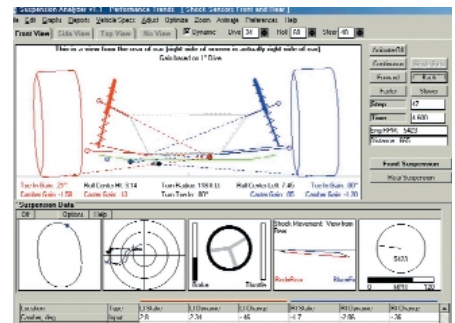
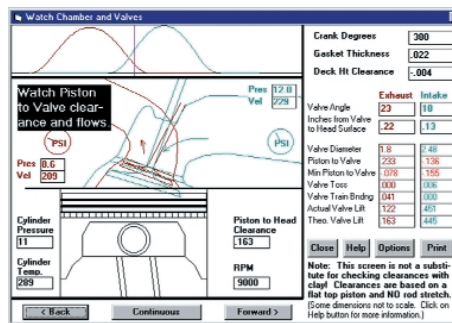


Clockwise from top left: 30 Channel DataMite 2 Data Logger; Camshaft Measurement Stand; Suspension Analyzer and Engine Analyzer Pro.



Setting new trends

Alan Lis profiles a small company with some very big customers.

Performance Trends, based in Livonia, Michigan, was one of the first companies to market affordable computer software packages to motorsport competitors.

Founded in 1986 by ex Ford Motor Company engineer Kevin Gertgen, the company's first programme, Drag Racing Analyzer, offered the user the capability

a complete pressure/volume diagram and sophisticated modelling of an engine. Like the Drag Racing Analyzer, it was also an affordable package. It sold for \$100 when it was first released. From those two products, Performance Trends has grown a business with a current range of 25 programmes.

to what our customers were asking us to develop. Initially we were mainly working in engine and vehicle simulation but over time we also got into suspension modelling. At first these were two-dimensional programmes but eventually we stepped up to three-dimensional modelling."

"I learned early on to let the customer adapt the products to what they want to do"

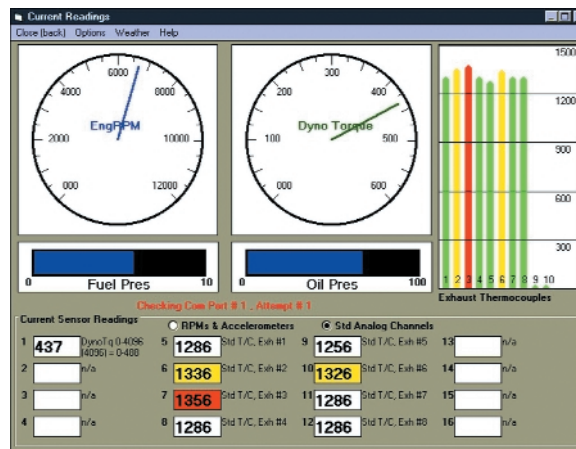
to design a virtual racecar using pre-programmed parameters and then simulate its performance in a full power, standing start acceleration. Two years later the company released Engine Analyzer, the first complete full cycle engine analysis programme ever to be made commercially available.

For the first time it offered the customer

"Drag Racing Analyzer and Engine Analyzer were the foundation stones of our business," says Gertgen, "Those two programmes led to us branch off into more detailed packages for engine analysis. From those starting points we've produced programmes for flow bench measurement, camshaft measurement and other packages principally according

In 1993-94 Performance Trends released its first pieces of hardware, the Electronic Tach Interface (ETI) which allowed the user to download tachometer data to a laptop and the Flowbench Interface, which was also for communicating with a computer.

"Those devices taught us a lot about what we should and shouldn't do" says Gertgen. "We learned a lot about the importance of the user interface. When you write a computer programme 10-20 per cent of the work is calculation, the rest of the work is on the user interface. You need to make it intuitively obvious for the user to be able to do what they want do. When



Dual Wide Band UEGO Air Fuel Sensors (left). Above, Dyno DataMite Live Display.

we design a new programme we try to keep in mind the customer who will be seeing it for the first time. It's also important not to mislead the user into thinking the programme is doing more than it really is.

"Using that experience in 1995 we got serious with our electronics hardware when we launched our Data-Mite line of data logging systems. It was a real datalogger designed as a stand alone device without the need for a computer in the car and it could record and store data."

The Data-Mite line started as a three-channel data logger, initially operating just on RPM inputs. This was later expanded to four channels with added analogue inputs, thermocouple and acceleration inputs, and was eventually developed into the current 30-channel sophisticated data logger.

"When we released our vehicle data logger Data-Mite it had some interesting options for vehicle analysis," explains Gertgen. "One of them was being able to plot torque and horsepower curves from vehicle acceleration and similar data. Some dynamometer builders got hold of it and adapted it to their inertia dynos. So, unintentionally, instrumenting dynos not vehicles became the biggest market for our data logging systems.

"We knew that the logger was capable of being used in that way but I learned early on that you can try to explain to the customer what they should do but it's so much easier if you let them adapt

your products to what they want to do.

"The first use of our system on an inertia dyno was by a go-kart engine builder and from that it has been adapted to dynos for testing larger capacity engines, absorber dynos, chassis dynos, chassis inertia dynos. We now have a system suitable for just about any type of dyno."

In addition to dynamometer instrumentation, Performance Trends also has its own flow bench instrumentation package and in 2004 is moving into new areas with the introduction of cam and valve spring measurement software and wide band oxygen sensors. Other improvements include enhancing the compatibility of the entire range of programmes. The principle improvement has been an upgrade from 16-bit to 32-bit Windows software, which means that Performance Trends products are now compatible with each Windows operating system from 95 to XP and 2000.

Performance Trends is a company that operates on the 'small is beautiful' principle, having just two full-time employees. Gertgen explains: "We subcontract our technical helpline service and our mechanical and electrical manufacture. Our functions, as Performance Trends, are the design and the final assembly. There's nothing coming through the door that we don't do something to, add instruction manuals or repackage it to make it user friendly, but most of the actual manufacturing is subcontracted out."

For a small company the Performance

Trends customer base is impressive. Its Engine Analyzer Pro package is used by automotive manufacturers like Bugatti, Ducati, Honda, Lotus, Nissan and Porsche among others in road and racing applications. Not surprisingly, the company also has many customers in the American motorsport market.

"Most of the NASCAR Nextel Cup teams use our flow bench software and some also have our chassis packages," says Gertgen. "We also have lots of customers in drag racing, including drivers, teams, and engine and chassis builders. It's true that our primary market is in the USA and Canada but about 15-20 per cent of our business is abroad.

"We have customers in the UK and Australia and even in Estonia, Macedonia and Finland. Around 80 per cent of our business is in racing and in addition to our automotive clients we also have customers among the motorcycle engine manufacturers. We are also active in hydroplane racing. That has taught us a few things about the durability of our dataloggers in different extremes of conditions to those that you find in other forms of motorsport.

"The top level NASCAR teams can really afford any software packages they want, so it might surprise some people that we have so many customers among them. The feedback we get from them for our engine and chassis programmes is that they choose our products because they are the most user friendly. We hear that a lot." ■