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TIRES AND THE FUTURE OF HYBRIDS

Bigger low rolling resistance tires are on the way

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PHOTO COURTESY OF MIDTRONICS

The CPX-900 battery and system analyzer from Midtronics for conventional and advanced vehicle systems assesses the health of both a battery s starting and reserve capacity abilities through patented Conductance Profiling technology.

By Ann Neal

The latest battery testing tools: What you need to have in your shop

At any moment in time, one out of four car batteries needs replaced. The only way to know which one is to test every vehicle that comes in for service.

Battery testing is a great opportunity for shops to service their customers, according to Cliff Sewing, product category manager at Interstate Batteries Inc. "Looking at the total volume of batteries sold in the market, and based on the number of cars that are out there, our research indicates that one out of four batteries is going to need replaced.

Sewing says proactively testing the battery builds trust with a customer. "A lot of times it s cost, cost, cost to a consumer when they bring their car to a shop. With the battery test, three out of four times it s positive feedback. You can tell your customer their battery is good and come back in three months and we ll test it again for free. But one out of four times you want to give that negative feedback so the customer has the opportunity to replace the battery and avoid a no-start situation.

BATTERIES WILL NEED REPLACED MORE OFTEN

Interstate Batteries expects the rate of battery replacement to increase. "We know once shops test, they are going to see one of four cars need batteries," says Dusty Russell, product development and marketing manager. From a market standpoint, battery life will continue to be adversely impacted based on vehicle electrification placing higher load demands on the battery. The downward trend in battery life is going to necessitate even more so proactive testing platforms that we think will build the kind of trust that customers would want.

But new batteries, systems and components require improved technology for accurate diagnostics. Battery service tools are evolving and expanding to keep pace. Modern Tire Dealer asked manufacturers for an update on the market and their products, beginning with the types of batteries shops need to be prepared to service.

In addition to Sewing and Russell from Interstate Batteries, four other companies answered. Speaking for Bosch Automotive

Service Solutions Inc. were Pat Pierce, product manager-battery testers, and Surender Makhija, consultant-battery testers. Answering on behalf of Clore Automotive Inc. was Jim O Hara, vice president of marketing. Responding for Midtronics Inc. was Rob Salach, senior product manager-aftermarket. EnerSys Inc. shared perspective via Bruce Essig, transportation and specialty national program manager.

PHOTO COURTESY OF INTERSTATE

The IB Pulse from Interstate Batteries recommends Interstate replacement batteries by part number to reduce installation error, provides battery reset instructions, and retrieves battery test history by vehicle identification number.

STANDARD FLOODED PRODUCT DOMINATES FOR NOW

What types of batteries do independent shops need to be prepared to test? All respondents agree standard flooded lead acid batteries dominate the market now, but changes are on the horizon. Midtronics expects Absorbed Glass Mat (AGM) and Enhanced Flooded Batteries (EFB) to increase to more than 65% of the market in the next three to four years.

Bosch: Although AGM and EFB batteries usage is becoming more popular, flooded lead acid batteries still hold the predominant market share for independent aftermarket battery service. Lithium-ion batteries are now being used in electric and hybrid vehicles, but high costs prohibit use in everyday vehicles. There are some heavy-duty applications that use 24-volt systems, but those typically run two 12-volt batteries.

Clore: For conventional vehicles as well as many hybrids, the primary battery types shops should be prepared to service are: flooded, AGM, spiral wound, gel cell, and deep cycle batteries. In addition, they likely will encounter vehicles with capacitor-based starting systems and lithium starting batteries, but these will be fewer in number.

EnerSys: The AGM sealed, lead-acid battery is growing in popularity as being installed by the car manufacturers, especially with the growing popularity of the engine stop/start feature. This feature increases the discharge and charge cycling on the battery, with the traditional SLI (starting, lighting, ignition) battery not being capable of providing the required discharge-recharge cycles to give good service life. The AGM battery requires more sophisticated chargers that can assess the battery's state-of-charge and chemical condition and choose the most appropriate charging algorithm versus a fixed charge procedure. AGM also requires more complex performance testing with advanced conductance testers as well as an understanding of how to exchange a battery in a vehicle without disrupting various on-board microprocessors and engine management systems.

Interstate: The automotive aftermarket is going to be largely standard flooded product for the next 24 to 36 months. We are clearly going to see a continued shift to more premium lead acid battery types such as AGM and EFB as vehicle electrification trends increase and original equipment manufacturers position their vehicles to address the higher load demands being placed on automotive batteries. But while the OE market is growing with higher-performing batteries, it represents a comparatively minor amount of the total in today s automotive aftermarket. Testing requirements will therefore remain largely driven by the existing flooded lead acid product seen in the market today.

Midtronics: Independent shops still need to be prepared to service lead acid batteries. Conventional flooded batteries will be the majority of what they see now but with the increased volume of start/stop vehicles and greater electrification in today's vehicles, the amount of AGM and EFB batteries in use will continue to grow. Currently AGM and EFB batteries represent less than 20% of the market, but within the next three to four years those battery types are predicted to increase to more than 65% of the market.

THE LATEST DIAGNOSTIC TOOLS

Modern Tire Dealer asked manufacturers for an update on the latest technology in battery diagnostic tools.

Bosch: The latest technology in battery diagnostic tools, like the Bosch BAT-120, integrate battery test services with scan diagnostic service into one system. The tool offers a single solution for battery charging/testing services, computer scan battery reset/relearn calibrations, and battery replacement guidance.

Clore: The latest technology centers around the need to constantly update and refine the diagnostic judgement maps used by modern battery testers to determine if a particular battery is sufficient to perform its task (is it good or bad?). We are constantly refining our judgement maps to ensure we can accurately assess the widest possible array of battery type, battery size, battery condition and more.

EnerSys: Dynamic conductance technology provides handheld testers that provide unparalleled testing accuracy and decision making. For example, the Odyssey OBT2000HD battery and electrical system analyzer is used for commercial truck applications and offers a user-friendly smart html PC interface and features patented single load, dynamic resistance technology for accurate results.

Interstate: AGM, enhanced flooded, SLI batteries all can be tested with the conductance battery testers in the market today. The new IB Pulse provides the capability to test all those technologies, as well as the ability to test group 31, lawn and garden, marine, powersport and commercial batteries. We ve also integrated additional information and databases into the IB Pulse. For the automotive testing in the Pulse, these include battery location diagrams and battery reset instructions. The IB Pulse also displays the automotive Interstate Batteries that fit the vehicle

PHOTO COURTESY OF ENERSYS

The Odyssey OBT2000HD battery and electrical system analyzer for commercial truck applications from EnerSys has patented single load, dynamic resistance technology for accurate results.

and alerts the technician if a car requires a battery registration tool. We expect to integrate a battery registration tool into the IB Pulse by the end of 2019.

Midtronics: Conductance Profiling, a patented Midtronics technology, represents the latest advancement in battery diagnostics. With increased electrification in today's vehicles, batteries must do more than just start the vehicle. They also supply power to items like infotainment systems, vehicle safety components, regenerative braking, etc. The measurement of the battery s ability to sustain these loads is called reserve capacity and traditional conductance or load testers cannot perform an analysis of the battery's reserve capacity status. Conductance Profiling is the only technology on the market today that can accurately assess the health of both a battery's starting and reserve capacity abilities.

IS IT TIME TO BUY A NEW TOOL?

MTD asked manufacturers if there are specific types of diagnostics tools a shop must have in order to service vehicles.

Bosch: New battery testers have separate testing algorithms for batteries used in start/stop vehicles. Battery testers that shops use should have capabilities to test AGM and EFB batteries, which differ from conventional flooded lead acid batteries. Existing tools will work if they have been recently updated or are equipped with the latest technology.

Some of the suggested tools for battery diagnostics and service include a digital battery tester featuring printout or a means to capture, store and share test results. Bosch recommends model BAT-135 tester with integrated printer or model BAT-120 Bluetooth battery tester that integrates with Bosch scan tools. Also, a scan tool with the capability to reset or relearn the ECU (engine control unit) where the vehicle is equipped with computer controlled electrical systems like those found in 2010 and newer F-150s and most vehicles from Audi, Volkswagen and Mercedes-Benz. Other recommendations are a parasitic drain tester to help locate electronic vehicle components that continuously drain the battery, a memory saver device that provides 12-volt power to the entertainment /comfort and ride systems on vehicles to keep them live while a battery is replaced, and an anti-zap surge protector that protects sensitive electronic systems while replacing the battery.

Clore: All shops should have a quality battery tester with a testing capacity that exceeds the range of battery sizes they normally encounter. It should also be optimized to accurately assess the specific battery types that they are likely to encounter. It is possible that their existing tools are sufficient to meet this need. But, if their tool is dated, it is a worthwhile investment to update their equipment to improve their testing accuracy.

EnerSys: Today's vehicles have a level of electronics and sophistication with complex integration that only a few years ago would have been considered a dream more than a reality. Knowledge and sophisticated diagnostic tools are a must to troubleshoot and correct operational issues with today's vehicles.

Interstate: Older diagnostic tools will perform a battery test. But the older tools do not provide all that additional information and techs will have to do Google searches for battery reset instructions, for example. Battery tools a shop should have include battery reset tool, battery registration tool and a continuous power source.

Midtronics: Existing conductance and load testers will continue to be successful in diagnosing a vehicle battery's ability to start the vehicle. But, based on how heavily newer vehicles rely on the 12-volt battery, they can no longer deliver a complete picture of battery health. Battery testers such as the Midtronics DSS-5000 Battery Diagnostic Service System and CPX-900 Battery and System Analyzer feature conductance profiling technology, which enables testing of both cranking and reserve capacity.

TIPS TO BOOST PROFITABILITY

Manufacturers suggested a number of ways for shops to improve the profitability of their battery service. There was one tip they all agreed on: Test every vehicle.

Bosch: Making battery service checks part of every shops preventive maintenance program for their customers is a way to improve profitability. Some helpful hints/tactics for these preventive maintenance programs include: Use a battery tester that provides a battery health report featuring battery state of charge (SOC) and state of health (% of battery estimated remaining life). Some battery testers provide an app or a means to capture and store tests electronically or through cloud-based internet systems to record customers' battery life cycle through service intervals over time highlighting battery performance. This is a professional way to show a customer he or she may need a battery replacement before encountering a no-start condition. For multi-store operations, we recommend having a test solution that tracks the number of batteries and the test results performed by a store or a technician to help store operations better track battery warranty management.

PHOTO COURTESY OF CLORE

Clore says the BA327 digital battery and system tester with integrated printer is a complete testing solution for 6- and 12-volt batteries and 12- and 24-volt charging systems. With an operating range down to 1.5V, it can accurately test discharged batteries.

Clore: First, it is important to ensure that all personnel know how to properly utilize the battery tester, whether it is a digital tester or a more traditional carbon pile tester. Particularly with digital testers, if the tester is configured to test a specific battery type but deployed to test a different battery type, the results provided could be affected. All personnel need to be trained to properly identify the different battery types and understand the importance of getting that step right.

Second, the most important factor in improving profitability is to be using the tester frequently. We suggest testing every vehicle that enters the shop. This will result in increased sales of batteries, rotating electrical components, belts, cables and other related items. It is a proven fact, but you have to use the tester to drive add-on sales and increase profitability per ticket.

All Solar electronic testers equipped with printers incorporate a counter function so that the shop can track exactly how many tests are performed in a given period. If a shops car count is four times the number of tests performed, they are not maximizing their return on their equipment investment.

EnerSys: Utilizing these advanced battery conductance testers on every vehicle in for service can provide early detection of a failing battery before a true no-start, and provides an opportunity to sell a battery. Offering a range of good, better, best in batteries provides a service to the customer and revenue to the service dealer.

Interstate: The way you have more profit is you sell more batteries; the way you sell more batteries is you test every car.

When the battery does need replaced the customer thinks you tested that the last couple times, first time it was good, last time there was some degradation. Now you tell him or her its bad and that makes sense because of that history.

Make battery testing part of your multipoint inspection. Have the right product in the shop to actually close the sale. At Interstate we pride ourselves with identifying the batteries and stocking the batteries at the dealers location. In addition, the IB Pulse tracks the types of cars and batteries tested. Dealers have the option to log into an online portal and see a record of the batteries and cars serviced. We will stock the batteries for the dealer as a service. The data on year, make and model of cars serviced will help them stock brakes and other parts.

Midtronics: Test every vehicles battery that comes into your shop for service as an added preventive maintenance benefit. Combining a preventive maintenance battery testing program with conductance profiling technology will further enhance the benefit for your customers. Conductance profiling is one of the most decisive and comprehensive battery testing technologies available. When you combine preventative maintenance testing with increased decisiveness, you will be able to identify more opportunities to advise your customers about failing batteries and increase the potential to sell batteries.

PHOTO COURTESY OF BOSCH

Bosch says the BAT-135 battery tester includes an integrated printer to capture test results for customer records such as presenting the state of health and state of charge percentage of the batteries to ensure optimal efficiency and usage.

WHAT ABOUT HYBRIDS AND EVS?

MTD asked manufacturers to describe opportunities the growth of plug-in hybrid vehicles and pure electric vehicles (EVs) will create for shops. Are these opportunities months or years away?

Bosch: Lack of technology standardization among OEs, safety-related issues in servicing these high voltage systems, and limitations to accessing the battery pack within the vehicle all are barriers to independent aftermarket shops servicing pure electric or plug-in hybrid vehicles. In near future, these systems will mostly be serviced by authorized dealerships, which have been required by OEMs to have specialized insulated tools and hybrid/EV training to service the vehicles.

Clore: This opportunity exists now, but is small. We expect it grow significantly over the next 10 years. We would suspect that time frame for it to reach critical mass for aftermarket shops is still years away.

EnerSys: These vehicles will require a much higher degree of system knowledge and diagnostic equipment to service. There will be a high price for this equipment and the training of the service technician.

Interstate: Current EV and hybrid vehicle platforms frequently contain a 12V lead acid battery for back-up power support. Future platforms are trending toward a 48V system to accommodate the growing electrification demands in this EV/hybrid segment, which will create some unique safety and repair challenges for a shop. But for the foreseeable future its going to be standard lead acid, AGM-type technology in the marketplace, and thats what were addressing with the Pulse.

Midtronics: Hybrid vehicles have been on the road for nearly 20 years and are coming into aftermarket shops for similar reasons as traditional gasoline-powered internal-combustion engine vehicles — oil changes, tires, wipers, and 12-volt lead acid battery service, etc.

The number of plug-in hybrids and pure electric vehicles on U.S. roads today represents only a tiny share of the total vehicles in operation.

However, the rate of customer adoption, as well as the number of different vehicles being designed and manufactured by the OEMs, is increasing. According to a recent IHS Markit forecast, more than 350,000 new EVs will be sold in the U.S. in 2020, which would still give EVs just a 2% share of the total U.S. fleet. By 2025, however, that figure is expected to reach more than 1.1 million vehicles sold for a 7% share.

This trend and transition to plug-in hybrids and full EVs represents a huge opportunity for the aftermarket, though its still probably years away. In the near term, most of these vehicles will still be serviced in dealership shops due to warranty considerations and technology level. But as these vehicles come off warranty, customers are going to look to the aftermarket as an option for faster, more economical service.

Shops that learn about the service requirements of these vehicles and acquire the necessary equipment to support them now will be ahead of the game when they start rolling into their bays. ■