

2003 What's New From Performance Trends



2002 was very productive at Performance Trends and 2003 promises to be also. Most all our programs have been upgraded, several new programs have been added to the product line, new DataMite data logger features and sensors have been developed, and our Black Box data logger has several new applications.

New product info and demos are available at our website www.performancetrends.com which also has quotes from users like Troy Coughlin (Jeg's Pro Stock Team) saying Drag Race Analyzer Pro is "amazing", Chris Andrews (Richard Childress) saying "Suspension Analyzer is the fastest, easiest way to get answers...", Darin Morgan (Reher-Morrison) that "I've worked with every engine simulation program out there. Engine Analyzer is within 1%, both peaks and average. It is the only program that can model a modern Pro Stock engine...a really great piece...", and others.

If you are not getting our monthly, email newsletter, email us requesting it and include your email address.

DataMite and DataMite II

We have released 32 bit upgrades of both the Dyno and Drag Race software packages for DataMite. The Road Race version should be here early in 2003. These 32 bit versions allow for using long file names and provide better compatibility with newer printers and operating systems like Windows XP and 2000. In addition, new features have been added to each, like:

- Comparison reports for side-by-side comparisons of runs or tests.

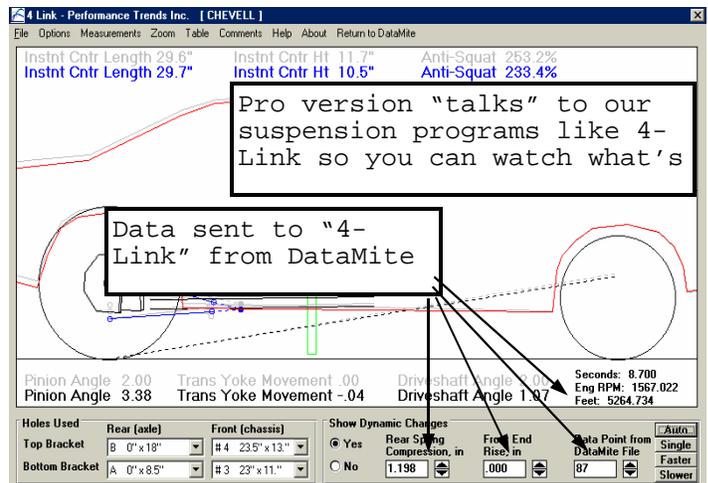
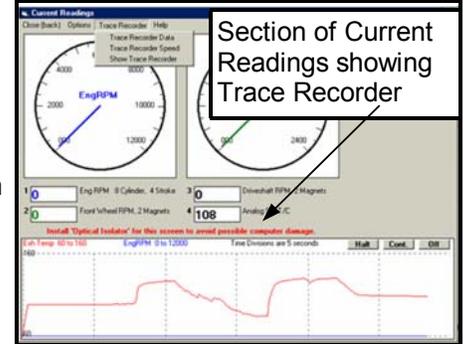
Dyno DataMite v3.2 Performance Trends [sb2 test29.CFG]					
Comments					
Operator: Mike/Dennis Eng #: SB2 Chevy-0001 Customer: MFD Testing		4:28 pm 08/23/2002 Corr. To: 29.92/60 diy Corr. Factor: 1.046		Pk Tq 487.6 @ 6250 Pk HP 685.5 @ 8000 357.64 cid 4 Cycle 4.122" Bore 3.35" Stroke 8 Cylinders	
	sb2 test29.CFG	gearratio3.CFG		gearratio4.CFG	
RPM	Corr Tq	Corr Tq	Dif.	Corr Tq	Dif.
4000	409.5	400.4	-9.1	365.4	-44.1
4250	406.1	396.3	-9.8	376.5	-29.6
4500	389.7	379.3	-10.4	368.2	-21.5
4750	395.9	385.0	-10.9	365.2	-30.7
5000	398.2	386.7	-11.5	373.0	-25.2
5250	420.6	408.5	-12.1	410.4	-10.2
5500	443.1	430.5	-12.6	436.9	-6.2
5750	458.4	445.3	-13.1	449.2	-9.2
6000	472.6	458.9	-13.7	462.2	-10.4
6250	487.6 Pk	473.5 Pk			
6500	485.7	471.1			
6750	484.1	469.0			
7000	484.0	468.6			
7250	479.7	463.8			
7500	466.7	450.5			
7750	462.3	445.7			

Dyno Version Comparison Report of torque and HP for 3 runs, also showing difference.

- Saving of graph settings for easy recall in the future.
- Enhanced Filter (find) options
- New edit/copy/rename options for folders containing

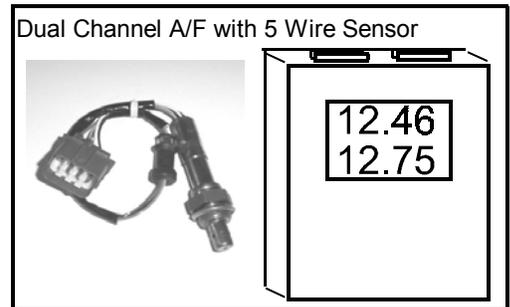
groups of tests

- Save to Floppy Disk and Open from Floppy Disk options.
- Engine Accel times reports now more accurate.
- New Fuel Flow and BSFC channels.
- Optional Kw, Nm and KPH metric readings,
- Can display HP or Kw and BSFC on the Current Readings (real time) display.
- Current Readings can now also display a trace recorder graph of selected channels.
- Compatible with our new Black Box weather station
- Drag Race version has links to our Suspension Analyzer and 4 Link Calculator allowing shock travel data to be automatically analyzed in great detail.
- Drag Race version has Segment Time reports analyzing and comparing results at 60, 330, 660, 1000 and 1320 ft marks.



In addition to these software upgrades, the hardware has had new enhancements which include:

- New wide band oxygen sensors for true A/F measurement. This system is available in either single or dual channel versions, with or without a digital display, starting under \$700.
- An inline torque meter for driveshafts is being developed.
- Spark advance measurement using signals recorded with the DataMite II is soon to be released.



- Improved noise rejection for our thermocouple converters used by the smaller DataMite system. These now can record head (spark plug) temp on engines not using resistor/ suppressor plugs or wires.

New Programs

The 4 new programs listed below were released in 2002.

Fuel Economy Calculator

Fuel Economy Calculator is probably the most detailed program for predicting the effects of modifications on fuel efficiency. It calculates cruising MPG for most any MPH or RPM (user selectable) for most any transmission gear. It has numerous built-in examples of transmissions, vehicle aerodynamics, typical engine types, and complete vehicles to make building vehicles easy.

Fuel Injector Calculator is the most complete program to estimate fuel injector sizing needs. Estimate fuel flow with HP & BSFC or Vol Eff and A/F, Program lets you correct for pressure and firing method differences, max safe duty cycle. Program can also estimate duty cycle and pulse width requirements over the engine's RPM range, and lists several part numbers for injectors meeting your requirements.

Lap/Segment Timer turns your computer into a super precise and power full stop watch. Not only will it record lap and/or segment times, but you can include data like race position, caution flags; edit the results after the race if you made a mistake; save results with comments; recall results for comparison, printing or analysis in the future.

Rotating Inertia Calculator: Removing weight from a race car improves performance, but removing weight from a rotating component on the car improves performance even more. The Inertia Calculator lets you estimate the performance effects of changing weight or size of various rotating and reciprocating engine components.

New Program Updates

In 2002, we continued to release 32 bit updates for nearly all our programs. These 32 bit updates let you use long file names like used in Windows 95/98/Me/XP/NT/2000, have more updated printer drivers and are more compatible with USB printers. These updates also include new features and enhancements and are available **now** for these programs:

- Port Flow Analyzer v3.0 E (\$35 update)
- Compression Ratio Calculator v2.0 (free update)
- 4 Link Calculator v2.0 (free update)
- Transmission Gear Calculator v2.0 (free update)
- Roll Center Calculator v2.0 (\$20)
- Circle Track Analyzer v3.2 (\$30)
- Drag Racing Analyzer v3.2 (\$25)
- Cam Analyzer v3.2 (\$30)
- Drag Racing Analyzer Pro v2.0 (\$40)
- D. R. A. Pro "Team Engineer" v2.0 (\$100)
- Drag Race DataMite v3.2 (\$40)
- Dyno DataMite v3.2 (\$40)
- Suspension Analyzer "Standard" v1.1 C (free)
- Suspension Analyzer "Full Vehicle" v1.1 C (\$150)

Our Engine Analyzers (standard, Plus and Pro) are scheduled for major 32 bit updates in early 2003.

Major enhancements for these current updates are listed below. For those marked "free update", simply download the latest version from our website and type in your original Registered Name and Working Code. For other updates with a charge, call Performance Trends with your credit card.

Port Flow Analyzer v3.0 E can now test components like air cleaners, mufflers at various test pressures, say 5", 10", 15", etc. Using a SuperFlow (tm) bench with a motor controller, this type of test can be completely automated.

Compression Ratio Calculator v2.0 can now have its screen resized to fill the entire screen for easier viewing.

4 Link Calculator v2.0 can now do ladder bars also. Several enhancements have been added for displaying DataMite data recorded from shock sensors.

Transmission Gear Calculator v2.0 has buttons to copy or swap the Baseline and New conditions.

Roll Center Calculator v2.0 has new edit options to move groups of points, a larger screen, and will automatically convert fractions to decimals as you enter numbers (you enter "5 7/8" and the program converts it to "5.875"), and more.

Circle Track Analyzer v3.2 now has a "Corner Jacking" screen to estimate changes in corner weights and ride height as you adjust jacking screws on the 4 corners. We've also improved the accuracy of analyzing the suspension motion as the car travels around the track, added all the Roll Center enhancements mentioned above, made a larger graph screen and more.

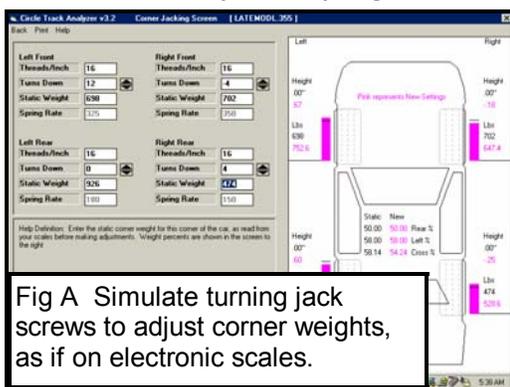


Fig A Simulate turning jack screws to adjust corner weights, as if on electronic scales.

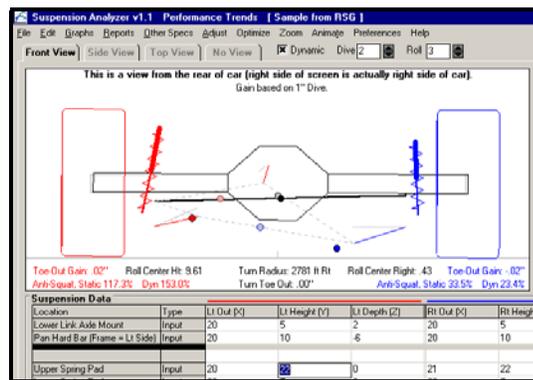
Drag Racing Analyzer v3.2 can now automatically find the best axle ratio or converter. Other enhancements are more vehicle example files, estimate throttle stops based on only 1 previous run, instant updates of ET and MPH from spec changes, and more.

Cam Analyzer v3.2 now has several features to deal with lift measured in millimeters. It also has a larger graph screen, option where you can measure the tappet lift at just the degree wheel readings you want (not at every, say, 4 degrees), several new edit commands like, copy, paste, swap, convert, added ability to include ABDC, BTDC, etc notations to graphs and reports, and more.

Drag Racing Analyzer Pro v2.0, Standard and Team Engineer now can read the Black Box weather station. See the features discussed under Black Box Data Logger below. Team Engineer also has data for several new clutch arms added to its Centrifugal Clutch simulation.

Drag Race DataMite v3.2 and **Dyno DataMite v3.2** were discussed in the DataMite section earlier.

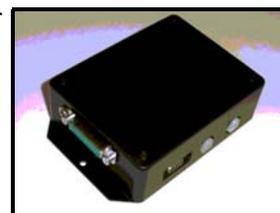
Suspension Analyzer "Full Vehicle" version combines front and rear suspensions to do calculations like roll couple (% front roll stiffness to rear roll stiffness), corner weights and natural frequencies. Rear suspensions which can be analyzed include double A Arm, McPherson Strut, 3 link with panhard bar, 4 link (3 types with panhard bar, diagonal strut, or angled links like the early Chevelle or late model Mustang), Z links or Watts linkage (special case of 4 link), ladder bars, truck arms, and C3 Corvette. The Full Vehicle version now also handles push rod and pull rod springs. Both versions now let you print the vehicle layout drawings from the main screen.



Black Box Data Logger

Black Box is our newest data logger. It can be used to automate several jobs around the shop, including:

- Computerize your Flow Bench
- Computerize your Spring Tester (suspension or valve springs)
- Computerize your Cam Measurements
- Weather Station for Dynos, DataMites, Drag Racing Dial In/Throttle Stop Prediction



Computerize your Flow Bench

The Black Box lets our Port Flow Analyzer software (basic or Pro versions) record your pressure manometers and a swirl meter input starting at \$499. Other options let you record temperatures, a pitot tube for port velocity data, humidity and barometer. This can greatly improve accuracy and save time for your flow bench testing. You can also use our Air Meter kit to build a very affordable EZ flow bench. You supply the air source (shop vac, vacuum motor, etc) and some PVC plumbing and we provide the software, electronics and some critical mechanical pieces so you can build your own bench for under \$1000.



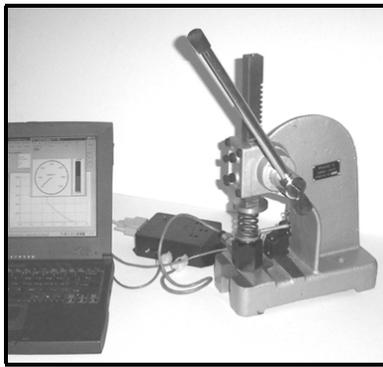
Whether you already own a spring tester or want to purchase one of ours,

Computerize your Spring Tester

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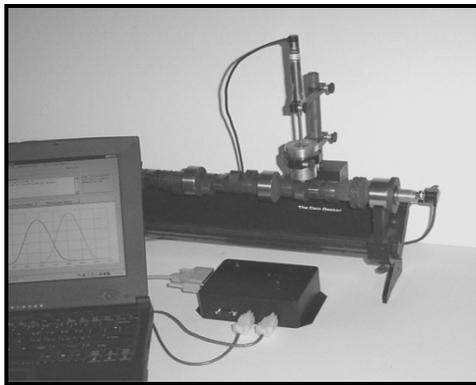


the Black Box will accurately record spring compression, force and time during one test stroke. This system will provide huge gains in accuracy, repeatability and time savings over manual testers. Sophisticated analysis software will then report open force, seated force, rate, linearity, test cycle time, and more. Comparison graphs and reports are also available to check for changes or to see if you are within user definable limits. The professional results will impress your customers. The user friendly Windows interface will make life easy for you.



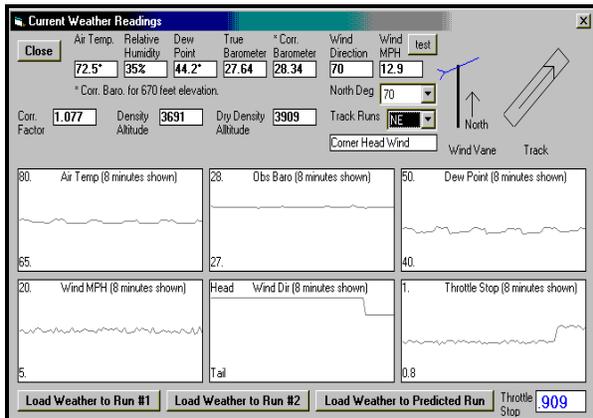
Computerize your Cam Measurements

The Black Box can also be read from our Cam Analyzer v3.2 software to automate the recording of tappet lift and cam rotation. Whether you retrofit your existing Cam Dr (tm) or purchase our complete test stand, you will save considerable time and greatly improve accuracy over hand measurements. Our Cam Analyzer software allows you to record lift either with or without a lifter. If you record lift without a lifter, simply tell the software the radius of the lifter or specify a flat tappet, and the program mathematically calculates the resulting tappet lift. This can be very handy if you want to see how a profile would look with different diameter lifters, or if you simply don't have the correct lifter.



Weather Station for Dynos, Drag Racing Dial In/Throttle Stop Prediction

Weather conditions have a huge effect on drag racing ET. Therefore it is common to see most bracket racers and Super Class racers using weather stations to predict Dial In and Throttle Stop settings



as the weather changes. Our Drag Racing Analyzer Pro programs have proven themselves as being very accurate in dealing with various weather changes, including wind. Now you can improve their accuracy and ease of use by adding the Black Box weather station, and adding the wind sensor option. The program will read weather every couple of seconds and update the Dial In or Throttle Stop prediction based on the most current conditions. All results are shown graphically as illustrated below. A dedicated Weather Station program is being developed to make these predictions easier, and cheaper since you wouldn't have to buy the complete Drag Racing Analyzer Pro.



Suggested Retail Prices

	\$ 79.95
4 Link Calculator v2.0	119.95
Cam Analyzer v3.2	799.00
Cam Tester Kits (starting at)	169.95
Circle Track Analyzer v3.2	89.95
Drag Racing Analyzer v3.2	229.00
Drag Racing Analyzer 'Pro' v2.0	329.00
Drag Racing Anlzr 'Pro' v2.0 Team Engineer	299.00
Dyno Data Analyzer v1.1 DOS	149.95
Engine Analyzer v3.0 Windows	249.00
Engine Analyzer v3.0 'Plus' Windows	499.00
Engine Analyzer 'Pro' v2.1 D Windows	79.95
Fuel Economy Calculator v1.1	39.95
Fuel Injector Calculator v1.1	79.95
Lap/Segment Timer v1.1	119.95
Performance Analyzer v1.1 DOS	249.00
Port Flow Analyzer v3.0 Basic	449.00
Port Flow Analyzer v3.0 Pro	39.95
Practice Tree v1.1 Windows	79.95
Roll Center Calculator v2.0	39.95
Rotating Inertia Calculator v 1.1	249.00
Suspension Analyzer Standard v1.1	399.00
Suspension Analyzer Full Vehicle v1.1	1199.00
Spring (Valve) Tester (with stand, starting at)	799.00
Spring (Coil) Tester (kits starting at)	749.00
Swirl Meter with direction, average/max/min	899.00
Swirl Meter above + analog output for computer	49.95
Transmission Gear Calculator v2.0 Windows	559.00
	1199.00

* See separate DataMite price sheet for more details.

Our Retailers:

Products can be purchased directly from Performance Trends (Visa, MC, AmExp, COD) or from these retailers:

AutoWare, Inc, (NM)	800-647-2392
Jeg's High Performance, (OH)	800-345-4545
Lane Automotive	616-463-6704
Steve Smith Autosports, (CA)	714-639-7681
Tri-Mark Performance, Inc, (WI)	608-643-0088
David Cook Publications (Australia)	61-2-9894-7499