Accurate and reliable Digital Engine RPM Measurement Module.
- Safety Control Dynamometer Software – Safe and Smooth Load Application.
- In-Car Wireless Controller – All functions are fully operational from within the vehicle.
- Automatic or Manually controlled Cooling Fan for Load Cell, Retarder and Vehicle Fan
- Data Logging Functions for recording test data to customer database
- Capacity for 1000+ data channels for advanced dynamometer testing, such as multiple Air/Fuel Ratio sensors, Multiple Temperature & Pressure Sensors, Data Takers, OBD-II, ECU Data Logging, or Emission testing and analysis.
- Support for more than 250 third party devices and products.

Vehicle Applications

- Rear Wheel Drive
- Front Wheel Drive
- 4 Wheel Drive
- All-Wheel Drive
- Light & Heavy Commercial
- Hybrid Vehicles
- Motorcycles
- Race, Rally
- Extreme Performance

Applications

- General Tuning, Vehicle Diagnostics, Maintenance & Servicing
- Petrol, LPG, CNG, Alcohol, E10, E85 or Diesel Fuel systems
- High and Extreme Performance Tuning
- Engine Management Mapping
- General & Advanced Driveline Diagnostics
- Transmission Analysis
- Torque Transmission, Contribution, Distribution, and Analysis

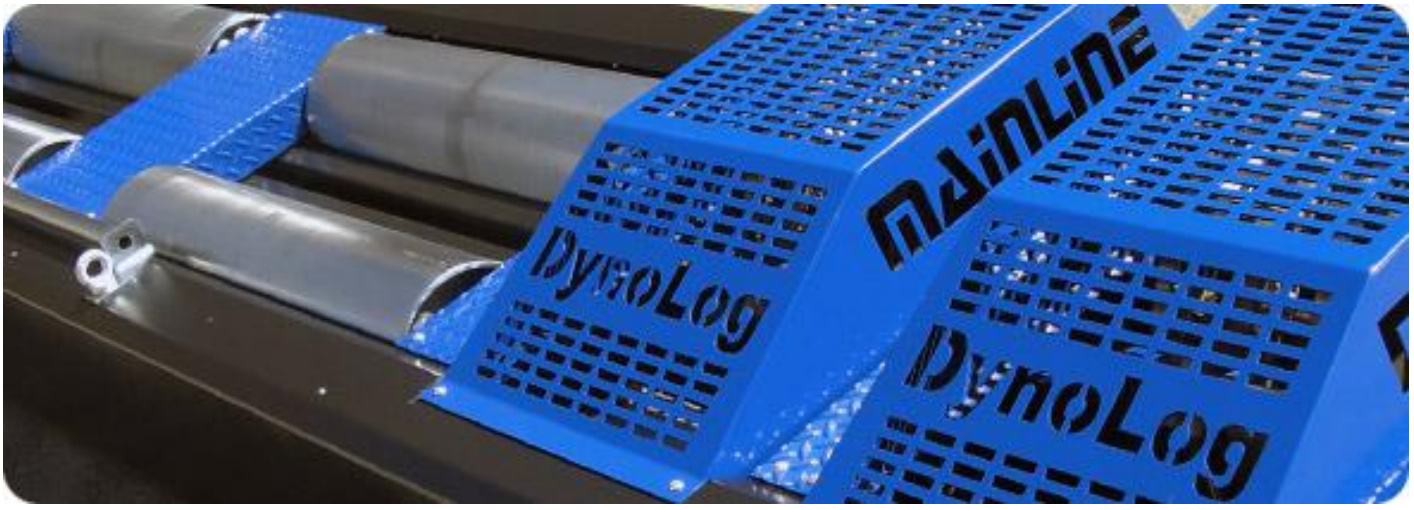
Benefits

- Test 2, 4 & All Wheel Drive vehicles
- Increase productivity and workshop profits
- Reduce or eliminate road testing time
- Save time simulating speed related faults
- Increase your workshop's professional image, be a leader in your field
- Improve your staff's competence skills, and job satisfaction
- Higher customer satisfaction, due to higher quality and more professional results
- Increase work demands by accurate vehicle fault analysis
- Diagnose hard to find problems found during road testing.
- Test at speeds above legal street limits (up to 250 km/h) in the safety of your workshop
- Reduce the risk of on road accidents or loss of driving licence
- Increase customer base; gain new customers
- Prove your tuning results, or parts manufacturer's product claims

Premium Range 2WD Specifications

	2WD600P*	2WD1200P
Rated Power @ 240kph	900kW (1200hp)	1800kW (2400hp)
Rated Torque	1700Nm (1254Ftlb)	3400Nm (2507Ftlb)
Maximum Weight	2.5 Tonne	
Maximum Test Speed	250 Kph	
Roller Diameter	218 mm	
Knurled Drive Rollers	Standard	
Dynamic Roller/Retarder Balance	Standard	
Track Minimum	400 mm	
Track Maximum	2200 mm	
Wide Track Roller Options	400-2200mm / 600 – 2400mm Optional	
Speed Sensor	Digital Pulse	
Force Sensor	Precision Bi-directional S Beam Load Cell	
Vehicle Tie Down Points	12	
Electrical Requirement	3 Phase, 32 AMP/Phase, 5 Pin Clipsal 56C532	
International Electrical Requirement	International Voltages Available	
Dynamometer Control Module	2WD – RWD/FWD Control System	
Colour Printer	Cannon Inkjet Printer	
Monitor Display	Twin 22" LCD Monitors / Twin 24" Optional	
Hand Control Unit	Mini Wireless Trackball Keyboard	
Computer Operating System	Microsoft Windows 7 ® Operating System	
Dynamometer Operating System	Mainline DynoLog 2WD Controller, Data Acquisition System + Premium Pro Dyno Software Suit	
Deluxe Workshop Cabinet with Wheels, Twin Boom Arms & Crash Bar and Computer/Printer storage	Standard	

* *The 2WD600P is available as a "Twin Retarder Ready" Dyno, initially with one retarder and an empty retarder bay for later installation of the second retarder. When the second retarder is installed it becomes the 2WD1200P. We can also build larger and more powerful custom 2WD systems with a choice of roller sizes and retarder sizes to suit most applications.*



2WD1200 "Twin" Retarder Model

Premium Range AWD Specifications

	AWD1200*	AWD1800
Rated Power (per axle) @ 240kph	900kW (1200hp)	900kW (1200hp) F 1800kW (2400hp) R
Rated Power (combined) @ 240kph	1800kW (2400 hp)	2700kW (36000 hp)
Rated Torque (per bed)	1700Nm (1254 Ftlb)	1700Nm (1254 Ftlb) F 3400Nm (2508 Ftlb) R
Rated Torque (combined)	3400 Nm (2508 Ftlb)	5100 Nm (3762 Ftlb)
Maximum Weight	4.4 Tonne	
Maximum Test Speed	250 Kph	
Roller Diameter	218 mm	
Knurled Drive Rollers	Standard	
Dynamic Roller Balance	Standard	
Track Minimum	400mm	
Track Maximum	2200 mm	
Wide Track Roller Options	400-2200mm / 600 – 2400mm Optional	
Wheel Base Minimum	2300 mm	
Wheel Base Maximum	3250 mm	
Wheel Base Adjustment	Automatic or Manual Operation Vehicle Software Database Menu	
Installation	In Ground or Above Ground	
Speed Sensor	Digital Pulse	
Force Sensor	Bi-directional S Beam Load Cell	
Vehicle Tie Down Points	26	
Electrical Requirement	3 Phase, 32 AMP, 5 Pin Clipsal 56C532	
International Electrical Requirement	International Voltages Available	
Dynamometer Control Module	2WD/ 4WD/ AWD/ Control System	
Printer	Colour Inkjet Printer	
Monitor Display	Twin 22” LCD Monitors / Twin 24” Optional	
Hand Control Unit	Mini Wireless Trackball Keyboard	
Computer Operating System	Microsoft Windows 7®	
Dynamometer Operating System	Mainline DynoLog AWD Controller, Data Acquisition System + Premium Pro Dyno Software	
Deluxe Workshop Cabinet with Wheels, Boom & Crash Bars and Computer/Printer storage	Standard	

Specifications subject to change without notice

* *The AWD1200 can be supplied as a “Twin Retarder Ready” Dyno, initially with only one retarder in the rear bed and with an empty retarder bay for later installation of the second retarder. When the additional retarder is installed in the rear bed, it becomes the AWD1800 model.*

We can also build larger and more powerful custom AWD systems with a choice of roller sizes and retarder sizes to suit most applications.

Unquestionably the World Leader……!

Somebody has to lead the way, and for many years Mainline DynoLog have stood out as the world leader in engine and chassis dyno control systems and data-logging, and is constantly operating at the forefront of new dyno technology. Mainline DynoLog's innovative approach, its huge capacity of data channels and its advanced data logging, data graphing and analytical functions clearly make it the envy of other dyno manufacturers.

The Mainline DynoLog dyno control system is extremely versatile and can control engine dyno water brakes, magnetic retarders, throttle servos, electronic thermostats, interface to electronic weather stations and a host of other inputs and outputs. It is clearly the most technically advanced system available today. It has been in the marketplace for many years and is a *proven* and *reliable* system.

Mainline DynoLog systems provide ample capacity for the operator to log up to 16 thermocouples, 8 Lambda / AFR probes, multiple MAP sensors, water temperature, oil pressure, oil temperature, fuel pressure, fuel flow, differential fuel flow, fuel temperature, ethanol content, OBD-II data, ECU Data, 4 & 5 Gas Analysers, Diesel Opacity, Data Takers etc, and there are plenty of spare channels for the user to configure. The standard software has 200 MATHS channels available to allow the operator to create their own calculated data channels.

Mainline DynoLog are constantly introducing new innovations that will always ensure that we stay well ahead of the field. Mainline DynoLog Dynamometers are the first dynamometer manufacturers to introduce a massive range of diagnostic and analytical initiatives to the world of dynamometers.

The superiority of the Mainline DynoLog system has clearly not been lost on other dyno manufacturers, as many of them are currently trying to play "catch-up". It pays to be cautious when choosing the dyno that will suit your requirements, because some dyno manufacturers claim that they offer some of the Mainline DynoLog innovations but don't deliver, or provide a substandard equivalent. Before accepting that these manufacturers can operate on the same level as the Mainline DynoLog system check how professionally their systems function by comparison. For example, with OBD-II, check how successfully they collect the data (update rate, drop-outs), and what they allow the operator to do with the collected data (eg Ignition Timing for MBT, ECU/OBD/GAS RPM for Tacho Trim, Derived Torque, GAS HC and NOx data for MBT etc). You may find that while they are able to allow some OBD-II or other data to be viewed on screen, the more important aspect of logging the data and analysing it effectively for diagnostic purposes is not available.

And above all else, check out how well their control system can hold steady state as this is the most important characteristic for any dynamometer. If a dyno cannot maintain a precise road speed or engine RPM value, then it will not likely be able to control a specified acceleration rate to produce accurate and repeatable results!

The analytical capabilities of the Mainline DynoLog system are incomparable. Each input channel can have its own graph panel and the user can choose which channels to view analyse and print. Up to 6 selected runs can be overlaid at the one time for easy side-by-side comparison. All of the logged data can be displayed as an absolute value or a percentage difference, and data averaging is available as well.

The Mainline DynoLog Control System has true multiple-run data averaging. All data from 2 to 5 dyno runs can be averaged to produce a fresh new run. This is the only way to derive a true average from multiple runs. Lesser dynos require the operator to perform 3 runs and simply ignore the highest and lowest runs, which is not a true average value.

Among some of the more well-known Mainline DynoLog customers are HSV, HRT, FPV, MoTeC, John Sidney Racing, K&N Filters and Robert Bosch Pty Ltd. Many Ford and Holden V8 Supercar race vehicles have their engines developed using Mainline DynoLog technology.

The features available on this system need to be seen to be believed, and a personal demonstration is the best way to come to grips with the sheer brilliance and flexibility of the Mainline DynoLog system.

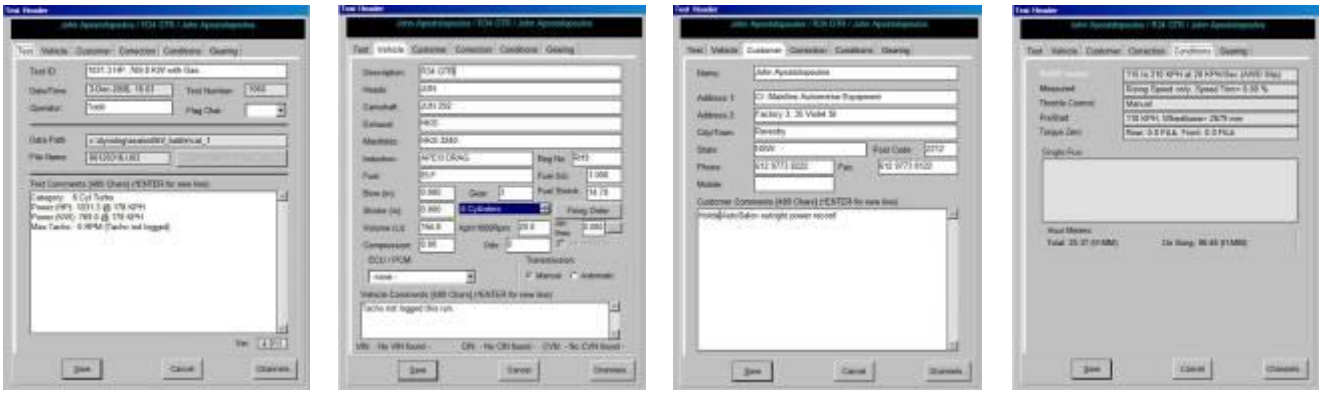
The standard Mainline/DynoLog control system easily handles virtually every type of AWD vehicle, regardless of how the vehicle handles its AWD drive torque delivery, including Porsche, Honda, Ford Territory, Holden Cross 8, and Haldex couplings on VAG systems. Additional add-on software is not necessary. No complicated AWD setups are required for different vehicle configurations. Just select FWD, RWD, AWD or an exclusive AWD diagnostic mode to test, diagnose and evaluate centre differential operation.

Mainline/DynoLog's innovative approach to the development of dyno software technology, ensures that all our users will always have the most technologically advanced chassis dyno in the world.

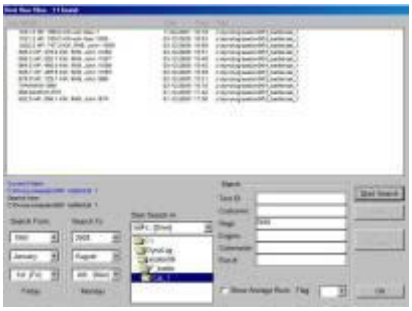
The Customer / Vehicle Database

The Mainline DynoLog Dynamometer Customer/ Vehicle Database allows the user to record a virtually unlimited amount of data relating to the vehicle and the test run. Each time a test is carried out, the data gathered can be saved to a run file. It is important to note that each saved test creates a comprehensive individual run file that can be recalled in the future.

When a Run File is accessed, all previous run parameters are loaded ready for the next run under exactly the same conditions. The Run File contains **ALL** details of the run including ramp rates used, atmospheric conditions and any correction applied, etc.



SEARCH FACILITIES



Finding a previous run file amongst potentially thousands of run files could not be quicker or easier. Simply select "Find Run" and enter your search parameters including Test ID, Customer Name, Rego, Engine, Comments or Run Number. A few simple key strokes will give you access to all runs that match your input parameters.

DATA CONVERSION

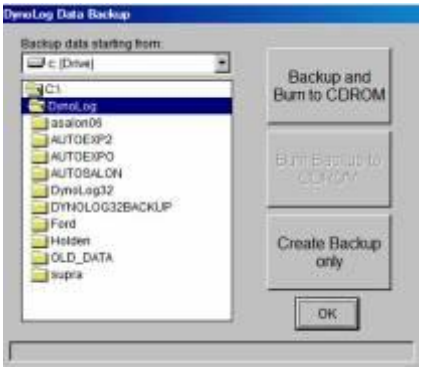
If you upgrade to a Mainline DynoLog dyno from another brand of dyno, we are usually able to assist by importing your old customer database run files to your new dyno so that you retain your customer history.

DATA EXPORT

All data logged during runs can easily be exported to CSV text files or to MS Excel for further analysis or to use MS Excel's 3D Graphing Modes and other advanced features.

For advanced users, Dyno Data can be sent via Ethernet or RS232 to external PC's running Microsoft Excel where the user may have specific spread sheets storing dyno output data for further analysis.

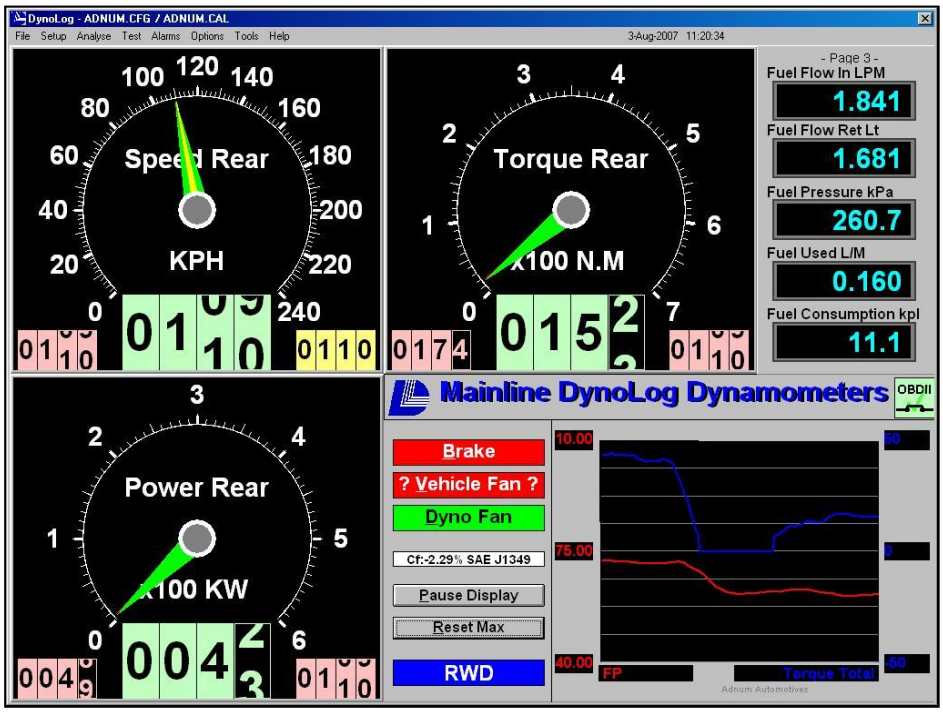
DATA INTEGRITY & SECURITY



And of course Mainline DynoLog makes it simple to look after your data integrity and security. Mainline DynoLog software includes an integrated backup system for the customer / vehicle data base to be quickly and easily saved to CD or Flash Drive.

Standard Modes of Operation

ROAD SPEED CONTROL MODE



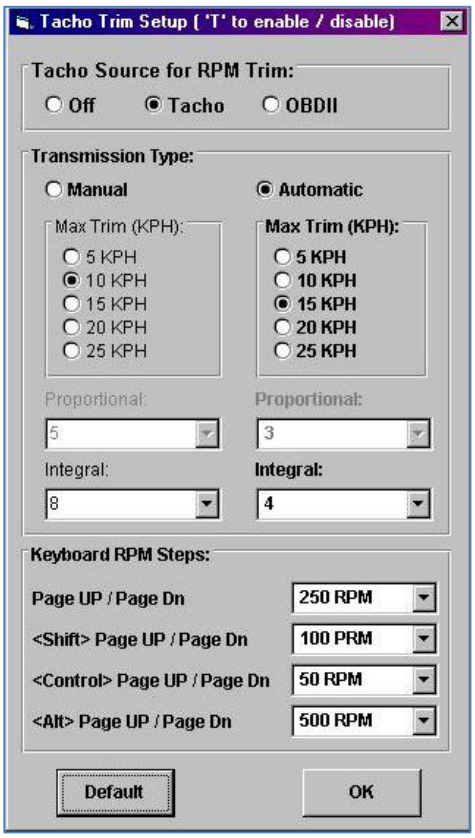
A standard feature of chassis dynos, the operator may manually set the desired Speed as required and the vehicle will be held at that point regardless of throttle position. The Mainline DynoLog Dynamometer offers unsurpassed fine tuning, as the operator may control speed in increments as small as 0.1 km/h.

Road Speed Control Mode is very useful for mapping of aftermarket programmable Engine Management Systems, or for general diagnostics where operator controlled, variable speed is required.

The entire test run is set up in increments of Speed and the Dynamometer's control system will adjust the load holding requirement automatically at each requested speed point.

At any time, a single operator key press brings the pre-set demand speed back to the current road speed. A further operator single key press to releases the demand speed and allows it to increment back up to the maximum speed. While incrementing, a further operator key stroke will pause the demand speed at the current speed.

RPM CONTROL MODE - TACHO TRIM

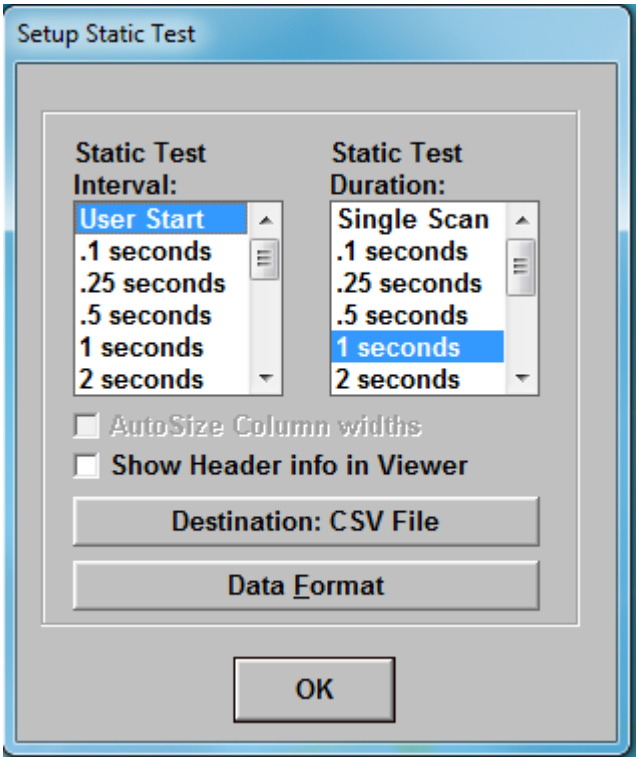


Other dyno manufacturer's Tacho Modules typically only capture RPM data for plotting on a customer printout, whereas Mainline DynoLog's Engine Tachometer Module does that and much more. A further reason why the Mainline DynoLog Dynamometer is light years ahead of the rest is that the operator has the option to manually set the desired Engine RPM point as required, and the vehicle will be held at that RPM regardless of throttle position. The operator may control RPM set points in increments of 50, 100, 150, 200, 250 and 500RPM steps. The Tacho Trim function makes the mapping of aftermarket programmable Engine Management Systems a breeze. Just dial up your desired RPM and the dyno will do the rest. The operator can specify the tacho input source (Hardware Tacho, OBD-II, ECU or Gas Analyser) and configure the system to allow for manual or automatic transmissions, and specify the tacho speed steps and sensitivity. No more continually varying the Dyno Demand/ Road Speed as you progress through the various tuning MAP sites.

Just select your desired RPM and the dyno will do the rest!

STATIC TEST MODE

Used for automatic or user-defined data snapshots. When OEM ECU tuning, a different approach must be undertaken whilst using a Chassis Dynamometer than when tuning with Aftermarket Replacement ECUs (ie. Motec, Haltec, Autronic etc.). Whereas the Aftermarket Replacement ECU enables Static Live Tuning of all RPM/Load Sites, the OEM ECU tuner has to edit the required Maps/Tables, then Flash the Tune File directly to the vehicle (in some cases to an intermediate box, then transfer this to the vehicle). Some variations of "Flash Tuning" are quite time consuming in the process of "Flashing" the ECU, in some cases it takes over 10 minutes to undertake the procedure, so in this case, the Tuner only gets 4-5 possible attempts per hour to make and verify a change on the dyno.



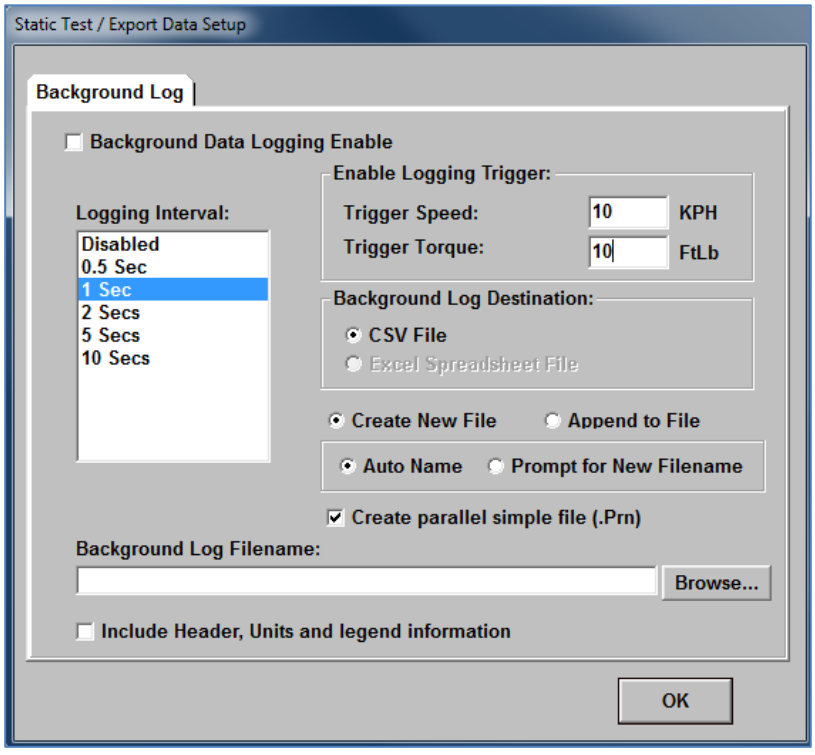
In the case of OEM ECU Tuning, it makes sense then to have a Chassis Dynamometer that can maximise the results achieved from time spent on the dyno. Why spend 6 hours when the same task can be done in 2 hours or less? Here is where the Mainline DynoLog system excels and other brands fail, giving the Tuner a whole host of necessary and convenient Data Inputs that speed up the Tuning process, as well as specially tailored testing functions that can be used for rapid data capture of all required inputs.

Where Live Tuning cannot be undertaken, it is necessary to log a host of parameters whilst simulating driving the vehicle on the road. The Mainline DynoLog system has a very handy Static Test that enables the user to run through various Load Sites or RPM Sites and log the relevant data. The Static Test can be configured to capture data at predefined Time Intervals (1 sec, 2 sec, etc), or any User Defined Time Intervals and to view, save, and later analyse and print the snapshot data.

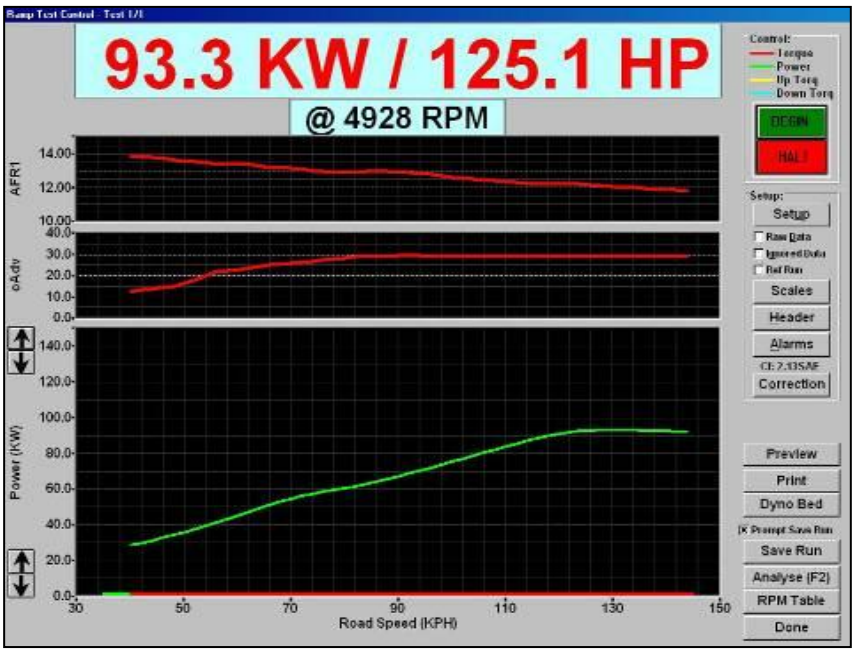
BACKGROUND LOGGING TEST MODE

The Mainline DynoLog also has the ability during steady state testing, to continually log test data to a .CSV spread sheet for later analysis if required.

This is an extremely powerful feature of the Mainline DynoLog Dynamometer data acquisition system.



RAMP TEST MODE



Ramp Up and Ramp Down tests are available. A combination of the Ramp Up and Ramp Down tests can be useful for calculating inertia losses. The operator may pre-program the *Pre-Start Speed*, the *Start Speed*, the *Ramp Rate*, the *End Speed*, the *Delay at the Top*, the *Ramp Down Rate*, and the *Finish Speed*.

The operator may specify the Ramp Rate as km per hour per second, or RPM per second. The Ramp Test End Point can be manually triggered at any time by operator intervention, or automatically triggered by pre-selected Road Speed or Engine RPM.

Whether terminated automatically or by operator intervention, at the end of each ramp test the dyno applies load to safely ramp down the vehicle at an operator-selected rate.

Markers can be added dynamically during a Ramp Test to record observed events such as knock, miss fire, vibration etc occurring during the test.

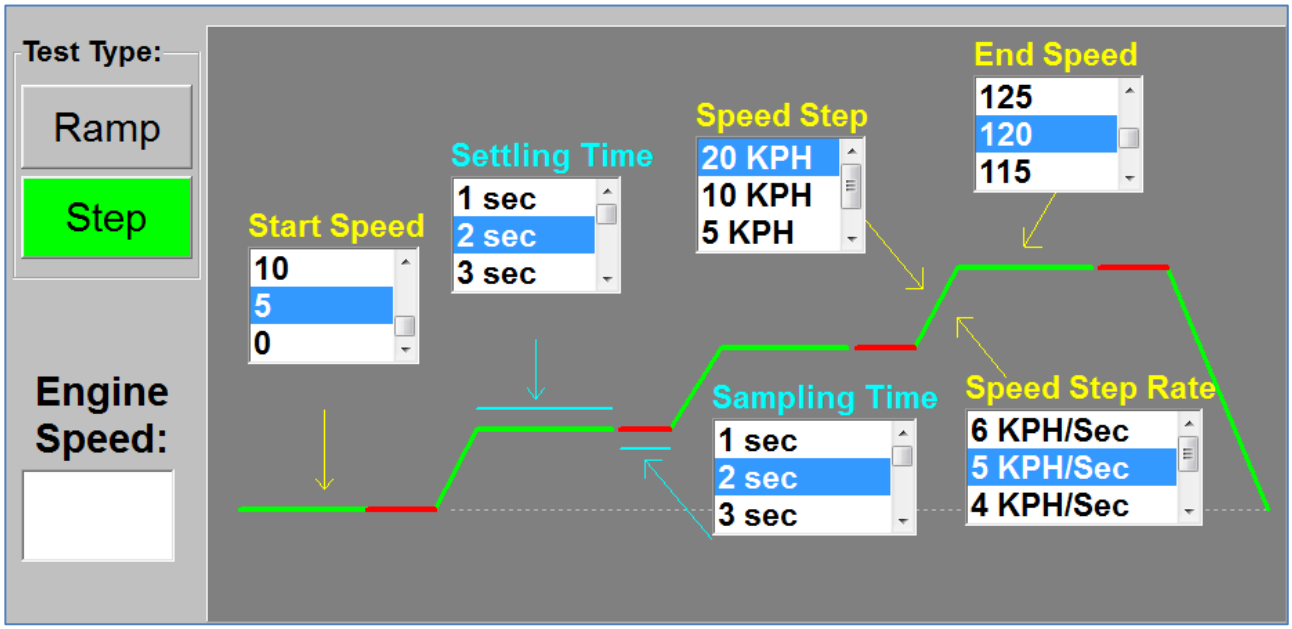
All data captured is recorded for printing as a ramp test report and may be saved to the Customer / Vehicle database.

The Mainline DynoLog system dynamically graphs Power and Torque over Vehicle Speed or Engine RPM. All graphing functions can be selected and configured by the operator using the wireless keyboard/trackball controller from within the vehicle.

AUTO STEP TEST MODE

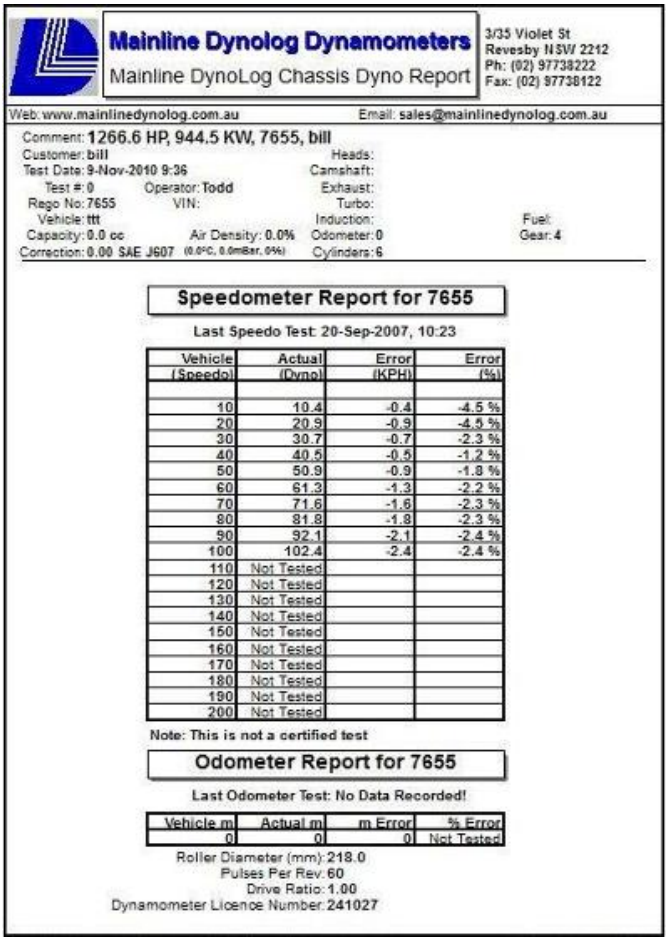
The Dynamometer automatically progresses to each programmed Speed increment as set by the operator. The operator may pre-program the *Start Speed, Settling Time, Set Points* for each Speed Step, *Sampling Time at Each Speed Site,* the *Speed Step Rate* and the *End Speed* for each test.

Graphs may be either manually or automatically scaled. All data captured at each set point can be printed as a step test report and may be saved to the Customer / Vehicle database.



SPEEDOMETER CHECK MODE

Operator programmed and prompted Speedometer check allows the operator to advance quickly through each Speed Point, with live indication of *Actual Speed, Speedometer Error* and *Error Percentage*. Printed Speedometer Test results also include *Total Average Speed Error* and *Error Percentage.*



Mainline Dynolog Dynamometers
Mainline DynoLog Chassis Dyno Report

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Web: www.mainlinedynolog.com.au Email: sales@mainlinedynolog.com.au

Comment: 1266.6 HP, 944.5 KW, 7655, bill
Customer: bill
Test Date: 9-Nov-2010 9:36
Test #: 0 Operator: Todd
Rego No: 7655 VIN:
Vehicle: ttt
Capacity: 0.0 cc Air Density: 0.0%
Correction: 0.00 SAE J607 (0.0°C, 0.0mBar, 0%)
Heads:
Camshaft:
Exhaust:
Turbo:
Induction:
Odometer: 0
Cylinders: 6
Fuel:
Gear: 4

Speedometer Report for 7655

Last Speedo Test: 20-Sep-2007, 10:23

Vehicle (Speedo)	Actual (Dyno)	Error (KPH)	Error (%)
10	10.4	-0.4	-4.5 %
20	20.9	-0.9	-4.5 %
30	30.7	-0.7	-2.3 %
40	40.5	-0.5	-1.2 %
50	50.9	-0.9	-1.8 %
60	61.3	-1.3	-2.2 %
70	71.6	-1.6	-2.3 %
80	81.8	-1.8	-2.3 %
90	92.1	-2.1	-2.4 %
100	102.4	-2.4	-2.4 %
110	Not Tested		
120	Not Tested		
130	Not Tested		
140	Not Tested		
150	Not Tested		
160	Not Tested		
170	Not Tested		
180	Not Tested		
190	Not Tested		
200	Not Tested		

Note: This is not a certified test

Odometer Report for 7655

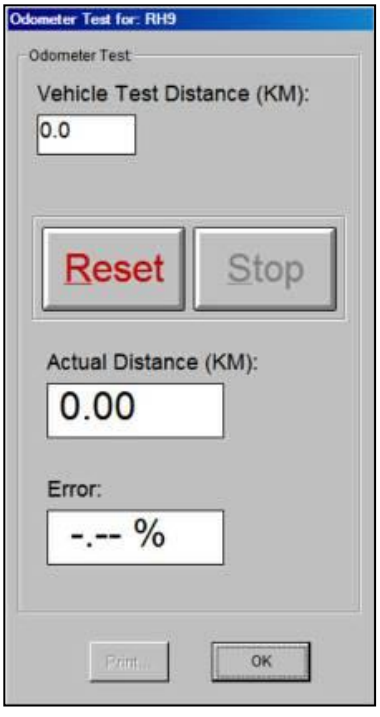
Last Odometer Test: No Data Recorded!

Vehicle m	Actual m	m Error	% Error
0	0	0	Not Tested

Roller Diameter (mm): 218.0
Pulses Per Rev: 60
Drive Ratio: 1.00
Dynamometer Licence Number: 241027

ODOMETER CHECK MODE

The operator programmed and prompted Odometer check allows the operator to check a vehicle's odometer accuracy with an accuracy level of 1 metre per kilometre. The operator specifies the distance of the test and drives the vehicle for that distance according to the vehicle odometer. At the conclusion of the test the system provides the *Actual Distance* and *Percentage Error*.



GRAPHING & PRINTING

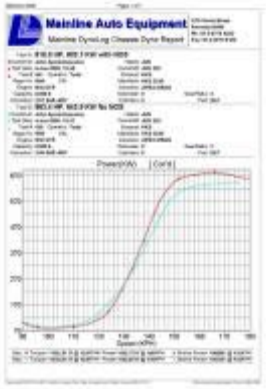
Test data can be stored to disk, printed or recorded and recalled to screen. Previously stored graphs can be recalled and a current live graph can be viewed over the stored graph. Your company logo can be easily added to the main screen and a wide variety of reports can be printed to maximise your workshop's image. Choose from full colour single graph or multi-run graph-over-graph displays. Graphs may be manually or automatically scaled.

Graph test reports include a colour XY plotting report, and a full data logging report showing such data as Engine RPM, Power, Torque, Speed, Oil Temperature, Boost, Air Intake Temperature, and Air/Fuel Ratio. When using the Automatic Weather Station, vital atmospheric information such as Barometric Pressure, Relative Humidity, Ambient Temperature and Correction Factor are also saved with each report, and power readings are automatically corrected to the prevailing atmospheric conditions. Watermarks or colour photographs can be added to the graph background with just a few key strokes.

Test comments may be displayed on the Graph when it is printed. The graph scaling is fully configurable by the operator, or auto scaling can be applied. All screens can be captured easily for coloured screen image printing if required.

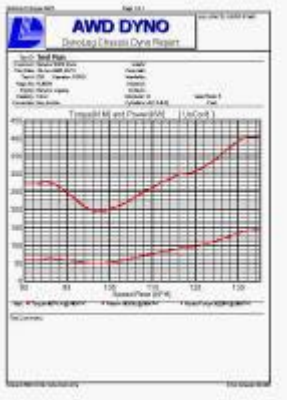
Any of the 500+ data channels can be graphed and printed or generate PDF files. Raw data from any of those input channels can also be viewed, analysed and printed. A few of the graphs that can be generated are produced below.

Power Run Overlay



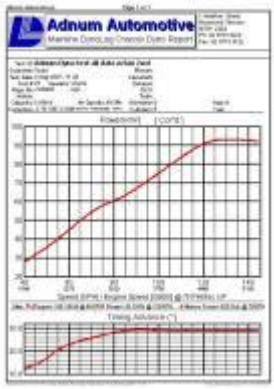
Power & AFR

Power & Torque

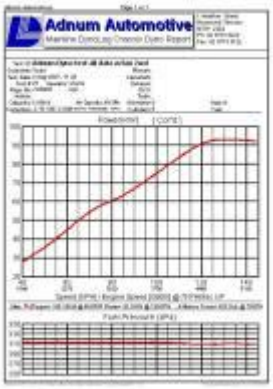


Power & Torque Split

Power & Timing Advance

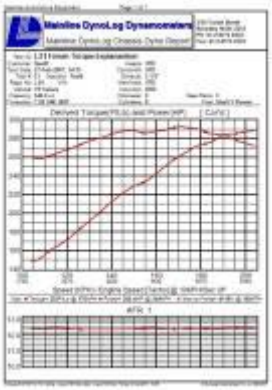


Power & Fuel Pressure



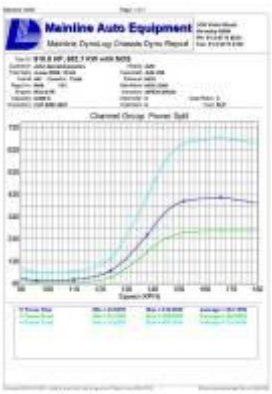
Power & Fuel Used

Power/Torque & AFR

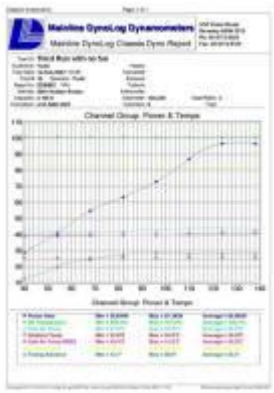


AWD Power Split

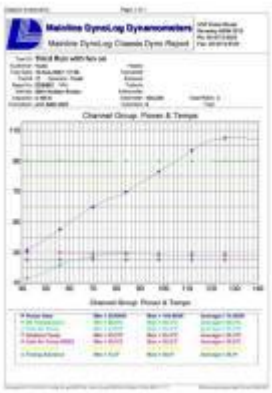
Intercooler Loss

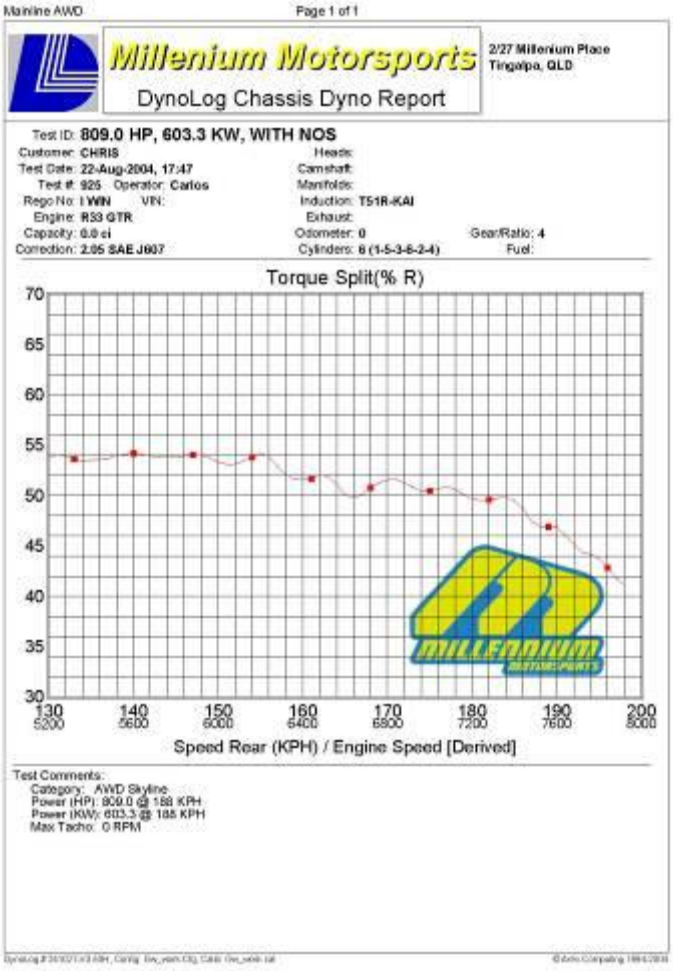


Power & Temp. Fan Off

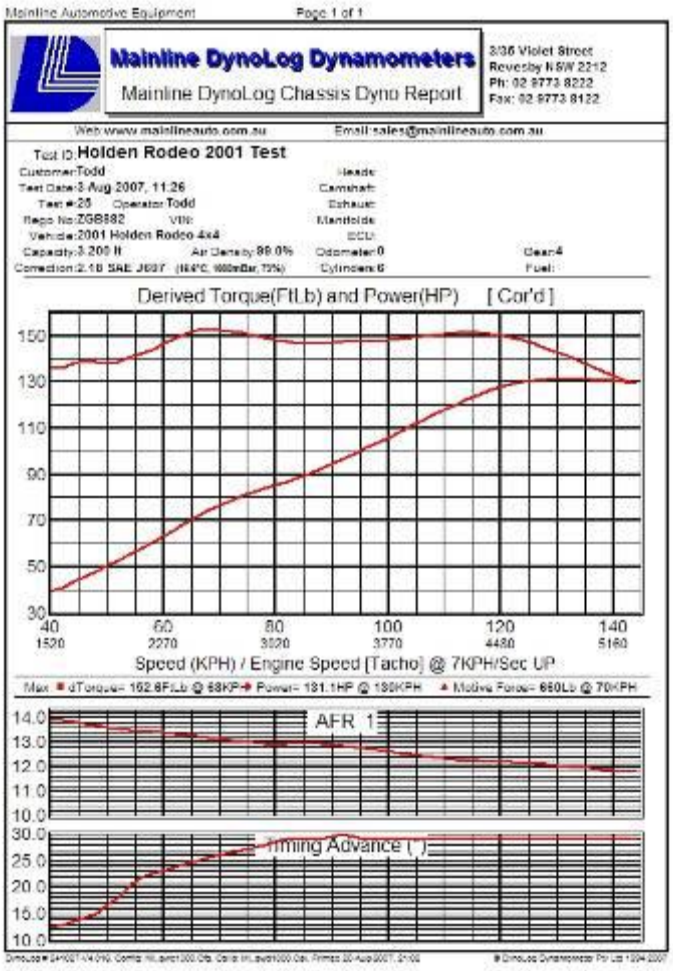


Power & Temp, Fan On

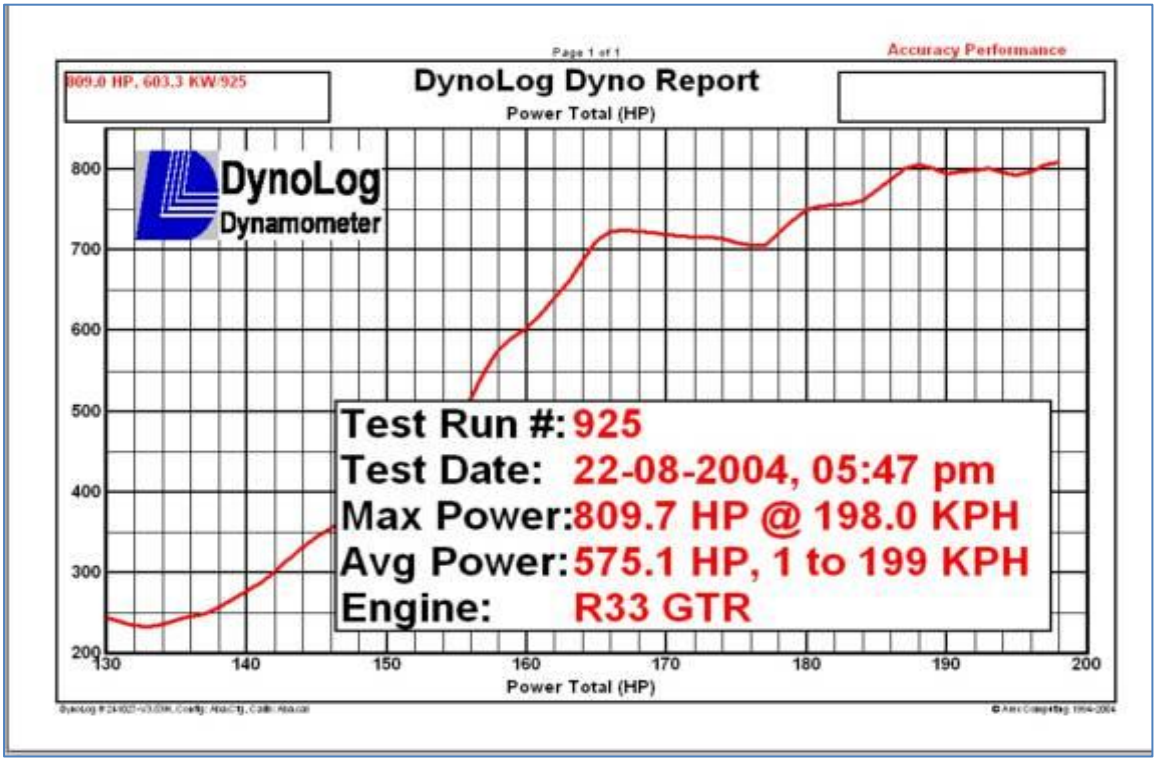




AWD Torque Split



Power, AFR & Timing Advance



Landscape Graph with Run Data

STANDARD – ACCURATE, DEPENDABLE, REPEATABLE RESULTS

The Mainline DynoLog system is widely described as the "No Fudge" Dyno or the "Unfudgeable" Dyno, and is the obvious choice for dyno operators who choose an honest approach to business and do not want to be caught up in the debacle about why the same car can get widely differing results on the same brand of dyno, why the same car can produce inconsistent results using different dyno "modes" or even why a dyno needs different "modes" for 4, 6 and 8 cylinder vehicles.

The Mainline DynoLog system deserves its outstanding reputation for producing the same results from dyno to dyno, as a scientific approach has been taken that provides the highest degree of accuracy and repeatability. No need for a special operating mode that reduces the ability of the operator to affect the results. No need to pay expensive annual fees for special training or to join a "club" of operators whose dyno results are alleged to be more accurate and believable. No need to have to add your signature to your printed dyno sheets to try and convince people that the results are accurate or believable. No inbuilt options where the dyno operator can "modify" results. Definitely no embarrassing cheat modes and no smoke and mirrors on the Mainline DynoLog Dynamometer. The Mainline DynoLog system is designed to produce only accurate, repeatable results. So for simply accurate, dependable and repeatable results, time after time, the Mainline DynoLog Dynamometer **IS** the obvious choice.

STANDARD – DELUXE COMPUTER CONTROL WORKSTATION

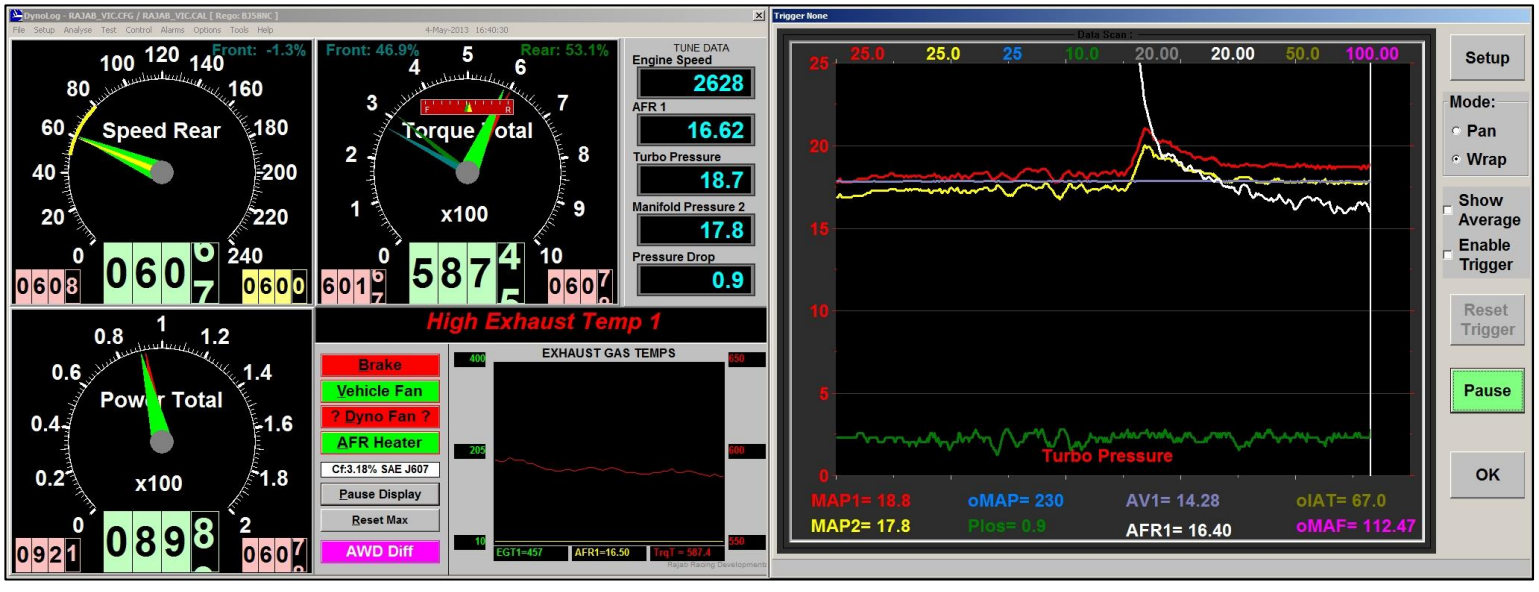
As a standard dyno inclusion we provide our visually pleasing fully enclosed, (full steel construction), amazingly functional deluxe workshop cabinet. The Deluxe Cabinet comes complete with wheels, plus twin boom arms & nudge bar assemblies, and provides safe storage for all computer components, printer and Dynamometer accessories & electronics.

STANDARD – DUAL 22" LCD MONITOR DISPLAYS

Twin 22" LCD Monitors (Extended Desktop) are a standard inclusion, with 24" monitors optionally available. The Twin Monitors provide twice the analytical real estate with an unprecedented amount of data available at your fingertips. Monitor the "Virtual Dashboard" screen with up to 77 digital channels of data displayed simultaneously.

The second monitor is particularly useful for Torque Optimisation (MBT), emissions testing, combustion analysis, Data Scanning etc.

When analysing graphs, the second monitor expands the range of data channel graphs that can be viewed simultaneously to a maximum of 12.



Second Monitor Showing 8 Channel Live Data Scan. Also EGT Alarm triggered.

STANDARD – IN-CAR WIRELESS TRACKBALL KEYBOARD CONTROLLER

No need to clutter up the vehicle with a Laptop, Hand Controller **AND** or a separate Keyboard. The Mainline DynoLog Dynamometer allows **ALL** Dynamometer functions and tests to be accessed and controlled using the mini keyboard/trackball controller. Even the vehicle cooling fan can be switched on and off from within the vehicle.

Your dyno is initially delivered with a USB wireless trackball keyboard combination.

If you prefer, your dyno can be set up to be fully controlled from a remote laptop or a USB corded keyboard/trackball.

Unlike a dedicated hand controller, if the Keyboard/Trackball ever ceases to operate simply plug in a USB Keyboard and Mouse as a temporary measure so that you do not lose valuable dyno time.

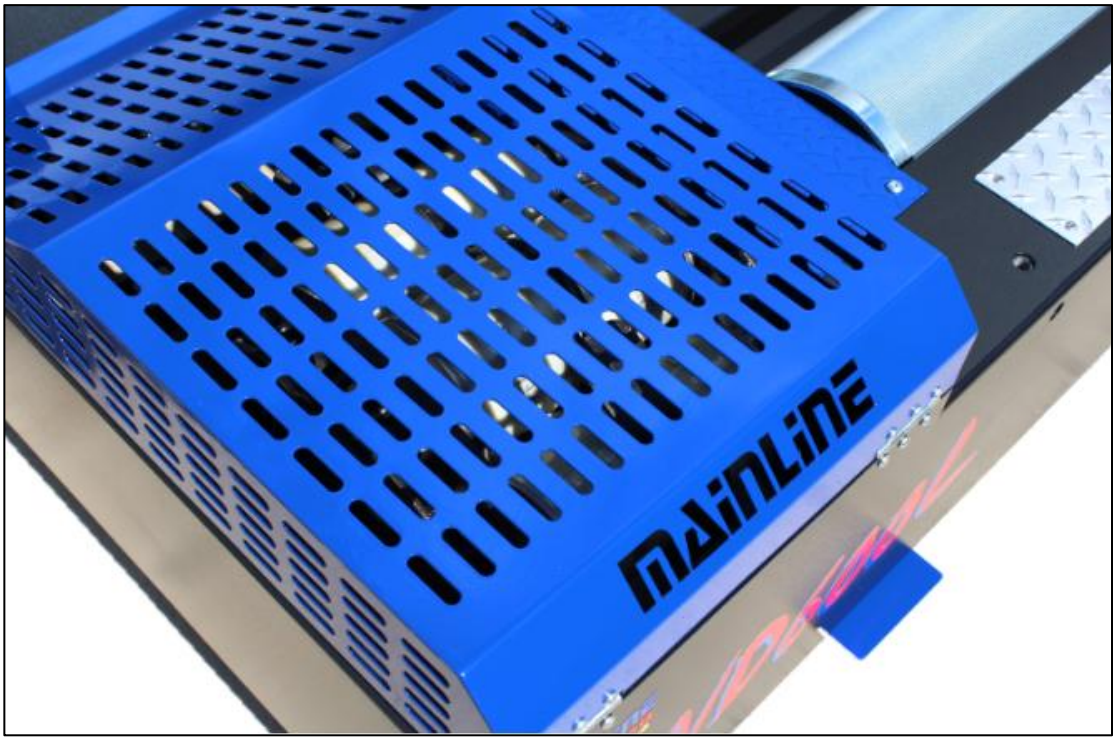
Operation key replication / emulation commands & features are available for operators who are used to using other dynos.

STANDARD – HEAVY DUTY CHASSIS CONSTRUCTION

The Mainline DynoLog Chassis Beds are of heavy-duty construction, and are extremely resistant to any flexing or harmonics from the test vehicle. Each "S" Beam Load Cell is suspended between two opposing rod ends ensuring it is not subjected to any environmental heat or flexing influences and remains free of tension. The "S" Beam Load Cell operates bi-directionally.

The standard Mainline DynoLog light vehicle dyno chassis beds utilise 218mm rollers with optimum deformation knurling that maximises traction whilst minimising tyre distortion and noise and ensuring a more accurate Speed and Power reading. The Mainline DynoLog Heavy Vehicle dynamometers are also available with higher capacity retarders, larger rollers and heavy vehicle rated chassis beds to suit virtually all heavy vehicle applications.

The Mainline DynoLog premium range chassis beds are fitted with fans to cool the load cell & the retarder/s. The fan operation is programmable to activate automatically (Time and/or Road Speed) or can be manually controlled by the operator from within the vehicle.



STANDARD – HIGHEST QUALITY RETARDERS

We will never compromise quality, and your Mainline DynoLog Dynamometer will be equipped with the best quality retarders available in the world today (Frenelsa). Be wary of manufacturers that use the cheapest available retarders which typically cost only a fraction of the cost of our retarders and are of significantly lower quality. Cheaper retarders also tend to have significantly less load-holding capacity. Mainline DynoLog opts for only the best, and will not compromise the quality of any of the components in its product range.

The smallest retarder that we now use in our chassis dynamometers is rated at 1700 Nm of torque and while the retarder is rated at 900kW (1200 hp) at 240kph, a single retarder has been used to ramp vehicles producing over 1000 kW.

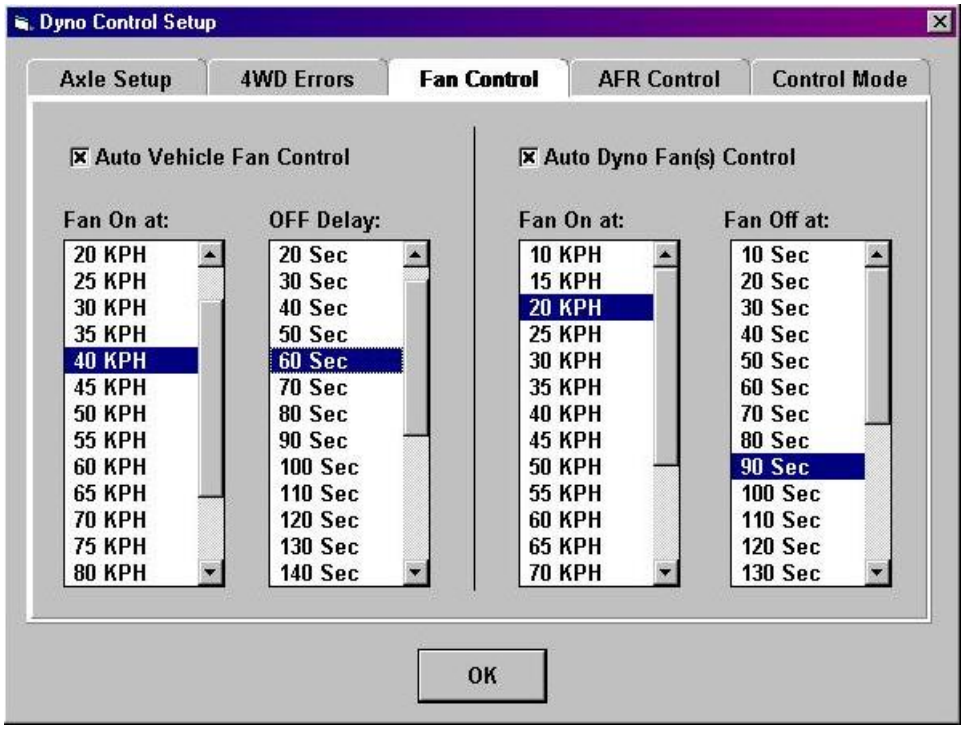
We offer the option of a second 1700 Nm retarder in the same dyno bed to double the rated capacity to 1700kW (2400 hp). The retarder is the "workhorse" of the dyno, and the quality of the retarder will be a reflection of how much trouble-free life your dyno is likely to provide. Would you rather your dyno was fitted with the best quality retarder available, or the cheapest retarder available, especially if the difference is not reflected in the dyno pricing?

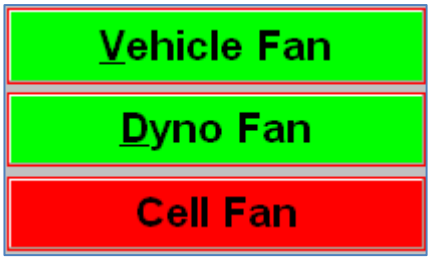
STANDARD – HIGHLY ACCURATE ROLLER SPEED

The Dynamometer Roller speed is measured using a digital sensor, ensuring exceptionally accurate roller/vehicle speed measurements.

STANDARD – VEHICLE / DYNO CELL FANS & FAN CONTROL

Vehicle Fan control is achieved via a 3 phase power outlet mounted on the side of the cabinet assembly to apply power to the optional Vehicle Cooling Fan. The Vehicle Cooling Fan is manually controlled by the operator via the keyboard or alternatively programmed for automatic operation. The Mainline DynoLog software supports VSD (Variable Speed Drive) for control of Dyno Cell and Vehicle Cooling Fans. The user can program the vehicle cooling fan speed and/or dyno cell fan speed to simulate on-road air flow.





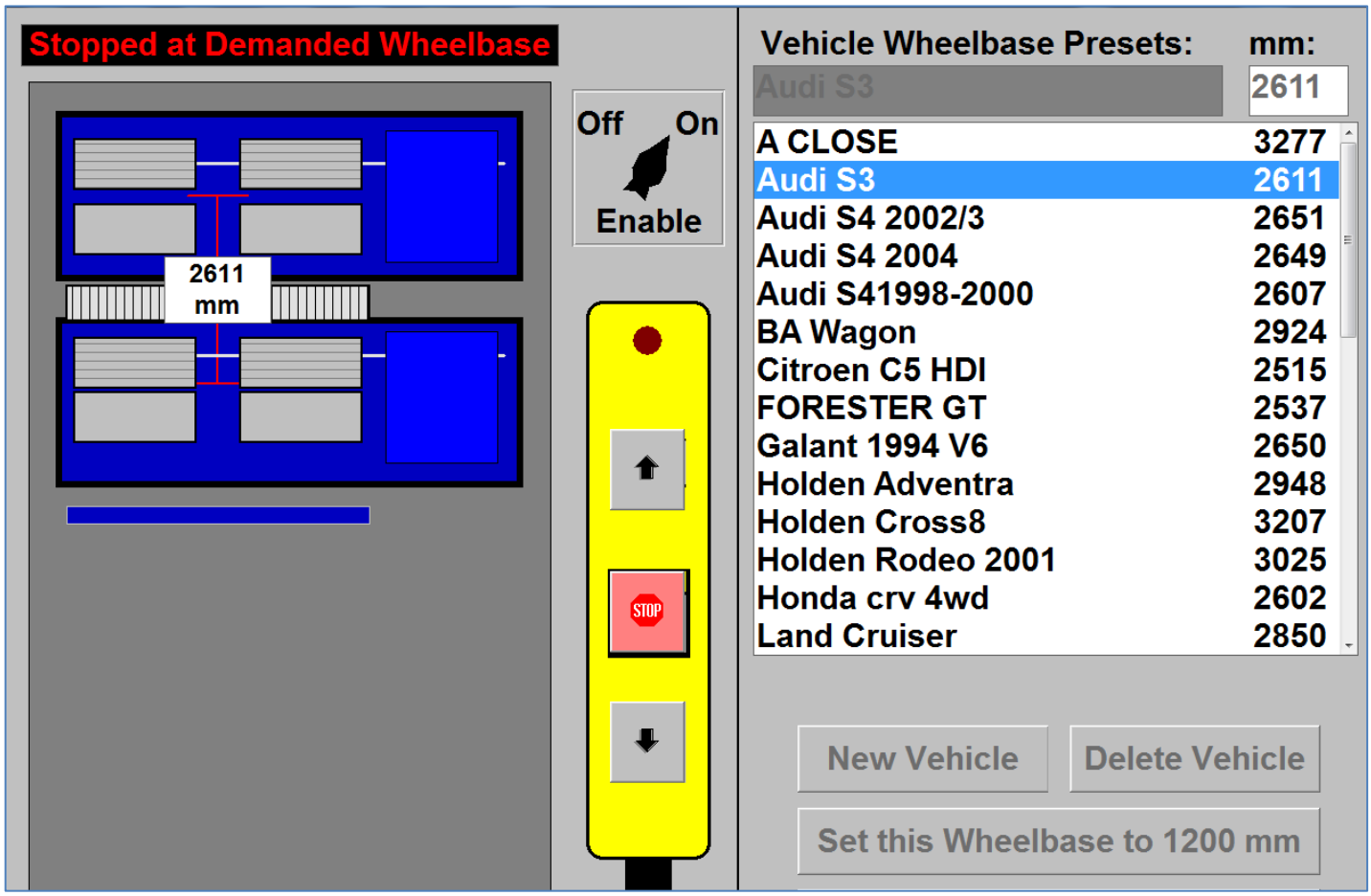
STANDARD - SOFTWARE WHEELBASE ADJUSTMENT (AWD Models)

Yet another example of the sheer superiority and professionalism of the Mainline DynoLog system, and another first in the world of AWD chassis dynos being equipped with software driven bed adjustment to provide precise chassis bed position adjustment for different vehicle wheel base dimensions. No need to hold a switch to adjust the dyno wheelbase and visually guess the correct wheelbase.

The Software Wheelbase Adjustment system only requires the user to select the vehicle from a menu, and the dyno wheel base will be automatically adjusted to within a 1mm tolerance – every time.

Of course the system allows for manual adjustment if needed. The software has a database of vehicles and wheelbases, and the user can Add, Delete or Edit vehicle data. Safety is paramount, and the system can optionally activate a warning siren and / or a strobe light prior to moving the dyno bed if required.

This unique feature of the Mainline DynoLog dyno provides a new level of repeatability, ease of setup, and a giant leap forward in dyno professionalism!

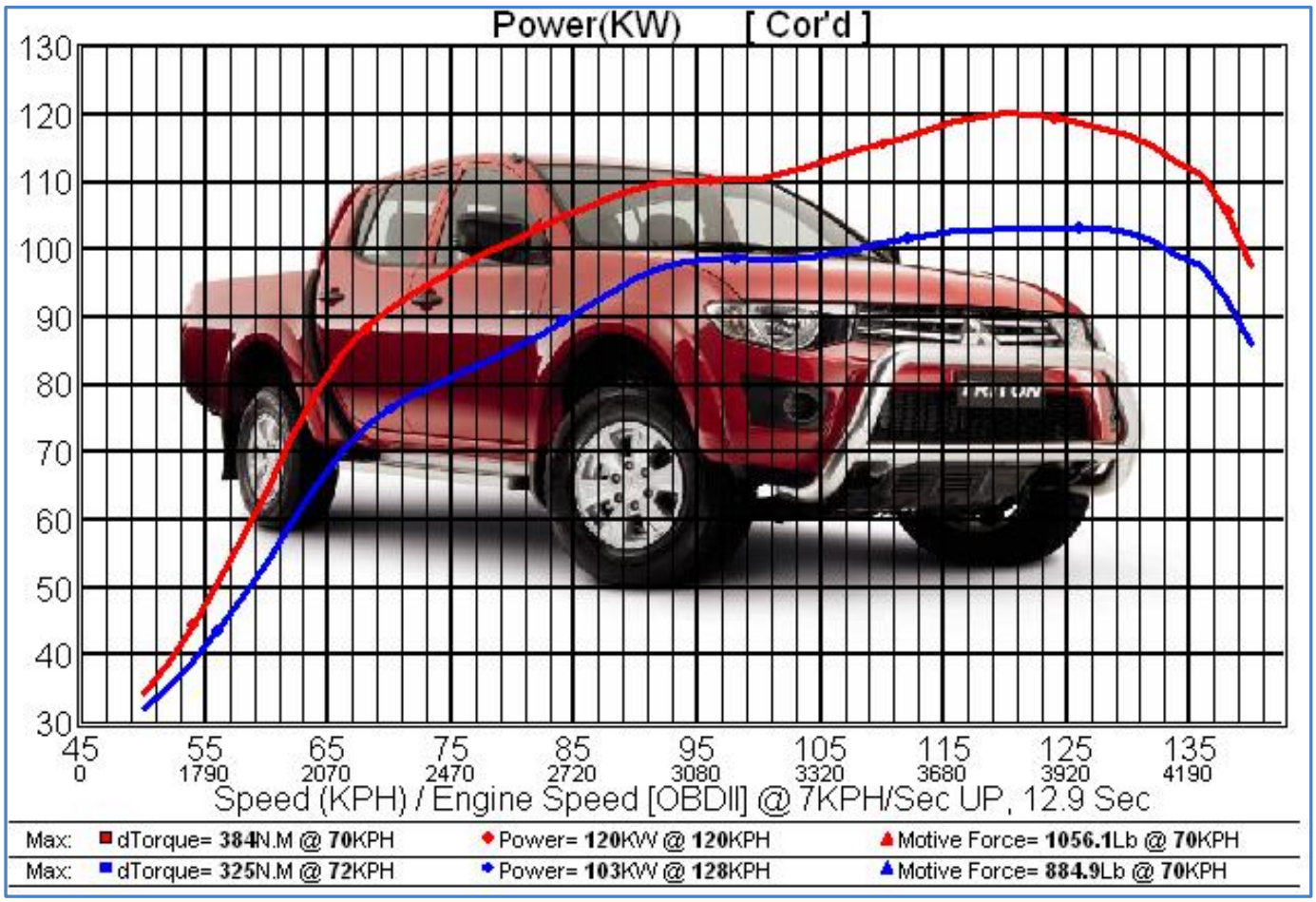


STANDARD – HIGH RESOLUTION GRAPHICS

Mainline DynoLog Dynamometers offer seamless graphics processing and printing using the Microsoft Windows Graphic User Interface, and provides the highest resolution graphics for viewing on screen or printing. The Mainline DynoLog system clearly sets the benchmark for quality graphical output and for genuine, honest results.

Unable to provide proper high resolution graphics, some other dynamometer systems use simple low resolution screen dumps which look good on screen but lose definition when printed.

Mainline DynoLog also offers built-in support for automatic watermarking and barcode operation. Automatic watermarking is available through an interfaced digital camera which will photograph the vehicle on the dyno and automatically include the photo (or any other graphical image) as background for the customer graph.



STANDARD - ADVANCED DIAGNOSTICS

Mainline DynoLog Dynamometers feature advanced diagnostics that other manufacturers can only dream about. New operators who have only previously used competitor's units are constantly telling us that our system opens their eyes for the first time about what is really going on within a vehicle.

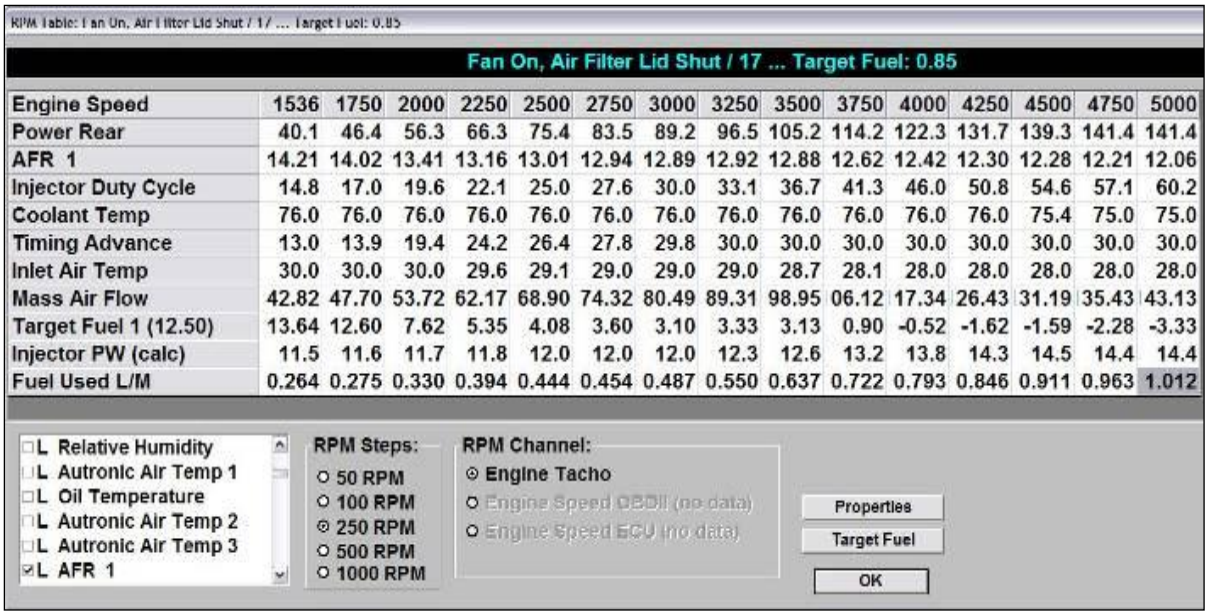
Our advanced diagnostic range provides the data you need to make **YOU** the expert, and many of our diagnostic options can be added at any time. Even more importantly, the Mainline DynoLog Dynamometer control system software is being constantly updated and improved so that it will continue to lead into the future.

Check out the incredible range of diagnostic options that we offer already. The Mainline DynoLog is the world leader in dynamometer technology, and we guarantee that our competitors will be playing catch-up for a very long time. No other dyno can even come close to matching the features and functions of a Mainline DynoLog system.

• Torque Front / Rear & Total (AWD Models)	• Roller Power
• Torque Split % (on AWD)	• Wheel Power (with OBD-II or ECU* link)
• Speed Front / Rear	• Tyre Loss (with OBD-II or ECU* link)
• Power Front / Rear & Total (AWD Models)	• Throttle Position (with OBD-II or ECU* link)
• Average Power / Power under the curve	• Mass Air Flow (with OBD-II or ECU* link)
• Motive Force	• Ignition Timing (with OBD-II or ECU* link)
• Engine RPM via Hardware Tacho Module (Primary or Secondary Ignition System)	• Intake Air Temperature (with OBD-II or ECU* link)
• Engine RPM via OBD-II or ECU* link, and from selected Gas Analysers	• MAP Pressure (with OBD-II or ECU* link, and from some Gas Analysers)
• Derived RPM (from roller speed)	• Vehicle Speed (with OBD-II or ECU* link)
• Manifold Pressure (multiple – to allow measurement of pressure drop across throttle body or intercooler)	• Pressure, Temperature, Strain/Load, Voltage, Current, Frequency etc using Datataker/s.
• Air Intake Temperature (Intake probe)	• Fuel Consumption Data (2 channels)
• Twin AFR / Lambda meters	• Fuel Flow/Pressure/Temperature & Ethanol Content
• Air: Fuel Ratio/ Lambda or Equivalency Factor	• 150 PSI (10 Bar) Fuel Pressure Module
• Ambient Temperature (for atmospheric correction)	• Sound Pressure dB Analysis
• Barometric Pressure (for atmospheric correction)	• Link up to 4 Datatakers @ 30 channels each
• Relative Humidity (for atmospheric correction)	• Multiple LCD Screens support
• Atmospheric Correction Factor (Selectable Power Correction Standards)	• Link Emissions Analysers (4 & 5 Gas Exhaust Analysers, Opacity Meters, and Particulates etc) More than 30 supported Emissions Analysers. Advanced Combustions Analysis & Emission Drive Cycle Simulation.
• Air Density %	• User defined Serial input (Multiple External Devices)
• Oil Temperature (also available from some Gas Analysers)	• 0-30 Volt User defined inputs (up to 4 inputs)
• Coolant Temperature (with OBD-II or ECU* link)	• 200 User definable MATHS channels
• Space saving folding Vehicle Ramps (recommended for AWD models)	• User definable copy channels (eg PSI & KPA simultaneously from single data input)
• Torque Optimisation – Optimise Torque over ignition timing (MBT), cam timing, injector timing, AFR/Lambda, or OBD-II channel inputs	• Dedicated Dyno Competition & Management Software Program (Great for Dyno Days)

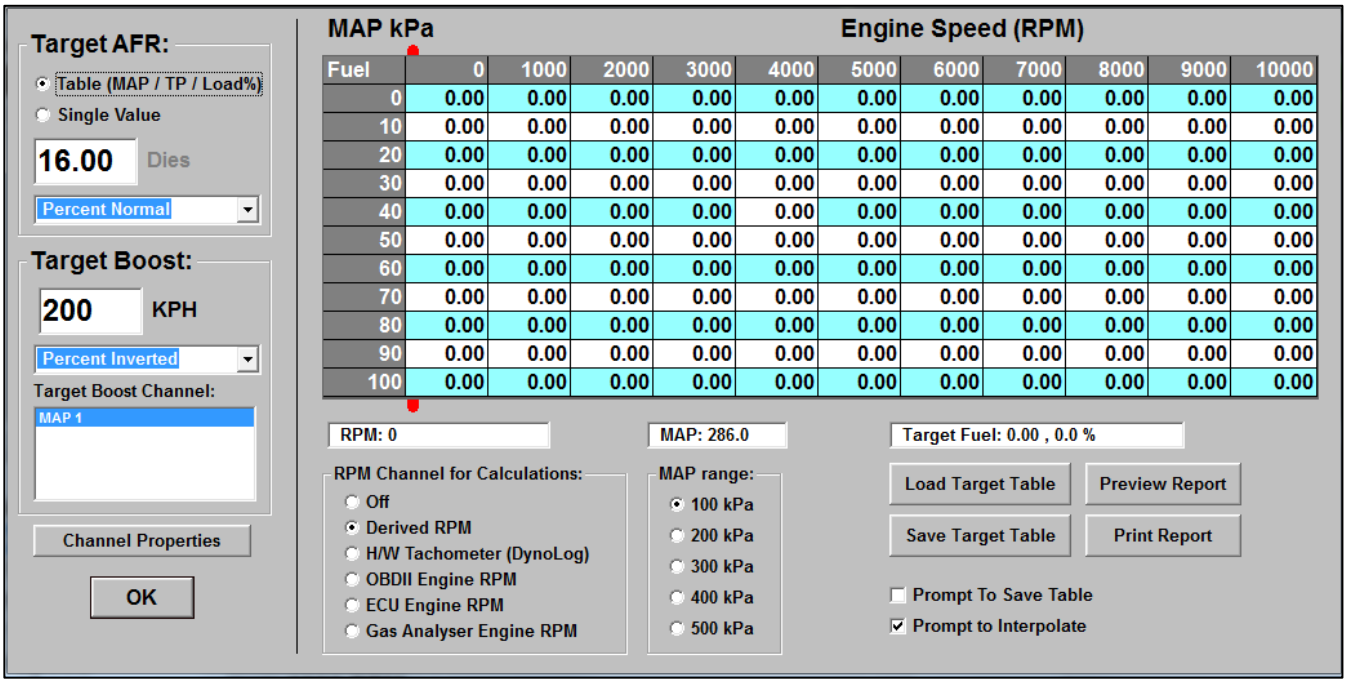
STANDARD - ADVANCED DIAGNOSTICS – RPM TABLES

Yet another exceptional means of analysing data. RPM Based Channel Tables display data from any logged, calculated or maths channel against engine RPM rather than road speed. Compare up to 10 data channels at any time including Lambda and Target Lambda Correction, plus Boost and Target Boost Correction. The user specifies the tacho source to be used for plotting the data, and the RPM Steps (each 50, 100 etc) for the viewed data.



STANDARD – ADVANCED DIAGNOSTICS - TARGET AFR/LAMBDA CORRECTION

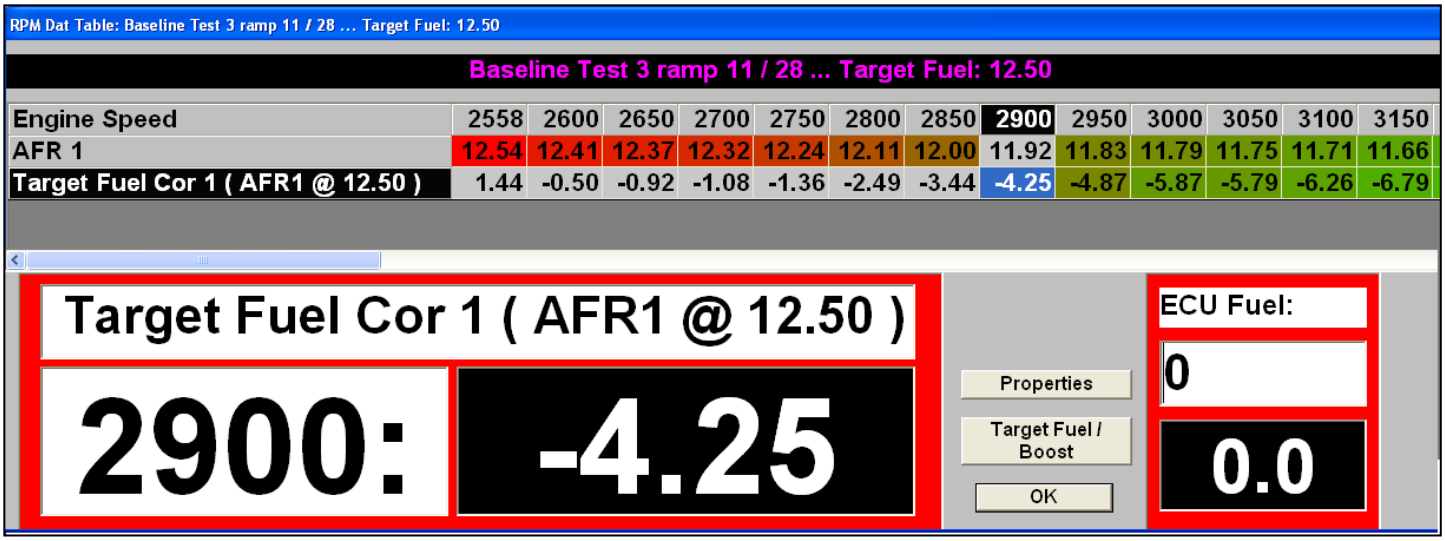
When mapping vehicles, it is usually necessary to specify how much fuel change is required to the fuel map in percentage terms to achieve a target Lambda. For example, at 5,000 rpm an engine may need more fuel to achieve a Lambda of 0.86. Mainline DynoLog will calculate the actual percentage required from logged Lambda / AFR data, and the operator needs only add that percentage fuel to the ECU or PCM or carburettor. This feature dramatically speeds up the tuning process for both carburettor and EFI vehicles, and minimises engine running time during tuning. The operator can choose a single value target AFR or have Mainline DynoLog derive a target value from engine RPM and Manifold Pressure. The operator can pre-set a table and Mainline DynoLog will look up the appropriate target for the RPM position and Manifold Pressure from the table.



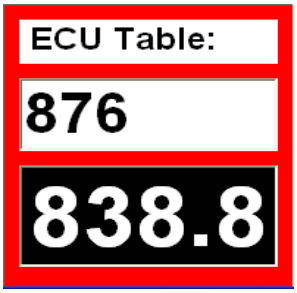
STANDARD – ADVANCED DIAGNOSTICS - TARGET FUEL CORRECTION CALCULATOR

A recent addition to this advanced feature is a popup zoom window to show the selected data in large font, easily viewable from inside the test vehicle. In the following example, the target AFR is set to 12.50:1, @ 2900 RPM. The required fuel change is to remove 4.25 % of fuel to reach the desired target fuel AFR value.

In the example below the operator has clicked on the target fuel correction required at 2900 engine RPM. This quickly shows the operator the correction required (- 4.25 %) to correct the current AFR value (11.92: 1 AFR) to the desired target fuel value (12.50: 1).



As many aftermarket ECU tuning software programs only display a numerical value for fuel quantity, the Mainline DynoLog now includes an ECU fuel table calculator. This function allows the dyno operator to enter in the numerical value displayed in their aftermarket tuning software fuel table and the Mainline DynoLog software simply calculates the revised numerical value to edit the fuel table value to.



In the above example, the dyno operator has entered in a fuel table value of 876 from their tuning software fuel table. The Mainline DynoLog software calculates, and indicates to the operator, the numerical value (838.8) is required to achieve the target AFR of 12.50:1. The operator edits the tuning software value to the new corrected value to achieve the desired target AFR for this RPM interval.

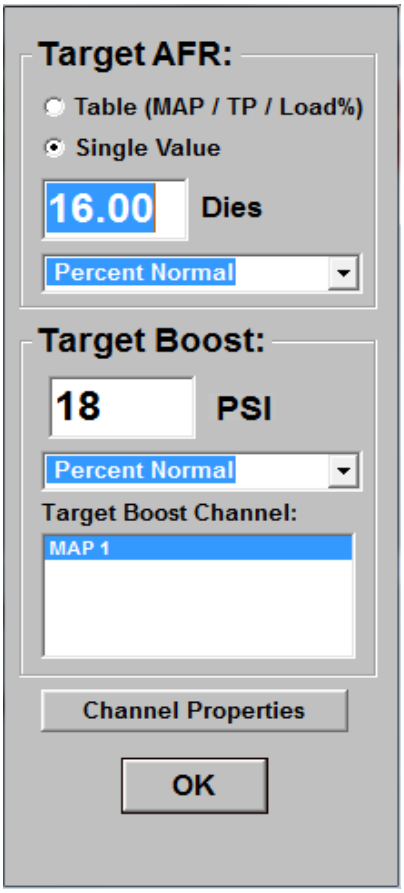
The operator / tuner would simply change "876" fuel table value to "838.8" and the AFR should be on target at that tune site.

This function can vastly speed up the time required to tune the engine to the desired AFR value throughout the engine RPM range.

This advanced function is a standard feature of the Mainline/DynoLog premium system.

STANDARD – ADVANCED DIAGNOSTICS - TARGET BOOST CORRECTION

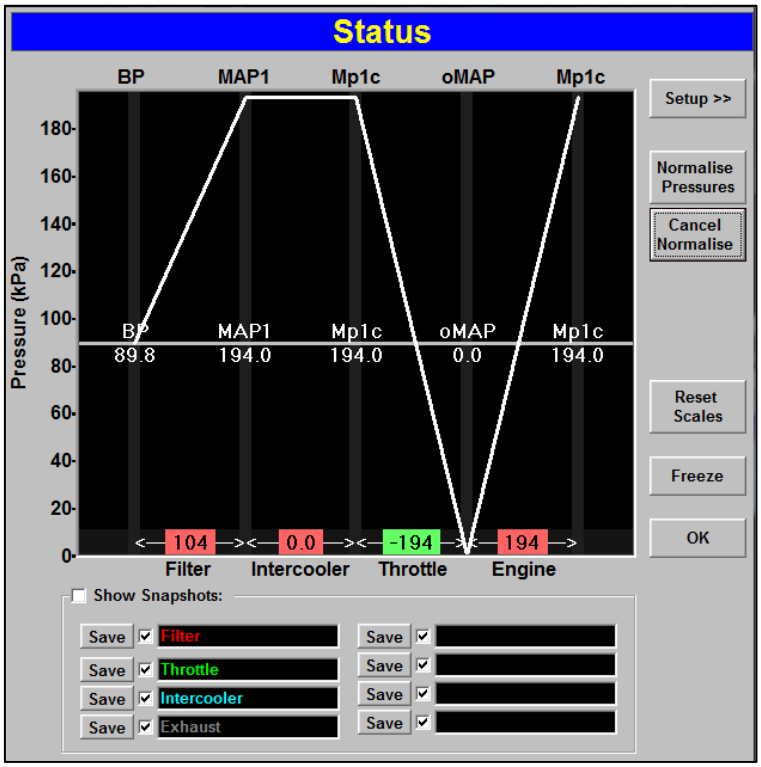
During mapping, it is also usually necessary to specify how much boost is required in percentage terms to achieve a target boost pressure. For example, at 5,000rpm an engine may require more boost to achieve 1.3 Bar. Mainline/DynoLog will calculate the actual percentage required from logged boost data, and the operator need only add that percentage boost. This feature also dramatically speeds up the tuning process, and again minimises engine running time during tuning.



STANDARD – ADVANCED DIAGNOSTICS - PRESSURE DELTA

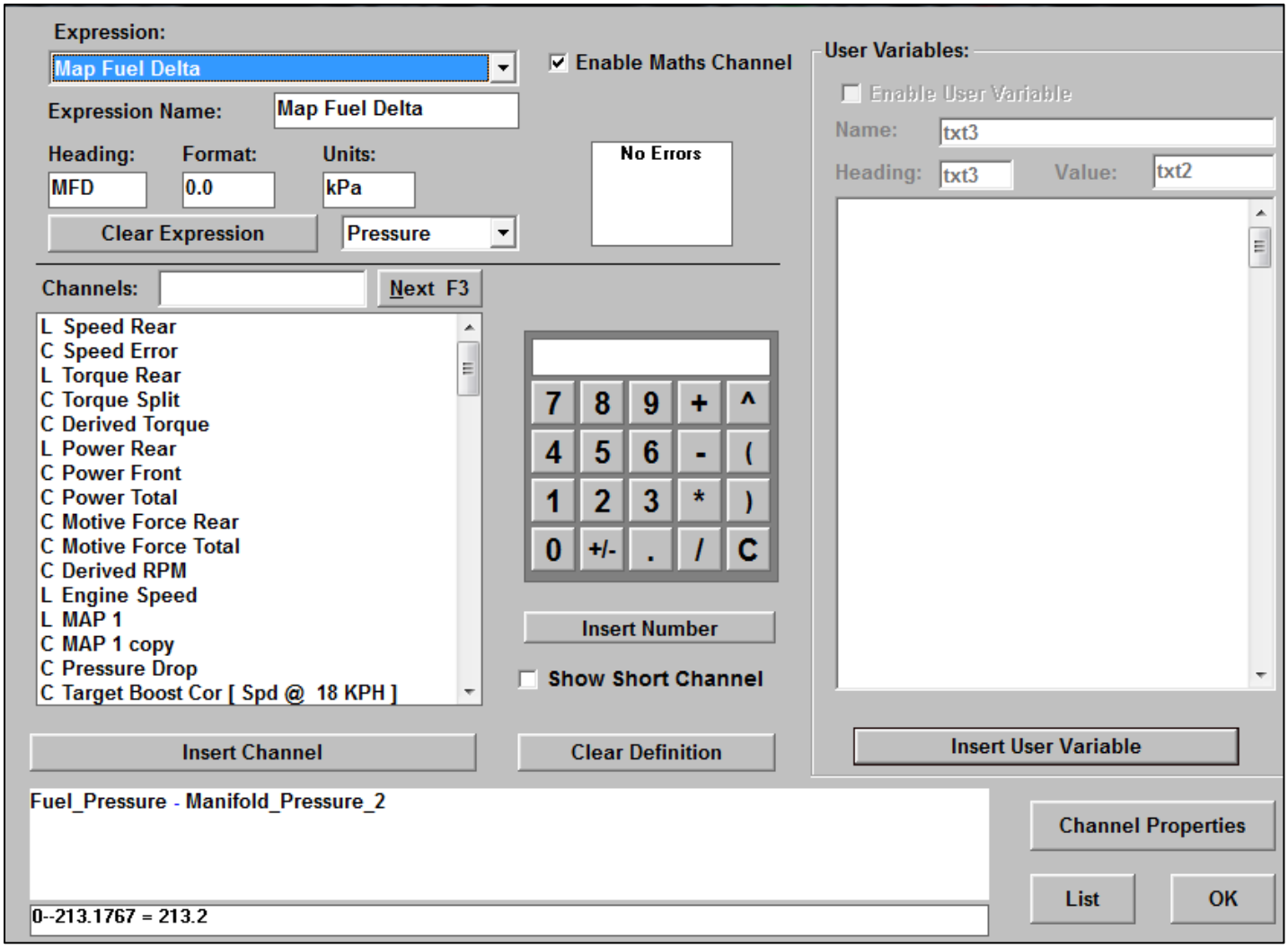
Allows measurement of pressure drops through the inlet system or exhaust system (Air Box – Intercooler – Mass Air Flow Meter – Engine- Exhaust Manifold) during steady state testing, to determine the extent of restrictions in the inlet tract, or exhaust system.

All logged pressure channels can be zeroed / compared against Barometric pressure to show instantaneous pressure variations during steady state tests.



STANDARD – ADVANCED DIAGNOSTICS – MATHS CHANNELS/CALCULATED CHANNELS

200 User Definable Maths Channels – Mainline DynoLog Dynamometers feature 200 user-definable maths channels that can be used to perform calculations from other data channels and display user information. For example, Radiator Temperature Gradient – derived from Radiator Inlet Temperature minus Radiator Outlet Temperature, or Transmission Slip – derived from Engine Tacho and Vehicle Speed (derived from OBD-II or ECU data).

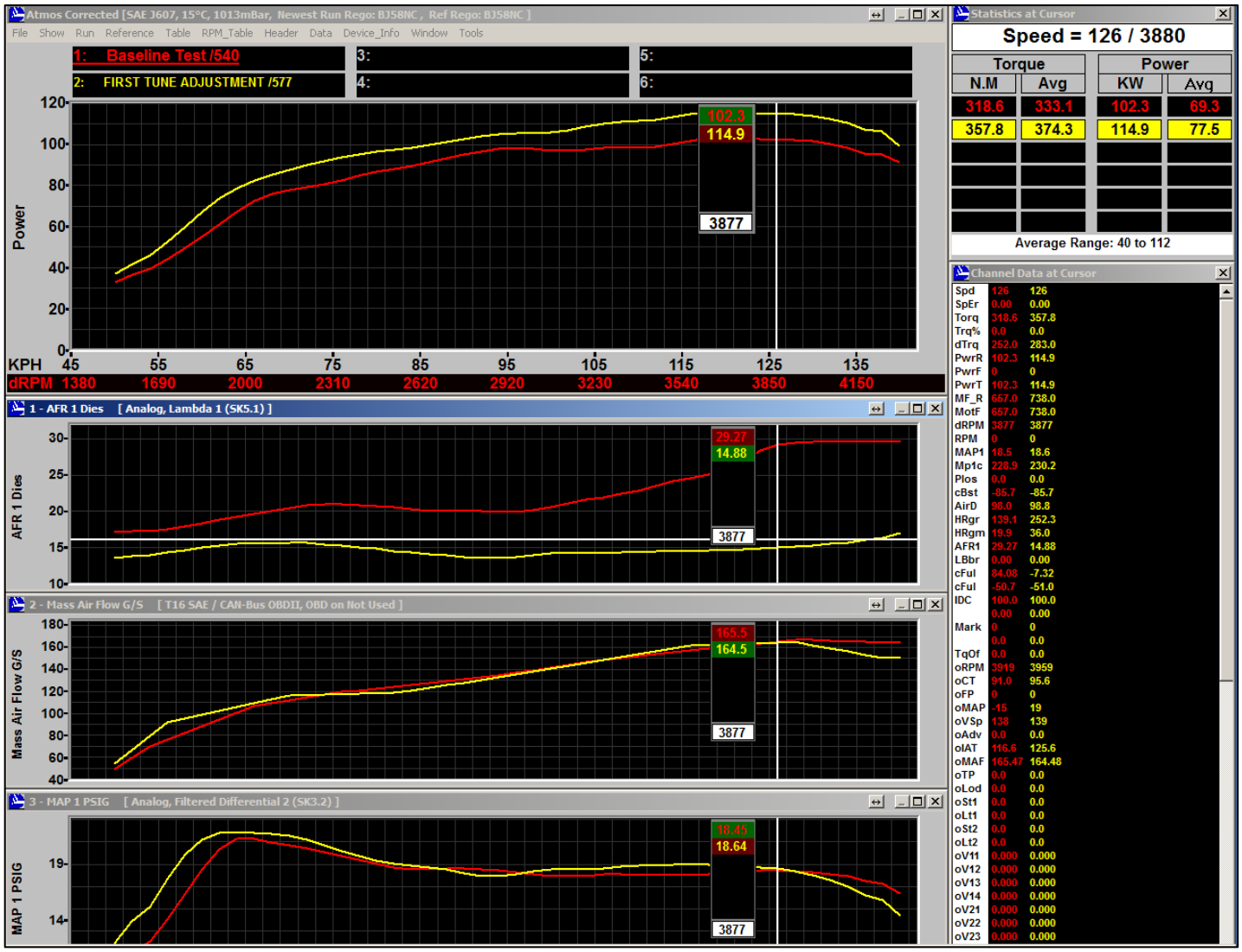


100 Calculated Channels – Mainline DynoLog has a further 100 Calculated Channels set aside for hard coding of user requirements. Several of these channels are already allocated, including Torque Converter Efficiency, which compares torque converter efficiency between individual test runs, Injector Pulse Width, Maximum Available Pulse Width, Pressure Drop (Intercooler Loss), Injector Frequency, Wheel Power & Tyre Loss (OBD-II Option Required)

STANDARD - HIGH LEVEL DATA ANALYSIS

The ability to analyse data from the advanced diagnostics sets the Mainline DynoLog system even further apart from ordinary dynamometer systems. Most competitor dynamometers have no analytical functions in their software at all. Each of the 500+ Mainline DynoLog data channels can be graphed and viewed as raw data, including the calculated and maths channel data and up to 6 runs can be overlaid for analytical purposes on up to 12 different channel graphs.

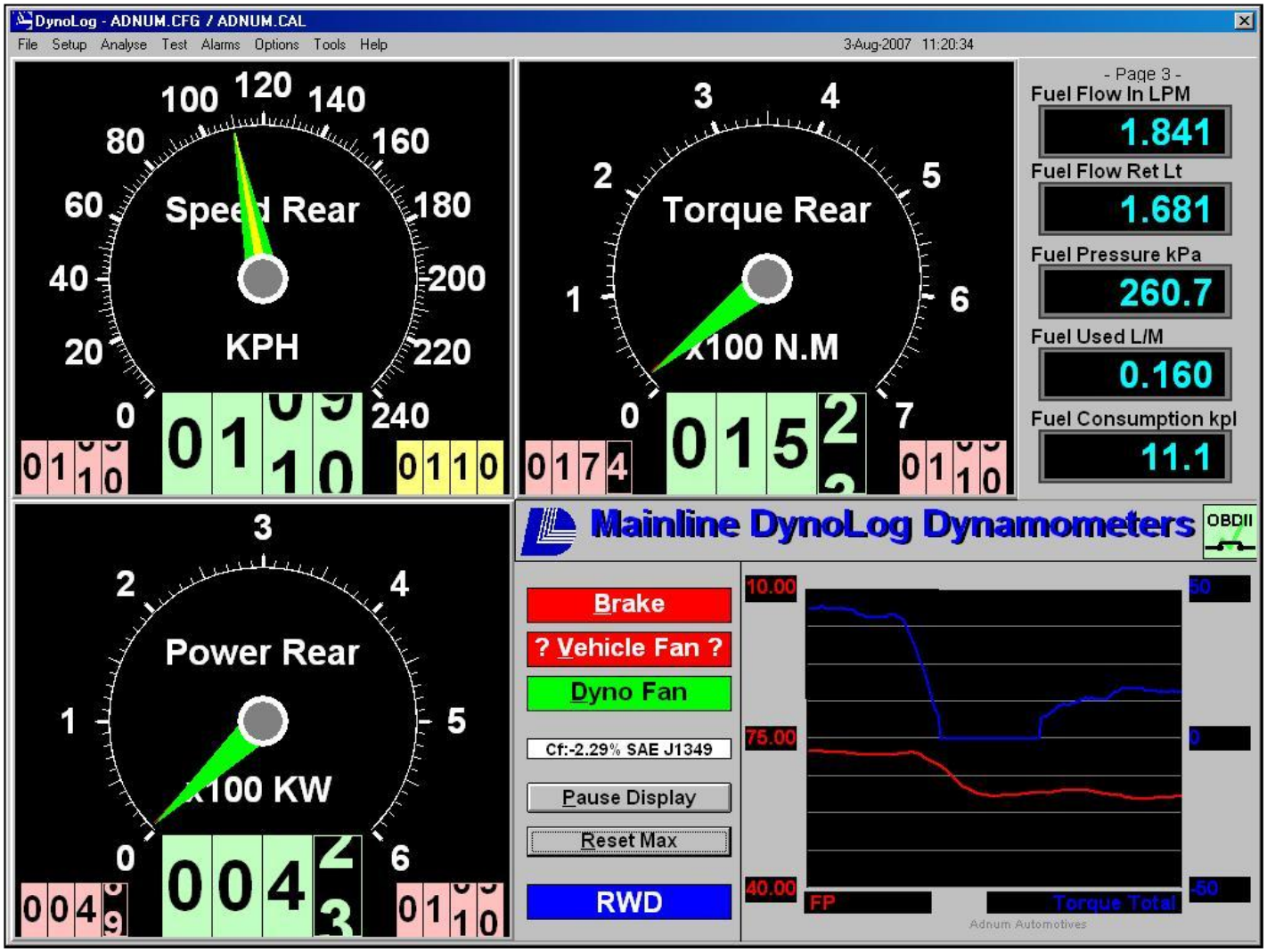
Data Fly Boxes allow quick assessment of graphed data, and the operator can view and analyse data from virtually any angle. A few clicks on the keyboard can provide you with data averaging, differences between runs, raw data viewing, Max/Min Speed at Max/Min Data, run averaging, difference graphs, difference tables, channel integral etc. A few more keystrokes can provide you with your average torque and power between your peak torque and peak power. The analytical capacity of the Mainline DynoLog system is so advanced that it requires a personal demonstration to come to terms with its capabilities.



STANDARD - HIGH LEVEL DATA ANALYSIS – DATA SMOOTHING

Several levels of graphical data smoothing are available to allow easier interpretation of data. The operator can choose the level of smoothing to be applied to each individual channel or to be applied globally. Moving average or Savitsky-Golay algorithms are used.

STANDARD - HIGH LEVEL DATA ANALYSIS – VIEWING "LIVE" VEHICLE DATA



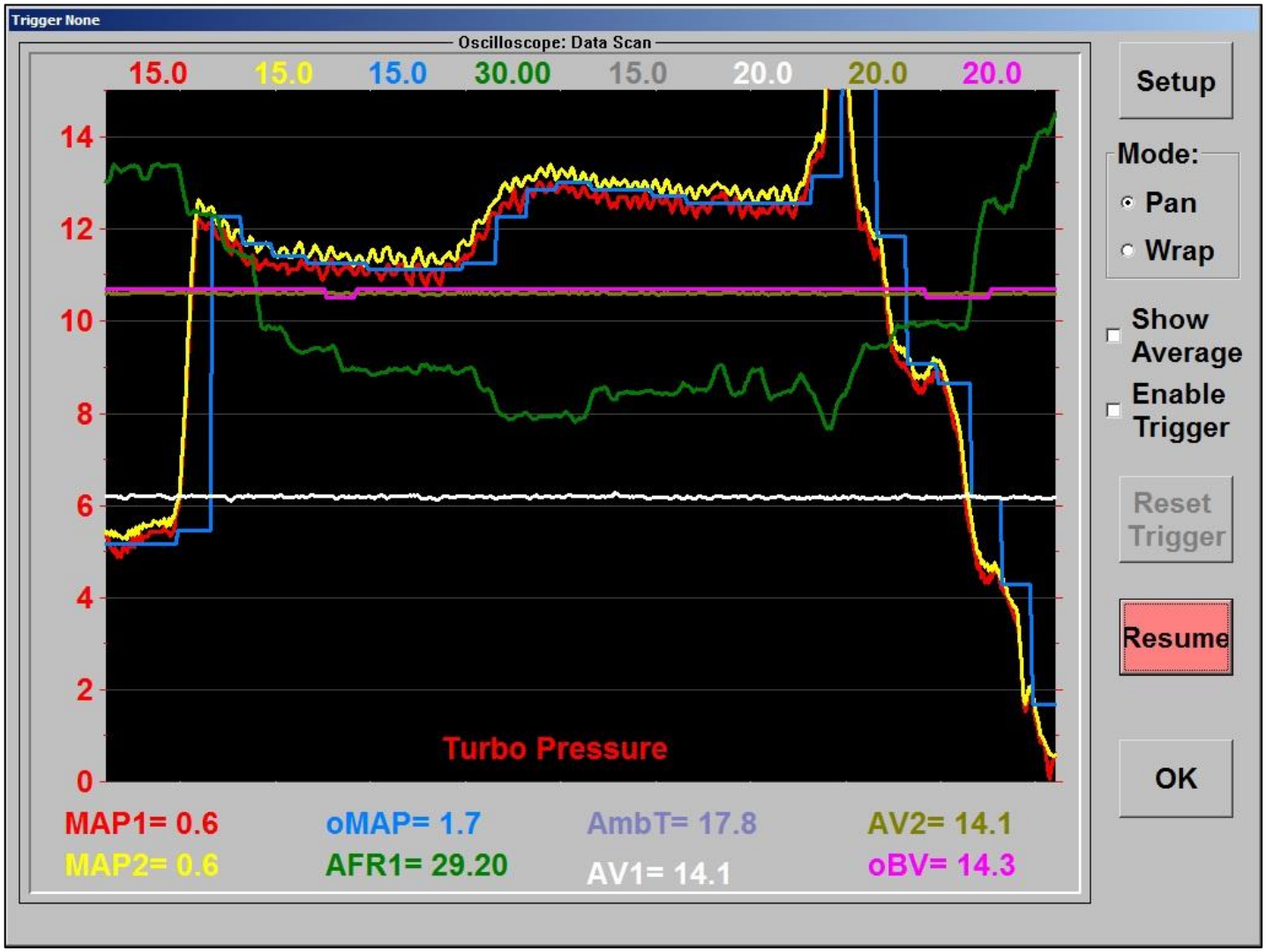
The Mainline DynoLog system also stands apart from other dynamometers in this area. Power, Torque & Speed can be viewed in digital or analogue format, a scrolling chart recorder provides a timeline for 5 user-selected data channels at a time, there are 20 pages of user configurable channel data that can be viewed live at any time, and 8 test monitor channels can be viewed concurrently while graphing a ramp test.

All available data channels including Air: Fuel Ratio and Boost can each be viewed as a live trace drawn over user configurable limit lines so that any variation is immediately obvious. On vehicles equipped with OBD-II, live OBD-II data can be viewed in real time using our optional OBD-II Data Logging Kit. When using the optional ECU Data Logging Kit, the live ECU data can also be viewed in real time. In fact, virtually **ANY** data input from **ANY** data source can be viewed in real time, including OBD-II, ECU, Gas Analyser, Fuel Flow / Pressure/ Temperature/ Ethanol Content and Diesel Opacity.

STANDARD - HIGH LEVEL DATA ANALYSIS – "LIVE" DATA SCAN

The Mainline DynoLog has even more hidden analytical surprises with a 8 channel "LIVE" Data scan. This function has a vast range of handy uses from logging 8 EGT sensors simultaneously, displaying Gas Analyser readings, or **ANY** other operator definable data channel inputs.

The user has the options of setting up data trigger points, different scan types, request live average values and much, much more.



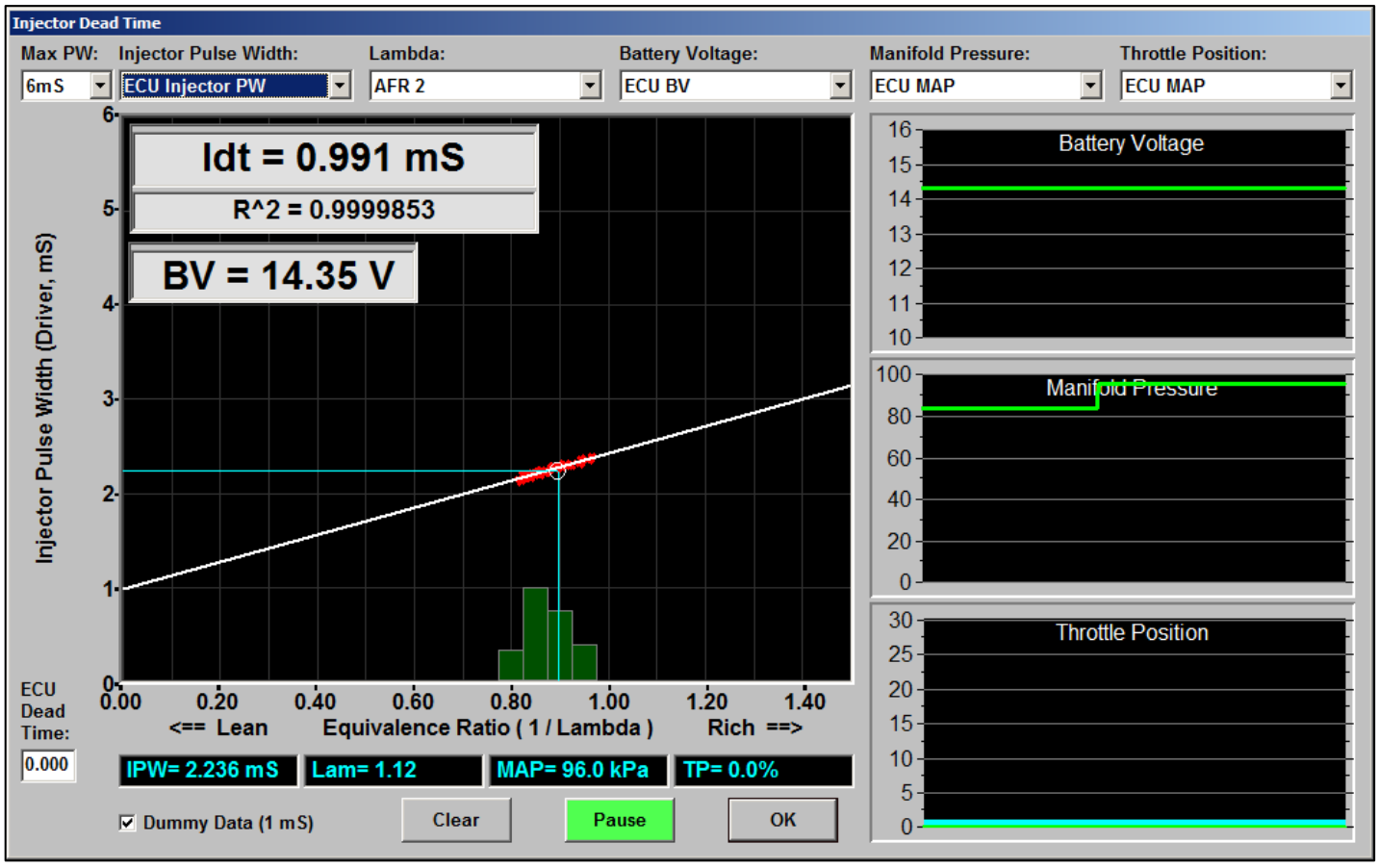
STANDARD - HIGH LEVEL DATA ANALYSIS – INJECTOR DEAD TIME

The injectors require a certain minimum pulse time to begin to open, and to obtain minimum fuel flow. The time required for the injectors to begin to open is referred to as 'Injector Dead Time". The injector dead time is dependent upon several variables such as the characteristics of the actual injector itself, plus external influences such as fuel pressure, supply voltage.

The Mainline DynoLog system has provision for "Live" measurement of the injector dead time, at any vehicle engine RPM and Load, with compatible ECUs.

Setting of the injector dead time is usually provided by the aftermarket ECU tuning program by providing dead time compensation to account for the characteristics of the injectors the engine management system.

This is just another example of why a Mainline DynoLog Dynamometer is simply light years in front of other brand dynamometer systems.



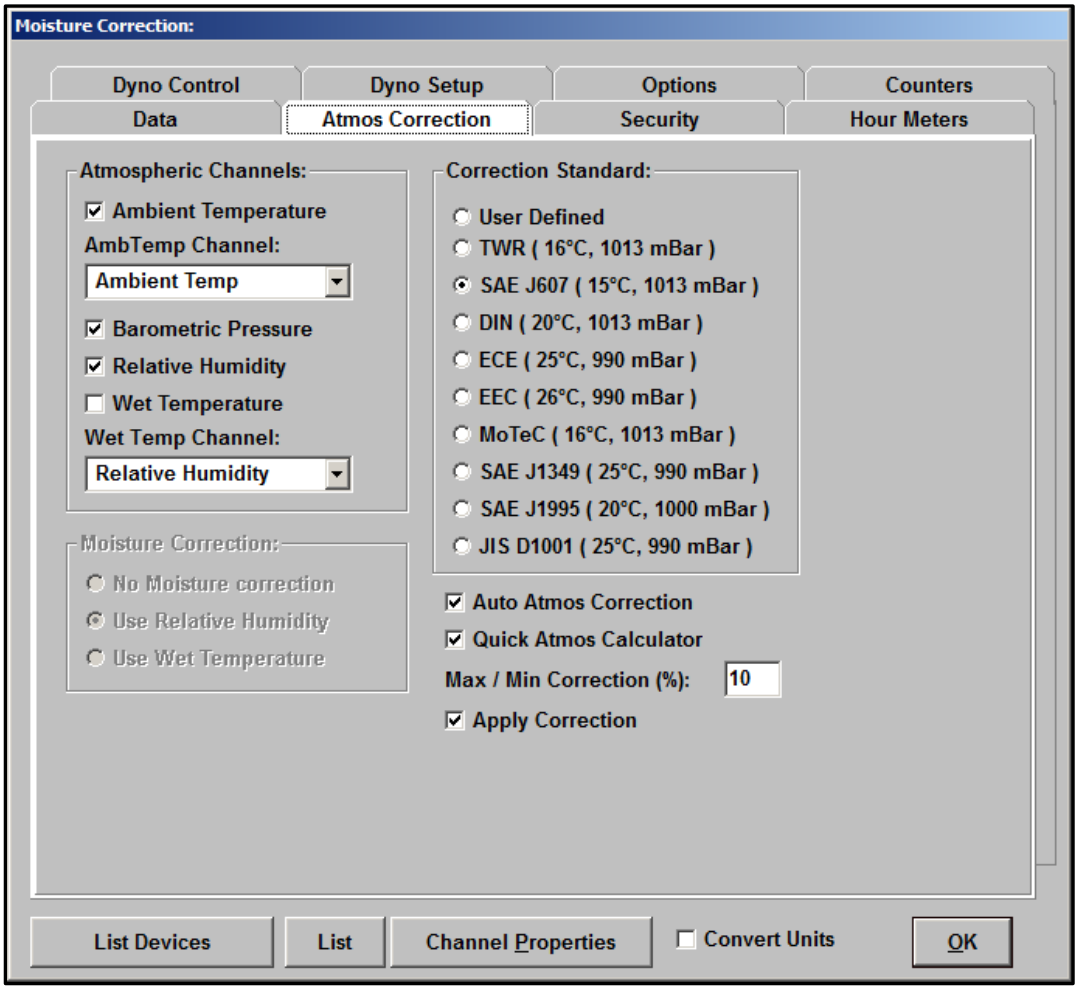
STANDARD - AUTOMATIC WEATHER STATION MODULE

Our Hard-Wired Premium Quality Automatic Weather Station Module measures and displays all atmospheric conditions required for "automatic" power correction calculations, ensuring repeatable test results throughout changing weather conditions. Relative Humidity, Barometric Pressure, and Ambient Temperature are measured, displayed and used to automatically correct torque and power figures. Additional information such as Air Density and Atmospheric Correction Factor are also calculated and displayed. Atmospheric conditions are also saved with test data and included on all printouts for easy reference. Seven Standards – SAE J607, SAE J1349, DIN etc are available for the operator to choose from.

The Correction Factor applied is visible on-screen and included on printouts. The maximum correction that can be applied is capped at the allowable maximum dictated by the correction standard being used to avoid producing unrealistic figures.

The Weather Station directly inputs atmospheric readings into the dyno software. This serves two important roles. Being fully automated, it is a variable the operator doesn't have to worry about as the software continually updates the Atmospheric Correction at least once per second.

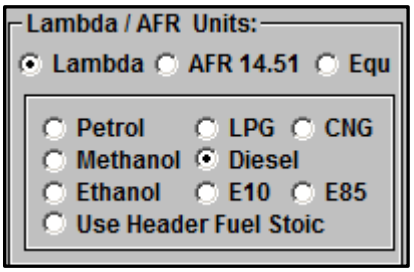
The other advantage is that it takes away the capacity for operator inaccuracies (as can affect results on other dyno systems where data is entered manually or air temperature in the manifold etc is used to calculate the Correction Factor).



STANDARD – AIR: FUEL RATIO / LAMBDA METER

An Air:Fuel Ratio (AFR) meter is usually the most important input on any dynamometer. The Mainline DynoLog Dynamometer comes standard with a quality high speed wide band AFR / Lambda meter, and purchasers can optionally choose their preferred AFR /Lambda meter if required.

The operator can select various units of measure including AFR, Lambda and Fuel Equivalence Ratio methods. If AFR is selected, the operator can further define fuel types including Petrol (Gasoline), LPG, CNG, Methanol, Diesel, Ethanol, E10, E85 or utilise a customised fuel stoichiometric value.



The Mainline DynoLog Dynamometer supports up to 8 AFR / Lambda meters connected and operating simultaneously, with individual logged data channels for each meter.

The Mainline DynoLog Dynamometer software also provides various AFR meter emulators for situations where a particular tuning program may require a particular AFR meter to use with their software package. The sophisticated Mainline DynoLog software can input an analogue or digital AFR meter signal and retransmit (output) serial data for an alternative AFR meter to the tuning software program, so it "thinks" it has the prescribed AFR meter input!

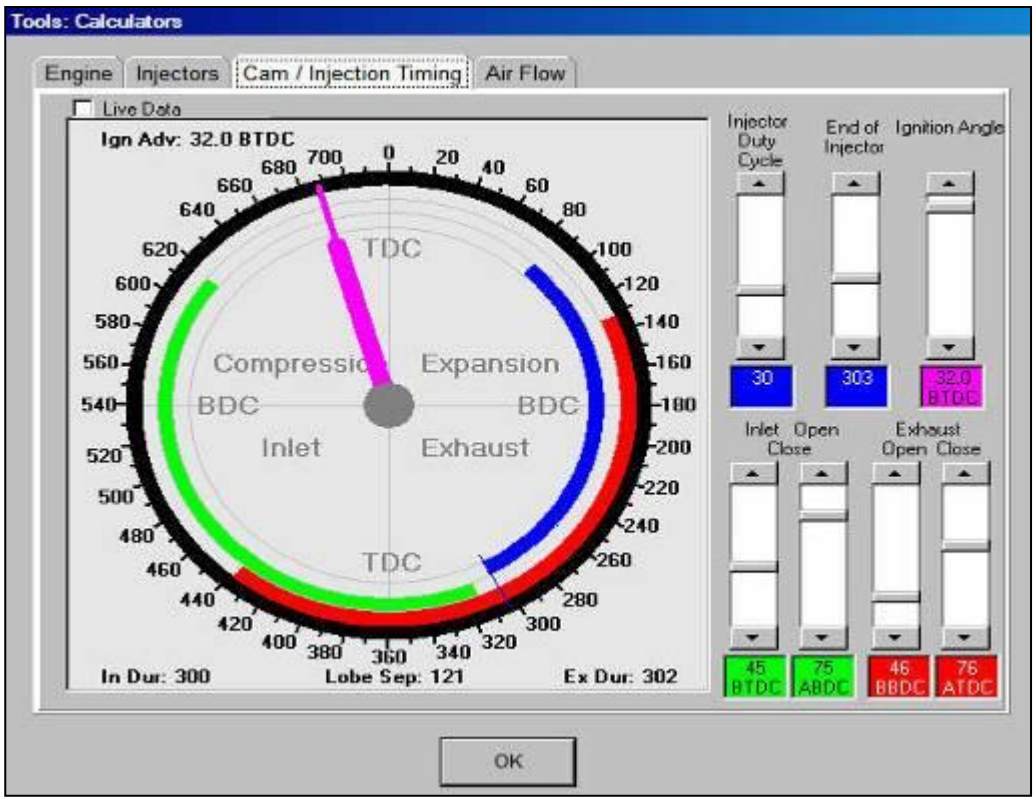
STANDARD – TWIN MAP SENSORS

Unlike other manufactures, Mainline DynoLog provides two MAP sensors as standard inclusions on all their dynamometer systems. Why? We know how useful it is to log Turbo Pressure and Manifold Pressure at the same time. And if you install the two MAP Sensors with one on each side of the intercooler, and the results will be automatically calculated and logged for you via a "Pressure Loss" channel provided as standard, in the premium range dynamometer software package.

On a more basic dyno with only 1 MAP sensor, the tuner would have to double the amount of tests performed, and manually calculate the loss, basically doubling the required dyno time. The Mainline DynoLog alarm functions may also be used in conjunction with MAP sensors, and additional MAP Sensors can be added at any time. With just 3 MAP inputs, the tuner can simultaneously see Exhaust Manifold Pressure, Turbo Outlet Pressure and Inlet Manifold Pressure. Some of our advanced users have up to 6 MAP inputs and make use of the dedicated "Pressure Delta" test functions, exclusive to a Mainline DynoLog Dynamometer.

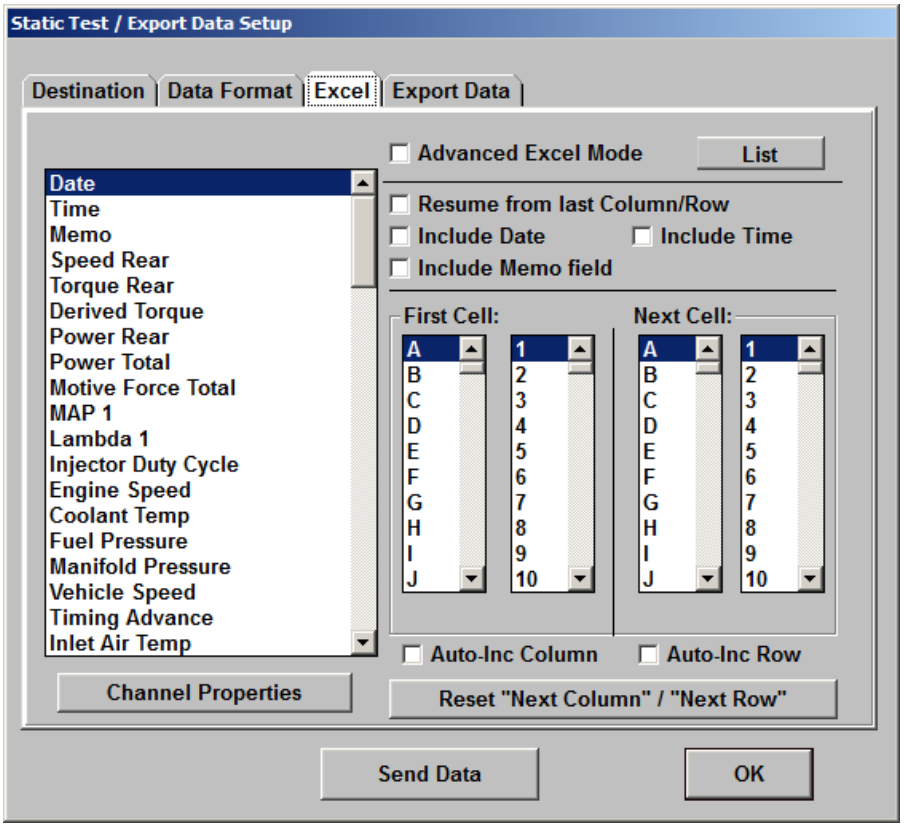
STANDARD - VISUALISE TIMING EVENTS IN ENGINE

An inbuilt calculator allows visualisation and personal analysis of timing events (ignition, injection, cam timing) in an engine. This handy feature simplifies understanding of the complexities of the combustion process.



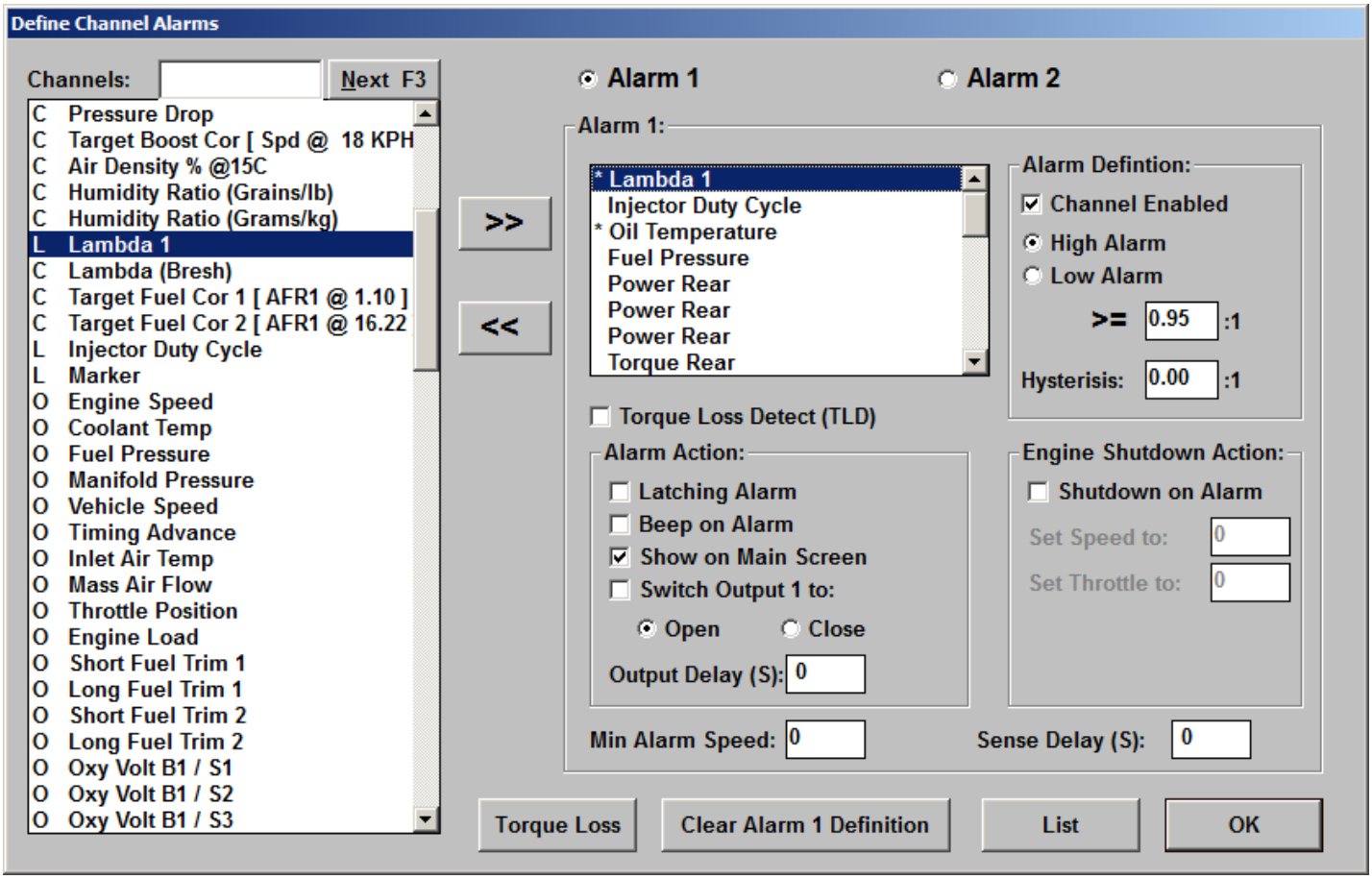
STANDARD - EXPORT DATA TO TEXT FILE OR MS EXCEL

All data logged during runs can easily be exported to CSV text files or to MS Excel for further analysis or to use MS Excel's 3D Graphing Modes and other advanced features. For advanced users, Dyno Data can be sent via Ethernet or RS232 to external PC's running Microsoft Excel where the user may have specific spread sheets storing dyno output data for analysis.



STANDARD - SAFETY ALARMS

The Mainline DynoLog software features alarms that can be set to warn the operator if operating parameters are exceeded so that potentially dangerous situations can be avoided eg. RPM, Speed, AFR, Boost etc. The system also has an optional alarm to remind the operator to remove the AFR probe prior to driving the vehicle off the dyno.



STANDARD – PRINT DIRECTLY TO PDF AND JPG

Mainline DynoLog software includes the ability to print to hard copy for viewing or to PDF or same as an image file JPG or BMP for emailing.

STANDARD – DIGITAL CAMERA SUPPORT

With just a few clicks or keystrokes, the user can use our built-in support for automatic watermarking and photo backgrounds. An interfaced digital camera will photograph the vehicle on command and automatically include the photo as background to the customer graph.

STANDARD – ELAPSED TIME METERS

Mainline DynoLog software includes a series of elapsed time meters which record Total Dyno Hardware Hours (absolute), Dyno Hours (Resettable) and "on song" Dyno Hours. The elapsed time meters are also useful for tracking rented dyno usage time.

STANDARD - AWD READY SOFTWARE ON 2WD SYSTEMS

For our clients with 2WD Mainline DynoLog systems who may use another client's AWD Dyno, we provide the means whereby they can transfer the AWD run data onto their 2WD system and analyse it on their 2WD Dyno.

STANDARD - NETWORK PRINTER SUPPORT

The Mainline DynoLog software supports networked printers. Printers are selectable from within the Mainline DynoLog software.

STANDARD - A4 & LETTER SIZE PAPER SUPPORT

The Mainline DynoLog software will print to either A4 or Letter paper sizes.

STANDARD – CUSTOMER DISCLAIMER

The Mainline DynoLog software includes a Disclaimer which can be printed out for signature by clients prior to work being undertaken.

STANDARD – VERSATILITY GALORE

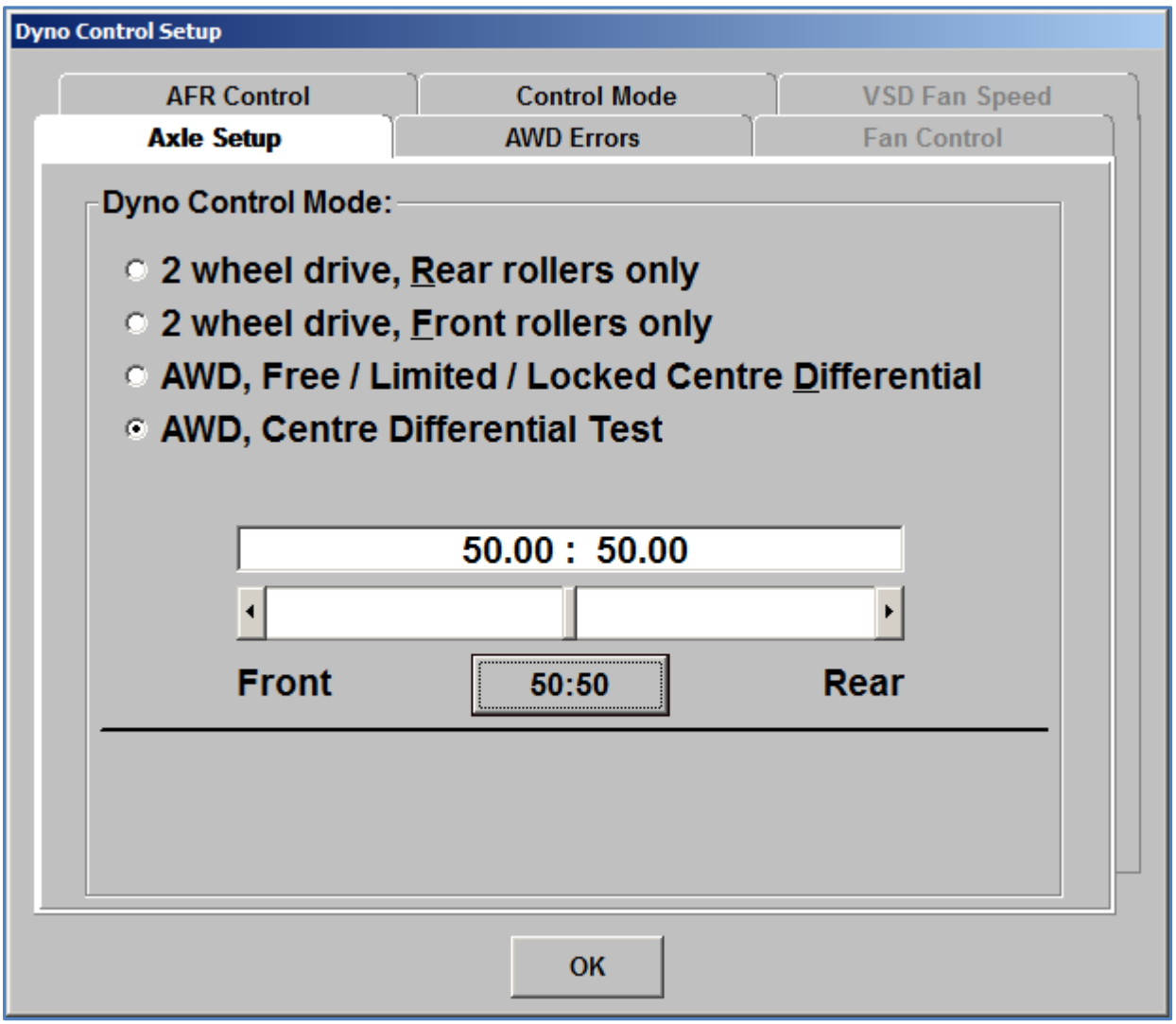
Users may easily and quickly open other software packages such as Calculator, Notepad, MS Word, MS Excel, Convert etc from within the Mainline DynoLog software.

STANDARD – TOTAL USER CONFIGURABILITY

The user is free to configure each Data Channel according to personal preferences. For example, Manifold Pressure can be displayed as KPa, PSI, ATM, Bar, Millibar, InHg, InWater, and either Absolute or Gauge pressure.

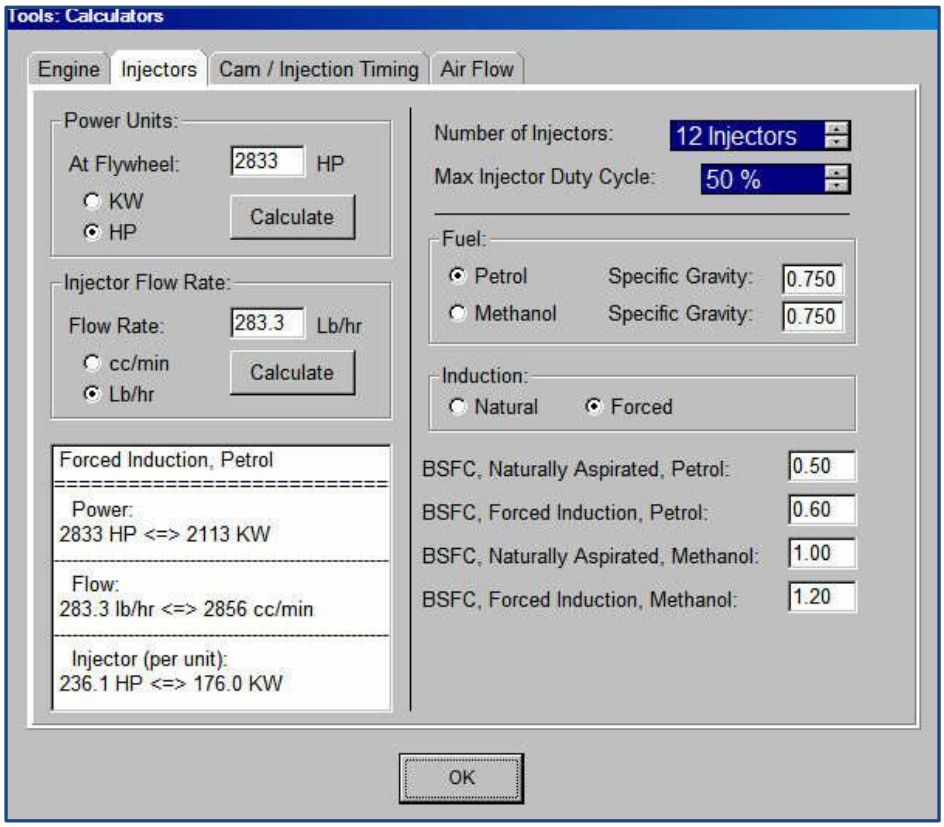
STANDARD – CENTRE DIFFERENTIAL TESTING

Mainline DynoLog software normally controls the speed of the front and rear wheels of AWD vehicles within extremely close tolerances, however it also includes a mode where the operator can deliberately unbalance the front and rear wheel speeds to test the centre differential.



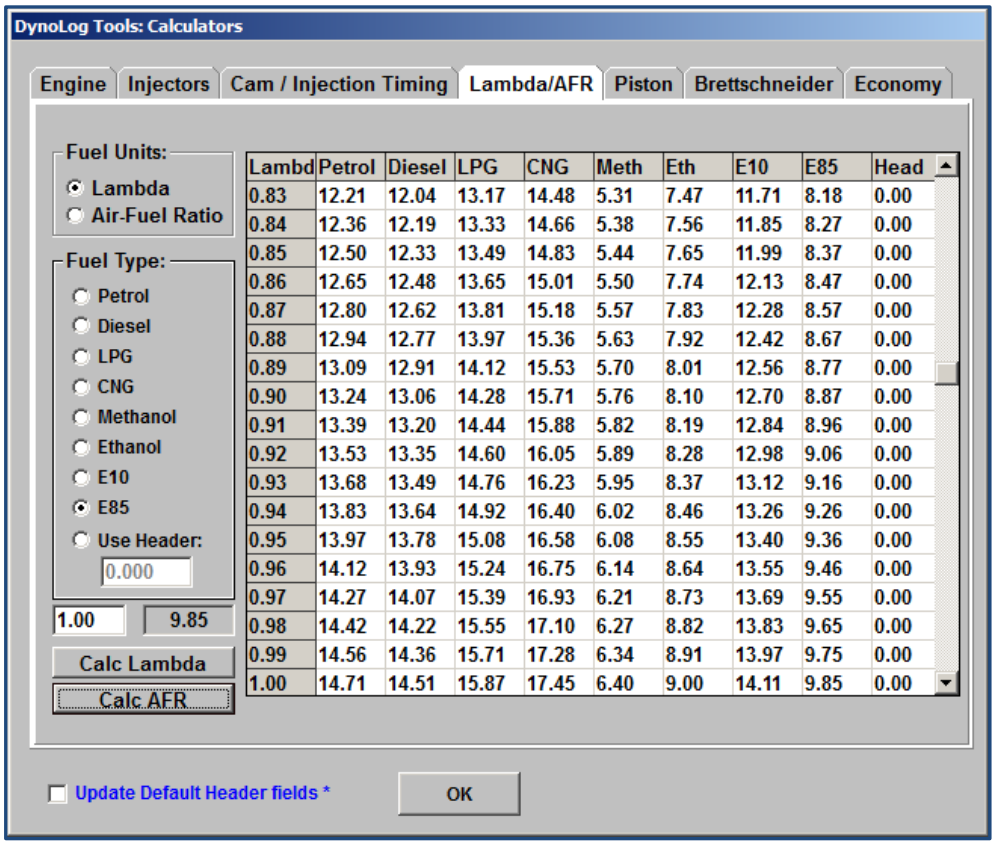
STANDARD – FUEL INJECTION SIZING CALCULATOR

Users can calculate the maximum injector flow rate required to achieve any given power level, or the power level that can be achieved from a particular injector flow rate. This option can be used for Naturally Aspirated or Forced Induction engines and Specific Fuel Consumption. The user specifies the number of injectors, maximum duty cycle allowed, plus the fuel type and the Brake Specific Fuel Consumption and Mainline/DynoLog calculates the maximum Injector Fuel Flow Rate and the Power that can be achieved.



STANDARD - LAMBDA/AFR CALCULATOR

Another useful standard inclusion is a calculator that allows Lambda values to be calculated from AFR, and AFR Values to be calculated from Lambda, plus a lookup table for all common fuel types.



Lambd	Petrol	Diesel	LPG	CNG	Meth	Eth	E10	E85	Head
0.83	12.21	12.04	13.17	14.48	5.31	7.47	11.71	8.18	0.00
0.84	12.36	12.19	13.33	14.66	5.38	7.56	11.85	8.27	0.00
0.85	12.50	12.33	13.49	14.83	5.44	7.65	11.99	8.37	0.00
0.86	12.65	12.48	13.65	15.01	5.50	7.74	12.13	8.47	0.00
0.87	12.80	12.62	13.81	15.18	5.57	7.83	12.28	8.57	0.00
0.88	12.94	12.77	13.97	15.36	5.63	7.92	12.42	8.67	0.00
0.89	13.09	12.91	14.12	15.53	5.70	8.01	12.56	8.77	0.00
0.90	13.24	13.06	14.28	15.71	5.76	8.10	12.70	8.87	0.00
0.91	13.39	13.20	14.44	15.88	5.82	8.19	12.84	8.96	0.00
0.92	13.53	13.35	14.60	16.05	5.89	8.28	12.98	9.06	0.00
0.93	13.68	13.49	14.76	16.23	5.95	8.37	13.12	9.16	0.00
0.94	13.83	13.64	14.92	16.40	6.02	8.46	13.26	9.26	0.00
0.95	13.97	13.78	15.08	16.58	6.08	8.55	13.40	9.36	0.00
0.96	14.12	13.93	15.24	16.75	6.14	8.64	13.55	9.46	0.00
0.97	14.27	14.07	15.39	16.93	6.21	8.73	13.69	9.55	0.00
0.98	14.42	14.22	15.55	17.10	6.27	8.82	13.83	9.65	0.00
0.99	14.56	14.36	15.71	17.28	6.34	8.91	13.97	9.75	0.00
1.00	14.71	14.51	15.87	17.45	6.40	9.00	14.11	9.85	0.00

STANDARD – GEAR CHANGE POINT CALCULATOR

The Mainline DynoLog control system includes software to calculate the optimum gear change points based on best average power and best average torque. This is an extremely useful function for extracting the best performance from your vehicle.

STANDARD – ENGINE CALCULATOR

For calculating Bore, Stroke, Displacement, Compression, Chamber Volume, and for relating RPM to piston speed.

STANDARD – DRAG E.T. CALCULATOR

For calculating E.T. and Terminal Speed from Weight and Power.

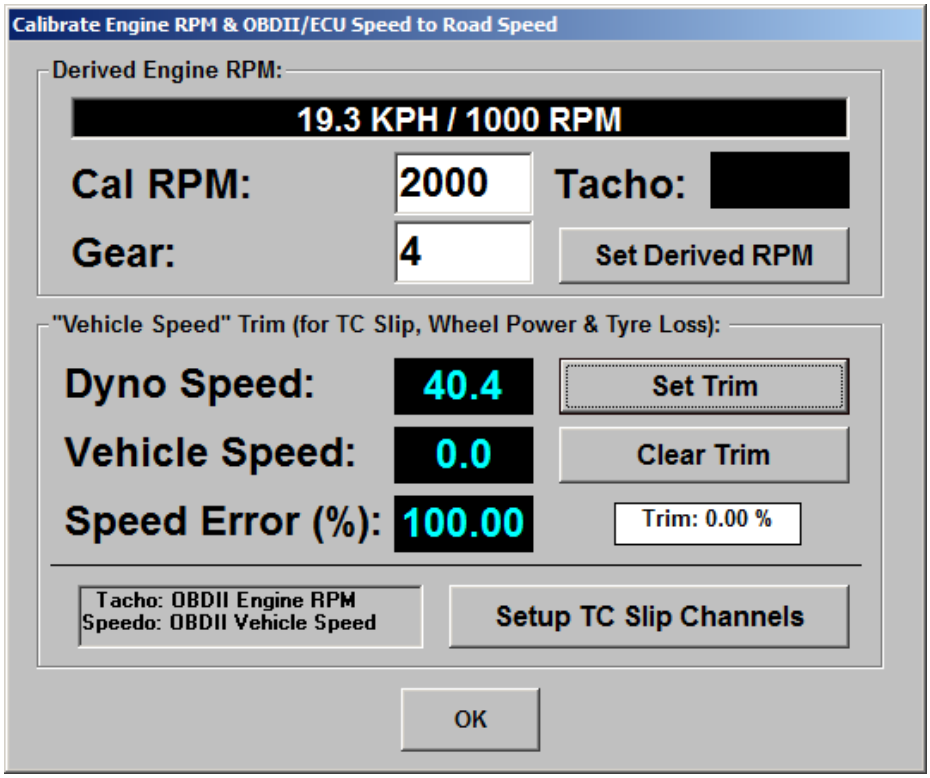
STANDARD – CARBURATION JET TABLES

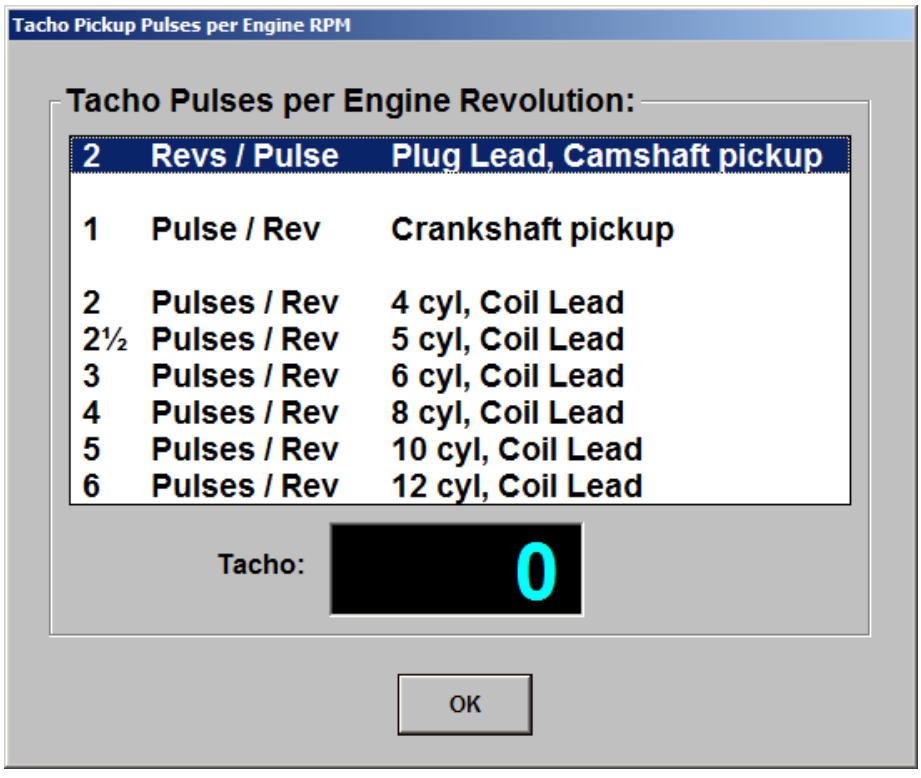
The Mainline DynoLog even has look up tables for carburettor jet sizes.

Optional Features & Accessories

OPTIONAL - ENGINE SPEED RPM MODULE

Engine Speed is digitally measured via ECU RPM (low voltage pulse), or by Primary and Secondary Ignition Systems ensuring accurate RPM measurement for all Engine types. An optional Diesel fuel line adapter is required for diesel vehicles. Alternatively, Engine Speed RPM may be manually derived through the Mainline DynoLog software using a vehicle's tachometer measured against dyno roller speed or via tacho signal from OBD-II, ECU or Gas Analyser.





OPTIONAL - ENGINE RPM CONTROL MODE - TACHO TRIM

Other dyno manufacturer's Tacho Modules typically only capture RPM data for plotting on a customer printout, whereas our Engine Tachometer Module does that and more.

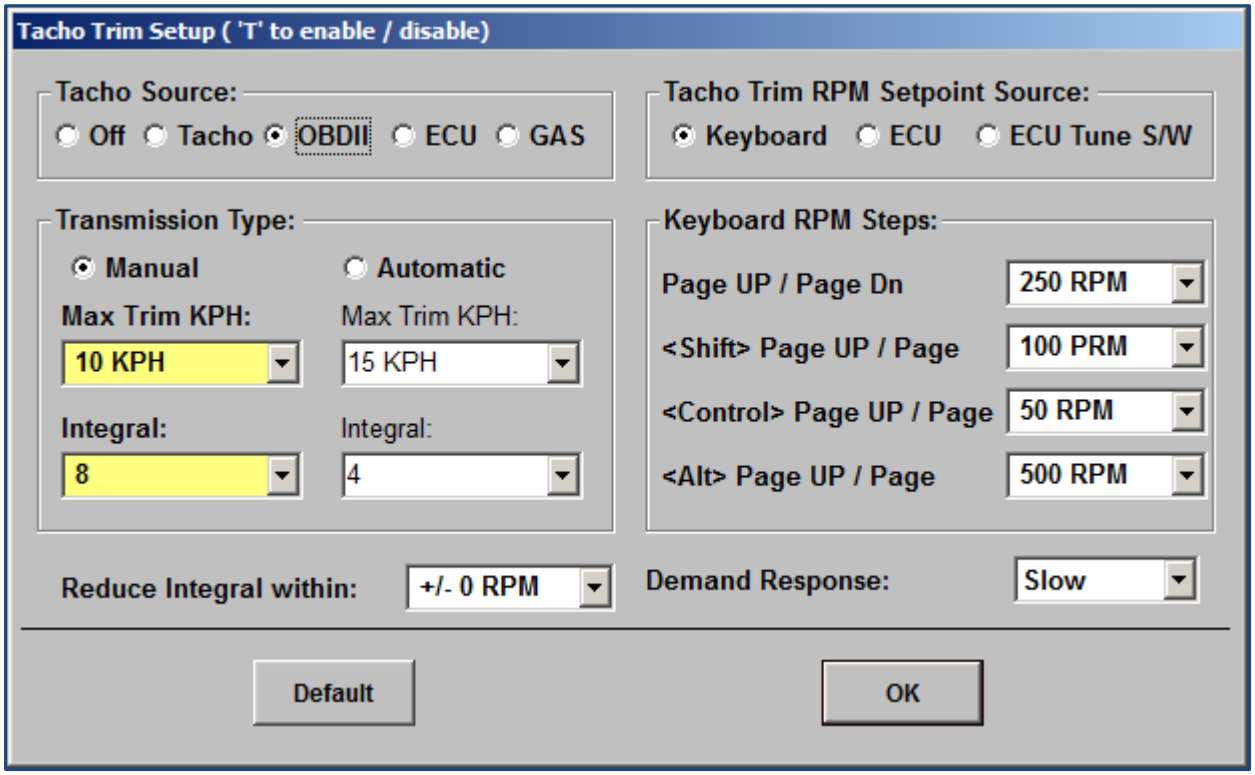
A further reason why the Mainline DynoLog Dynamometers ares light years ahead of the rest is that the operator has the option to manually set the desired Engine RPM as required and the vehicle will be held at that RPM regardless of throttle position.

The operator may control RPM set points in increments of 50, 100, 150, 200, 250 and 500RPM steps. The Tacho Trim function makes the mapping of aftermarket programmable Engine Management Systems a breeze. Just dial up your desired RPM and the dyno will do the rest.

The operator can specify the tacho input source (Tacho, OBD-II, ECU or Gas Analyser) and configure the system to allow for manual/automatic transmissions and specify the tacho speed steps and sensitivity.

No more continually varying the Dyno Demand Speed as you progress through the various MAP sites. Just select your desired RPM and the Mainline DynoLog Dynamometer will do the rest!

A more recent addition to this function is closed loop dynamometer control, whereby the dynamometer control is via the aftermarket tuning program. Currently this function will operate with Autronic, Wolf and Vipec aftermarket ECU tuning software.



OPTIONAL –ADDITONAL DATA ACQUISITION MODULE

The Data Acquisition module provides the operator with data for Air/Fuel Ratio or Lambda, Oil Temperature, Air Inlet Temperature and two Vacuum/Boost sensors. Logged data from each channel can be printed on graphs and reports, and can also be saved in the database for future review.

AIR: FUEL RATIO - The Air:Fuel Ratio (AFR) is usually the most important input on a dyno, and here again we do not compromise on features. Up to 8 AFR meters can be interfaced with the Mainline DynoLog system. We support various brands of AFR Meters. Contact us for details.

Using the Mainline DynoLog Alarm function, the operator can be clearly warned if the AFR exceeds predefined limits.

OIL TEMPERATURE PROBE - Always going the extra mile, Mainline DynoLog can provide an Oil Temperature Probe which allows the operator to monitor the core temperature of the engine during long term mapping operations, and can be monitored, by using the Mainline DynoLog alarm functions, so the operator can be warned if the engine oil exceeds a predefined temperature. The Oil Temperature probe substitutes for the dipstick during dyno operations.

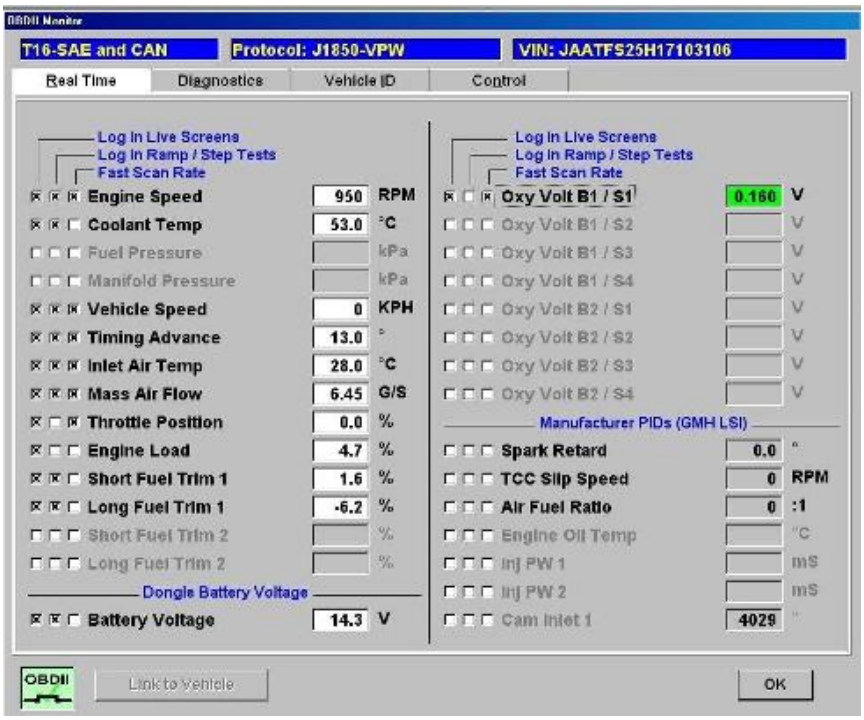
ADDITIONAL MAP SENSORS – Additional MAP Sensors can be installed at any time. With just 3 MAP inputs, the tuner can simultaneously see Exhaust Manifold Pressure, Turbo Outlet Pressure and Inlet Manifold Pressure. Some of our users have up to 6 MAP inputs. The Mainline DynoLog alarm functions may also be used in conjunction with MAP sensors

AIR INTAKE TEMPERATURE - Naturally we can also provide a sensor to monitor and log Air Intake Temperature. It is important to note that the Mainline/DynoLog dyno does **NOT** use the Air Intake Temperature as a variable for Atmospheric Compensation. Mainline DynoLog uses ambient (Inlet) air temperature measured by the Automatic Weather Station Module for Atmospheric Correction. Some dyno systems use the Air Intake Temperature for Atmospheric Correction, which allows manipulation of the results by the improper placement of that sensor.

Mainline/DynoLog strongly opposes fudging/cheating of dyno results and does not have any operator entered factors through which results can be operator-influenced.

OPTIONAL - OBD-II DATA LOGGING MODULE

All vehicle manufacturers, world-wide, are moving to conform to the International OBD-II Vehicle Diagnostic Interface, including Control Area Network (CAN) protocol. Mainline DynoLog provides it's users with the ability to capture OBD-II data in real time from a conforming vehicle's OBD-II port and save the data along with data captured by the Dyno and the Data Acquisition and Weather Station Modules for future analysis and review.



The user has the ability to graph and analyse parameters such as Throttle Position, Mass Air Flow, Coolant Temperature, Ignition Timing, Inlet Air Temperature, Short and Long Term Fuel Trims, RPM, Manifold Pressure, Engine Load and more. All of the On-Board Diagnostic data can be analysed in a table format or as a traditional graph along with the standard power, torque, torque-split, AFR and MAP / Boost data from the dynamometer.

Accessing Engine RPM data from the OBD-II is very useful and it eliminates the need to hook up a Tacho lead. Another key benefit is having access to Ignition Timing values. Modern vehicles are always trying to maximise Ignition Timing to gain peak Torque, but at the same time will react to Engine Knock by retarding Ignition Timing, so by monitoring Timing Advance we can accurately determine why an Engine may drop 5, 10 or 20 HP from one dyno run to another.

Intake Air Temperature has a big bearing on how much Timing an ECU will put in, so by analysing the Timing and Intake Air Temperature, the operator can determine the temperature where the ECU starts to pull timing, (which can lower the HP at the wheels) and try to manage the Intake Air Temperature via correct placement of the Vehicle Cooling Fan or intake duct.

In conjunction with OBD-II data from the vehicle, the Mainline DynoLog system has an exclusive software feature that can quickly identify any excessive driveline, transmission, clutch or tyre loss problems. This is just another example of our industry leading dyno technology.

**** Supported Protocols:***

OBDII T16 SAE only

OBDII T16 CAN-Bus only

OBDII T16 SAE / CAN-Bus

OBDII EFILive Flashscan V2

J1939 Heavy Vehicle Truck\Bus

OPTIONAL - ECU DATA LOGGING MODULE

Exclusive to the Mainline/DynoLog dyno is the capacity to log data from a multitude of aftermarket third party ECU and interceptor products. The ECU Data Logging software option includes the ability to convert the binary number outputs of the ECU configurations to meaningful language. For example a channel generically called "PMW0" in the ECU being renamed as the more meaningful "Wastegate DC" in the Mainline DynoLog software.

Our supported list of ECU devices is continually growing. Currently we support more than 100 ECU devices. Please contact us for the latest list of supported devices.

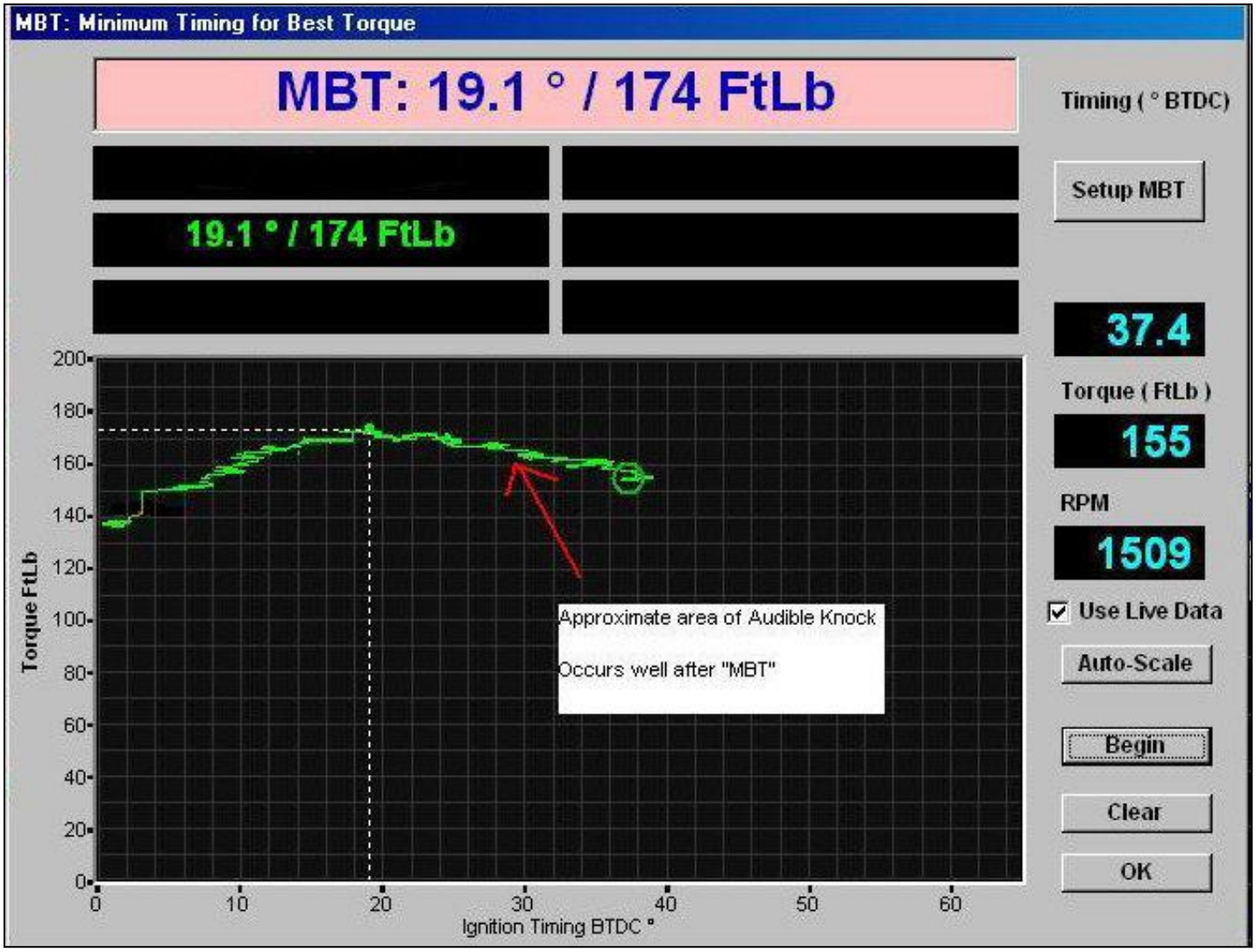
CYLINDER DROP/BALANCE TEST - In conjunction with PCM's and ECU's that support cylinder kill commands, the Mainline DynoLog software can trigger the ECU to disable one cylinder at a time and measure the torque drop/decrease with each cylinder disabled. This test is a "leakdown test plus more" without the need to get your hands dirty. For PCM's and ECU's that don't support cylinder kill commands, the cylinder kill can be performed manually and the results are still recorded.

TORQUE OPTIMISATION (MBT/OPT. LAMBDA/OPT. CAMSHAFT OR INJECTION TIMING) - Some OEM tuning solutions provide bi-directional control for diagnostic purposes of Ignition Timing, Cam Timing, Injector Timing, AFR, OBD-II channels etc.

Some of these tuning tools also provide data retransmission which can be interfaced to the Mainline DynoLog software. The advantage of this is if the tuner can manipulate Ignition Timing, Cam Timing, Injector Timing, AFR or OBD-II channel data, the Mainline DynoLog Dyno can hold a steady RPM site, and changes in Torque can be seen. We have more recently expanded the capabilities of the Mainline/DynoLog to "optimise" these inputs by plotting various input data over torque.

The most commonly used function is MBT (Minimum Timing for Best Torque) Test, where Torque is plotted over Ignition Timing. Torque can also be graphed over camshaft inlet and exhaust timing, Injector Timing, AFR or OBD-II data channels.

If used in conjunction with a Gas Analyser, HC and NOx can be plotted as well as Torque. This is an extremely powerful feature when tuning, and works very well with Aftermarket ECU's. The optional ECU Data Logging Kit is required to use these advanced diagnostic functions.



OPTIONAL - THERMOCOUPLE INTERFACE MODULE

Yet another area where the Mainline DynoLog dyno leaves other brands far behind. We offer an interface kit for high performance applications that allows connection and logging from thermocouples, and provides accurate temperature readings from wherever they are placed.

16 Data Channels have been set aside for Thermocouple inputs, so the system currently supports the use of up to 16 Thermocouples which are useful for measuring Exhaust Gas Temperatures (EGT) and Intercooler inlet /outlet temperatures. Data from the thermocouples can be viewed live, or logged along with other data captured during a dyno run. Users typically opt for 2, 4, 6 or 8 Thermocouples.

OPTIONAL - FUEL FLOW/PRESSURE/TEMPERATURE / ETHANOL CONTENT MODULE

Other dyno manufacturers can't match this brilliant option either. For unparalleled Fuel System Analysis, we offer our Fuel Flow, Pressure & Temperature Module. What does it do? Well, for starters, it logs Fuel Supply Flow, Pressure, Temperature and Ethanol Content. It also logs Fuel Return Flow. By logging Fuel Supply and Fuel Return and by subtracting Return from Supply via a Maths Channel, we know the actual Fuel **USED** by the engine. Data can be displayed in Litres Per Minute, Gallons Per Hour etc , but because we are logging Fuel Usage on a Chassis Dynamometer over Road Speed, we can display actual Fuel Consumption in Kilometres Per Litre, Litres/100km or Miles Per Gallon. Brake Specific Fuel Consumption (derived) is also available when using the Fuel Flow/Pressure/ Temperature/Ethanol Module.

The Fuel Flow & Pressure Module monitors the Fuel System's capacity to supply enough fuel to meet the demands of the engine. If the system shows NO return flow under Full Power, the Fuel System is clearly not up to the task. We also provide a Maths Channel that shows the relationship of Fuel Pressure to Manifold Pressure, which is very important on Forced Induction engines, and shows just how good or bad the Fuel Pressure Regulator is at keeping a constant differential pressure. Data can be viewed live, or logged along with other data captured during a dyno run.

OPTIONAL - 150/ 250/500 PSI FUEL or OIL PRESSURE MODULE

Fuel pressure logging is also available as an individual module (Separate to the Flow/Pressure/Temperature module). Logging fuel pressure greatly enhances your system's diagnostic capabilities. Users can specify 150, 250 or 500 PSI range sensors. The same module can also be used to log oil pressure.

OPTIONAL - ANALOGUE VOLTAGE INPUT LEAD/S

Some operators want it all, so we offer Voltage Leads that can be used on any Analogue Voltage of 0-30V. These leads are extremely useful, and can be used to monitor Air Flow Meter Output, Throttle Position, Oxygen Sensor output, Coolant Temperature, Air Temperature, Battery Voltage or even MAP Sensor output.

The voltage input can also be utilised, in conjunction with Maths Channels, to log and display pressure readings derived from input voltage signals, such as Common Rail Fuel Pressure from the CRD fuel pressure sensor on modern Diesel engine vehicles. Multiple leads can be provided if required.

OPTIONAL - IDC / PW / FREQUENCY MODULE

No dyno system would be complete without our optional Injector Duty Cycle/Pulse Width Module. The Injector Duty Cycle/Pulse Width Module is an extremely useful tool when tuning aftermarket engine management systems to keep track of the capacity of the fuel system to deliver sufficient fuel to the engine.

Introduced to our range of options in 2003, the Injector Duty Cycle/Pulse Width Module offers the dyno operator a comprehensive look into what's happening with the vehicle under test.

A less advanced dyno system may show that a vehicle is running lean, but it won't show why. On a Mainline DynoLog system, by having a test lead connected to a Fuel Injector drive wire, we log the Injector Duty Cycle and Pulse Width, so the operator can see if a lean condition is caused by the Fuel Injectors being at maximum duty cycle. If the Injector Duty Cycle hits 100% and the Air: Fuel Ratio goes lean at this point, then clearly the Injectors are too small for the application. If however the AFR is lean but the Injector Duty Cycle is well below 80%, then the vehicle has a tuning issue.

Here again we provide a Maths Channel called "Maximum Available Pulse Width" that calculates the available time in Milliseconds that there is for the Fuel Injector to open and shut at any given Engine RPM. As an example, an Engine spinning at 6000RPM has just 20 milliseconds available to open and shut each injector. So at 6,000RPM, if the Fuel Injector has a Pulse Width of 19 milliseconds, that would equate to an Injector Duty Cycle of 95%.

The Injector Duty Cycle Module is also a great diagnostic aid. Remember that the Injector is controlled by the ECU, so if the Injector Duty Cycle changes dramatically during a Test (either at WOT or part Throttle), an ECU input would have had to have changed, as the ECU will just respond to relevant inputs. The factor that has the biggest influence by far on Injector Duty Cycle calculation by the ECU is the Air Flow Meter. Coupled with the Fuel Flow Module the Injector Duty Cycle/Pulse Width/Frequency Module provides the operator with an unparalleled analytical tool in relation to a vehicle's fuel supply system under all operating conditions.

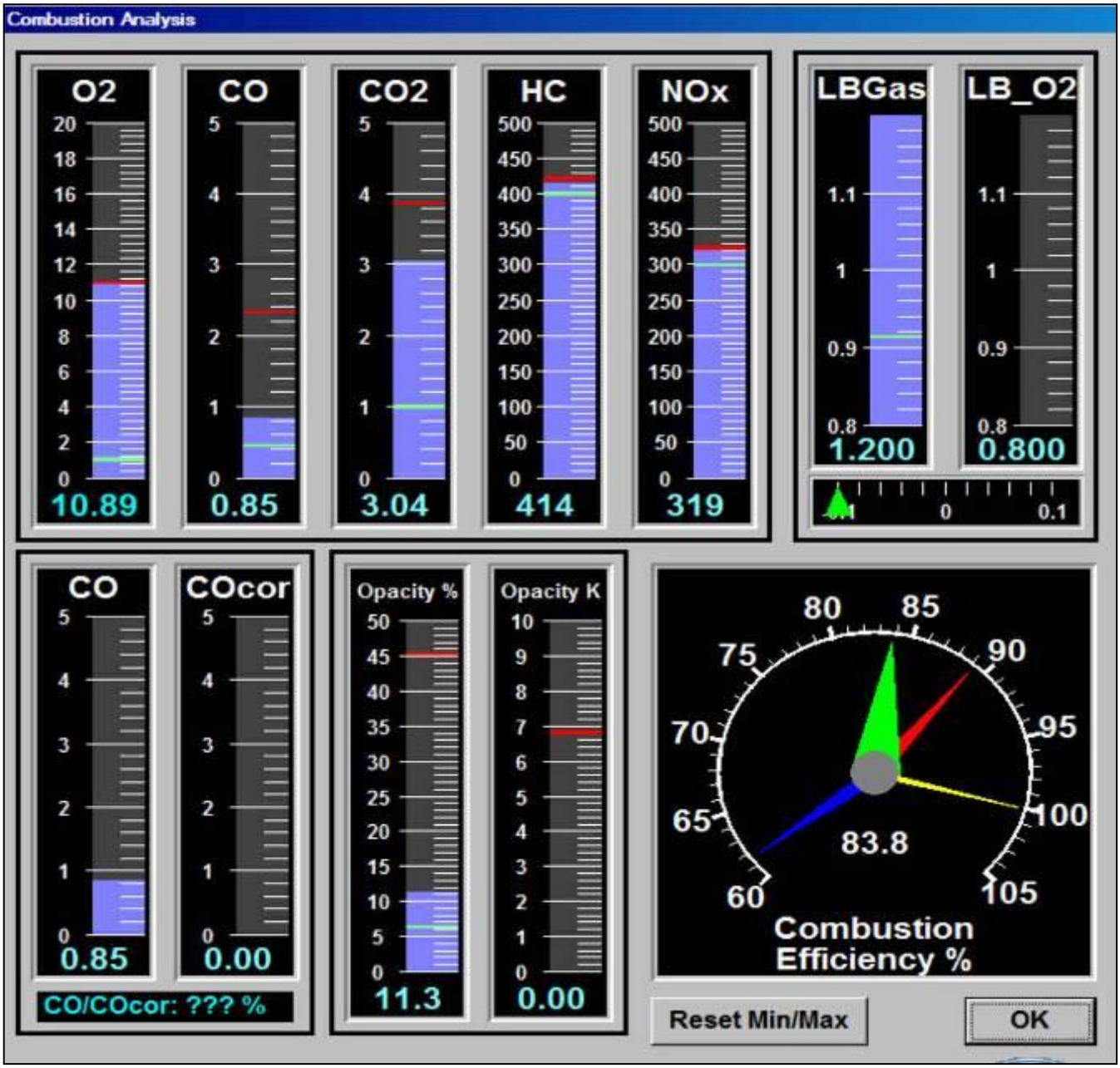
Using our Tools menu, users can calculate the maximum injector flow rate required to achieve any given power level, or the power level that can be achieved from a particular injector flow rate. This option can be used for Naturally Aspirated or Forced Induction engines and Specific Fuel Consumption. The user specifies the number of injectors, maximum duty cycle allowed, plus the fuel type and the Brake Specific Fuel Consumption and Mainline DynoLog calculates the maximum Injector Fuel Flow Rate and the Power that can be achieved

Emission Testing Technology

OPTIONAL – Advanced Diagnostics – COMBUSTION ANALYSIS

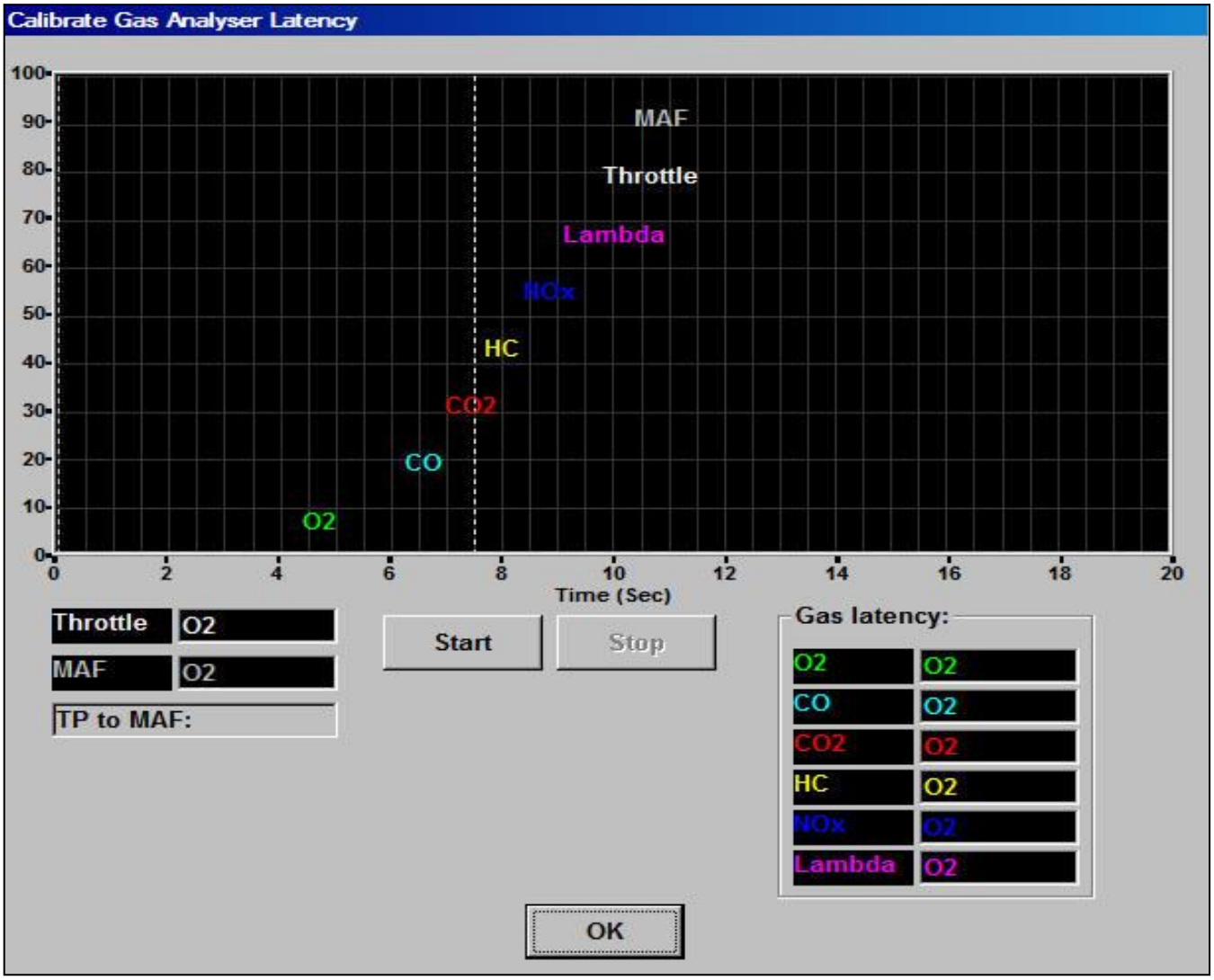
With the ever increasing focus on environment change, Emission Testing, or the ability to at least monitor the emissions of a vehicle are becoming more important. The Mainline/DynoLog dyno is already compatible with many major brands exhaust gas analysers, opacity meters and related test equipment. The Mainline/DynoLog system supports multiple (up to 9) Gas Analysers or Diesel Opacity Meters running concurrently. If a customer already owns one of the supported devices, it can be connected to the dyno via a serial link for diagnostic work and drive cycle simulation. Mainline/DynoLog can also supply compatible 4/5 Gas Analysers (discounted with dyno purchase).

Our advanced Exhaust Gas Analysis software incorporates functions such as a comprehensive Combustion Analysis Tool that shows 4/5 Gas Readings, calculates Lambda, calculates Combustion Efficiency (& able to measure catalytic converter efficiency), shows Injector Pulse Width/Duty Cycle and shows Engine RPM plus any other Dyno channel that the operator wishes to view. And because the Gas Analyser is interfaced to the dyno, all readings can be monitored at any operator-defined load point.



GAS ANALYSER / LAMBDA LATENCY TEST - When using Gas Analysers, there is typically a delay of several seconds from the sampling of the gas to the data reading stage. This latency of Gas Analysers can cause problems when wanting to align Gas Analyser data together with other logged dyno data.

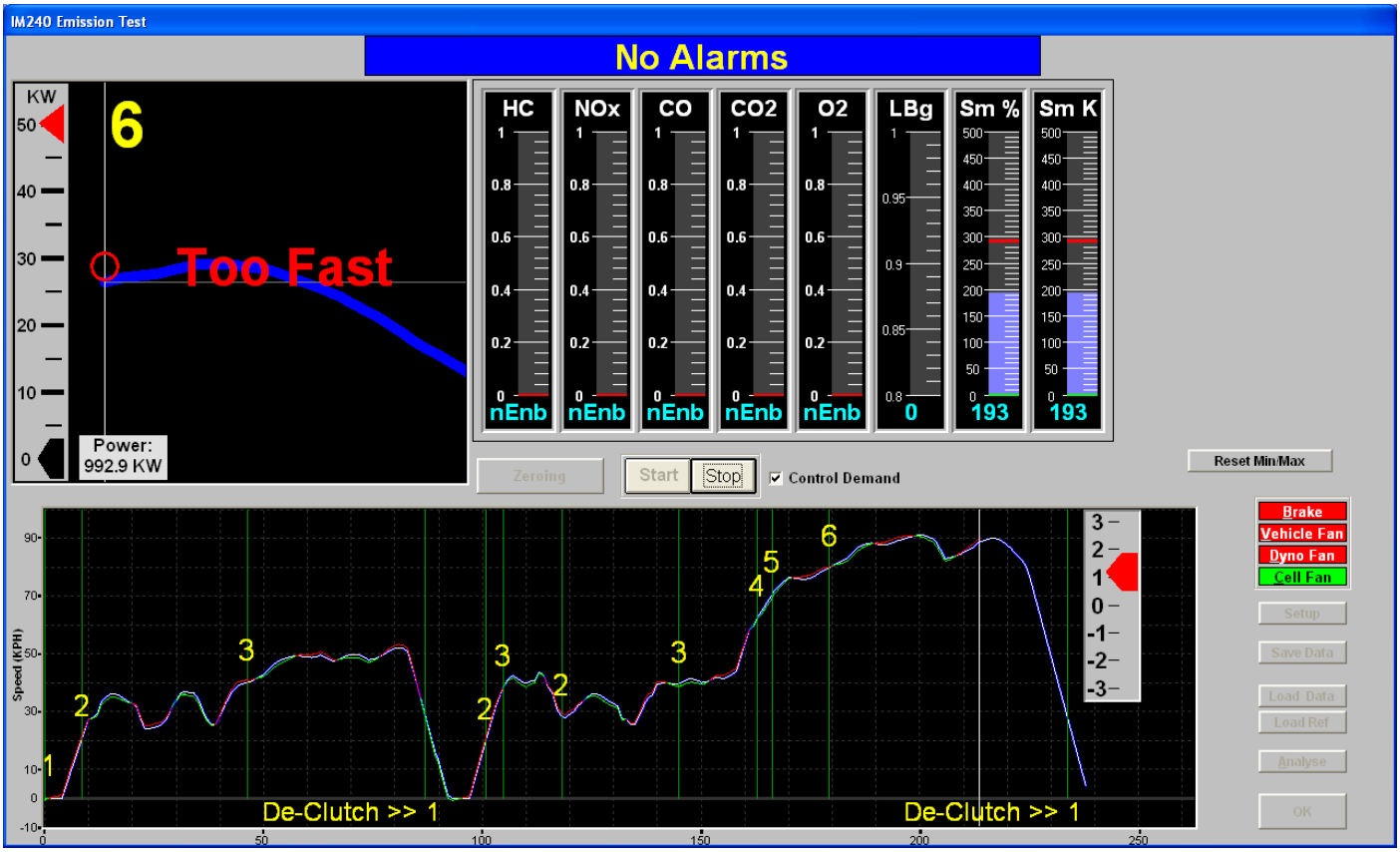
Mainline/DynoLog software has a feature to allow the operator to measure and compensate for this latency, allowing Gas Analyser data and other real-time data to be seamlessly matched



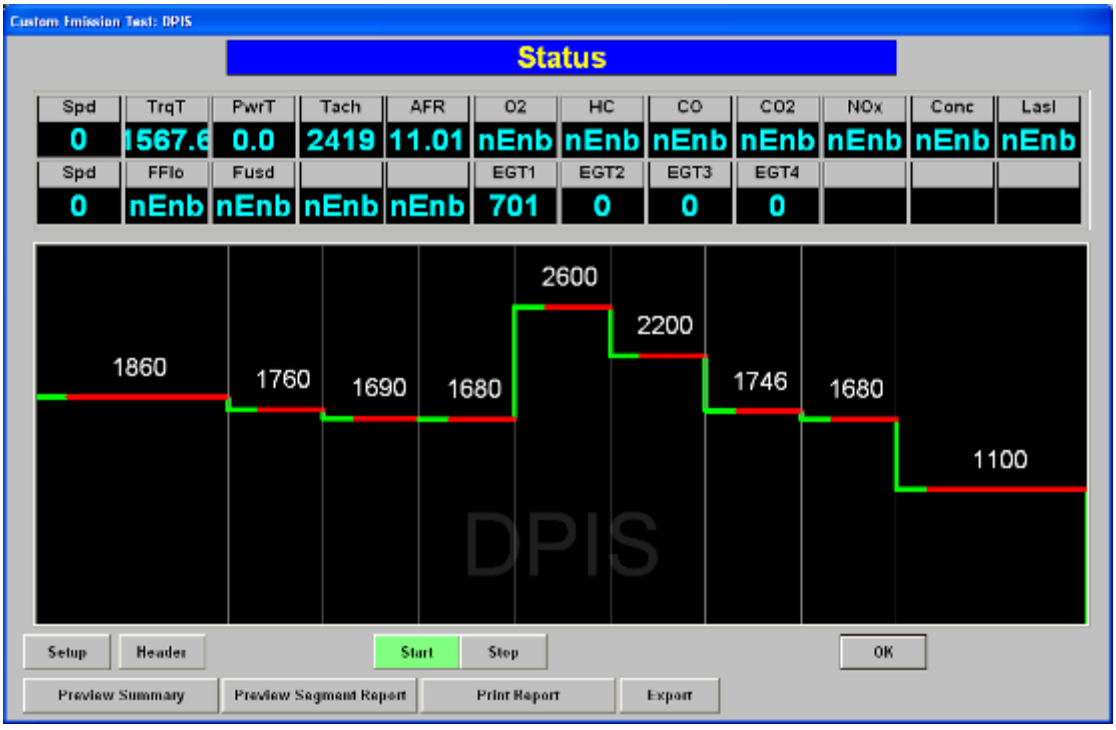
CATALYTIC CONVERTER EFFICIENCY TEST - By connecting two gas analysers (1 upstream and 1 downstream from Catalytic Converter) and measuring the constituent gases we can calculate Conversion Efficiency. Upstream and downstream temperatures, pressures and lambdas can be measured, as can smoke opacity for diesels. The system supports the use of up to 9 gas analysers at the one time.

EMISSIONS DRIVE CYCLE SIMULATION - Mainline/DynoLog software includes the platform to perform drive cycle simulation tests using IM240,ECC83, FTP, & DT80 (Diesel) standards. This is extremely useful for pre-emissions drive cycle testing of vehicles prior to submitting to RTA / EPA certified testing.

The Drive Cycle simulator allows the operator to quickly review test results using an on-screen cursor to identify any excessive readings that may have occurred during the test. This allows the operator to quickly locate, diagnose and rectify emission related faults.



CUSTOM EMISSION STEP TEST - The Custom Emission Step Test is most useful for specialised environments such as Mines, where there are OH&S limits on smoke and gas emissions, and limits on the surface temperature of metal components (manifolds, turbochargers, exhausts).



OPTIONAL - Advanced Diagnostics – SOUND PRESSURE (dB) LOGGING

Vehicle noise measurement is becoming increasingly useful, and a key issue for modified vehicles. Having a sound meter interfaced into the dyno software allows both static and dynamics exhaust sound level measurements to be carried out in the workshop. This unit features manual & auto ranging operation for sound range between 30 and 130 dB. Results can be saved along with other measured vehicle data, and used as future reference or comparison to other vehicles.

OPTIONAL - Advanced Diagnostics – AUTORANGING MULTIMETER

This Autoranging multimeter is an extremely practical option. The unit can be used stand alone or connected to the dyno via RS232 cable. All functions of the meter can be viewed, logged and analysed as separate channels in the dyno software. The unit features an optically isolated RS232 port connection so the possibility of any damage to the dyno computer or to the item being measured, as a result of a surge or spike is removed. The unit is supplied with high quality silicon rubber insulated test leads and a shock resistant rubber holster.

OPTIONAL - Advanced Diagnostics – HAND HELD OPTICAL TACHO

Another handy addition, this handheld, non-contact, optical tacho is great for logging the speed of just about any rotating device. Reflective tape is affixed to a shaft (or other rotating devices) and the tachometer measures the time between reflected pulses, and calculates RPM. The unit comes complete with reflective tape and carrying case. The unit can be used stand alone, or connected to the dyno via RS232 cable to log data along with other dyno channels. The unit has a measurement range from 10 to 99,999 RPM. An optional contact adaptor available for direct contact measurements.

OPTIONAL - Advanced Diagnostics – INFRARED THERMOMETER

This handheld non-contact infrared thermometer can precisely measure surface temperatures between a -20 ℃ to 400 ℃ range. The unit can be used stand alone, or connected to the dyno via RS232 cable to log data along with other dyno channels. The unit can accept 5 different thermocouple types (K, J, R, T, & E).

OPTIONAL - Advanced Diagnostics – VIBRATION METER

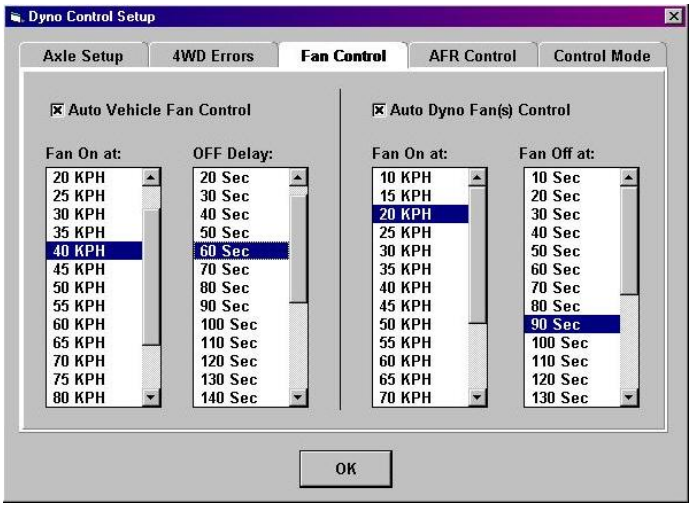
Vibration analysis can detect a multitude of defects in many rotating devices and components. The unit can be used stand alone, or connected to the dyno via RS232 cable to log data along with other dyno channels.

OPTIONAL - Advanced Diagnostics – INTERFACING TO OTHER EQUIPMENT

Some of the 500+ data channels available with the Mainline/DynoLog control system are available for interfacing other equipment. Currently we support over 150 third party devices and instruments. Feel free to discuss your requirements with us.

OPTIONAL - Equipment – VEHICLE COOLING FANS

The vehicle cooling fan provides cooling air flow for the engine during dyno runs. Available as 14,000cfm or 20,000cfm in three-phase. No need to get out of the vehicle to operate the vehicle cooling fan. The Mainline/DynoLog control system allows the vehicle cooling fan to be switched on and off manually from the keyboard controller. The vehicle cooling fan can also be programmed to control a Variable Speed Drive and to operate automatically once the vehicle reaches a user specified speed or programmed to turn off a user-specified amount of time after the vehicle stops.



OPTIONAL - Equipment – VARIABLE SPEED FAN CONTROL

Along with the Vehicle Cooling Fan and the Dyno Fan, the Mainline/DynoLog software can also control VSD (Variable Speed Drive) so that Dyno Vehicle Cooling Fan operation can be controlled proportionally to vehicle speed. Variable Speed Control provides a soft-start for vehicle fans, which is much gentler on the mechanical parts and electric motor.

By controlling the speed of both vehicle fans and dyno cell fans the user has total control over air speed for the vehicle and the dyno cell. Without the Variable Speed option air supply is either on or off, however with Variable Speed, the user may choose to run the fans at maybe 20% to 30% to keep the dyno cell adequately ventilated between runs.

OPTIONAL - Equipment – HEAVY DUTY TRACTION CONTROL & TIE DOWN BAR

For exceptionally positive traction on high performance vehicles, we recommend the use of our legendary Heavy Duty Traction Control System. This smart and unique system applies extra force to the drive wheels to keep them firmly in contact with the dyno rollers and minimise slippage.

OPTIONAL - Equipment EXTREME PERFORMANCE TRACTION MODULE

For serious power applications, we offer our latest innovative traction device which greatly enhances traction when testing extreme performance vehicles. Nicknamed the "Whale Tail", this new traction module made its debut at Summernats 25 Horsepower Heroes competition in 2012.

This module is now available for selected 2WD and AWD model dynamometers. The main feature of this unit is the pneumatic operated ram and under chassis bed cable system, that can apply a significant down force to the vehicle, which greatly increases traction on the dynamometer's drive rollers.

OPTIONAL – Software – CHALLENGE SOFTWARE WITH BAR CODING

A "must have" option if the dyno will be used for Dyno Challenge events. The Challenge Software is the easiest way of recording, measuring and displaying the results of individual dyno runs and overall category winners. At the completion of each dyno run, the results are displayed on screen in kW and HP, and the recording of customer and vehicle data is made very easy and fast so that the dyno operator can concentrate upon setting up and running each vehicle.

The software collates entrants from lowest to highest in each category. A "Heroes" list of category winners can be viewed or printed with only a few keystrokes. The operator can define the categories to be used eg. 6 Cylinder RWD N/A, 6 Cylinder RWD Turbo etc…. The Challenge software allows the operator to define power scales, ramp rates, start and finish speeds, AFR Scales and limit lines. As is the case with the normal Mainline/DynoLog software, as a safety factor, the ramp end speed can be governed by engine tacho RPM to eliminate any chance of engine damage through over-revving.

Bar Code operation will allow the operator to set up vehicle and customer details for each vehicle in advance, and to print barcodes to attach to each vehicle. As each vehicle is driven onto the dyno, the vehicle bar code is scanned and the dyno run can commence immediately. The operator has the option to list on screen, print, or export to Microsoft Excel a fully summary of your dyno event showing the highest result for each category and a list of dyno runs for each vehicle in each category from highest to lowest.

OPTIONAL - Advanced Diagnostics – COMMON RAIL DIESEL FUEL PRESSURE

In recent times the diesel vehicle industry has been somewhat revolutionised by the onset of common rail fuel systems (CRD). Most CRD systems employ a fuel rail pressure sensor which essentially converts the physical fuel pressure to an electrical signal for engine management and diagnostic purposes.

In conjunction with the optional Analogue Voltage Inputs, the Mainline/DynoLog software has a dedicated *'Derived"* CRD Fuel Pressure Channel to cater for diesel applications. The voltage from the sensor is measured, calibrated to a particular pressure sensor output, and displayed on the dyno screens as Common Rail Diesel Fuel Pressure.

The operator can simply select form a list of known CRD pressure sensors or add further sensor types as they are released on the market. This is just another example the Mainline/DynoLog's industry leading, and innovative approach to catering for all vehicle applications.

HEAVY VEHICLE CHASSIS DYNAMOMETERS

The Mainline Dynolog heavy vehicle dynamometer sets the new benchmark for design innovation and technology. Our heavy vehicle chassis dynamometers feature advanced diagnostic, analytical and transient ramp graphing capabilities not available on other heavy vehicle chassis dynamometers.

The Mainline/DynoLog heavy vehicle series chassis dynamometers are designed specifically to cater for heavy single, twin axle (bogie drive) or custom built combination AWD & Bogie drive models.

Key Features include:

- Single Axle or twin axle "Bogie Drive" or custom built to suit specific applications.
- 12000 + Kg Axle weight
- Exhaust Combustion Analysis via Gas Analyser or Opacity Interface
- Diesel OBD-II Data Logging(J1708/J1587/J939)
- All functions controlled via wireless remote keyboard
- High Flow Vehicle Cooling Fans (Single or Multiple Stacked Units)
- Windows 7 operating system
- High Resolution Graphical Displays
- Twin 22 LCD monitors
- Single or multiple retarders (PAU's)
- Vehicle Traction & Restraint System
- Steady State, Step, and transient "Ramp" testing capabilities
- Analog, Digital and Graphical displays
- Live Graph over Graph result comparison
- Data Acquisition Module - Oil/Inlet Air Temp, 2 x MAP/Boost, Air: Fuel Ratio; Engine Speed RPM Module
- Drive Cycle Simulation (DT80/IM240/FTP/ECE83 or User Defined)
- Dedicated Speedometer & Odometer tests
- Automatic Weather Station Environmental Power Correction
- Virtually unlimited data channels for external data logging devices.
- User definable 0-30 Volt Inputs
- User definable alarms with optional visual & audible alarm devices
- 8 Lambda & 16 EGT Channels available
- 16 EGT Thermocouples Compatible
- Common Rail Diesel Derived Fuel Pressure Logging

INCOMPARABLE, AND CLEARLY IN A CLASS OF ITS OWN

You are looking to purchase a chassis dyno, so check out the rest and then come and see the best. Price is clearly important, but long after you have forgotten how much you paid for your dyno, you will have to live with any limitations of the product that you buy. Now is the time to push aside any preconceived ideas, marketing hype, unfounded criticisms and any hollow promises and get down to the nitty gritties of what each product will do and how well it will serve your needs not only now but in the future.

Ask each manufacturer about the quality of their dyno beds, the quality of their retarders and the functionality of their control software, and ***don't be afraid to ask for them to put their claims in writing. Any manufacturer that has nothing to hide will be happy to state any claims they make about their own or other products in writing.***

The Mainline DynoLog Chassis Dynamometer sets the standard, and only the highest quality components are used in its manufacture. At the heart of our dynos, we exclusively use Frenelsa retarders, which are recognised as the best in the world, and owners are assured of a lifetime of trouble free operation from these quality components.

In recognition that load cells (used for torque measurement) are only temperature compensated up to 70 degrees Celsius, every Mainline DynoLog dyno has a cooling fan in each bed to keep the load cell as cool as possible. The cooling fan sends an air stream across the load cell towards the retarder, and so not only keeps the retarder heat from the load cell, but also helps to lower the retarder temperature. When considering products from other manufacturers, check out whether they care enough about accuracy to use cooling fans for their load cell and retarder.

But a chassis dyno is much more than just a dyno bed, and you're most important consideration in a dyno purchase is what the dyno can do for you. The Software Control System is the area where the Mainline DynoLog dyno is light years ahead of the rest. Our control system is fully user configurable in relation to measurement units (hp/kW – Nm/ftlbs etc), and it has a range of advanced diagnostic and analytical functions that other dyno manufacturers can only dream about. For example, OBD-II Data Logging, Injector Duty Cycle, Fuel Flow Logging, Averaging, Data Fly Boxes, ECU Logging, and Emissions Testing – the list is endless. Avoid the trap of believing that all dynos are much the same. Check out exactly what other dynos are capable of especially in relation to diagnostics and analysis, as the difference between dyno functionality from one to another can be enormous. Rather than just identify that there is a problem, a dyno should provide the tools for the operator to identify the specific problem.

If you are used to using a basic system where you are only able to use the dyno to provide load and perhaps produce a graph, you may initially find the Mainline DynoLog control system to be a little more complex. Advanced technology does require advanced learning, however our Windows 7® based control system is intuitive and easy to learn, and so new operators are able to grasp the essentials in a very short time. Personalised training by our expert technicians will have you feeling confident in no time and will quickly take you to a whole new level of expertise. The Mainline DynoLog control system has the added benefit of giving an operator comprehensive information about the vehicle, while providing safety functions such as operator defined alarms that can be set to warn of High AFR, High Oil Temperature, High Injector Duty Cycle etc.

Make sure you don't pay more for a dyno saur.....

Functionality aside, even if the Mainline/DynoLog dyno is only used for basic ramp tests and graphing, it will do that more accurately and professionally than any other dyno. One operator put it in perspective when he said "*using the other dyno after using the* Mainline/DynoLog *dyno is like going back to a colouring book and crayons"*. There are dynos with outdated control systems whose manufacturer still hype that they are "state of the art" and that they produce "unquestionable results" but those claims will not pass scrutiny upon serious comparison to the Mainline/DynoLog dyno.

Keep in mind that the Mainline/DynoLog Windows based control system has been around for many years and is a *stable, tried and proven* system that is a clear leader, not only within Australia, but throughout the world. Don't take our word for it. Contact Mainline Automotive Equipment to arrange a personal demonstration or speak with ***ANY*** of our current users.

** Windows 7 operating system*

*. *Windows is a registered trademark of Microsoft Corporation in the United States and other countries.*