

Vehicle Diagnostics and the PDA

BY JORGE MENCHU

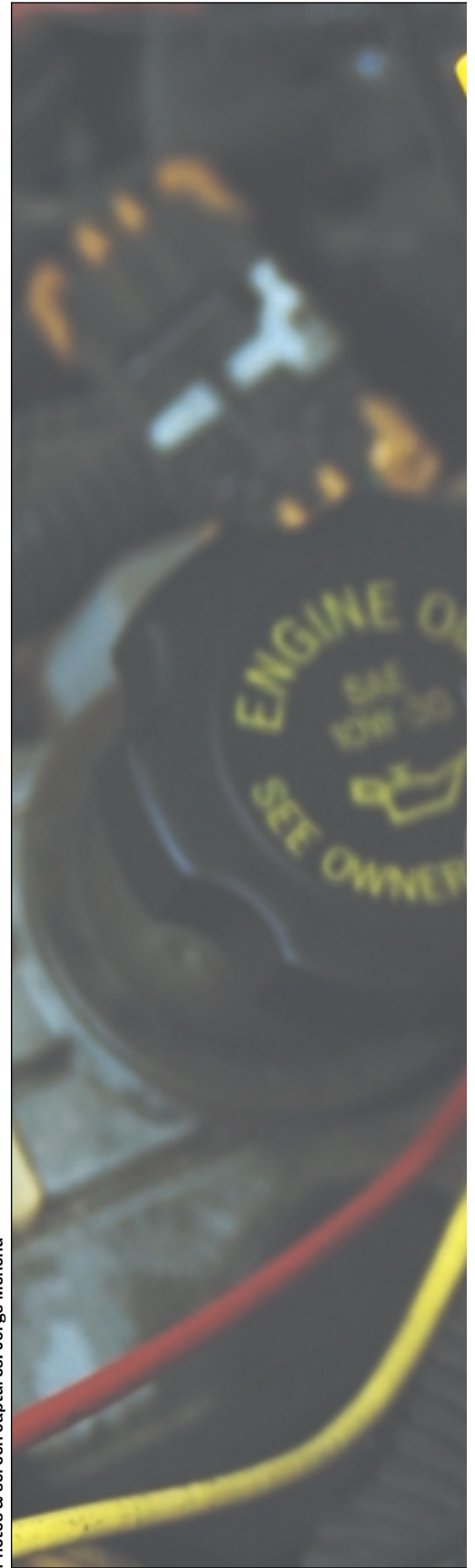
Recent crossovers from the consumer electronics market deliver impressive diagnostic capabilities in small packages.

The automotive repair industry is quietly going through a major change revolving around a generic consumer product—the pocket computer, aka a Personal Digital Assistant (PDA). PDAs are very powerful computers that fit in your hand and are operated by a stylus and touch screen.

Typically, pocket computers are used for quick access to personal data such as contacts, notes and schedules, and are popular with students, engi-

neers and executives. But things are changing! Recent product offerings have morphed pocket computers into full-fledged diagnostic tools such as OBD II scanners, lab scopes and exhaust gas-bench displays. And this is just the beginning.

So why is this so important? To start, it's causing equipment manufacturers to reconsider their ideas about hardware. Using a PDA as the platform can greatly reduce R&D, which allows them to focus their resources on software design. This low cost of admission will also open the door for



Photos & screen captures: Jorge Menchu



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A low-cost OBD II scanner and two-channel lab scope are combined in one kit, based on a Palm OS PDA. Is this the look of things to come for tomorrow's shop?



This PDA is connected to an OBD II interface module. OBD II data can be quickly retrieved with this pocket-size tool.

smaller companies, possibly starting a new era of innovation.

Some basic facts about PDAs are indisputable:

- Pocket computers are affordable.
- They're easily purchased at your local computer store.
- They can run hundreds of applications—for the automotive repair business, hobbies, other businesses and personal use.
- Most offer infrared communications with other computers. Some also offer wireless networking and Internet access.

What does this mean for you? For one thing, lower-cost test equipment, especially if you already own a PDA. It also may mean higher-performance hardware when replacing low- to midrange tools. Finally, they offer the convenience of multiple applica-

tions/tools on one platform.

So, what can we do with a PDA now? From the feedback I've received, a PDA offers convenience and ease of use. It fits in your pocket, and with a few taps of the screen you can be gathering data—a real timesaver. For example, think how much time is wasted when you use a big-boy scanner—you've got to select the right cable, connect the power source, insert the right key, navigate the menus and enter the VIN, all maybe just to find out that the code indicates a simple fix.

Right now, PDA tools might not be as feature-rich as more expensive dedicated units, but it's just a matter of time before they will be. Until then, why get out the big boys if you can get the job done with a few taps of a PDA screen? And, if your scanner is always busy, a PDA makes a low-cost backup.

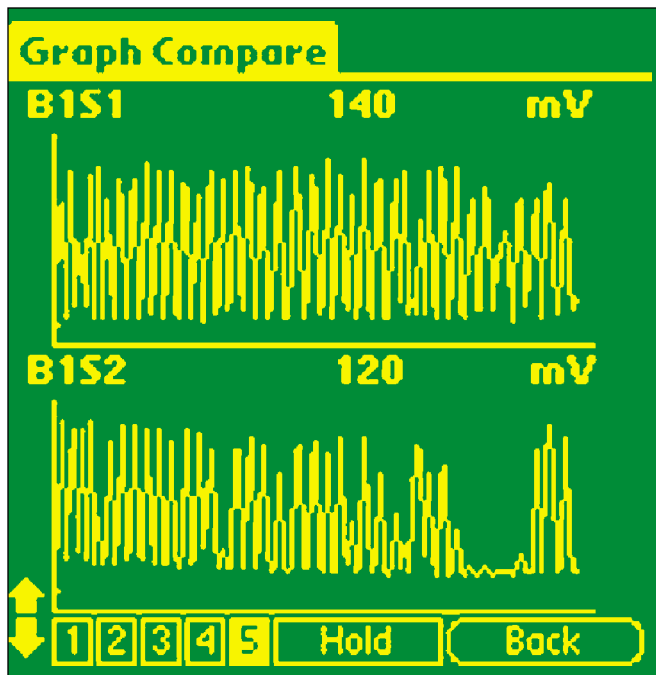
PDAs are going to have an effect on our industry and they'll become more common in the shop. Once they do, the next step is obvious: integration into the main shop system and to the Internet. This will be done via wireless networking providing access to information, diagnostics and other shop data directly to your fingertips. All in a package that fits in your shirt pocket!

The Way It Will Be...Perhaps

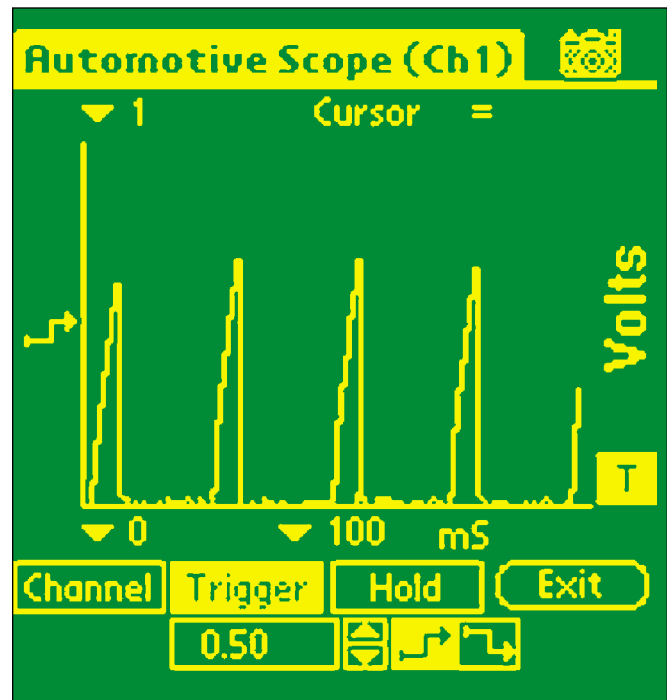
As PDAs become accepted in repair shops, scenarios like this might become common:

The vehicle rolls in. While a customer describes his woes, the service writer pulls a PDA from his pocket and grabs an OBD II scanner module from his belt pouch. Then he quickly grabs any codes and freeze frame data. Next comes a quick swap of the scan-

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Graphing PIDs makes diagnosing such items as catalyst efficiency codes quick and easy. The ability to graph live data makes these tools extremely powerful.



The CJ-Max adds lab scope capabilities to the PDA. This screen capture illustrates a current ramping test.

ner module for a bar code scanner to ID the vehicle. The customer is immediately impressed as the service writer gives him details about his vehicle's problem, then hot-syncs his PDA and uploads the information he's just collected to the main shop system.

In the shop. A technician taps the screen of his PDA. Via a wireless network link with the main shop system, information on the next job, along with the work order, TSBs, vehicle history, wiring diagrams, diagnostics and location guide—everything needed to diagnose or repair the vehicle—has already been downloaded to the PDA.

Grabbing a scanner module from his PDA belt pouch, the tech checks codes and graphs some parameters. He decides to scope it, so he pops in the lab scope module. After finding the problem, he pops in the camera module and takes a picture. He doesn't want to forget this job, so he saves a short audio note. Then he sends the info to the main system and downloads the next job!

Customer pickup. The customer is expecting the standard song and dance explaining why the repair costs

so much. Instead, he's invited to view a multimedia presentation that includes pictures, audio and hard da-



The EASE Pocket PC Scanner offers many features and takes advantage of the Microsoft operating system and high-end hardware. One very useful feature is data recording.

ta—data that was ported via the PDA directly from the shop floor.

All of this is made possible by a tool that fits in your palm and stows in your shirt pocket! Is this the missing link?

PDA Basics

If you're ready to explore this technology, you first must decide what tool or application you plan to use. Then you have to find out which PDAs are compatible with your choice. It's usually best to purchase the recommended PDA for that tool or application. Or, if you happen to already own a PDA, find out if the tool is compatible.

To learn more about PDAs in general, I suggest you surf the Internet. But here are some basics:

First, to load and set up your PDA, you'll need a regular PC to hot-sync the PDA. This is the process used to upload and download files and applications.

Next, you should understand the operating system—the underlying program that operates any computer. For example, Windows is the operating system for the vast majority of desktop PCs.



To run your PDA and to be able to load and save data, the PDA must be connected to a PC. This unit is sitting in what's called a "hot sync cradle."



The SPX Robinair/Neutronics a/c tester takes full advantage of the Handspring Visor software and interface capabilities, resulting in a smart system that's easy to upgrade.

There are two basic categories of PDAs that are defined by the operating system—those that use the Palm operating system (Palm OS) and those that use one of the Microsoft operating systems (MS OS).

Palm OS-Based PDAs

There are thousands of applications available on the Internet for the Palm operating system—applications for almost anything you can think of and even some you haven't! The newer Palm OSs are backwards-compatible with older programs, which goes a long way toward protecting your investment.

The Palm OS uses a graphical user interface and is rather basic. This translates into ease of use. One thing that might be important to the power user, though, is that it does not offer multitasking functions. This means it can run only one program at a time, although you can quickly switch from one program to another.

Palm units don't require great amounts of memory or extremely fast processor speeds, although it doesn't hurt to have 'em. As for cost, expect

to pay \$100 to \$700 for Palm-based PDAs. The largest manufacturers of these units are Palm and Handspring.



These units are durable, but they're certainly not indestructible. A little extra care will be required to make them last in a shop environment.

Microsoft OS-Based PDAs

There are not as many total applications for Microsoft OS PDAs as there are for Palm units. But the programs that are available are feature-rich and closely resemble full-fledged Windows programs.

The operating systems for Microsoft OS units have become more complicated as they've developed over the years. There are various versions of the Windows CE and Pocket PC operating systems, the latest being Pocket PC 2002. Some programs are not interchangeable among the various versions of these operating systems; therefore, it's important to buy the recommended PDA for the tool or application you want to run.

The user interfaces are similar to Microsoft Windows for the PC and they can perform multitasking functions. For the power user who wants to replace some of the functions of a laptop with a PDA, this capability is a must.

Because of the robust operating system and program demands, memory and processor speed are very important. The lower cost units tend to run slow! So if you don't like waiting, get as much memory and processor speed as you can afford.

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What's Out There			
COMPANY	MODEL	PLATFORM	TYPE
AES/Injectoclean www.aeswave.com 559-292-7851	CJ-Max CJ-II.....	Palm OS Palm OS/Handspring.....	Lab scope OBD II scanner
Auterra www.auterraweb.com 760-739-8506 ext. 207	Auterra OBD II.....	Palm OS	OBD II scanner
Autologic www.autologicco.com 262-820-9672	Pocket Gas Pocket Smoke.....	Windows CE Windows CE	Portable gas analyzer Portable J1667 Diesel Smoke Meter
Baum Tools www.baumtools.com 800-848-6657	Ottoscan	Palm OS	OBD II scanner
Cummins www.powerstore.cummins.com 800-343-7357	QuickCheck II.....	Palm OS/Palm	Cummins diesel scanner
EASE Diagnostics www.obd2.com 888-366-3273	Palm Scan..... Pocket PC Scanner.....	Palm OS Windows CE/Pocket PC.....	OBD II scanner OBD II scanner
Harrison R&D www.ghg.net/dharrison/palm.htm 281-485-7107	OBDScan	Palm OS	OBD II scanner
Hi Tech Tools and Training www.servicemycar.com 781-829-9249	PDA Protector.....	Most operating systems	Protective boot
Neutronics www.neutronicsinc.com 800-378-2287	A/C Diagnostic Tool.....	Palm OS/Handspring.....	A/C diagnostic tool
Nexiq www.nexiq.com 800-639-6774	Detroit Diesel Pocket Diagnostic Link	Palm OS/Palm	Detroit diesel scanner
Robinair/SPX Service Solutions www.robinair.com 800-628-6496	A/C Diagnostic Tool.....	Palm OS/Handspring.....	A/C diagnostic tool
Snap-on www.snapondiag.com 877-762-7664	Smart Data System.....	Palm OS/Handspring.....	Information

Compaq and HP are the two most popular Microsoft OS-based PDAs. They range in price from \$250 to \$700.

Some TLC for Your PDA

It's a good idea to have two PDAs—one for the shop and one for personal use, with your personal data password-protected. Beyond that, the proper care and feeding of any PDA is important,

and some common-sense basics apply:

- Don't drop it; it'll surely break!
- Don't lose it, especially if it has personal information in it.
- Because some color screens don't display well in bright light, a PDA with a monochrome screen might be a better choice. It'll be cheaper, too.
- Use screen wipes—not facial tissues, for example—to clean the screen.

• Store your PDA in a belt pouch instead of your shirt pocket; it's less likely to end up on the floor.

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