

## Choosing a Data System for your Vintage Race Car— Second of a Series.

*-by Glenn Stephens*

In the “Is Data Right for Your Vintage Race Car” article, in the June 2010 issue of *Victory Lane Magazine*, we learned that modern data acquisition systems are easy to install and do not require modifications to your vintage race car. With video integration, they can be both instructive and entertaining. In this article we will determine what equipment is right for your needs.

Many may recall years gone by when data acquisition systems were heavy and unsightly bundles of wires and sensors. They produced spreadsheets and graphs full of squiggly lines that only a professional race engineer could interpret. Modern GPS technology and



*photo courtesy of Glenn Stephens*

graphics software have allowed designers to create lightweight and discreet systems (3”x5”) that do not require vehicle wiring, yet provide precision data collection, from which driver and car performance can be analyzed.

The first decision is to determine your goals for a data system. The three main purposes for a data system are driver training, car tuning, and entertainment.

**Driver Training**—This is the most valuable aspect of a data and/or video system. Ever wonder why those other cars pull away from you leaving turn 4? Most likely it is something they do well and you are not. If you want to improve your driving, you need a tool that provides feedback on what the driver is doing while driving the car.

**Car Tuning**—This can also be a valuable aspect of data acquisition for vintage racing but is different from what a professional team would use to develop a modern race car. Most of us choose vintage racing or the cars as much as for the racing. Part of the sport is

Feature	Categories	Description
In-Car Lap Timer	D	Shows lap times on display in car
Predictive Lap Timer	D	Shows if driver is ahead or behind best lap time and by how much on display in car
GPS Track Mapping	D	Shows driving line from lap to lap
Speed vs. Distance	D	Allows overlay of different laps and drivers
Friction Circle	D	Shows if driver is using all the capability of tires for turning, braking, or acceleration
Segment Analysis	D	Divide track into segments to show segment times and entry and exit speeds of corners
Acceleration/Braking Track Map	D	Shows where driver is on gas, on brakes, or coasting
Lateral G Graph	D C	Shows vehicle cornering force
Acceleration/Braking Graph	D C	Shows vehicle acceleration and braking force
RPM	D C	Shows vehicle RPM, shift points, and over-revs
Create Videos	E	Make videos with gauge and track maps for playing on TV, PC, or internet
Video with Gauge Overlay	D E	Play back data and video with gauges showing speed, RPM, gear, G forces, etc.
Synchronized Video Gearing	D E C	Video is automatically synchronized with data for easier operation
Oil Pressure	C	Software calculates gear automatically
Air/Fuel Meter	C	Shows vehicle oil pressure to reveal corner starvation or general deterioration
Water Temperature	C	Shows if engine is operating with ideal mixture throughout RPM range
Horsepower and Torque Measurement	C	Shows vehicle water temperature to reveal if cooling is adequate everywhere on track
	C	Tune car and measure changes without going to dyno
<b>D = Driver Information and Training</b> <b>C = Car Tuning</b> <b>E = Entertainment</b>		

the preservation of these wonderful machines, so development is limited to getting the most out of the components on the car rather than swapping out parts in order to go faster. Data can help in two ways: confirm setup choices such as suspension settings, tires, and gears and, with the help of some sensors, ensure that the engine is running correctly to preserve the car.

**Entertainment**—Who would have thought data could be fun? Well it can, especially if combined with video. Racing is a thrilling and challenging sport so it is natural to want to share your excitement with your fellow racers, friends, and family. While there is no substitute for being in the driver seat, data-enhanced video is a great way to bring some of that experience to others while evaluating your performance and learning from other drivers.

The next decision is budget. A good data system costs anywhere from \$700 to \$1500,

with pro systems even more, depending on brand and options. Video cameras range from small sports cameras at under \$300 to off-the-shelf HD camcorders at about \$500 to dedicated race-designed cameras at well over \$1000. Yes, that is a chunk out of the racing budget, but if it gets you a couple of seconds a lap, what is that worth? Many systems are modular so you can add options that enhance your system as you learn and as funding allows.

The final decision is product brand. As with any product purchase, make sure the brand you choose is well supported by the manufacturer, has the capabilities you need, has a reputation for quality, and is easy to use.

*This second series article is from Glenn Stephens of Traqmate. Future series articles will continue to cover the specifics of using this technology. Questions about such systems are welcomed addressed to Victory Lane Magazine via letters or email.*