

Keeping up to date with diagnostics

By Dean Askin

Automotive service and repair exploded into a whole new dimension in the mid-1990s with the birth of OBD-II. Today onboard diagnostics, the biggest innovation in the industry since the middle of the 90s, is a teenager getting more and more sophisticated. And so are the tools. Better keep up with the Joneses.

Take as an example the Audi A8L — the luxury sports car as no fewer than 36 onboard software controllers that can generate as many as 1,600 individual trouble codes. If you're still using an old scan tool, you probably aren't well equipped. The newest scan tools are well equipped for Controller Area Network (CAN) support. The old ISO9141 system used a single K-line to communicate with the vehicle and retrieve diagnostic information. CAN uses a bus system and is significantly faster — but it requires that you have the most up-to-date hardware and software with the latest capabilities for vehicle diagnostics.

"The tools need to provide more than diagnostic trouble codes," says Bruce A. Ruhf, director of operations for Ross-Tech, LLC in Lansdale, Pa. "They need

to have graphing capabilities and testing capabilities to both display what's happening in the systems and to allow the technician to exercise pieces of the system so that the problem can be narrowed to fewer and fewer possibilities. These actions need to be taken quickly to keep the cost of repair within reason. Time is money."

Hardware vs. software

Whether it's the hardware or the software that's advancing in capabilities and sophistication more rapidly is the question. A 2005 study by Global Information Inc. found that the market for diagnostic software and constant updates "will remain quite strong" because the hardware is getting more sophisticated. The study found that in the U.S., demand for diagnostic tools, software, information and services would grow 6.6 per cent a year, reaching US\$1.1 billion in 2009.

Ross-Tech's VAG-COM product runs on standard PC-based platforms, notes Ruhf, so the capabilities of Ross-Tech's diagnostics tools are fuelled by advances in PC hardware. "Software advances very quickly to meet the needs of the market.

It's hard to say in this environment which is leading and advancing more rapidly," says Ruhf.

Adds Patrick Dubois, the Mississauga-based Canadian sales manager for Robert Bosch: "It's hard to say — there seems to be overlaps in both departments."

What does it all mean? You've got to be updating your software frequently. "You've got to update at least once a year or as bugs are identified and fixed," says John Mills, a spokesperson for SPX Service Solutions in Warren, Mich.

Dubois notes that software updates vary by manufacturer and platform. Bosch's TECH 2 product, for example, updates "almost monthly," whereas the company has other products that are updated four to six times a year.

Diagnostics and common sense

These days, you can't just have one diagnostic tool in your toolbox. When scan tools really came on the scene in the mid-1990s after the introduction of OBD-II, you were well equipped if you had one. Now you've got to have several.

"You can't get away with just one tool anymore if you're serious about diagnostics," says Dubois, who was a technician for 10 years. "Aftermarket tools all have a certain weakness in their coverage, so you need other tools to complement the coverage."

Adds Ross-Tech's Ruhf: "The technician can't just use a generic OBD-II scan tool to repair a car today. He has to have a factory-level tool that allows access to all of the electronic modules. As an example, Volkswagen released the new Passat with an electronic parking brake which requires a factory-level scan tool to open the caliper so the brake pads can be changed. A generic OBD-II scan tool can't do that job."

But just because you've got to have all of these diagnostic tools doesn't mean you should be overly reliant on them to the point that you no longer rely on common sense or years of experience too.



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"Tools don't replace logic and sense of identifying problems," says Bruce A. Ruhf. "The tool just gives the technician more information so he's able to make an informed decision about the possible cause of the problem being addressed. A skilled technician knows where to look and what to look at. The wisdom and knowledge gained over the years can't be replaced by electronic technology and information systems."

"Common sense and experience are invaluable in this trade. Sometimes these two attributes save the day," adds Mills of SPX, although he continues for some complex diagnostic routines, technicians must rely more on their tools.

There's a paradox happening. The advances in OBD-II and diagnostic tools and software are making motorists' lives easier and technicians' work more challenging at the same time.

"I believe the vehicle manufacturers are adding more computers and electronics because we as consumers are demanding these items," says Ruhf. "The technician has no choice but to learn these systems because the driving population in North America wants the features and benefits the computer systems offer."

Modern electronic vehicle systems are designed to make diagnostics simpler and more precise. Training, information

and tools are three keys for technicians to be efficient," says Mills of SPX Service Solutions.

This all means you've got to be taking training courses to go along with the up-to-date hardware you need.

"Technicians are able to keep up with the technology as long as the OEMs release the information and the technicians attend training classes on a regular basis," says Ruhf. "The changes in automotive technology require technicians to constantly upgrade their knowledge, and this is best done through structured training."

Patrick Dubois says it's important that shop owners view diagnostics training for technicians as business investment, not an expense. "Those owners who've figured this out — and I see more and more, thankfully — are growing their businesses profitably... They invest in the proper capital equipment; have higher door rates; better employee retention and higher quality clientele. The benefits far outweigh the cost."

So if you're investing in the latest diagnostic tools and training, what about those old-fashioned printed repair manuals? They're not quite obsolete, says Mills of SPX. "They're an absolute necessity in order to repair vehicles effectively. Technicians need to use a wide variety of tools and test equipment as part of their diagnostic routines."

"It's a matter of personal preference," adds Dubois. "Personally, I prefer a Web-based information system because by its very nature, it'll be more up to date than any paper manual ever will be."

Upgrade . . . wisely

Data logging and live data measurement; graphing and display techniques. They're all new and extremely valuable. And you won't find these capabilities in an older scan tool. If you're still using an older tool and haven't upgraded yet for cost or other reasons, here's some advice: do it — now.

"The old tools take time to use," says Ruhf. "Profits in the business are all about time and part cost. The faster good diagnosis is performed, the more money the shop will make. Why use an older scan tool if a newer one can give advantages to make the technician more productive?"

But you've got to do your homework — determine what you need your scan

tool to do, and then invest in the right up-to-date product. It's a hefty investment and turning to eBay instead of your tool supplier could be tempting. A quick keyword search of "automotive diagnostic tools" on eBay, for example, brought up 177 diagnostic tool items for sale on the online site. But it's buyer beware, and going for a cheap deal or a second-hand unit on eBay isn't recommended by diagnostic tool manufacturers. This is because technicians need to think about service and support, not just purchase cost of the tool.

"The customer who buys from eBay better know what he's getting into. Not to knock eBay, but I mean who's going to support the tool, who'll train the customer...It's not all about getting the better price, just like installing white-box brake pads might not be the answer," says Patrick Dubois of Robert Bosch LLC.

Diagnostics down the road

It's probably a good idea to stick with buying your diagnostic tools from your primary tool supplier, because OBD and tools are going to keep getting more sophisticated.

The OBD-III specification, which could include the capability for vehicles to transmit emissions violations, will be the next turning point in onboard diagnostics, but it's still in regulatory development.

Basically, technicians have a lot to look forward to in terms of new capabilities and new challenges when it comes to onboard diagnostics, and the next generation of diagnostic tools.

"By the nature of the industry and the fact that the explosion of electronics in the auto industry will continue, the diagnostic tools will evolve to be more and more sophisticated. The vehicle manufacturers will continue to add diagnostic capability into the control modules. The information available to technicians will increase. New tools will evolve, and I hope that the OEMs will allow more open information about the systems they're designing," says Bruce A. Ruhf.

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The VAG-COM Pro Kit from Ross-Tech is a software program that can turn a PC into a VW/Audi factor diagnostic tool, covering models from 1990 to 2007. It provides 12 different measurement parameters.

REFERENCE LIST

Robert Bosch www.bosch.com

Ross-Tech www.ross-tech.com

SPX/OTC www.otctools.com