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18

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OPERATIONS

10 IS YOUR PRODUCTION MODEL LOOKING DOWNSTREAM?

____///

Proactivity is the key to a process-centered, continuous workflow environment. MICHAEL GIARRIZZO JR. // Contributing Editor

18 FIGHTING THE TECHNICIAN SHORTAGE

Incentivize apprentices and mentors to encourage support of their efforts. STEVE TRAPP // Contributing Editor

22 DO-IT-YOURSELF SEO

You have the tools to keep your business front & center online. **CAITLYN WILLIAMS** // Contributing Editor

28 THE COLLISION EXECUTIVE

Successful change is more likely if you first build the right culture. **RYAN CROPPER** // Contributing Editor

30 THE PROFIT MOTIVE

BACK TO THE BASICS Core business concepts need to be maintained and adjusted. KEITH MANICH // Contributing Editor

31 THE SHOP PROFILE

SIMPSON COLLISION REPAIR; FLORENCE, ALA. A Muscle Shoals trip of shops provides long-standing service. JAMES E. GUYETTE // Contributing Editor

66 THE LAST DETAIL

If you give back to the industry, you'll reap endless rewards. MICHAEL GIARRIZZO JR. // Contributing Editor

automechanika COMMITMENT TO CHICAGO

36 BE A POSITIVE GAME CHANGER

Take ownership of responsibilities to lead your team **MIKE JONES //** Contributing Editor

40 WHAT IS YOUR WELD TELLING YOU?

Observing & learning from it can make you better at the skill **JEFF COPPES //** Contributing Editor

SOCIAL INSIGHTS, WATCH & LEARN, TRAINING EVENTS







TECHNICAL

48 SERVICING SAFETY

Addressing advanced safety systems that keep your customers safe, while ensuring you don't cause any problems. **VANESSA ATTWELL** // Contributing Editor

55 DISPELLING MYTHS ABOUT AIR BAGS

____///

A little fact and fiction about the 'black boxes' on today's vehicles. LARRY MONTANEZ // Technical Advisor

IN EVERY ISSUE



INDUSTRY NEWS 6

CONFERENCE LOOKS AT THE ARRIVAL OF AUTONOMOUS VEHICLES: Panelists discuss how the new mode of transportation could affect the collision industry. JOHN YOSWICK // Contributing Editor

PPG CERTIFICATION AIMS TO KEEP TECHNICIANS UP-TO-DATE: The growing number of OEM special effects emphasizes the need for refinish technicians stay current on training.

64 **AD INDEX**

65 MARKETPLACE

SPECIAL SUPPLEMENT **KIA QUALITY** CONNECTION



Brought to you by Kia, this special section updates you on trends and techniques with these vehicles Packaged with this month's issue.

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MARK ROSEKIND, administrator of the National Highway Traffic Safety Administration, spoke at the telematics conference in Detroit.

CONFERENCE LOOKS AT THE ARRIVAL OF AUTONOMOUS VEHICLES

BY JOHN YOSWICK // Contributing Editor

Will autonomous vehicles largely spell the end of collisions or just the end of the hardest hits that often don't get repaired anyway?

It's a question that although never directly addressed was certainly raised by the presentations at a recent two-day telematics conference in Detroit centered around connected and autonomous vehicles and related technologies.

When highway safety regulators discuss accident avoidance technology and autonomous vehicles, they generally focus not on reducing accidents per se but rather on reducing the number of people killed in vehicle crashes.

"It's a 747 crashing every week for a year," conference speaker Mark Rosekind, administrator of the National Highway Traffic Safety Administration, said of the 38,000 Americans killed on U.S. roads last year. "That is unacceptable." Rosekind's comments to 3,000 representative of automakers, technology companies, government agencies and insurers at the conference may be the latest signal that regulators aren't expecting an accident-free future, just a reduction in the number of severe, deadly wrecks.

Rosekind, whose agency is finalizing federal regulations for self-driving vehicles, said he is frequently asked how much safer autonomous cars must be. He said a twofold increase in vehicle safety seems like an appropriate starting point.

"So while I'm not setting it at the moment, we need to start with two times better, and let's work from there, to see what we can get," Rosekind told the gathering of automakers, technology firms, government agencies and insurers.

He included many predictions as to likely "disruptors" in the automotive industry, including when "Level 3" conditionally autonomous vehicles (which still >> CONTINUES ON PAGE 7

PPG CERTIFICATION AIMS TO KEEP TECHNICIANS UP-TO-DATE

BREAKING NEWS

Advancements in auto refinish technologies, combined with the growing number of OEM special effects vehicle finishes, make it critical that collision refinish technicians stay current with available training. That's what's driving PPG's ongoing commitment to its comprehensive technician certification training program.

"We are constantly advancing the technology of PPG refinish systems, and we want to ensure that collision center technicians are experts in using our products," says Randy Cremeans, PPG director of training for automotive refinish. "That's exactly what our certification training accomplishes. It assures that technicians will be up-to-date with the latest products and process techniques for maximizing paint booth productivity and completing quality refinish repairs."

The two-day certification courses are held at 16 PPG Business Development Centers and various field locations across North America, where technicians receive classroom and handson training in the paint booth. Courses are tailored for each of PPG's premium brand collision and fleet refinishing systems and cover a full range of topics from

AUTONOMOUS VEHICLES

>> CONTINUES FROM PAGE 6

allow control by a driver) and "Level 4" fully-autonomous vehicles will be for sale.

Nearly all of the six inductees to a connected car "hall of fame" at the event, for example, predicted that either Apple or Google will be the next technology firm to enter the automotive arena, perhaps even by buying an existing OEM.

"If you look at Apple's development environment, they have created mechanisms so they can allow their partners to very quickly develop new technologies, not to mention the fact that they have billions of dollars sitting in the bank ready to go," Charles Link of M2MD Technologies said. "In defense of Detroit, building a car is a lot more complex than building a laptop or a tablet. But the first company I expected to fall on their face was Tesla, and the test of time has shown they built a pretty good product."

Fred Blumer of vehicle telematics company Vehcon, agreed that anyone who believes Detroit will remain the hub of vehicle development needs to spend some time driving in Silicon Valley.

"My favorite experience was watching a dog on the side of the road that was behaving bizarrely," Blumer said. "I was two cars behind a driverless vehicle and thought, 'This is not predictable behavior; let's see what this car does.' It responded perfectly to the erratic behavior of that dog that ran into and out of traffic."

But John Schnoes, director of Nissan's autonomous driving program,



leaned heavily on sarcasm when he began his prediction about the first arrival of autonomous vehicles with, "Boy, there are no difficulties

JOHN SCHNOES in delivering Level 4."

Schnoes said Level 3 vehicles will likely arrive in 2020, but offered no prediction for fully-autonomous vehicles. Many speakers at the conference concurred with the 2020 timeline for conditionally autonomous vehicles.

"But it's probably going to be 10 years, 2025 or 2026, before you have the ability to have that driverless autonomous vehicle," Link predicted, a timeline echoed by others at the conference.

"October 7, 2026," Blumer joked.

"From our perspective, the industry doesn't want to put something out that will negatively affect future sales and reputation," one Michigan state regulator said, noting there are legal and governmental hurdles, not just technology challenges, that must first be overcome.

Industry consultant Francis Dance agreed that the autonomous vehicle industry is currently in the "peak of hype."

"But it's going to happen, and happen much quicker than anything else that has happened to the automotive industry," Dance predicted. "We are really on a paradigm shift."

Event coordinator Gareth Ragg of TU-Automotive cited one anonymous prediction submitted just prior to the event: "The first major accident involving an autonomous vehicle will happen in the next 12 months, a defining moment for this technology." Ragg said there is, of course, no way to know when such an accident will actually occur.

"But to think this won't happen is to bury our heads in the sand," Ragg said. "And this prediction is totally right in that how we respond is going to define this industry."

On that topic, several panel discussions at the event focused on the growing role vehicle telematics could play in insurance claims.



JOHN KRAMER

John Kramer, a former Nationwide Insurance executive now with Octo Telematics, which maintains what it calls the world's largest insurance telematics statistical database, said insurers in other countries are ahead of U.S. insurers in using data from the vehicle as part of the claims process.

"Our experience in Europe has shown that our partners have...been able to reduce cycle time and actually drive down the costs of claims, seeing a noticeable difference in their loss ratios, attributable to the use of telematics," Kramer said.

He said one way insurers are using vehicle data is from the very point of impact, determining a collision has occurred based on changes in the vehicle's behavior.

"When there is a crash, there is a 'first notice of loss' that is provided to the insurance company within minutes of the observance of the [vehicle] behavior," Kramer said. "The information is provided to the insurance company so they can make business rules in terms of how to take action."

Other speakers at such conferences have suggested that insurers (or automakers) could even contact the driver at the scene of the accident based on such telematics data. Although Kramer didn't provide any details about what U.S. insurers his company is working with nor how those insurers are using the telematics data, he did say, "We have two partners who are in the pilot stage of this."

Jim Levendusky, vice president of Verisk Insurance Solutions, which is launching an "exchange" later this year to help gather connected car data to deliver to insurers, agreed the technology will mean a shift for insurers.

"The use of telematics in a claims response is something new for most insurers," he said. "It's not something they are accustomed to doing, and there's a learning curve associated with that. So it's going to take time for them to adopt. Today the claims process is very reactive. The person has some sort of claim or loss and it's up to them to report it to their insurer's agent or carrier. But in the telematics world...I think you will see a big shift to (insurers) being proactive."

INDUSTRY NEWS CERTIFICATION

>> CONTINUED FROM PAGE 6

product selection, equipment and color tools to surface preparation and paint application best practices. Once a technician becomes certified, this qualifies the respective collision center to offer the PPG Lifetime Limited Paint Performance Guarantee.

Certification training for the ENVIROBASE[®] High Performance waterborne refinish system is one of the most popular courses, particularly since it is a key component of PPG's proven CONVERT WITH CONFIDENCE[®] program for new users switching from a solvent system.

A recent Envirobase High Performance certification class

at the PPG Business Development Center in Wixom, Mich., drew enthusiastic comments. "They make learning easy," said Bryan Gunn, paint technician at Graff Motor Sales,

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Gladwin, Mich., addressing the proficiency of the instructors. "They know the products and make great suggestions on how to get the job done right.

"Now that I've switched to PPG, the training has provided me with a comfort level I've never experienced before," added Dave Abend, owner of Abend Brothers Collision, Ossineke, Mich. Bob Hiser, a General Motors advanced service design engineer who reviews paint companies for warranty paint system approval concurred, "PPG provides one of the most comprehensive training programs I've been through. The instructors cover all the details. They're concerned that all goes well, and they take the time to teach."

To make sure that technicians stay up to date, PPG requires them to attend recertification every two years as a qualification for continued participation in the PPG Lifetime Limited Paint Performance Guarantee program.

PPG is involved in several additional certification programs. For OEMs, PPG provides refinish courses that qualify for credit in their technician certification programs. PPG has also partnered with select colleges and technical schools to give students the opportunity to become industry-certified through the PARTNERS IN EDUCATION[™] program. Upon successful completion of the program, students earn a two-year PPG certification. PPG has also teamed with industry professional organizations, including I-CAR, the National Institute for Automotive Service Excellence (ASE) and SkillsUSA to ensure the high caliber of the collision industry's workforce.

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BY MICHAEL GIARRIZZO, JR. // Contributing Editor

As random as the collision repair business is, the truth is that production in most traditional shops is highly predictable. We assume that the technician will largely oversee the complete repair of the vehicle. We know that quality and delivery fall largely in the hands of that tech.

We know that issues in the repair process will eventually crop up at some point (which will be discovered, addressed and corrected later through supplements); that there are fasteners and clips that we'll somehow have to locate later on; and, subsequently, that the initial estimate is just an "estimate" for the job and is never going to reflect the final bill or the true cost of repairs. But what if there was a way that you could control the issues that traditionally bring the repair process to a grinding halt and eliminate those issues prior to the vehicle ever entering production? What if you had a total handle on each production function and could eliminate things like backlog in the paint prep area and waiting in reassembly?

Reactive vs. proactive production

Process-centered environments effectively achieve this through a method called "Pull Production." Pull Production utilizes a series of inventory buffers that limit the number of holes in each area of your production line, such as bays, work areas and the number of cars currently in the flow.

The key to pull production is simply being proactive and changing the timing of each activity. It involves regimented, front-end preparation in the assessment and repair planning stage that, if followed correctly, clearly defines what the vehicle requires in order to enter the workflow.

The result of this preparation is a highly defined "kit" that spells out all the details related to the repair plan, including required tooling, parts and equipment. It also includes the essential technical support required for certain steps along the way. The kit is the key step to being proactive, allowing the vehicles to flow through production without unnecessary waiting,

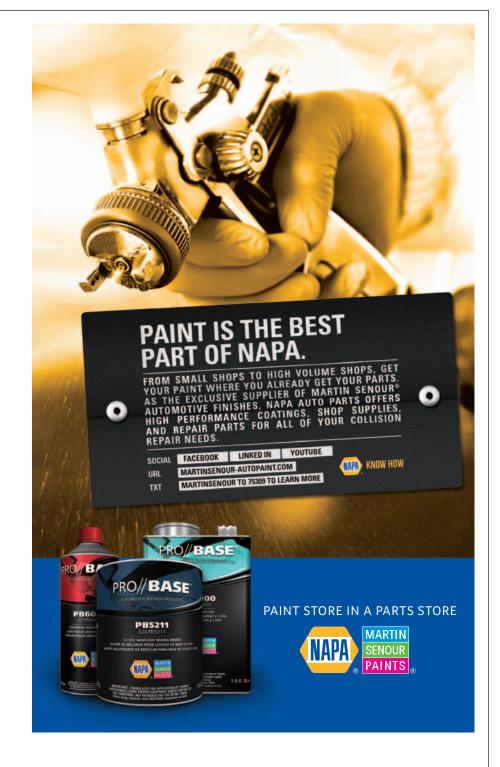


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rework and interruptions.

Proactivity creates predictable and dependable events in an otherwise very random work environment, which ensure that the vehicle moves through production in an unfettered, non-stop manner. When it's utilized on a broad scale, it can vastly improve output and quality consistency and contribute mightily to on-time customer delivery.

The opposite of being proactive, of course, is being reactive, which is common in the traditional collision repair model. That process relies on a concept that is very back-end loaded and anticipates work stoppage at many points along the way,



while relying on team members to deal with those issues as they occur. It forces shops to adopt a "put out fires" work mentality, which is counter-productive to what the shop ultimately is trying to accomplish. Simply put, if you pride yourself on being able to put out fires, then that means you expect fires downstream and your process will ultimately produce them.

The prep process

The vehicle preparation stage is the secret to pull production because it creates predictable and dependable events that facilitate a continuous flow production process downstream. This process commits any and all resources necessary upfront to investigate, disassemble, dissect and assess, notate and record information regarding parts and specialty materials, equipment and tooling, repair methodology, and refinish strategy, for the final repair plan.

If the investment is made to conduct this extensive "discovery" process upfront, then not only is downstream production predictable and the product is able to flow continuously, but the shop can calculate a complete and true cost of the repair much sooner in the process.

If the prep standards are met upfront, then the result is a complete repair kit that contains everything needed to put the vehicle into the production flow line and allows the team to work on that vehicle continuously until it's ready to be delivered back to the customer.

(Note: Using this process, the vehicle isn't assigned to an individual technician; it's assigned to the process.)

The production process

Properly preparing upstream and watching the vehicle flow effortlessly downstream is the crux of a processcentered collision repair environment. Now let's talk about how production can affect the flow of things.

If you really think about it, the production process is simply a series of tasks needed to move the vehicle through

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the repair sequence. Each step in that sequence needs to have a standard of what's expected in order to achieve 100 percent verified success at that particular task. Any time we knowingly allow a vehicle to proceed to the next step when it hasn't met the standard, we're at risk of putting a real strain on the workflow and we are, in essence, "pushing."

You can often identify these trouble spots through visual signals around the shop. Vehicles in defined repair spaces along the production flow that are not able to advance to the next space signal a back-up or bottleneck somewhere in the process downstream. Empty spaces signal a need to pull from an upstream operation. Technicians wandering around the shop signify something is missing or a defect is in the "kit."

To combat these events, process-centered shops conduct brief, regular team "huddles" throughout the shift to address issues and set the pace. Quality checkpoints and color-coded status boards are constantly monitored by the entire team to quickly respond to production stoppages. Control points verify that the task is complete and inspected prior to being delivered to the next step in the process downstream.

Ready inventory

The production process also relies heavily on "ready inventory" or inventory that already has its kit prepared for production and completion. In this process, the rate at which we produce those extensively prepared vehicle kits is a leading indicator of the capacity we will have to deliver.

It's like the bustling pits at a NASCAR race. There's a lot going on in the pits during the race, but when the word comes down that the refueling tank (ready inventory) in the pit is approaching empty, the only thing that matters is that the tank gets filled before the next pit when the race car will be asking for more fuel (i.e., cars to produce).

That's the definition of "ready inventory." If there is nothing ready coming from upstream, then the speed of the production line is virtually irrelevant because those holes will act like an empty refueling tank and only slow down or stop the operation.

Ready inventory also relies on data collection throughout the production process for feedback and to determine the defects within the process. For example, if the data shows that pinholes in the fill work are currently the most significant cause of delays and defects, then finding the root cause of the problem and correcting it will improve the process in a sustainable way.

Is it skill, will, product or training that is causing these defects? Brainstorm as

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a team and put actions in place to eliminate the issue and move on to the next most significant defect.

The importance of workforce

Studies show that in a typical shop environment, a technician touches the vehicle less than 40 percent of their day. What are they doing with the other 60 percent? Are they discussing issues with management, looking for parts, determining incorrect parts, waiting for someone to address a problem, waiting for a supplement approval or inspection, trying to locate missing tools or looking for fasteners? Any of these sound familiar?

Can we agree that if everything needed to repair the vehicle is gathered in the preparation phase of the process, then most of these "non-touch" issues will disappear? If you want to improve your shop's operation, just increase the touch time! (Easier said than done.) That involves changing the mindset of your workforce and creating teams as opposed to individual technicians. Teams that embrace the concept of complementary skills and the importance of being proactive and understand that the line needs to be in continuous flow, can effectively attain their true potential.

This requires team members who don't "own" any individual repair job, but work together — and in unison — to keep the process moving.

The point here is that your team members have to be versatile at every position on the shop floor and lend their expertise anywhere on the floor that demands it to achieve and maximize continuous flow. That requires lots of coordination with management, coaching, communication (verbal and non-verbal), training, a culture change and a general sense of how to respond to inventory.

By uniting your employees as a team

to work towards one common goal, you can eliminate a high degree of waste, and your labor effectiveness goes way up.

A process-centered environment is simple in concept, but requires an incredible amount of discipline. It's a drumbeat-like environment that is sustained by preparation, communication, checkpoints and strict quality controls. And it involves a well-trained team that shares the common belief that if one flawed product is pushed downstream, then the flow is jeopardized, the process starts to unravel and predictable and dependable events no longer occur. **M**

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FIGHTING THE TECHNICIAN SHORTAGE: PART II

Incentivize apprentices and mentors to encourage support of their efforts

In our introduction article last month on helping to overcome the technician shortage, we alluded to the roles of those involved in hiring, orienting, training, mentoring and leading the technicians and office staffs of the future. In this article, we will discuss some ways to provide incentives or rewards for them to encourage support of their efforts.

The importance of labor to collision repair

As you look at the target sales mix of 30 percent body, frame and mechanical labor and 20 percent paint and detail labor, then a full 50 percent of your shop's sales are labor.

If your target is 60 percent gross profit,

BY STEVE TRAPP // Contributing Editoro

then 30 percent of your total sales are for technician wages. Add to that, another 15 to 20 percent of your overhead costs for overhead-staff wages, taxes, benefits, training, providing databases and other employee-related costs. The total labor costs represent 50 percent or more of the total costs most repairers manage.

You must ask yourself this question: Are you investing 50 to 70 percent or more of your time finding ways to invest in people development, to optimize your technical and office labor resources?

The true cost of a new hire

Across almost every industry, experts will tell you the true cost of a new hire is 30 percent of the new hire's annual salary. Here are some estimates for our industry after surveying a few collision-industry HR leaders:

• 2 percent - Termination costs of the employee leaving — paying someone to finish jobs partially completed or any rework, unemployment, workers compensation claims, etc.

• 3 to 5 percent - Recruiting fees and other hiring costs

• 5 to 7 percent - Training costs and certification fees

• 15 percent - Lost productivity in the work area they are assigned (lost opportunity to fix more vehicles)

• 3 to 5 percent - Disruption to flow and the team dynamic

If a repair center pays that 30 percent

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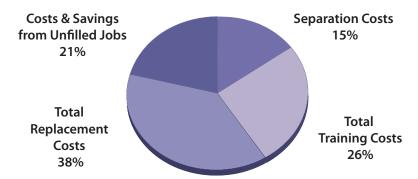
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Types of Incentives to Consider

Background or Level	Education	Financial	Vacation Earned Per Year	Other Incentives
Entry level 20 flat-rate hours per week	Work "X" weeks, go to specialty school for "X" weeks	Wage- per-hour adjustment	5 personal days	Basic tool box and starter tools (Earned after 90 days in role)
Demonstrate technical school grad / level 1 to 2 skills Produce 30 flat-rate hours per week	Pay for part of technical school loan or fees when they move up; \$X retention bonus	Wage- per-hour adjustment	5 days of vacation	Basic tool box with more advanced tools (Plus)
Demonstrate level 3 to 4 skills Produce 40 flat-rate hours per week	Pay for I-CAR training of up to X hours or classes; \$X retention bonus	Wage- per-hour adjustment once earned performance incentive	8 days of vacation	Air and other hand tools
Demonstrate level 5 to 6 skills Produce 50 flat-rate hours per week	Pay for I-CAR training of up to X hours or classes; \$X retention bonus	Wage- per-hour adjustment once earned; performance incentive	10 days of vacation	Other specialized tools; advanced tool box or help in paying off tool bill; mentor incentives
Demonstrate level 7 to 8 skills Produce 60 flat-rate hours per week	Pay for welding school and I-CAR Welding certification; \$X retention bonus	Wage- per-hour adjustment once earned; performance incentive	10 days paid vacation; 3 days sabbatical; reasonable expenses paid by company (every 3 years)	Specialized tools, mentor incentives; management training; help in paying off tool bill or cell phone allowance
Demonstrate level 8 to 12 skills Produce 65+ flat-rate hours per week	Pay for frame school and OE certification schooling; \$X retention bonus	Wage- per-hour adjustment once earned; performance incentive	15 days paid vacation; 3 days sabbatical; reasonable expenses paid by company (every 3 years)	Specialized schooling for Artisan Level acknowledgement; management training; help in paying off tool bill or cell phone allowance

Annual % of Direct Cost of Turnover



annual wage cost each time they lose someone, and they have 30 percent of their staff turnover annually, the true cost of turnover becomes quite high. Let's focus on investing in encouraging them to stay.

Options for investing in apprentices and mentors

The table to the left contains a menu of educational, financial, vacation and other options you may consider to attract new hires, to retain them and to reward the mentor.

What if they leave?

Hopefully, you are the employer of choice, have solid benefits and offer plenty of opportunity and reward for advancement. But it happens — people do leave. Sometimes all your efforts are not enough. They might need to switch jobs due to a spouse who has a new job, a conflict with a leader may occur or another shop may offer more money or advancement. It will happen; work to prevent it, but plan for it and keep developing people for growth.

The pay-off

With faster apprentice growth, technician efficiency grows, stall utilization is optimized for your entire repair center and you have happy employees willing to ask others to come join you on their team at their location or company, making recruiting that much easier.

Hopefully, this article has inspired you to review how you allocate your time and to focus your efforts to recruit and retain staff in the future. My next article will focus on the explanation of the levels within each role of the repair center. I'm looking forward to sharing more details in this series over the coming months.



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DO-IT-YOURSEL SED

You have the tools you need to keep your business front and center online

BY CAITLYN WILLIAMS // Contributing Editor

If you're like most shop owners, the idea of managing your own search engine optimization (SEO) might sound as appealing as a trip to the dentist's office. The discomfort often associated with SEO is understandable. Even those of us who are experts in the field can find SEO confusing and overwhelming.

That's why shop owners often choose to either ignore SEO or tap outside consultants to handle the task. While I'd much prefer to see shop owners seek help for SEO rather than simply dismiss the need for optimization, the truth is that most of you have the tools you need to keep your businesses front and center online. No one knows your shop like you do, and with some guidance, you can harness that information to build a very visible digital brand. My goal with this article is to give you the strategies you need to execute do-it-yourself SEO easily and effectively.

Before we discuss specific tactics, let's talk about why SEO is so important and worth your time. A 2012 Yelp survey found that 85 percent of consumers used the internet to find local businesses. More specifically, those consumers are looking for goods and services using search engines, online directories and review sites. To increase your visibility on those channels you need SEO.

Thankfully, there are a variety of ways to optimize your presence on those frequently visited stops on the information superhighway. Focusing your efforts locally, choosing keywords carefully, crafting compelling content and establishing strong external links all are great ways to stay in the spotlight.

We've all heard the phrase, "Think globally, act locally" in reference to a number of causes, including energy conservation. Well, the term also can be useful when considering your SEO strategy. While the aim of your business is always to be the best you can be on a large scale and to have the greatest impact, you should focus your efforts in your own backyard. Let your location guide all your SEO activities.

The first step is to think like your potential customers. A Chicago resident needing auto body repair would likely search for



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shops in their neighborhood rather than the city overall. Make sure your website reflects those types of consumer habits by including the specific areas you serve. It's also wise to list your business on as many local directories as possible — from Yelp and Google Maps to up-and-coming sites, such as Thumbtack, which allows users to search for services by zip code.

It's key to ensure that your name, address and phone number are listed the same way wherever your business appears. Even minor spelling errors or typos can make it difficult for new customers to find you. For example, let's say a repair shop's name has an ampersand in it (Martin & Sons Auto Body). If one directory has the ampersand written out as the word "and" or the apostrophe is added to the word "Sons" by mistake, the listing could get confused with other similar sounding businesses. It's also crucial to update your listings any time your name, location or phone number changes.

Staying on top of these listings can be a daunting task, but there are some ways to make the job a bit easier. Moz Local is a useful service that offers a free "check your listing" tool that can be accessed for free. The company also can perform updates and make changes for a minimal fee.

The goal of consistent and abundant listings is to drive customers to your website. Thus, you'll want your site to reflect the keywords that are relevant to your customers. As noted before, the "think globally, act locally" phrase should come into play. Have the neighborhood you serve featured prominently on your home page. Highlight the repairs that are most frequently requested by your customers. If there are certain models that are popular in your area, make it a point to emphasize your expertise repairing those vehicles by either including them on your home page or creating a landing page dedicated to those models.

Choosing keywords is a delicate balancing act. If you select keywords that are too broad, say the term "Toyota experts," then you'll probably find yourself competing with too many shops and may end up coming up short in the rankings. Some words are just too saturated and need to be tailored to your audience. Adding a neighborhood name to a key phrase (i.e. Wicker Park Toyota experts) often can help narrow the field and generate better results. On the other hand, picking words that are too obscure isn't wise because there may not be enough people searching for those terms. Keywords should be designed to attract people who want to make purchases rather than those just browsing for information in hopes of performing a repair at home.

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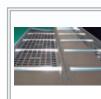
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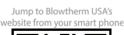
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One last word on keywords: Don't go overboard trying to fit key terms on your website. "Keyword stuffing" as that practice is commonly known, is no longer recommended because not only has Google gotten wise to the tactic, but it can also result in a stiff, robotic-sounding website. Again, Moz can be a great resource because it offers an "on-page grader" that will evaluate your individual pages to determine if the right keywords are used in the right places.

Another way to improve your SEO status is by developing unique content. Shop owners are often reluctant to commit to creating content because they fear it will take too much time. The trick is to avoid overthinking your content, whether it appears on social media, a blog or even in an email blast.

Use the various platforms where you communicate with customers to educate them about what you do. Tap your existing knowledge by sharing car care tips, safe driving advice or the latest automotive industry news. I also advise shop owners to use their content to reinforce the keywords they've chosen to target. If, for example, you hope to attract Subaru owners, keep potential customers updated on recalls and other issues unique to that brand.

Reviews are also a good source of content and help provide credibility for your business from unbiased sources. Always encourage your customers to review your business either at the time of service or via a follow-up email.

Finally, link building is emerging as a more important method of enhancing SEO. Link building is the process of increasing the number of external links that point back to your site. One of the best ways to acquire more links is to look at who your partners are in the community. Most shop owners have relationships with associations, coaches, chambers of commerce and local non-profits. In most cases, those organizations are happy to provide website listings of their members or sponsors. Always check to make sure the URL that an organization lists for your business works and sends visitors to the right place. Lost links can impact your search engine rankings.

Remember that all of these strategies are meant to work together. Unfortunately, there is no magic bullet that will automatically send your business to the top of the search rankings. But working steadily to implement the various approaches outlined in this article should increase your visibility and hopefully, your sales, too.



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Taking a step back

Succesful change is more likely if you've first built the right culture

he more you read my columns, the more often you'll notice I use the word "culture" when I talk about my business. Developing a successful culture has been my focus for a number of years. A good culture, I believe, is the basis for success in every element of your business — production, customer service, financial performance, etc.

That came to mind recently because my earlier columns about our employee pay plan led a number of shop owners to contact me, generally asking me for the spreadsheet of how our pay-plan works. They said they're eager to switch pay plans from flat-rate to hourly (or vice versa) or to go the team-pay route. (No matter what your payroll plan is, it seems, the grass always looks greener on the other side.)

My response has been that they likely have other steps to take before they even start to build a spreadsheet. A spreadsheet or pay plan is not going to solve problems such as an unmotivated work force or slow cycle times.

Don't get me wrong: The right pay plan can drive change and motivate employees to

perform. But if you don't start with the right culture in place one in which your employees trust you and each other — the change won't be successful. I've talked to a lot of shop owners who changed their pay plan but then ended up switching back because employees didn't trust the company enough to give the new plan time to play out.

Building that culture of trust is really the first step. Employees have to know that any change you make potentially will benefit them (as well as your company and customers), and that they can trust you to make things right if the change doesn't work out.

I highly recommend the book *The Speed of Trust* by Stephen Covey. It talks about how you can have all the right procedures and all the work in the world, but if employees don't trust management or each other, they and the business will always under-perform. If there's trust, things can move at an incredible speed.



IF YOU DON'T START WITH THE RIGHT CULTURE IN PLACE — ONE IN WHICH YOUR EMPLOYEES TRUST YOU AND EACH OTHER — THE CHANGE WON'T BE SUCCESSFUL. In a previous column, for example, I talked about how one of my managers (who also is a working technician) saw a new technician making notes about every flat-rate hour he turned. The manager told the technician he would stop doing that after a few weeks when he realized it was not necessary to cross-check what we paid him.

"I've been here 10 years and I've never been shorted once," the manager told him.

Just from that one example, think about how much more productive techs can be if they know they can trust you and don't have to spend time tracking all of that. They can concentrate on what they do best, rather than trying to figure out how they're going to get ripped off and protecting themselves from it.

That's the culture of trust you need to build to make a change in pay plans successful, but building trust takes time. Culture is a slow-moving ship; you can't change it overnight.

Part of what I've done to build trust is being an open-book. Almost anything any of my team wants to know about our business, I'll show them. There's very little I'll hold back, other than maybe

some of our contract negotiations or things along those lines.

You also have to be willing to admit mistakes and make things right. Years ago, we tried paying our disassembly/reassembly techs off just the labor hours for those processes. We quickly found that there's not enough time on repair orders for those specific processes to allow those guys to make a paycheck. So we had to backtrack and adjust, and I made it right by my technicians who had agreed to try it. They trusted me enough to give it a try, and I re-earned their trust by showing they will never suffer from my miscalculations.

In upcoming columns, I'll explain more about what I've done to try to build a positive culture at our company — and what I see as some of the benefits that have resulted. \mathbf{a}

RYAN CROPPER owns Able Body Shops, with two locations in Anchorage, Alaska, as well as Total Truck Accessory Center. Email Ryan at *RCropper@ablebodyshop.com*





Back to the basics

Core business concepts still have to be maintained and adjusted

In business ,we're always looking for the latest and the greatest, the newest thing to come along in hopes that it will create the change needed to take our business to the next level. We often forget that the basic business concepts we learned when starting our businesses still have to be maintained, audited and adjusted as needed. We forget that our employees still need supervision, still need direction and, most of all, need our encouragement and guidance.

- What has to be done?
- Whose responsibility is it?
- When does it have to be completed?
- How much will it cost?
- How much can I charge?
- Who will make sure it is done?

If we take these six questions and apply them to each process, task or operation that we work with in the collision repair industry, we can get a much better picture of how we are doing.

Customer service

We know the customer is coming into the store and they are greeted, but how effective is the greeting and does it "sell" the store? Is the customer getting the message that you want their business? The message is a collaboration of what you want, what the customer needs and what your employee is promising and delivering. Your employees are your first point of contact with your customer. How are they doing? Is that message getting delivered?

When getting back to the basics, are you observing their behavior? Do you listen to calls to see how they are presenting your store to the customer and how the customer is responding? Do you ask your customers how the service was? Do you complete performance reviews with your employees? If you don't provide feedback and they are doing something improperly or not to your standard, you've lost the opportunity to take corrective action and improve the process.

Estimating and repair planning

How often are you checking employees' estimating or repair plan quality? Do you listen to discussions between your estimator/blue printer and the customer, insurance adjuster and other employees? These conversations will tell you all about the task performer and their ability to communicate. This includes technical and non-technical information as well as the negotiating processes. Reviewing estimates and repair plans weekly will help identify unintentional mistakes. The frequency at which this occurs is almost always directly tied to the frequency of the estimate reviews. The less frequent the reviews, the more frequent the errors. The review process is a basic process of comparing the vehicle to what has been written to repair it. The negotiation process is a bit different. Preparation wins negotiations.

If an adjuster or insurance supervisor is coming in for a review, make sure that you are checking your estimator's documentation to be sure that it is complete. Do you review the information that is provided to a negotiation opponent before a negotiation takes place? All employees who will negotiate with non-employees must be unified in their decisions, which is a key success factor in keeping negotiations from going off track. If one employee finds information that is critical to decisions being made within the estimating or blue printing processes, it should be shared so that all employees have the benefit of that knowledge.

A united front makes things consistent and repeatable. Why is this important? If the information is used successfully, and a pattern of successes is shared, the chance of the information being challenged is reduced. Therefore, the ability to improve estimating accuracy is maintained.

Most importantly, we have a customer asking us to restore their vehicle back to its pre-loss condition. We have a responsibility to validate that the repair is done in accordance with specifications provided to maintain the overall integrity of the vehicle. Information gathering has become a routine part of this process. Helping negotiation "opponents" that are less technically skilled and that are questioning our repair methodology by providing them documentation is now an important part of our work.

Get back to basics and make sure that:

- The customer is serviced properly.
- Your employees identify everything that is required to put the vehicle back to the condition it was in prior to the loss.
- No one compromises on any steps that need to be performed.
- You review all the process steps.
- You and your employees make sure that you are returning customers' vehicles with only high-quality repairs.
- You create a simple audit tool.





Family focus

A Muscle Shoals trio of shops provides long-standing service for Alabama drivers

BY JAMES E. GUYETTE // Contributing Editor

Along with the Rolling Stones, Allman Brothers, Paul Simon, Bob Dylan and so many others, Aretha Franklin recorded some of her greatest hits in Muscle Shoals in Alabama. By showing respect to their customers and everyone else in the surrounding communities, brothers Johnny, Danny and Mark Simpson are drawing rave reviews at their trio of strong-performing body shops.

With locations in Florence, Sheffield and Killen, Ala., and a fourth shop currently in the planning stages with assistance from industry consultant David Luehr, "many of our customers have dealt with three generations of Simpsons starting with our grandfather, who was in mechanical repair dating back to the 1940s," reports Johnny Simpson, referring to a family philosophy of respectfully serving the automotive needs of their neighbors that began with the late John M. Simpson and his iconic Simpson's Service Garage in Muscle Shoals.

"Our granddaddy started in the automotive industry doing mechanical repair, then our father transitioned the business to auto body and glass," Johnny recalls. "We saw that it was a good business to be in. When we were growing u,p we always liked to be in that shop. We were sweeping floors and later putting in windshields. And if we did something wrong, they'd tell us about it."

Citing traditions carried forward with the body shop enterprise established by their father Gary in 1970 while he was still working as a control room operator at the Tennessee Valley Authority, Johnny points out that "customers realize that family, trust and quality are what our business is built on. Our extensive training, the quality of our work and our commitment to customer satisfaction have all been a huge factor in the success of our business."

Johnny, Danny and Mark are intent on passing on this legacy to their own respective children — a boy and six girls. "Daddy started out in the back room of Grandfather's shop, and I'm encouraging my daughters," says Johnny.

"We're building for the next generation." Sophie at age 10, for example, loves joining her dad, Johnny, at work and is already becoming observant of operational procedures. "You don't want to force them. You want them to make their own choices, but we would like to pass this along to them.

"One of the biggest things that has helped our business is the



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Mark, Danny and Johnny Simpson Owners 3 No. of shops	48 No. of employees 49,000 Total square footage of shops 16, 20, 24 No. of bays per shop	\$1,895 Average repair order 73 No. of customer vehicles per week combined	
46 Years in business	10 No. of DRPs	million Annual gross revenue combined	

fact that it is truly a family business," he adds. "Today, our father is retired but still likes to visit the shops any chance he can. He regularly asks about how we are doing and we have customers who ask about him as well."

Each brother manages individual locations. Johnny's I-CAR Gold Class 15,000-square-foot shop in Florence opened in 1992. Mark's similarly sized Killen shop has been in business since 2000, while Danny's 20,000-sq.foot Sheffield shop dates to 1981.

With towing capabilities ranging "from a Pinto to an 18-wheeler," Florence additionally serves as home base for Simpson's Wrecker Service under the able direction of firstcousin John Paul Heupel.





"He runs it like it's his own," says Johnny. "You really need to have a wrecker service. A lot of people don't realize the value – they think it's a headache for them. But it's worked very well for us." Under crash-scene duress, "most people need help at that stage; they need to know 'What do I do now?""

The benefits of making personal connections also apply when dealing with insurance providers. "We take donuts around to the local agents and reach out to them," he says, noting that support staffers can be especially helpful when positive relationships are maintained. "The secretaries are the ones that people see when they go in there."

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Though hesitant about making official recommendations, insurance personnel often observe to policyholders that they count on Simpson shops for work involving their own vehicles.

A collaborative atmosphere has proven to be an effective strategy regarding negotiations with the company's 10 direct repair program affiliations and other insurance carriers. "You want them to think, 'This shop is always willing to work with us," Johnny explains.

"We haven't had any problems with DRPs. You see shops that go up against the insurance companies, and then their volumes drop. We work with them. We strive to maintain good relations with all insurance providers. They know we can be trusted, provide quality repairs and the repairs will be completed in a timely manner."

Cycle times are a key focus of attention at Simpson shops. "You want to get the cars in quick and you want to get them out quick." Start-to-finish operational efficiencies are a top priority. "We try to minimize returns on parts by ordering correct the first time; we don't have cars sitting in the corner. The inspectors come in and go over our reports, and we always get good reports."

Besides Simpsons' DRP relationships, Johnny is quick to point out the increasing importance of OE certification for at-









tracting new business. "With the massive advances in technology, it is more important than ever to focus on obtaining the right equipment, training and certifications. We believe the relationships built through our OE certifications will be a huge part of our future and an important source of future referrals."

Handy publicity

The Simpsons have invested heavily in obtaining automaker certifications, including the Ford F-150, Fiat/Chrysler, Nissan and Hyundai. Honda's certification was pending at press time.

Significant advertising campaigns are conducted via billboards, newspapers, television and social media. "We spent a lot of money to get the certifications, so we need to let people know out there that we have them."

Johnny is a 1990 graduate of the University of North Alabama with degrees in accounting and finance. He is still involved with his alma mater and serves as president of the school's athletic booster club. The shops also sponsor the school's various athletic events, and the booster group has a high profile driven by the college's enhanced recruitment efforts and athletic teambased enthusiasm.

"That means more students - more kids having wrecks, and the coaches send us lots of work because I have gotten to know them. Women bring more cars in than men these days, and we keep clean facilities."

The company's fleet of consistently out-and-about tow trucks function as "rolling billboards," and they augment the Simpsons' sense of community service by being made available for assisting with worthy causes. One such event is the annual W.C. Handy Festival celebrating Handy's esteemed historic role as "the father of

the blues." Logoequipped flatbeds are front-andcenter as stages for the fabled Muscle Shoals fair's star-studded live music performances.





A chorus of word-of-mouth recommendations takes over when patrons bring vehicles into the bays and leave as satisfied customers. For 10 years in a row, Simpson Collision Repair has won "No. 1 Collision Repair Center" and "No. 1 Wrecker Service" honors bestowed by readers of the Times-Daily newspaper.

"It's great to see that we're on top of things like that," says Johnny. "It lets you know that you're taking care of people and



JAMES E. GUYETTE is a long-time contributing editor to ABRN, Aftermarket Business World and MotorAge magazines. JimGuyette2004@yahoo.com



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Be a positive game changer

TAKE OWNERSHIP OF RESPONSBILITIES TO LEAD YOUR TEAM TO SUCCESS

BY MIKE JONES // Contributing Editor

submit that no matter who you are, YOU are a game changer. With every choice you make, you are affecting every aspect of every relationship you are in, both professionally and personally.

The positive game changer is always asking, "What am I committed to do to have this turn out as a win/win?" They accept personal responsibility for how things are going and they hold themselves accountable to continually change their approach to get to a positive outcome.

A positive game changer takes ownership of their responsibilities and the initiative to make things happen. They connect what needs to be done with why it is important to them, the team, the organization and other key stakeholders. This level of personal responsibility sparks initiative and opens the door that once appeared closed.

Positive game changers recognize that accountability is not a bad word. They recognize that it is not negative and that accountability is the only way to play at a high-performing level.

So, I now submit my top seven

statements a positive game changer NEVER says:

1. "There's nothing I can do about it."

Positive game changers initiate action by recognizing the wide array of strengths that are at their disposal. Research suggests that the average person only realizes 10 percent of the potential available to them professionally or personally.

2. "I am the victim."

Positive game changers take ownership. They realize that there are victims and volunteers. The positive game changer volunteers to accept personal responsibility for whatever is going on. They don't ask, "Why me?" Instead, they ask, "What will I do to get to the outcome?"

3. "It's not my fault."

Whether the Positive Game Changer's actions caused the problem or not, they focus on finding a positive solution, rather than looking for someone to blame. The positive game changer sees the bigger picture in terms of what needs to be done to get to a positive outcome. If the initial approach doesn't work, they change their approach so that they change their results.

4. "It's not my job."

Positive game changers are fully committed to the team's success — whether the team is their department, the team atlarge, the entire company or their family. This team-focused mindset destroys the silo mentality that often has departments working toward conflicting purposes and "RIGHT" fighting.

5. "If I only had more time."

In today's fast-paced 24/7 business environment, there are constant demands that stretch us thin. However, ositive game changers use their time wisely, understanding that we all have the same amount of time available to us. How we use it determines our level of success.

6. "He should be held accountable."

Accountability cannot be demanded or imposed. If it is, I refer to it as blame. When we mandate behaviors, we may get compliance; however, we may also get defiance or disengagement. True and sustainable accountability is personal; it begins with gaining agreement from others.

7. "They need to change."

Positive game changers recognize that they can't change others; however, they can engage others by honoring who they are and what they care about. This can be done authentically with a foundational understanding of yourself. In other words, positive game changers say, "Change begins with me and the actions I take to create positive outcomes."



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DOOR DAMAGE

Despite all the upgrades made to doors in recent years, automakers rarely sing their praises. It's time to pay doors their due. This article takes a look at the most updated repair instructions for some of the most common door damage issues, including skin and glass replacement and scratch repairs. Click here to continue reading. **Go** to this link to continue reading: ABRN.com/DoorDamage

UNDERSTANDING OPT-OE PARTS

Using quality and reliable parts during repairs in your shop is vital to help reduce comebacks and ensure not only customer satisfaction, but also their safety. So it is important to understand where the parts you are using truly come from and what your responsibility is to the consumer when you decide which parts to buy. Rick Leos, collision program developer in the marketing division of Toyota, discusses the Opt-OE term, your liability as a shop, and how you can determine if a part is in fact a "genuine" Opt-OE part or not. *View the video here: ABRN.com/OptOE*

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tions are needed to be successful in meeting these challenges is old news, yet many shops still ship off these money-making opportunities to their local dealer rather than take the plunge themselves. In this edition of the Trainer, we'll show you what it takes to enter this arena and add a very profitable source of revenue to your shop, with a little help from our friends at Drew Technologies. *Watch the episode of The Trainer here: ABRN.com/ReprogrammingTrainer*

WELCOME TO THE AUTOPRO NETWORK

This summer, we relaunched the AutoPro Network, a SearchAutoparts.com community for automotive professionals. In this how-to video, Technical Editor and Director of Training Pete Meier introduces the AutoPro Network and offers helpful tips on how to use it. **See Pete Meier's video** *here: ABRN.com/APNvideo*

WORKING WITH TOYOTA'S HSS & UHSS

Automobile manufacturing continues to advance when it comes to weight savings. The materials used are lighter and sturdier than ever before. It is common to find UHSS (Ultra High Strength Steel) where previous models used HSS (High Strength Steel). The use of UHSS continues to grow and so do expectations for quality. *Read more here: ABRN.com/ToyotaUHSS*

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NOVEMBER 1-4

SEMA 2016; Las Vegas Convention Center Las Vegas, Nevada

NOVEMBER 1-2

Collision Industry Council meeting; Westgate Las Vegas Resort & Casino Las Vegas, Nevada

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Automechanicka Chicago – LIVE Training Event; Joliet Junior College Joliet. Illinois



Profit from plastic repair with Polyvance products and training

lastics have been used for decades in automobiles, but the collision industry really took notice in the 1970s when the first polyurethane bumper covers came out. Jim Sparks, founded Urethane Supply Company (now Polyvance) in 1981 expressly to supply the specialty products required for the repair of polyurethane bumper covers.

Since that time, Polyvance has stayed at the forefront of plastic repair and refinishing with its constant and exclusive focus in this specialty area. The use of plastics has exploded in recent years as the OEMs seek lower weight and cost reductions enabled by the use of plastic materials.

Plastics are especially prevalent in many non-structural components used on the front end of a car and under the hood — bumper fascia, headlight housings, engine closure panels, overflow bottles, washer bottles, core supports, underbody fairings, inner fender liners, air boxes, fuse boxes, and so on. Many of these damaged plastics present an excellent opportunity for collision shops to maximize gross profit by repairing rather than replacing them.

The key to unlocking these higher gross profit repair vs. replace opportunities is the proper product and training on how to use them. Polyvance offers both nitrogen plastic welders and two different training courses on how to use them.

Nitrogen plastic welders

Nitrogen plastic welding is the fastest, strongest, and most versatile way to repair thermoplastic materials today. Polyvance pioneered the nitrogen plas-



tic welding technique to the collision industry in 2006. Currently, it is offering its fourth-generation nitrogen plastic welder, the 6059-C. It now offers a version that creates its own nitrogen gas from the shop's compressed air, the 6066-CG Nitrocell Nitrogen Welding System. It is also distributing the 6071 Bumpersmith 2.0, a unique nitrogen welder combined with a bumper repair workstation.

In addition to the welders, Polyvance is also the producer of the world's largest variety of specialty plastic welding rod. Polyvance offers 14 different plastic varieties in eight different profiles and six different colors. However, for collision repairers, polypropylene is the most commonly used material, especially for bumper fascia and headlight housings.

Plastic welding training

Polyvance's most popular plastic welding course is its PR-01 "Intro to Nitrogen Plastic Welding", an I-CAR* Industry Training Alliance^{*}-approved course that is provided in the body shop by factorytrained instructors. Up to three technicians may be trained in each three-hour training session at a cost of \$400. Each technician will get hands-on experience with five essential techniques in the repair of plastic bumpers using the nitrogen plastic welder. Three I-CAR credits may be redeemed upon completion of the course by paying I-CAR \$57 per person. The PR-01 course is ideal for shops wanting to maximize their return on the investment in the nitrogen plastic welder.

For those shops wanting to further raise the level of their plastic repair skills, Polyvance's PR-02 "Complete Course of Plastic Repair" is offered on a quarterly basis at the company's Rainsville, Alabama factory. This two-day course covers everything from beginning to end for plastic repair - removing dents in bumpers, nitrogen plastic welding, polyurethane repair (the "yellow plastic"), headlight tab repair, filler, refinishing, and retexturing. This course provides a solid foundation for the collision repair technician in the specialty techniques involved with plastic repair. And because the training is done at Polyvance's factory, the students can escape the daily distractions of the shop and focus completely on learning the techniques. This course is \$400 per student.

Contact the training manager at Polyvance at 800-633-3047 to register for any of the company's training courses. Information can also be found at www. polyvance.com/Plastic-Repair-Training.





Company





WHAT IS YOUR WELD TELLING YOU?

LISTENING AND LEARNING FROM IT CAN MAKE YOU BETTER AT THE SKILL

JEFF COPPES // Contributing Editor

s materials used in new vehicle construction keep advancing, welding equipment and repair techniques must also evolve. For example, how many of us had heard of ER5554 aluminum wire until Ford rolled out the new F-150? Or thought of MIG brazing for structural repairs like Honda specifies in certain situations for their 1500 MPa parts? Or really understood the difference of Pulse MIG welding?

You may be thinking that aluminum and silicon bronze MIG welding aren't new; they've been around for decades. So why are they suddenly drawing so much attention? First, advanced materials have become more prevalent. Now being used in higher volume vehicles, everyone will likely come in contact with them at some point. Second, a shift in use from primarily cosmetic to structural applications means proper repair procedures are now critical. Finally, because just like the equipment, the technician also must be willing to adapt.

MIG/MAG welding in general requires much more skill than spot welding because of the human factor. The angle of the torch, how quickly and in which direction you move your hand, the distance from the work piece, temperature, weld settings, speed movement, etc. all affect the weld. Standard MAG welding



PRACTICE IS THE KEY to perfecting your technique.

of mild steel is pretty forgiving where the newer materials are not. The technique required is quite different and the "this is the way I've always done it" attitude is not going to work.

Watching a skilled welder is like observing an artist or a professional golfer. The process appears effortless and under complete control. Generally that ease comes from lots of practice. For the rest of us, who are not welding regularly, it can be a frustrating struggle when results are not as expected. You start thinking, "Is the problem the machine, did I set something wrong, is this wire bad, or the gas? Is it me? What am I doing differently?" With so many variables, it can be difficult to identify how to begin troubleshooting a problem. Watching the arc and listening to the sound may give some ideas, but the process is so quick that it is difficult. Examining the completed weld is an excellent indication of what is happening and where to begin.

In MIG/MAG welding, the wire speed, current, and voltage all work together with the shielding gas to create the perfect weld conditions. Inspecting the weld results, we are looking for

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indications of which of the key elements of the weld are off. As we know, they are interrelated, so there is some crossover. However, typically one symptom will be more pronounced.

For every symptom there are a number of factors that could cause that result. Those factors can be thought of as falling into one of four areas:

- Technique
- Settings and Software
- Consumables and Wire Feed System
- Welding Machine.

This is the order in which the problems typically occur. Troubleshooting them this way puts the focus on the most common faults first, which also are the ones easiest to control. For the sake of this exercise, we will focus on synergic welders and primarily aluminum weld faults.

Let's first consider GAS FLOW. Shielding gas performs a number of functions critical to the weld. It protects the weld





EXAMPLE WELDING CURRENT SYMPTOMS: Amperage Too Low (left), Amperage Too High (right).

pool from contamination. It also supports and stabilizes the arc, acting as a gaseous conductor. And, it helps control the weld bead appearance. If the shielding gas is too low or completely missing, the weld is very sooty, often embedded in the bead. The welding equipment appears to be running very hot and resembles a plasma cutter rather than a welder. Porosity in the weld is another indication of low gas. On the other end of the spectrum, too much gas causes a rough surface of the bead, particularly around the edges. The excessive flow results in turbulence at the end of the gas nozzle sucking air into the envelope.

SYMPTOM: "GAS FLOW LOW"

Following are factor - cause.

Technique – Torch angle is not steep enough, approximately an 80° angle

• The gas is not pushing into the area to be welded

• Torch is too far away from the work piece (torch standoff)



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• Fans or a draft stealing the gas

Software / Settings – Improper gas flow setting, 25 CFH (12 l/min) is typical for 1.2mm ER5554

Consumables / **Wire Feed System** – Blocked gas nozzle

• Bad gas flow regulator, use a Flow Tester to check accuracy at the nozzle

• Empty gas bottle.

Welding Machine –Defective air solenoid valve

• Damaged torch assembly

Another key component of a proper weld is the WELDING CURRENT. Standard controls include separate wire feed speed and power settings where on syn-



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Visit a store, give us a call, learn more or share ideas: 800-798-5872 | sherwin-automotive.com © 2015 The Sherwin-Williams Company NASCARP Inc., is aregistered framework of the National Association for Stock Car Auto Racing Inc. ergic machines those parameters are set together. While the parameters are built into the unit, there is still the potential for error that affects that ratio. It could be something dragging on the wire affecting the wire speed or the aluminum not cleaned properly driving up the resistance. The result is the balance is off and the welder is described as running "too hot" or "the wire speed needs turned down".

When at the extreme, too much or too little current yield identifiable results. Too cold and the bead is sitting on top of the work piece with little or no penetration. Too hot and it is probably burning through. As you move towards the middle, you may need to examine the weld bead closer. If the current is too low and wire speed too high, the result-





EXAMPLE SHIELDING GAS SYMPTOMS: No Gas Flow (top), Gas Flow Too Low (middle), Gas Flow Too High (bottom).



ing weld bead is taller with steeper edges. When the current is too high and the wire speed is too low, the bead is flatter or concave. When working with steel, current too high shows up as undercutting and too low as overlapping. Aluminum is far more heat-sensitive, so typical penetration is only about one third the material thickness. This appears as a heat ripple. On aluminum, the most obvious sign of too much heat is burn through to the back of the piece.

SYMPTOM: "WELDING CURRENT HOT"

Following are factor - cause.

Technique – Travel speed is too slow for the setting

Work piece dirty or oxide layer not cleaned properly

Software / Settings – Incorrect starting settings

• Wrong weld program for the wire, ER4043 welds very differently than ER5356 and requires different settings

Consumables / **Wire Feed System** – Spatter in the contact tip creating drag on the wire

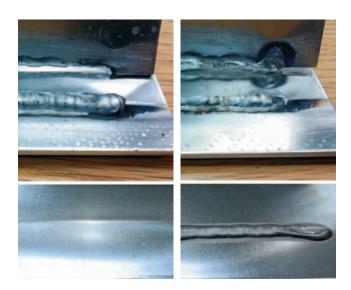
• Dust build-up in the wire liner restricting wire movement Welding Machine – Defective Power Supply

VOLTAGE is another parameter that contributes toward a proper weld. On synergic welders, the starting voltage is set along with the other parameters. All units provide a means of

adjusting the voltage separately, at least to a certain degree. This changes the arc length or the distance from the end of the wire to the work piece. As voltage goes up, the arc lengthens, the bead gets wider, and penetration reduces. As the voltage is turned down, the arc shortens, the bead narrows, and the penetration deepens. This is very use-



EXAMPLE VOLTAGE SYMPTOMS: Voltage Too Low (top) and Voltage Too High (bottom).



TYPICAL ALUMINUM PENETRATION and good tear out around the weld bead (left), and too much penetration resulting in a failed destruction test (right)

ful when working with thinner materials or when challenged by difficult welding positions. A shorter arc often works better on overhead welds.



If the voltage is too far off it will show up in the weld bead appearance and ultimately in the weld penetration. When voltage is too high, the bead flattens out and loses texture. The wire may begin burning back into the contact tip. When the voltage is too low, the arc becomes too short. The droplet doesn't have time to burn off before it contacts the weld pool causing more spatter than usual for Pulse welding. The weld shows a lot of texture, like someone stirred half dry cement.

SYMPTOM: "VOLTAGE SET INCORRECTLY"

Following are factor - cause.



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Technique – Weld position requires an arc length adjustment

Software / Settings – Incorrect settings

Most voltage problems on synergic welders tend to be problems with settings. More severe voltage problems show up with other symptoms.



VISUALLY INSPECTING the weld results.

These are just a few of the symptoms that may occur and some possible causes. By no means is this meant to be a complete list. The intent is to help you think about the process and where to start troubleshooting. As you can see, when you examine your welding results your weld tells you a lot!

Many factors contribute toward a successful weld, not the least of which is your own skill. If you have not played golf in yearzs you are probably going to head out to the driving range before you play a tournament. Why would we start welding a vehicle without even a few practice passes? Remember that aluminum welding takes about 40 to 50 hours to learn and two to three hours of practice each week to keep yourself in the right skill set. Make the investment in perfecting your skill just like you invest in the equipment. So keep your hips square, tuck that elbow, leading arm straight and practice. Your "perfect swing" is out there. ■



JEFF COPPES,

Car-O-Liner Joining & Welding, has focused on welding and joining systems for the past 10 years. *jcoppes@car-o-liner.com*

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VANESSA ATTWELL // Contributing Editor

dvanced vehicle safety systems used to be found pretty much only on expensive, higherend vehicles, but that's no longer the case. Systems that can prevent or mitigate crashes and compensate for occasional driving errors seem to be very common now, even on less expensive units from most vehicle manufacturers. And while it's great that safety is no longer an expensive luxury, advanced safety systems can easily be affected or even damaged by well-meaning technicians, which is not good news at all, and can easily be prevented. For the most part the systems consist of computer-controlled inputs and outputs and there's not much maintenance or service required to keep them operating well.

Lane departure warning, assist systems

One of the most common advanced safety systems used is the Lane Departure Warning system that tells drivers they're wandering too far out of the marked lanes, very much like "rumble strips" or rough pavement along the edges of the road are intended to do. This electronic version, however, sounds an alarm (typically a buzzer / light combination) and sometimes even vibrates the steering wheel or seat to let the driver know that the vehicle is wandering too far out of the acceptable zone and that they should take corrective action immediately.

These "passive" warning systems use lane markings as the basis for their calculations. While these systems can be useful, manufacturers are quick to point out that the systems are only as good as the road markings. The systems can often malfunction when the markings aren't clear and in the rain and snow, which can be very frustrating.

Many vehicles seem to have auto-correcting Lane Keep Assist systems as well, which take Lane Departure Warning systems a step further by actively correcting the vehicle's direction when it wanders too far out of the traffic lane rather than just passively alerting the driver to the problem. These "active" systems also typically use lane markings for reference (though a few systems do use the road edge to judge road position instead of lane markers so, again, it's critical to consult service information for the exact vehicle involved to understand the systems used).



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Additionally, the control module decides when corrective actions are needed and acts accordingly using the steering or braking systems. Even though corrections are made without driver input, the computer's corrections can typically be overridden by the driver using the normal steering controls. The system can be completely disabled if desired.

As with Lane Departure Warning systems, the Lane Keep Assist systems aren't foolproof either. The systems can be adversely affected by reflections from road debris or large shiny objects or trucks that reflect into the camera, so the driver (or technician test driving the vehicle) still needs to be vigilant and maintain control.

Even though systems vary among manufacturers, most vehicles use a camera located in the base of the rear view mirror at the top center of the windshield. Since light travels back and forth through the windshield to the camera, using non-OE quality replacement glass has been known to adversely affect the system's operation, as have dark tints and even just general grime on the windshield. In fact, anything in the path of the camera can adversely affect system operation, so it's important to be careful when working in that area.

Also, if the system vibrates the seat to alert the driver to problems, keep in mind that the vibrating motors inside the seat use wiring harnesses, which may crack or break if abused — broken or crushed harnesses have been known to happen in certain light-duty trucks. Thus, you need to be particularly careful about throwing anything onto or under the driver's seat the harnesses may not like the extra stress.

Collision Avoidance Systems

Another safety feature that used to

only appear on higher-end vehicles but is fairly common now is the Collision Avoidance System that warns drivers of impending front-end collisions so that they can take evasive action — or in some cases brake or steer the vehicle without any input from the driver at all.

Always consult the owner's manual and service information for the details on how a specific system operates and the software and components used. At a very general level the systems are similar to lane departure warning systems — instead of watching lane markings these systems scan for other vehicles (though not so much small vehicles and motorcycles) and in some cases also scan for pedestrians. Some of the advanced systems scan for large animals by the side of the road at night.

Depending on the location of the damage you are repairing, the system probably

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will go unnoticed (especially if you're careful on the test drive). But there are still a few important things to keep in mind to ensure that repair goes smoothly.

For example, be aware that changing anything that affects ride height, braking, steering or lighting can also affect Collision Avoidance System operation. Always consult service information to be sure. To be safe, tire pressures and sizes should always follow manufacturer recommendations and shouldn't vary from side to side.

Also, it's important to be mindful of doing anything to the brake switch circuit on certain systems since this critical input may be monitored to determine if the driver is trying to stop the vehicle and avoid any impending collisions. Consult service information before proceeding.

And finally, ensure that the base braking system doesn't bind or pull, and always use high-quality replacement parts to avoid introducing problems into the system. Again, the automated system is only as good as the mechanical components it controls.

Adaptive Cruise Control

Usually vehicles with Collision Avoidance will also have Adaptive Cruise Control, which is easy to work around with a bit of knowledge.

Active Cruise Control systems typically use radar or a laser-based system to maintain a set distance between the vehicle and the vehicle ahead, which is useful in heavy traffic but still not perfect. Thus, drivers (and technicians on road tests) still need to be vigilant and monitor traffic and road conditions and be ready for surprises.

And as with other advanced safety systems, there are definitely a few things to keep in mind to prevent causing problems in the Adaptive Cruise Control system during routine service.

First, it's worth pointing out that Lexus' service information cautions that exposure to radio frequency emissions (like those used by certain radar systems) is hazardous to your health and



EVEN GENERAL GRIME ON THE WINDSHIELD like this can affect system operation.

therefore warns techs that it's "...hazardous to be within 20 cm (7.9 in.) of the device's radio frequency aperture." Good to know indeed.

Also, any wheel and suspension modifications, including mounting a temporary spare tire or different sized tire can affect system operation. And, as with Collision Avoidance Systems, brake problems such as grabbing or pulling can affect this system operation as well, so it's important to ensure that brake components operate smoothly, without any grabbing or binding.

Additionally, be careful that any components removed are reinstalled securely. Loose mounts, especially at the front of the vehicle, are a common cause of problems that can easily be prevented. Components in this system may also need to be calibrated when they're removed and reinstalled — check service information as well as tech tips and bulletins to be sure before removing anything.

Finally, after repairing vehicles with these sensitive systems, it's wise to park them out of direct sunlight if possible, since extreme heat has been known to adversely affect operation.

Blind Spot Monitoring

Blind Spot Monitoring systems are also widely used now. These systems act like

an electronic "shoulder check" to alert the driver to objects in the vehicle's blind spots and will sound an alarm if a problem is detected. There's usually an icon on both the mirror and driver information center that illuminates when the system activates.

Typically the system relies on a small sensor on the underside of each side mirror for information. The driver is able to disable the system using a simple switch (or similar), which happens surprisingly frequently since they're also prone to annoying false activations.

Fortunately, these systems aren't hard to work around, other than being careful not to damage the mirrors or get the sensor dirty. And when repairing mirror damage, again, it's important to refer to the manufacturer's information. But just as with lane keep assist and lane departure warning systems, rain and snow adversely affect operation, as do reflections from shiny objects on the road that reflect into the sensor.

Surrounding view cameras

Although cameras that show objects near the vehicle that may not be readily visible are not new technology, they are being used on a wider range of vehicles. That means it's important to be aware of them so that problems aren't created

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Booth #55



SAFTEY SYSTEMS



SENSORS FOR BLIND SPOT DETECTION SYSTEMS typically are located on the bottom of the side mirrors.

during routine service procedures. These are the systems that use cameras at different places along the vehicle to alert drivers to things very close to the vehicle that may not be noticed, which is useful in driveways and parking lots.

From experience, the systems do tend to be relatively straightforward and won't need to be calibrated - even after battery replacement - but always check service information for the specific vehicle and be sure before you disassemble anything to prevent surprises from happening.

That being said, it's still important to be aware of where any cameras on a vehicle are located and be sure not to install options that block them, especially on work trucks. Transferring optional equipment to a new vehicle from the old one may not be as straightforward as it once was.

Additionally, it's important to be aware of cameras mounted in the front grill since they can be damaged while repairing bumper or grille damage. The camera may need to be removed to access the components behind it or when replacing parts. Again, refer to manufacturer's recommendations. Bumpers may be resilient and bounce back, but the components behind them may end up damaged or loosened as a result.

VANESSA ATTWELL is a Master Technician for two major manufacturers and has also worked on the bench of an independent shop. She has developed and delivered training for both vehicle manufacturers and independents, and helped develop government training and regulations standards.



DISPELLING MYTHS ABOUT AIR BAGS

A LITTLE FACT AND FICTION ABOUT THE 'BLACK BOXES' ON TODAY'S VEHICLES

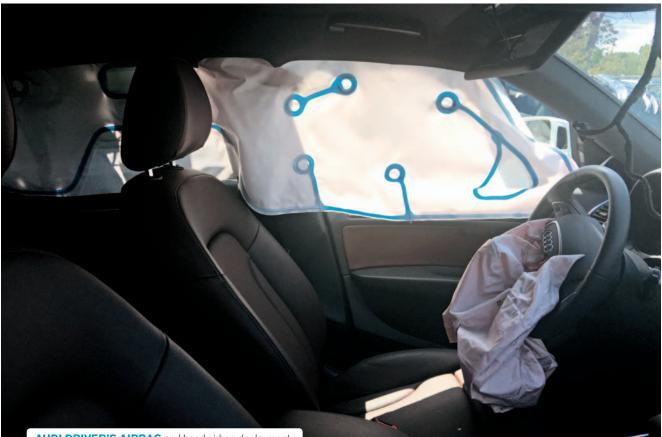
LARRY MONTANEZ III // Technical Advisor

Jeff Lange, PE contributed to this article.

ig brother is watching! Is our privacy is at risk? Who owns the rights to the information stored in the vehicle? These are good comments and questions, but we are not politicians, lawmakers or judges who can address them.

But what we can answer — or should we say dispel — are the myths about "black boxes." We have all heard the term "black

box" recorder, and we usually associated the term with airplanes, more specifically airplane crashes. Officially, that black box is known as a flight data recorder (FDR), and contrary to its name, it is in fact not black but coated in a heat resistant bright orange paint to make it highly visible after a collision event. The device collects information from the plane and records all incoming and outgoing communications from the time of taxiing, during the flight and up to the actual crash. This allows aviation authorities to determine what happened during that flight or,



AUDI DRIVER'S AIRBAG and head airbag deployment

more importantly, what went wrong during an in-air mishap.

Similar devices have been utilized by vehicle engineers during crash testing for about two decades and serve a similar purpose. They record what was happening to the vehicle during the crash test, or more specifically it records the vehicle speed, airbag deployment, airbag deployment speed, seat belt usage, gear, occupant position, crash dummy sustained injuries and almost anything else the engineers need to study. These devices eventually went from testing modules, generally accelerometers, to in-vehicle equipment.

Vehicle-based electronic data recorders (EDRs) are designed to give automakers feedback on how and when airbags deploy, in order to improve the technology, make vehicles safer and essentially lessen occupant injuries in real life crash events. EDR data were instrumental, for example, in development of the dual-stage or "smart" airbag systems installed in today's vehicles. Smart systems determine which component deploys, if any, based on the severity of a collision, vehicle speed, vehicle deceleration, longitudinal and lateral deceleration, occupant position, occupant weight and seat belt usage. These smart airbag systems help reduce the number of airbag-related injuries and deaths to adults and children.

EDR data can be used to track manufacturing defects and



BMW DEPLOYED head airbag and driver's air bag

issue recalls. For example, the data provided by EDRs proved to be critical data during the federal investigation into the unintended-acceleration controversy that affected primarily Toyota vehicles. NASA found only one case that could be attributed to Wide Open Throttle (WOT).

In almost every case, black box technology EDRs have had an overall positive effect on automotive safety and may become





become mandatory on all new vehicles sold in the U.S. Vehicles now equipped with EDRs already have mandated guidelines on recording under the Federal Motor Vehicle Safety Standards (starting in September 2012 for the 2013 model year as per FMVSS Title 49 CFR Part 563). But as with any government regulation/rule/law, not everyone is in favor of EDRs in vehicles.

Not surprisingly, some consumer and privacy advocates point out that they aren't only used to improve safety, but also help automakers cover their, well, you know what. This, in fact, might be true. The data provided by the EDRs may show evidence to prove the supposed airbag malfunctions or sudden unintended acceleration cannot be supported and the root cause was an improper repair or operator error. What is wrong with the truth?

I have read articles by those who worry that EDRs can and will be used to track drivers' every movement — wherever, whenever. They have mentioned the issues with the federal and state governments being able to track where, when and how fast you are going 24/7, every day of the year.

Over the past few years, some criminals have been caught by big brother watching technology. Many of those criminals were caught by surveillance cameras or by EZ Pass. Yes, some criminals stole a car and used the vehicle's EZ Pass to pay for tolls. Can I tell you right now today that EDRs will not become



BMW DEPLOYED head airbag

a big brother device? No, but we feel it will not happen, as there are laws against spying on U.S. citizens. We know what you are thinking: What about Progressive's Snapshot or OnSTAR service, that keeps an eye on you? Yes, it does and it is the owner's choice to install the device or pay for the service. But EDRs do not record the same information that the Snapshot device or OnStar service does.



There is a lot of apprehension about mandating that every car have an EDR black box device. The idea behind mandating black box data recorders is to gather information that can help investigators determine the causes of accidents and lead to safer vehicles. But privacy advocates say government regulators and automakers are spreading an intrusive technology without first putting in place policies to prevent misuse of the information collected. Data collected by the recorders is increasingly showing up in lawsuits, criminal cases and high-profile accidents. For example, Massachusetts Lt. Gov. Timothy Murray

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info@car-o-liner.com 844-833-9419 initially said that he wasn't speeding and that he was wearing his seat belt when he crashed a government-owned car last year. But the Ford Crown Victoria's data recorder told a different story: It showed the car was traveling more than 100 mph and Murray wasn't belted in. In 2007, then-New Jersey Gov. Jon Corzine was seriously injured in the crash of an SUV driven by a state trooper. Corzine was a passenger. The SUV's recorder showed the vehicle was traveling 91 mph on a parkway where the speed limit was 65 mph, and Corzine didn't have his seat belt on.

The recording and sharing of personal information has become a touchy topic in our increasingly connected world. Let's look at some of the issues and separate fact from fiction.

1. EDRs are required on all cars.

Fiction. As mentioned above, not yet, but almost all of the OEMs are in compliance with Title 49 CFR Part 563. For OEMs that claim they do not use EDR black box technology, there is a proposed Senate rule pending that would require EDRs in all vehicles. The new law, if passed, would take out the option and require all car manufacturers to install EDRs.

2. Automakers have to declare the presence of an EDR.

Fact. Since 2006, NHTSA has stipulated that automakers that include the device in a vehicle have to disclose to consumers that an EDR is on board. The information generally is found in the owner's manual, which nobody reads, but it is there. NHTSA also mandated that vehicles manufactured after Sept. 1, 2011, that include EDR devices must record data in a standardized format.

3. An EDR constantly records your driving habits.

Fiction. Unlike a FRD, an EDR just records certain information about the vehicle operation (see page 59 for a general list) and that information is recorded only for a maximum of few seconds. An automotive EDR captures information only if the vehicle senses and detects a crash is

AIR BAGS TEC

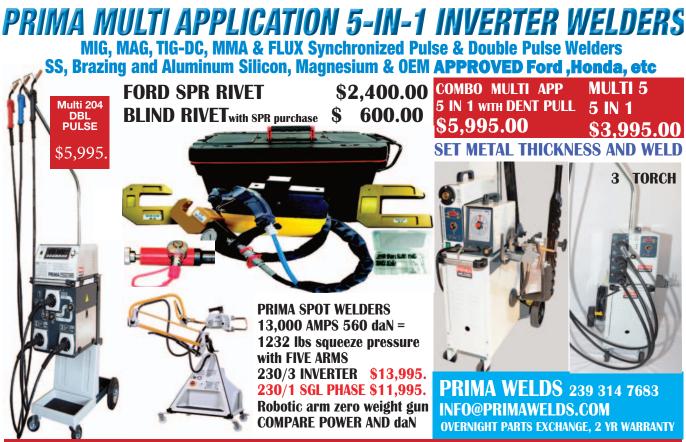
The algorithm that sets off the capturing of EDR data can be triggered without deploying an airbag. On the EDR report of data there is generally a line that states "Events Recovered" and next to that it will state either Deployment Event or Nondeployment Event. Deployment events, obviously deployed an airbag component, such as an airbag, seat belt pretensioner or some combination. A non-deployment event records the same information a deployment event would but there was no airbag system component deployment.

4. Black boxes can assist in insurance fraud investigations.

Fact and fiction. This also would depend on if the EDR recorded a non-deployment event. This can be as simple as a parked and unoccupied collision event vs was the vehicle moving to a multiple vehicle incident and who could have caused the event.

But what can EDRs actually record? Here is a general list of what the current EDRs record and eventually they will be required to record the same information, although they may record more than what is required.

- Change in forward crash speed
- Maximum change in forward crash speed
- Time from beginning of crash at which the maximum change in forward crash speed occurs
- Speed vehicle was traveling
- Percentage of engine throttle, percentage full (how far the accelerator pedal was pressed)
- Whether or not brake was applied
- Ignition cycle (number of power cycles applied to the EDR) at the time of the crash
- Ignition cycle (number of power cycles applied to the EDR) when the EDR data were downloaded
- Whether or not driver was using safety belt
- Whether or not frontal airbag warning lamp was on
- Driver frontal airbag deployment: time to deploy for a single stage airbag, or time to first stage deployment for a multi-stage airbag
- Right front passenger frontal airbag deployment: time to deploy for a single stage airbag, or time to first stage deployment for a multistage airbag
- Number of crash events



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AIR BAGS

- Time between first two crash events, if applicable
- Whether or not EDR completed recording
- And some newer European Models record time and date information.

Currently on the first page of each EDR data report there is a section titled "Data Limitations." This section explains how to read the data and interpret it. Generally, when a vehicle is involved in a collision event and is equipped with an EDR, if the "Jerk" (change in rate of acceleration) is enough to wake the system up or if airbags deploy, inputs from the vehicle's crash sensor(s) send information to the airbag control module (that is where the EDR is located) and the EDR will generally record 200 milliseconds to 5 seconds pre-crash data and 300 milliseconds to 10 seconds of post crash data depending on the OEM.

Other airbag system information

After any collision event, the vehicle needs to be scanned for any malfunctions and/or stored codes. Additionally, check with the OEM repair information on what checks and inspections must be performed after a collision. Scanning the vehicle systems will allow you to better determine what system is or is not functioning and determine the repair options. After the vehicle repairs are completed, the vehicle should be brought to the dealer for wheel alignment (many vehicles require OEM proprietary software) due to steering and suspension component replacement, and/or structural misalignment and because almost every OEM requires the Occupant Weight System or Classification to be recalibrated.

Never use junk yard salvaged airbag components. There is no scientific way to prove an airbag module will deploy or will function as designed. Yes, visual and electronic tests can be performed, but none can confirm proper operation. All the liability rests on the collision repair facility owner, and the employees including the technician who installed the airbag system components.

We hope this article has helped the industry to understand the importance of "Black Box" technology, the facts and the fiction and airbag system components. If you are interested in learning more about EDRs and/or becoming a certified technician feel free to send us an email. **M**



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LARRY MONTANEZ is co-owner of P&L Consultants, which works with collision shops on estimating, production and proper repair procedures. He is also a certified technician for multiple OEM collision repair programs. *info@PnLEstimology.com*

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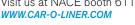
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AD INDEX

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ADVERTISER	PAGE #
ADENNA INC	
ADVANCED MEASUREMENT SYSTEMS INC	24
AKZONOBEL COATINGS INC	CV4
AMI	64
AXALTA COATING SYSTEMS	5
BASF CORPORATION	CV4
BENDPAK INC	20, 49, 50
BLOWTHERM USA	
CAR-O-LINER	8, 58
CCC INFORMATION SERVICES	13
CERTIFIED AUTO PARTS ASSOCIATION	9
CHIEF AUTOMOTIVE TECHNOLOGIES	11, 46
CJ INC	

PRODUCT INDEX

3M	63
5 STAR XTREME	62
ADENNA	62
ADVANCE MEASUREMENT SYSTEM INC	61
AKZONOBEL COATINGS INC	61
AUTOMOTIVETOUCHUP	62

ADVERTISER PAGE #
EAGLE ABRASIVES
FOX VALLEY TECHNICAL COLLEGE
GLOBAL FINISHING SOLUTIONS51
GOFF ENTERPRISES
I-CAR
INDUCTION INNOVATIONS INC
INFINITY 3D LASER MEASURING
INNOVATIVE TOOLS
KIA
MARTIN-SENOUR AUTOMOTIVE FINISHES
MATRIX AUTOMOTIVE FINISHES
MOTOR GUARD CORP
ORIO NORTH AMERICA

BASF CORPORATION	62
BENDPAK INC	61
CAR-O-LINER	62
CHIEF AUTOMOTIVE TECHNOLOGIES	62, 63
DEBEER	62
DENT FIX	61

ADVERTISER	PAGE #
POLYVANCE	
PRIMA WELDS	59
PRO SPOT	CV3
PROSPRAY AUTOMOTIVE FINISHES	41
RITCHIE ENGINEERING	
SHERWIN-WILLIAMS	
SOUTHERN POLYURETHANES INC	27
SPANESI	
STECK MANUFACTURING COMPANY	45
UNICURE SPRAYBOOTHS	
U.S. CHEMICAL & PLASTICS	
VALSPAR AUTOMOTIVE	17

DEWALT	63
EAGLE ABRASIVES	61
MATRIX AUTOMOTIVE FINISHES	61
MILLER ELECTRIC MFG.	63
MOTOR GUARD CORP	63
U.S. CHEMICAL & PLASTICS	61



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little more than 30 years ago when I was just a young buck in the industry, I attended an event put on by the 3M ARMS Group which featured then-ARMs instructor Jeff Hendler, an industry icon, great public speaker and close friend. Jeff liked to tell the story of a guy who used to get down on his knees every night and pray, "Lord, please let me win the lottery." Night after night the fellow would pray the same prayer, asking the Lord to help him out and give him a break. That was, until the Lord finally looked down and said, "Give YOU a break? How about giving ME a break and at least go out and buy a lottery ticket!"

Jeff's point was that you have to give a little to receive a little. I'd like to bring that message up to date and say that when you give a little, you normally receive a LOT, particularly in our industry.

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on your giving investment. And I'm not talking about a monetary payback. I'm talking about the satisfaction and pleasure one experiences when they give of their time, skills, creativity, experiences and wisdom.

When you take a high school student under your wing and teach them the ropes, when you speak about your successes (and failures) in front of an audience at an industry conference and when you reach out to your community and participate in a local fundraising event to help a family in need, you get more than you gave in return.

I know I'm preaching to the choir when I talk about giving. The fact is the willingness to give in our industry is amazing. Perhaps that stems from the intense values that emanate from the high number of family-run operations in the business. It's simply inherent within these organizations to be mindful of family, friends, customers and business associates and respond in times of need. (It should also be mentioned that many of these family businesses are now parts of large, successful corporate conglomerates because of their deep-seeded convictions and the way they conducted their businesses before being acquired.)

Here are some quick ideas to consider in your quest to give:

• Participate in industry associations. The Collision Repair Education Foundation (www.CollisionEducationFoundation.



I KNOW I'M PREACHING TO THE CHOIR WHEN I TALK ABOUT GIVING. THE FACT IS THAT THE WILLINGNESS TO GIVE IN OUR INDUSTRY IS AMAZING. org) is a good start. Donate your time, money or supplies to this organization that supports educating the next generation of collision specialists.

• Reach out to your competition. It sounds crazy, but working together and sharing ideas is mcuh better than trying to survive on your own.

• Join a local business association. Whether it's the chamber of commerce or the regional business group, you'll reap huge benefits through networking opportunities. Plus, you may even get to play a round of golf or attend an after-hours function.

• Support your local vocational schools and high schools. From a simple visit to talk to a class about what you do, to opening up your business for a shop tour, to supporting local business-academic partnering events, that kid you influence could be your next star employee.

• Offer a scholarship to a promising tech student or host a skills competition for area students interested in auto repair.

• Sponsor a charity event for a family in your area who's down on their luck, or contribute to groups like the National Auto Body Council's Recycled Rides (www.NationalAutoBodyCouncil.org), which donates restored vehicles to families in need around the country.

• Give to the Collision Industry Foundation (www.Collision-IndustryFoundation.org), which helps collision repair professionals get back to work after experiencing a natural disaster.

• Encourage women to join the Women's Industry Network (www.WomenIndustryNetwork.com), which provides education and support to women in the industry and scholarships to young women at local vocational schools.

• Talk, blog or share your business stories with anyone who will listen. You never know how your experiences will impact another's outlook on life!

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