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COMMITMENT TO TRAINING
FOCUS ON THE POSITIVE ASPECTS OF YOUR TEAM MEMBERS 26

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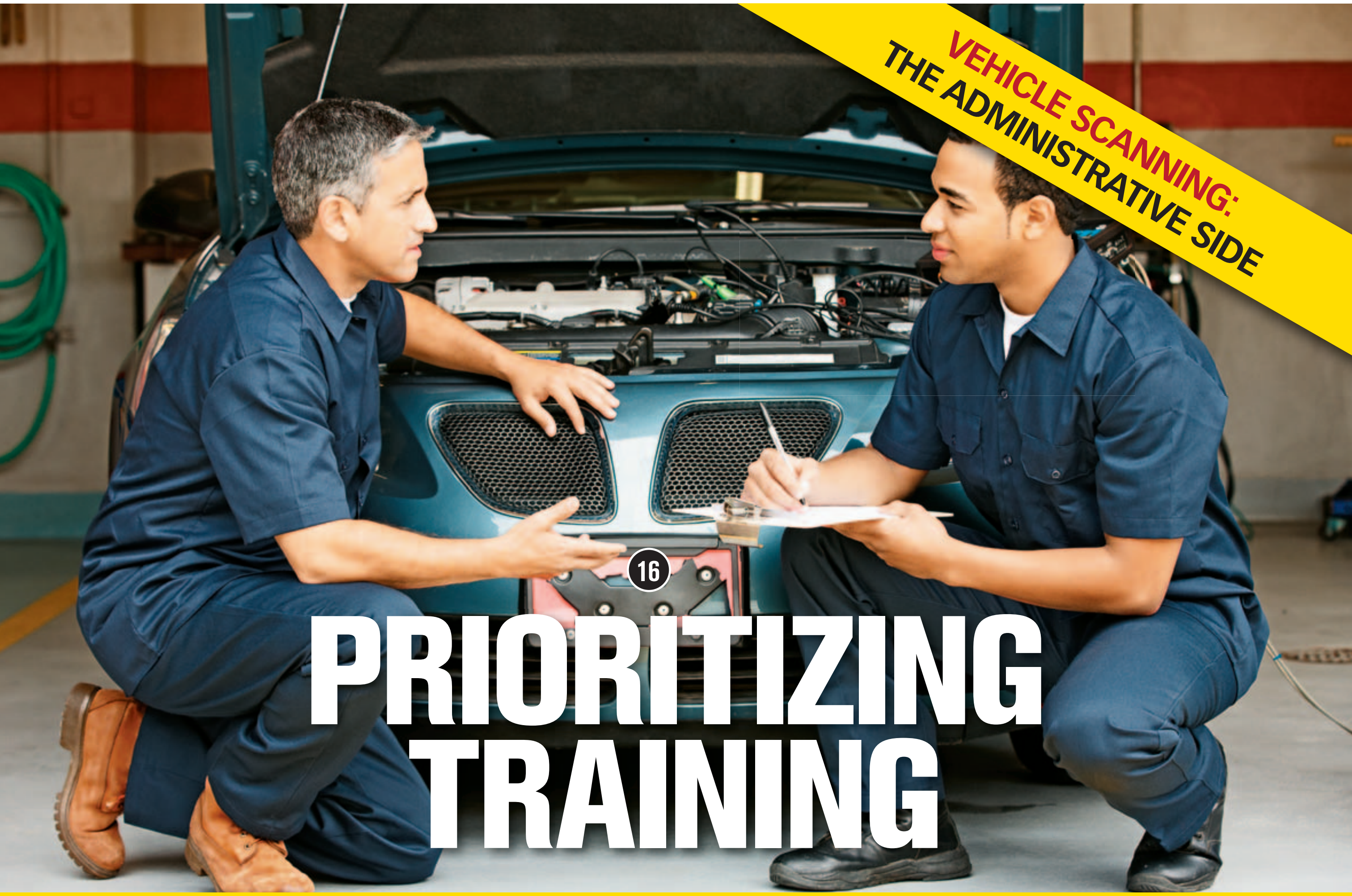

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MSO SUPPLEMENT

The *ABRN* April MSO Supplement features articles on lean, industry consolidation and apprenctice training programs.
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MAKE SURE YOU ARE GETTING THE MOST OUT OF YOR PAINT BOOTH

Make sure that you are getting the most out of your paint booth operation by watching this webinar from Global Finishing Solutions and Commitment to Training. Join Jason Garfoot, a trainer with GFS, for "Proper Paint Booth Operation," where he will show you how to properly prep a vehicle before painting, improve your booth's spray zone, achieve balanced booth pressure and maintain optimal booth performance.

ABRN.COM/BOOTHTIPS

NITROGEN PLASTIC WELDING

This whitepaper outlines the additional revenue stream nitrogen plastic welding offers and tips for becoming a pro in addition to $50 off training.

ABRN.COM/NPWHITEPAPER

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PHOTO: AXALTA

AXALTA TRAINER Mike Fowler explains product features and demonstrates paint products in the booth at the Axalta Training Center in Pomona, Calif.

PAINT SHOP LEARNING

AXALTA TRAINING GIVES HANDS-ON EXPERIENCE IN THE BOOTH

KRISTA MCNAMARA //
Content Channel Director

POMONA, CALIF. — Looking to learn more about Axalta products? Get hands-on and in the booth during an Axalta training session.

Earlier this year, Axalta hosted trade publication editors for a Wet on Wet Roundtable at its training facility in Pomona, Calif.

Axalta Brand Manager Harry Christman and trainer Mike Fowler gave an overview of Axalta products and the company's two main focuses: speed and simplicity. "We work to create paints that are faster. Anything we can do to speed the process means more cars getting repaired and more revenue for the shop," Christman said. Along with speed is making the products and process as easy to use for the painter as possible.

Axalta Automotive Refinish boasts five paint brands under its umbrella — Cromax, Spies Hecker, Standox, Nason

>> AXALTA CONTINUES ON PAGE 8

BREAKING NEWS

INDUSTRY TRAINING

TRENDS, PROCESS, TECHNOLOGY SHAPE TRAINING AT CHICAGO EVENT

With four days full of training, show floor exhibits, co-located events and new business opportunities, the offerings at NACE Automechanika Chicago brings current, innovative and necessary information to automotive professionals from all segments of the industry.

NACE Automechanika, the largest U.S. trade show dedicated to high-end technical and management-related training for automotive service and collision repair shops, takes place July 26-29 at McCormick Place West in Chicago. Registration for the show is open now.

Education at the 2017 NACE Automechanika Chicago will focus on current topics and technologies that auto professionals must understand and be proficient with for success, whether technicians,

>> NAMC CONTINUES ON PAGE 8

TRENDING

AUTO CARE CAREERS OFFERS EMPLOYER DISCOUNT FOR POSTINGS

The Auto Care Careers resource center is offering employers a 15 percent discount code on individual postings and packages, while internships can be posted free of charge.

ABRN.COM/DISCOUNTS

ARKANSAS CRASH BILL DIES IN COMMITTEE

The Arkansas House Insurance and Commerce Committee voted down a bill that would have repealed a requirement for the use of OE crash parts in repair of a vehicle still under warranty.

ABRN.COM/REPEAL

CAPA TOPS 10 MILLION TRULY CERTIFIED LIGHTING PARTS

More than 10 million lighting parts — headlamps, tail lamps, fog lamps and reflectors — achieved CAPA certification from the Certified Automotive Parts Association earlier this year.

ABRN.COM/10MILLION

COLLISION INDUSTRY PROVIDES OVER $12 MILLION IN SUPPORT

In 2016 the collision industry provided over $12 million in donations to high school and college collision school programs through the Collision Repair Education Foundation.

ABRN.COM/DONATIONS

2016 MARKS YEAR OF PROGRESS, GROWTH FOR I-CAR

In 2016 I-CAR achieved double-digit growth in shops and technicians trained, rolled out new products and services and forged new industry partnerships.

ABRN.COM/PROGRESS

>> AXALTA CONTINUED FROM PAGE 6

and Metalux from its recent acquisition of ChemSpec.

Event attendees suited up with Christman and Fowler to try their hand in the paint booth spraying two of Axalta's products — Spies Hecker Permahyd Hi-TEC, a waterborne paint that goes on in 1.5 coats with wet-on-wet technology, and Cromax CFX Basecoat, a candy-colored basecoat that goes on in 2-3 coats.

To enhance speed, the Permahyd Hi-TEC paint allows painters to do a mist coat immediately over the initial wet coat, Christman said. Once applied, the coating may appear bumpy because of the water content, and as the water evaporates out, the paint adheres to the surface and flattens out.

"Solvent paints flash dry, but with waterborne products, the water has to evaporate out. Air movement helps to accelerate the evaporation rate," Christman said. "That's why productivity-minded shops may choose to install blowers in their booth." Fowler demonstrated how a bit of air from a hand-held blower caused the paint to quickly dry right before the group's eyes.

The candy paints, a big trend in automotive painting, have a very rich, deep appearance. Normally a metallic ground coat is laid down first, followed by 4-10 coats of translucent "candy" color midcoat, depending on color coverage. The translucent candy color must be painted on evenly, or variations in the thickness can be easily seen as color differences. Finally, a clearcoat is applied to protect the entire system. The layers of translucent color sitting over the metallic ground coat give candy paints their depth and dimension, Christman said. With the Cromax CFX paint, the metallic and color are mixed, and sprayed together like a traditional basecoat in 2-3 coats, depending on coverage. This saves lots of process time and assures even application. After clearing, the candy dye migrates up into the clearcoat to provide the same depth of color achieved by layers of candy in the traditional process.

Christman also stressed the importance of safety and protecting oneself in the paint booth. "Let's be real — there's nothing in any can of paint that you want to breathe in," he said. So proper ventilation, masks and personal safety need to be top of mind.

>> NAMC CONTINUED FROM PAGE 6

painters, welders, service managers or distributors. Educator courses will enhance automotive instructors' skillsets, while automotive students will be able to enhance their classroom learning.

"Today's technicians and shop owners want to know how to find the problems they are faced with effectively and how to repair them the first time around. They want to learn the latest technology and keep as much of the work as they can in-house while engaging in a highly competitive industry," said Pete Meier, director of training for the UBM Automotive Group. "The lineup of education and premiere corporate training programs that NACE Automechanika Chicago has assembled for this July's event is beyond that of any training program to date. This is the "must attend" event for every student tech, working tech, shop owner, and educator in the industry."

A number of diagnostic courses will be taught, focusing on drivability concerns and electrical issues. These courses aim to improve technicians' abilities to use the proper tools to find and resolve issues with vehicles, not solely the symptoms a problem presents. Additionally, detailed looks at specific underhood systems, undercar best practices and strategies for brake, transmission and emissions service as well as managerial courses on leadership, shop management and revenue streams will be presented. Hybrid and alternative fuel vehicles will be discussed in a variety of courses, while collision repair professionals can learn about vehicle scanning, estimating, bonding practices and more.

"The training designed for auto body repair specialists is in line with the needs of today's collision repair shops," said Dan Risley, ASA president and executive director.

What's more, all mechanical-related training, both technical and management-based, is offered for no cost to attendees when they register with a code from one of NACE Automechanika Chicago's many sponsors that include Automotive Training Institute, ATSG, CARQUEST Technical Institute, Federal-Mogul Motorparts, Mitchell 1 and the National Alternative Fuels Training Consortium. Attendees who complete courses throughout the event will earn continuing education credits. This offer is open to professionals employed by a repair or auto body shop, educators and students. Friday, July 28, is designated as a unique training day for students and features training and show floor programs and networking opportunities.

Additionally, the Business Outlook Conference offers information, insight and awareness of the economy, legislation, technology and their impact on the automotive industry and market.

Other co-located events round out the slate of educational offerings at NACE Automechanika Chicago. The annual MSO Symposium will take place July 26, while the Advanced Technology & Diagnostic Repair Forum again will be offered.

I-CAR training classes also will be part of the agenda for collision repair professionals to attend.

You can view a full list of training sessions, register for courses and receive a free expo pass at: www.NACEAutomechanika.com.

Genuine Parts

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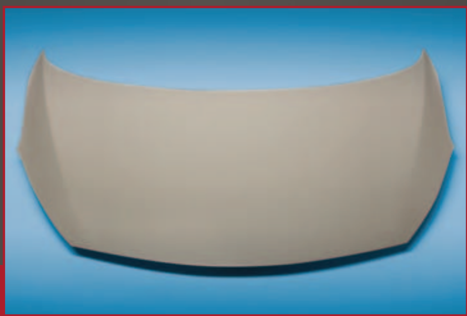

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IMPLEMENT SCHEDULING BEST PRACTICES

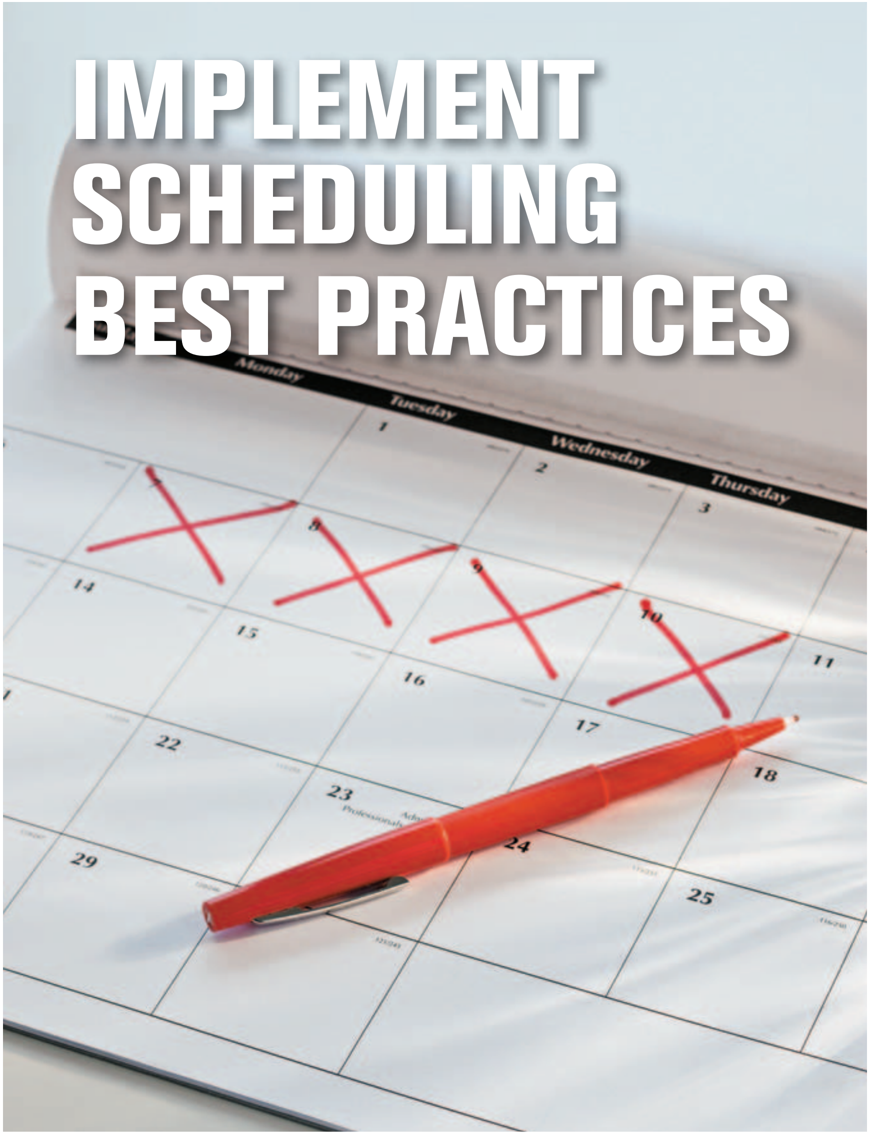

PHOTO: GETTY IMAGES/TETRA IMAGES

Three key components help create an effective repair scheduling process

BOB KEITH // Contributing Editor

Over the last couple of years, there have been numerous articles on repair scheduling best practices. These "best practices" are core to building a scheduling plan or process. But there is a lot more scheduling that needs to take place in the collision shop besides repair scheduling. It all affects the key performance indicator (KPI) of cycle time that is so important to the insurer. You will also find that once you embrace scheduling throughout the repair process that your repair capacity will increase in the same plant with the same staff.

Let's start by looking at the three key components of creating an effective repair scheduling process.

Goals

What are your financial goals for the business? Gross sales? Gross profit? Earnings before interest, tax, depreciation and amortization (EBITDA)? What are your short-term and long-term growth goals for the business? Are you going to need additional revenue for that growth? Where are you in your business life cycle?

You may wonder what this has to do with scheduling. Having written financial goals is the foundation of your business. Without them, the business can easily go off course. Without solid financial goals it is difficult to determine how many ROs/dollars/hours the shop has to complete on a daily, weekly and monthly basis.

Budget

The exercise of creating and delivering on a budget is critical to the success of any business. It is the road map to achieving your goals. It establishes what your daily/weekly/monthly sales needs are. This is the next step in determining your daily scheduling goals. These goals could be a certain number of vehicles in and out on a daily basis or a certain number of labor hours to process and/or sales dollars completed. Any or all of these categories tie back to meeting or exceeding the budget.

Capacity

The next element is determining if you have the capacity to accomplish your goals. There are two sections in this area: plant capacity (tools, equipment and building) and human resource capacity.

Let's start with plant capacity. There are very few shops in this country that have a plant capacity issue for the mere fact that we are traditionally an 8-5, five-day-a-week business. When almost every service business is open seven

days, we continue to be a five- to five-and-a-half-day business. If a shop just added an additional day at eight hours, they would open up 416 hours of additional capacity!

Another part of the plant capacity issue is materials and equipment. Do you review your equipment on a regular basis to see if it is as efficient as it could be? Are there upgrades that could either speed up the process or give you more capacity that would allow more hours to be scheduled? When we upgraded to Squeeze Type Resistance Spot Welders (STRSW) in our shops, I was amazed at how much faster we could install panels and the fact that the post-weld cleanup was substantially reduced over plug welding.

What about the materials that you use? Advances in chemistry and technology are shortening cure times, making sanding and shaping easier. Panel adhesives are the norm, and along with STRSW provide the best-case attachment method and corrosion protection. Refinishing products continue to advance, are safer to use and are better for the environment. These continually evolving products allow for faster overall turnaround, once again adding to capacity.

The next capacity component is human resource. What is the capacity of your staff to produce the hours that you need to achieve your goals? How many customers can your reception staff handle at any one time along with their other duties? How many estimates/supplements can your appraiser/repair planner handle per day along with their other duties? How many vehicles can you blueprint within two hours of drop off? How many hours a day can your production staff produce? How many vehicles can your cleanup staff process a day? These are all important questions you need to answer in order to build out a successful repair scheduling plan.

Once you have thought through the three key components of scheduling, you can now build a plan. There are many types of scheduling plans from the most basic set up on a desk calendar to computerized systems with advanced algorithms that take into account work in process, average supplement ratios, etc.

One of the most basic systems out there is the Dollars In Dollars Out system. After doing my homework, I determine that I want to achieve $1.2 million a year in sales. I have a budget in place to do this and have reviewed my capacity to make sure that I can complete this work, maintain a low cycle time and a high CSI. As I break this down, I need to complete $100,000 a month in sales, or $25,000 a week, or $5,000 a day five days a week. So I need to schedule in $5,000 a day and deliver $5,000 a day.

This can be done on a paper desk calendar or in a public electronic calendar like Outlook or Google.

There are several variations to this. You could break it down and determine how many hours a day you need to take in and deliver to achieve your goals. I also know of shops that determine an average RO amount and schedule that many ROs in/out per day to achieve their sales goals. The important lesson with this scheduling system is if you don't deliver the same as you take in, it will blow your schedule and you will need to double up somewhere to get back on track.

So what happens if you do fleet work or own a program that just drops vehicles? I suggest that you look back at your history to determine on average how many vehicles/hours/dollars they drop on what days and leave "open space" to accommodate that program. You can always fill it when the next opportunity comes in the door. With tow-ins and non-drives you can do a quick visual inspection and place a hold in the calendar for that vehicle. Once you have a blueprint completed, you can update the schedule.

The next level of scheduling gets into scheduling by job size and gets more complex.

To improve back shop flow, schedule sublet in advance of the vehicle arriving and drive the repair process to meet that schedule. Schedule your techs or blueprinting teams so that the vehicle is blueprinted within two hours of drop off. Some shops schedule the vehicle's time in the paint booth prior to repairs and then "pull" the vehicle through the repair process to meet that schedule.

Scheduling shouldn't be limited to just the repair portion of the process. If you want to improve administrative efficiencies, work on scheduling vehicle drop offs, vehicle deliveries, repair planning consultations (estimates), etc.

Proper planning and preparation in determining what your shop goals and capacity are will help you make sure that your scheduling process will be a success. Good scheduling processes that are followed will also improve your cycle time KPIs and CSI scores.

Be prepared to revise your goals as you implement solid scheduling processes. You will find that you have more capacity to do more work as your efficiencies improve!

BOB KEITH is the Senior Director of Compliance and Education for Assured Performance Network. He currently owns two CARSTAR franchises in both Nebraska and Kansas.
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PRIORITIZING TRAINING

What shop owners can learn from Steve Jobs' black turtleneck

DAVID ROGERS // Contributing Editor

Steve Jobs wore the same outfit every single day — a black turtleneck, jeans and sneakers. He was in good company; many successful people, including Mark Zuckerberg and Albert Einstein, choose to wear the same clothes every day as well. Why? They had more important things to worry about than clothes. You're no different.

I'm not talking about clothing, of course. For most people, what they wear each day isn't a taxing decision. But, just like those innovators, when you can get rid of micromanaging, chaos and stress, you can spend more time concentrating on more important things like growing your shop, which means you need a team that is empowered to make the right decisions.

Every one of your employees must know exactly what they're responsible for, have the tools and training to hit their target and know where they stand in hitting those goals every day.

In other words, you need a shop culture that prioritizes training — not one class or one day of training only for new hires. I mean ongoing training for the entire team.

PHOTO: SHUTTERSTOCK.COM / MONKEY BUSINESS IMAGES

Why should you prioritize training?

Until you prioritize training, you're trapped. You're stuck working in the business instead of growing it.

Consider marketing. What's the key to getting the most out of your marketing dollars? Delivering on what your advertising promises!

If your advertising promises superior customer service, then your customers will come to your shop expecting a great experience. But if your service advisors aren't delivering on that promise, then you risk burning and losing every new customer your advertising brings through the door.

How can you make sure that everyone on the team is delivering on every promise with every customer, every time? You can do that by breathing down their neck every day. You can look over their shoulders to make sure they perform thorough inspections, advise the customer properly and don't make any mistakes. You can micromanage or do everything yourself.

Or you can free yourself from that burden by making sure your team is empowered through training to deliver on those promises.

In other words, you need a team that understands your expectations, knows what to do and has the authority to do it.

Through training, you can ensure that your employees have the knowledge and tools they need to make the right decisions — not only for one issue, but for every aspect of their job, their responsibilities and the shop.

Training your employees may require more time up front, but it frees you from the time, demand and stress of controlling every aspect of your shop yourself.

How do you make time for training?

Training isn't optional in our shop; it is required.

Every time I hire a new employee, they spend two full weeks in training before they even get to touch the cars or the phones.

It's not that I don't trust them. If I didn't, I wouldn't have hired them in the first place. But their role is about more than ability to perform the job. They have to learn the processes in our shop. They have to learn how we answer the phones. They have to understand how we treat our customers.

One of our clients once told me, "I cannot find an employee worth a darn." When I asked about his training process, he said, "Any qualified employee should know how to do their job without me having to show him."

When an owner doesn't take the time to train employees, teach them the shop's policies and procedures and explain their benchmarks and how to hit them, they cannot expect the employee to meet their expectations.

Many owners will tell you it's hard to find good techs, but it's downright impossible to find a psychic one.

Training should be the FIRST requirement for EVERY employee. In order to exceed expectations, the employee first needs to understand what those expectations are.

Success — for both the employees and for the entire shop — is about more than the ability to fix a car. Sustainable success for both employees and the shop comes when the whole shop is committed to a culture of training. You need a team that can work together with clear expectations and responsibilities and has the empowerment to deliver on them. Everyone on the team should be able and incentivized to make decisions that benefit the entire shop.

Build a culture of training

Training is not a one-time solution. It requires ongoing commitment and follow through in order to be effective.

For our shop and our clients' shops, we use a three-step process. First, measurement. You don't know what you don't know. By paying attention to the key metrics in your shop and tracking them every day, you can identify trends and spot problems — and then correct them that day.

Second, training. Once the measurement shows an area of weakness, you can implement the right training to fix that specific issue. You can identify where a specific employee is struggling and provide the training and tools they need to improve. In the best case scenario, they can see everything for themselves, know exactly where they stand and be proactive about training. They can seek out the resources they need when they need them.

Third, accountability. Instead of implementing a training program and hoping for the best, it's important to follow through. After you empower an employee and give them the tools and training to hit a benchmark, you need to hold them accountable.

Training is what allows you to set clear expectations for your employees, communicate a clear set of processes for your shop and hold employees accountable to those policies.

Training is about more than techs staying up to date on new technologies. It's about the owner and service writers committing to constant training, too. Building a culture of success doesn't happen overnight, but it is the only way to create sustainable success. It's the only way to get freedom for the owner from constant micromanagement and stress and chaos.

Incorporating training should be your top priority to set yourself, your shop and your employees up for success.

Once you understand this critical factor, it's no longer a matter of "making time" for training because it is the most important thing you can do with your time.

DAVID ROGERS is COO of Keller Bros. Inc., and president of Auto Profit Masters.
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Use the experiences of other shops to better your own

Inspired by others, becoming a dust-free shop is a key goal for my business

If you are not finding the time to visit other successful body shops (across town or across the country) on a regular basis, that's something I'd challenge you to start doing this year. Over the years, I've often been inspired by ideas I've seen implemented by the shops operated by the other members of my 20 group.

Something I saw recently at my friend Joe Amodei's collision business, The Collision Centers of New York, inspired one focus of my business this year: eliminating dust. Joe took me to an area in one of his shops where a technician had just finished a big quarter-panel job. Unlike in most shops (including mine), where that amount of mud work would have resulted in an inch of dust on everything, the work area in Joe's shop had no dust on the floor or elsewhere.

BASED ON RAVE REVIEWS FROM MEMBERS OF MY 20 GROUP AND THEIR EMPLOYEES, WE RECENTLY ADDED A STAT-GUN TO EACH OF OUR PAINT DEPARTMENTS.

Think about what that dust is costing your business. There are added costs associated with cleaning the shop, buffing or de-nibbing painted panels and detailing vehicles. Perhaps most importantly, there are potential health costs for our employees. We've all seen a technician surrounded by a cloud of dust.

So I'm on a kick to remove all that dust from our shops. We are in the process of switching to a vacuum system in our facilities, and we're also putting in new filtration systems in our buildings to filter the air.

We are making some other investments as well. Like Joe's shops, we're getting some mobile work stations that include a vacuum system, along with everything a tech needs to do mud work. It's all on a cart that can be moved to wherever the vehicle is in the shop. I talked to a tech who was using such a station in one of Joe's shops, and he concurred it was the "real deal." You can cut dust down to next to nothing.

Also, based on some rave reviews from members of my 20 group and their employees, we recently added a Stat-Gun to each of our paint departments. The gun essentially removes any static electricity from parts that are about to be painted or clear-coated. A number of processes in the shop can produce static electricity on a vehicle, but tacking off parts just prior to painting is one of the highest generators of static electricity. Running this gun over those parts prior to spraying eliminates that static electricity.

I talked to two of my painters a week after they started using the gun, and they said between color match and buffing, it is the biggest game changer they've seen in this industry in a long time. One painter, who probably averaged about 20 dirt nibs per vehicle, said his average now is three dirt nibs. We're talking drastic changes.

They've also found some night-and-day difference in color match, especially when comparing a metallic on a bumper to a quarter panel. In the past, the metallic on the bumper might stand up on end where they may lay flat on a quarter. So you'd have two different colors. The gun removes the static electricity and helps prevent that.

As I said, this is another instance of when talking to other shops made the difference for me. I'd seen ads for these guns and seen them at trade shows, but I never gave it a lot of credence. Another toy, right? But once Connecticut shop owner Bob McSherry, of North Haven Auto Body, tried one out and told our 20 group, "This is big time," we ended up getting three of them.

So, yes, removing the dust from our facilities by the end of 2017 is requiring some investment. But I'm convinced that the savings — in terms of improved productivity, quality and employee health — will be gigantic.

That's my goal — all thanks to what I've learned from other shops I've visited.

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Your step-by-step guide to building a production compliance model

Over the next several months, I will detail the process of building a production compliance model for collision repair facilities. I will focus on the steps necessary to identify who, what, where, when and how things need to be accomplished within the repair facility to maximize customer service and production efficiency. There is a process that improves performance across the board and builds accountability through clearly defining expectations and performance requirements.

Last month, in "Building a production compliance model," we began our discussion on how to create a step-by-step process in your preproduction area. So what steps are required to take place to get the vehicle into production?

1. Schedule the vehicle for the estimate, or if not mobile, bring it into the bay for disassembly.

2. Repair authorizations and data acquisition authorizations need to be signed by the vehicle owner and in the hard file.

3. Properly identify all options to establish the "estimating" requirements by vehicle construction and design, including the testing protocols necessary to establish pre- and post-accident safety system readiness.

4. Conduct a data search to identify any repair scenarios specific to platform requirements, e.g., steels, plastics, other build data.

5. Establish the condition of the vehicle to ensure proper measures are taken to restore it to its prior condition in accordance with the payer's obligation to the vehicle owner.

6. Save all electronic pre-sets electronically or manually.

7. Have vehicle owner initial parts requirements and save in the hard file relative to aftermarket or other non-OEM parts.

8. The estimator/blue-printer has to cycle the ignition whenever possible to conduct the "seven-second burn" to check for dashboard-indicated fault codes for vehicle safety systems.

9. Begin disassembly processes.

10. Identify parts to be saved and those that will be replaced.

11. Establish repair times for the damaged repairable nonstructural areas of the vehicle.

THE MORE THOROUGH AND COMPLETE THE DOCUMENTATION, THE NARROWER THE FOCUS OF THE DISCUSSION BECOMES.

12. Establish repair times for repairable structural areas of the vehicle.

13. Determine removal and replacement requirements for glass including adequate dry/cure times for adhesives used in replacement.

14. Identify refinish requirements for undamaged adjacent panels where applicable.

15. Identify undamaged part removal and replacement requirements to accommodate blending procedures as necessary.

16. Determine length of time to obtain parts.

17. Determine the length of time for repairs (this is start of repair to conclusion of repair).

18. Contact vendor(s) to place parts order(s).

19. Receive parts; validate part order list against parts received to verify part numbers and types.

20. Mirror match parts against parts that have been identified for replacement.

21. Create second parts order for corrections if needed, including accounting requirements.

22. Identify billable hours for vehicle and day/date for production processing.

23. Place vehicle into production rotation.

24. During production create supplemental billing when needed and accompanying parts orders or labor add orders.

25. Contact customer and insurer, as needed, to validate supplemental billing for review, verification or approval.

26. Update file documentation.

This can be seen as an example, as all the individual tasks associated with getting the car into production may or may not have been listed. There may be subset tasks to be identified as well. This will depend on the level of detail that each individual store owner prefers.

Estimating and blueprinting have the most instances of subjective decisions; however, subjectivity can be reduced significantly with documentation. The more thorough and complete the documentation, the narrower the focus of the discussion becomes.

As we develop processes and procedures, the long-term strategy is identifying the tasks associated with the planning and execution of repairing a vehicle. This allows the store owner to build a more predictive production model, which helps forecast what their daily, weekly and monthly performance metrics should be.

Task lists are the starting point. Job descriptions are then created that tell employees exactly what their roles are in the execution of the tasks, including timeframes and performance requirements, which are more clearly defined in the standard operating procedure (SOP) and accountability measurements. The SOP then provides the step-by-step instructions in the execution of the tasks.

Some key takeaways would be:

1. Have all the required steps and tasks been identified?

2. Does the job description being created for this process provide the detail necessary for the employee to be able to complete the process as expected?

3. If not, what training will be required to improve their competency to the necessary level.

4. Should that additional training be internal or external, and what is the cost and potential return on investment (ROI) for the training activity?

5. Do the SOPs clearly define all steps, performance requirements and timeframes necessary to meet production requirements?

6. If followed, will the task lists, job descriptions and SOPs provide a more efficient production flow resulting in improved efficiency and profitability?

7. If not, what additional steps need to be considered to make the SOP adequate for the production needs?

8. Are the steps, if followed, adequate for the staff to perform to their individual performance expectations?

9. What review process has been established so that the process can be audited for compliance and corrective action as needed?

As we move to the next segment of this article, these nine takeaways will be looked at individually. "Pros and cons" lists can be developed, which will help in identifying if the takeaway requirements have been met and if not, what the next steps should be. There will also be additional opportunities to look at other processes within the store to help identify the steps necessary for building a production compliance model for them individually using the same steps illustrated in this first installment. Upcoming installments will include Front Office, Preproduction, Production and Final Billing.

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Back to the basics

Old-school restoration shop rejuvenates classics and creates customs

JAMES E. GUYETTE // Contributing Editor

It used to be that Rocky and Carolyn Frost's Custom Auto Body was a high-production collision shop complete with 20 employees, brisk cycle times and steady revenues. But Rocky longed to pursue his lifelong affection for yesteryear's historic horseless carriages and souped-up Southern California hot rods.

So Rocky and Carolyn went back to the basics, paring down the staff in favor of select restoration-oriented technicians and catering to customers who remain in love with their cherished vintage vehicles — including motorcycles.

Originally established in 1972 with a focus on classics, "after a very short time in business, our custom painting and restorations were placed on hold, as there was a huge demand for collision repair," Rocky recounts. "Although it was paying the bills, it wasn't fulfilling my creative needs."

Thus, in 2008 the couple shifted their business model "and returned to our very beginnings; we have been fortunate to work on many important and exciting vehicles."

Among the many highlights is a 1926/7 Rolls Royce 20 Horse Park Ward reportedly constructed for the owner of Rolls Royce's first American dealership. "This vehicle came to us in pieces. An aluminum-skinned wood body presented many challenges," says Rocky, yet the extensive rebuild rolled out of the shop as a smooth-running, museum-quality success.

"It is always a pleasure to work on a Porsche, especially one that is still owned by the original owner," he notes, referring to a 1984 Porsche 911 Cabriolet that had remained untouched for 30 years except for a poorly repaired left-rear corner that had been botched at a local high-end body shop. "By the time the owner picked it up from us, the paint and wheels were better than new and he was a proud owner again."

Then there was the 2007 Shelby Super Snake that had been trailered to the shop from up the coast in Washington. The 800-plus hp machine had yet to win a car show. "So what is a guy to do? Ship it to Custom Auto Body, of course," Rocky remarks. "We addressed every inch of this car cosmetically," sending the owner en route to claim some trophies.

Deft metalwork was on the shop's menu for a 1999 Harley Davidson Fat Boy. "Guys always want a few more inches in length and in height for their bike's rear fender. So we just stretched it for him. The key is to do it with it looking perfectly natural."

A 2010 Chevrolet Tahoe in need of a more suitable custom finish is another accomplishment. "One of the latest projects was brought in by a previous customer who lives in Sun City, Ariz. He was so happy with the job we did on his Chrysler that he brought his newly purchased Tahoe to us because he just was 'not feeling the look.' Even though he knew what to expect, he was still ecstatic with the result," says Rocky.

"I've had guys come in here with a car or motorcycle straight from the dealership and they'll say, 'Paint it! I don't like the color.'"

A one-stop shop

The company owns its own enclosed transport, and Rocky will travel great

PHOTO: CUSTOM AUTO BODY

CUSTOM AUTO BODY
San Diego, Calif. // www.customautobody.com

Rocky and Carolyn Frost
Owners

1
No. of shops

45
Years in business

7-10
No. of employees, based on special projects

6,600
Total square footage of shop

12
No. of bays

$15,000-$60,000
Repair order range

Spies Hecker
Paint supplier

Chief EZ Liner
Frame machine used

distances to pick up and deliver a customer's prized ride. Texas, Colorado and Las Vegas have been recent destinations. "I drive straight through; I don't stop – I'm crazy that way," he says. "We get cars from different parts of Southern California and different parts of the country."

Although sometimes it can be "slim pickins' out there" amid an aging population of truly dedicated car and MC buffs, customers still come from near and far because the business is a one-stop shop. "We can take care of everything," Rocky says. Clients don't have to worry about taking their vehicle to one place for upholstery and then another for mechanical repairs and then another to finesse the final finish.

Involved interior and mechanical work is often sublet to respective specialists from the shop's location on San Diego's Raytheon Road. "Sometimes they'll come in here (to complete the job) or we'll pull the motor, and they'll come back when it's done while we've been working on the exterior," says Rocky.

An additional selling point for the shop is that Rocky and Carolyn strive to offer reasonable rates to a clientele that is about half-and-half wealthy versus budget-minded. "Compared to the other legitimate custom and restoration shops in San Diego, we are very affordable," he says.

"My customers are older — they're old-school guys. For some of them it's their last shot at a car," says Rocky, a model that they've always coveted as a cream-puff possession. "Most of the hot rods are from old-timers; they still want them, and they still have them. Then there's the guy who's retired and he's always wanted the hot rod that he had when he was young," and eager to again own the same type of vehicle that was long ago sold off in favor of raising a family and resorting to a staid sedan.

"They'll go out and find one and then bring it to us" in various stages of disrepair to make it show-worthy.

Collision repairs of exotics caught up in a crash are also provided. "Most shops won't touch a custom car" or a collectable older rarity, Rocky says. Despite opting out of direct repair programs years ago, "we still have a good relationship with insurance companies because we like to be their go-to shop for repairing all of these unique vehicles."

Aside from maintaining a steady social media presence, overseen by Rocky and Carolyn's son Baron (a gifted catcher and outfielder who previously played professional baseball in the minor leagues), the shop has never advertised. "Just like the first day we opened up, it's all word of mouth, and people like to talk to the owner," according to Rocky.

Occasionally they'll set up a booth at a car show — a strategy that attracts a considerable amount of business. "With all of our work on display — between antique, classic, custom and concept vehicles — we enjoy seeing and representing these vehicles at events. Sometimes I'll take a customer's car to a car show, and sometimes I'll just go to a car show" to make personal contacts among the attendees and exhibitors, says Rocky. "We have car shows every weekend in San Diego, and sometimes I'll go to four car shows in one day."

Billion-dollar question

Carolyn concentrates on bookkeeping and other administrative functions to assist with Rocky's paperwork tasks. "I'm more of a hands-on kind of guy, but I'm pretty much chained to the office — somebody has to run the asylum," he jokes.

Recruiting qualified staffers is an ongoing endeavor. "That's the billion-dollar question. We have to turn over every stone and look behind every tree to find technicians," he says. Much of the available industry training is geared toward production collision repairers rather than restoration expertise and the required skill sets emphasizing patience, attention to detail and creativity.

"We really need people who know what they're doing." Promising candidates are typically given a two-week tryout. "Show me what you can do," says Rocky. "Most of the time I'll know within a couple of days" whether a potential hire has what it takes.

Obtaining hard-to-find components is a selective process as well. "This is where the internet has become very important. I can go to England online to get parts, and I have a network of people who aren't online that we've been using for years," he says.

Taking the plunge

As a child, Rocky had an affinity for disassembling and reassembling toys, bikes, small machines and "anything that I could get my hands on. However," he explains, "I was too creative and artistic to just assemble things the same as they were. I always wanted to make them better and nicer looking."

Rocky's father, the late Jack Frost, was a 30-year career U.S. Navy officer who invested in properties and sold insurance after retiring. (Rocky's mother and much-older siblings were survivors of the harrowing attack on Pearl Harbor in 1941. At the time, Jack was out under the sea commanding a submarine.)

During high school, Rocky enrolled in all the available shop classes, learning and creating customs. In 1972, the building housing Jack's insurance business was slated for demolition, so he had to find a new office. "He said, 'Let's build a shop and I'll put my office in there: Would you like to start a business restoring vehicles?' Well, he didn't have to finish his sentence and I said, 'YES!'" says Rocky.

The prospective location "was just a piece of dirt," and from the ground up came Custom Auto Body. Rocky was still a junior in high school, and Ocean Beach Auto Body's Ed Brill was hired to manage the operation.

"My first job was sweeping the floor," Rocky recalls. "I learned by just being here and doing the work. There were no classes left to take, but we had some very good technicians and they took me under their wing."

Rocky went on to earn a college degree as Brill continued to build the business. "When I returned full-time I took over the operations and found that collision repair was much more lucrative than restorations," he says.

In the years following Brill's death and Rocky's marriage to Carolyn, he still dreamed of ditching routine production to rejuvenate vintage vehicles and create customs, and in 2008 the couple took the plunge to make that dream a reality: "What does the future hold for an 'old-school' shop? Only time has told, and time will tell," says Rocky.


JAMES E. GUYETTE is a long-time contributing editor to *ABRN*, *Aftermarket Business World* and *Motor Age* magazines.
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Focus on the positive aspects of your shop team members

DON'T GET CAUGHT UP IN WORKPLACE NEGATIVITY

MIKE JONES // Contributing Editor

I have just come across some disturbing news. According to research, the majority of your team members spend 10 or more hours per month conducting or listening to negative conversations. (I know you would never do this.)

These team members are generally involved in negative conversations about their bosses, other members of the management team or other team members.

Even more amazing, almost a third of these employees spend 20 hours or more per month participating in those negative conversations.

I know that as you read this, some of you find it hard to believe these numbers, and so did I. However, I have coached a large number of people who have been committed to this behavior, and I also found several articles that corroborated these numbers.

It really does not matter how bad your boss is or how bad the environment you are working in actually is. Spending all of this time whining and complaining about your boss and the environment makes you a part of the problem.

Your whining and complaining will never improve the relationships or the environment. There are no victims in the context of this conversation — there are only volunteers. Wherever you are, it is because you are choosing to be there.

Now, I know some of you may be thinking, "But I have no choice; I have to stay in this job." I submit that the only thing every one of us has to do is die. I understand you need to take care of your family, pay your bills, buy groceries, pay your mortgage, etc. However, if you choose to remain where you are, identify what is right about the people and the environment.

Taking care of your needs and the needs of your family are not an excuse to be miserable or negative about the people or environment you are working in. You can choose to find a better boss or environment if where you are is so bad. I truly believe when we start focusing on what is going right, what we like about the people and environment we are working in, everything changes.

If you don't like how something looks, then look at it differently. When you do, what you are looking at will change.

Quite often we spend our lives waiting for things or people to change for us to be happy, rather than making the choice to change the one thing we have complete control of, and that would be ourselves.

If we spent 20 hours or more per month talking about what we are grateful for, we would become more productive, get more done, be happier and become more resilient, and doing so would allow us to build positive relationships.

Many times when I have talked to people about the negativity in the workplace, they say that they are just being real, telling the truth, being honest. You must realize that you are telling your truth and it's your real. ALL of what you are experiencing is created from your perspective, based on your expectations — many of which you have never made known. Let's be clear: There is some good in the worst of us and some bad in the best of us.

I encourage you to consider these questions before you engage in another conversation at work:

- Will this conversation help me do my job better?
- Will this conversation benefit my team?
- Will this conversation benefit the person I am speaking about?

>> CONTINUES ON PAGE 27

"It was informative. There is a lot we can go back to the shop and try."

— ROBIN SZYMKOWSKI, SERVICE MANAGER, CROSBY AUTOMOTIVE; ELKHORN, WIS.; NACE AUTOMECHANIKA CHICAGO LIVE! ONE-DAY TRAINING EVENT ATTENDEE

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WATCH + LEARN

BMW damage assessment and repair methods

ABRN.COM/BMWrepair

Steps for identifying structural repairs

ABRN.COM/Structural

Hyundai Sonata tab flange repair

ABRN.COM/SonataTab

Preparing your business for sale or succession

ABRN.COM/SaleReady

>> CONTINUES FROM PAGE 26

- How will this conversation benefit me in a positive way?
- Will this conversation resolve the issues?

Time is an equal and fair commodity. We have all been given the same amount of time. How you spend yours will determine your ultimate successes and failures.

I encourage you to deliberately spend the next 20 hours looking for and acknowledging the things you are grateful for. Catch people doing things right and acknowledge them for it.

Choose to make wherever you are a positive, productive place because you are there. Transform the real problem into the the real solution.

NACE automechanika CHICAGO

SOCIAL INSIGHTS

KNOW THE DIFFERENCES BETWEEN THE WELDING AND MIG BRAZING PROCESSES

MIG brazing has been in use for a long time. Developed in the late 1960s, it immediately found applications in the automotive industry, primarily cosmetic at first. With this long history, why is there so much discussion about it now? Like aluminum, the renewed interest is due to new applications and increased usage.
ABRN.com/migbraze

RURAL SHOP REACHES HIGH LEVEL OF ACHIEVEMENT WITH LEAN PROCESSES, MODERN EQUIPMENT

Encompassing a modest 3,500 square feet, the big success of Rodney's Body Shop is "inspirational to all the other small shops in this country," according to consultant David Luehr of Elite Body Shop Solutions, who has been providing guidance to owner Rodney D. Hall since 2015. Luehr describes Rodney as "a small-town boy doing the right things, using modern equipment and lean processes in a rural Tennessee town where the competition is years behind the times," adding that "all things are possible with the right attitude and a good coach." Get the full story here.
ABRN.com/Rodneys

HOW DO YOU MEASURE UP AS A CUSTOMER FOR YOUR PARTS DISTRIBUTOR?

The amount of mistrust in this industry between the independent service shop and their parts distributor has grown over the past 10 years. Many retail shops seem convinced that every parts distributor out there is determined to "take advantage" of them. They don't, and can't, trust their parts distributor company. This truly is "old style" thinking. Nothing today could be further from the truth. Many good parts suppliers do exist across the country. It is time to address and change the business relationship between the independent repair shop and the independent parts distributor. Read more.
ABRN.com/customer

PUTTING IN TIME, EFFORT TO EARN I-CAR'S GOLD CLASS STATUS

Columnist Ryan Cropper discusses that earning automaker shop certifications has been a focus within his business over the last 12-18 months. A major step toward that has been achieving I-CAR Gold Class status. That's required a significant commitment by everyone in the company, but he believes it's going to pay off.
ABRN.com/ICARgold

TRAINING EVENTS

APRIL 13
Advanced Steering and Suspension Systems Damage Analysis; I-CAR
American Auto Salvage
Fort Worth, Texas

APRIL 19
Collision Industry Conference, *Sheraton Station Square*
Pittsburgh, Pennsylvania

APRIL 22
ATI Collision Shop Mastery;
Automotive Management Institute, *Automotive Training Institute*
Atlanta, Georgia

JUNE 12-16
Advanced Selling Skills; *Automotive Management Institute*
RLO Training; Cincinnati, Ohio

JULY 25
Collision Industry Conference, *Hotel Hyatt Regency McCormick Place*
Chicago, Illinois

JULY 26-29
NACE Automechanika Chicago, *McCormick Place West*
Chicago, Illinois

AUGUST 23-26
CARSTAR North America Conference, *Westin Hotel*
Charlotte, North Carolina

OCTOBER 31-NOVEMBER 3
SEMA Show 2017, *Las Vegas Convention Center*
Las Vegas, Nevada

AN EYE FOR DETAIL

BUILD THE BEST BONDS WITH THE LATEST PRODUCTS USING THESE TIPS

TIM SRAMCIK // Contributing Editor

The more things change, the more they stay the same.

Ironically, that saying holds a lot of truth in the collision repair industry — even in the constantly evolving and changing technology used to bring damaged cars back to life. Think about it. Every collision repair utilizes three basic steps:

1. Prep (plan)
2. Repair/replace a part, bond or finish (execute repairs)
3. Clean the repair area (verify, check, complete, clean, deliver)

Those steps, of course, can be broken down into numerous other steps. Even in those cases, for many kinds of repairs the steps are quite similar. Take bonding, especially the most modern, common types — adhesives may be used alone (limited applications), but more often they will be used in conjunction with spot welds, rivets or other fasteners. Spot weld bonding and rivet bonding are popular applications on modern vehicles.

In many cases, the majority of steps for all three varieties are practically identical. Similar steps offer convenience, but they too can create challenges if they lull technicians into overlooking critical details for each repair type. Improperly created bonds are an especially serious issue since, beyond producing cosmetic problems, they make a vehicle decidedly less stable and safe. In some instances, they can have catastrophic effects on vehicle safety systems. The problem may not be evident until the next collision, at which point the cost could be — well, think about it…

Now is a good time to address this challenge. The following is a brief look at three very similar adhesive panel bonding repairs (using the latest instructions from 3M), along with the details of each that must receive special attention to create a quality repair. The goal here is to re-educate yourself on the big and small picture aspects of bonding:

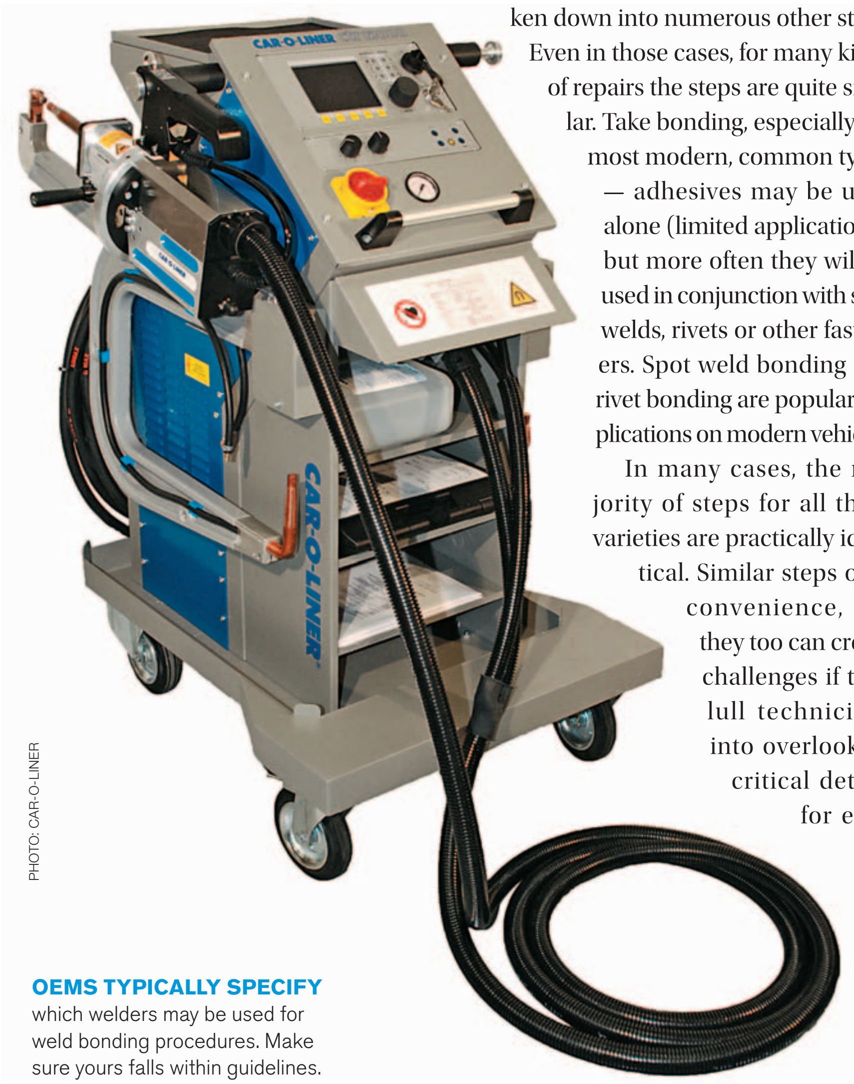

PHOTO: CAR-O-LINER

OEMS TYPICALLY SPECIFY which welders may be used for weld bonding procedures. Make sure yours falls within guidelines.

Adhesive bonding (Bare metal flange prep)

Step 1. Using a grade 80 abrasive belt, remove remaining weld nugget material from the host panel. Prep the remaining mating flanges on the panel with a coarse belt to remove any adhesives, corrosion and coatings. Do not thin the panel flange.

Step 2. Use an abrasive belt or disc to remove the Ecoat from the replacement panel mating flange areas. Do not thin the panel flange.

Step 3. Clean the host panel and replacement panel mating flange areas with a VOC-compliant surface cleaner.

Step 4. Dry fit the replacement panel and complete any necessary metal straightening at flange areas. Remove the panel to prepare it for adhesive application.

Step 5. Use an abrasive belt to prepare metal surfaces, if not already done during Step 1 or 2.

Step 6. Clean and apply weld-thru primer to all areas requiring MAG welding (steel). Always follow vehicle manufacturer recommendation for these primers. Do not allow weld-thru primer to coat adhesive bond areas.

Do not use weld-thru primer on aluminum panels.

(Editor's note: Most wire-feed welding of steel is done using a mixed shielding gas with an active component — Metal Active Gas. Aluminum and arc brazing are MIG processes due to inert shielding gas. Some of the OEM service information and other industry-related sources correctly identify the processes, while others do not.)

Step 7. If vehicle construction necessitates, apply NVH material or foams at original locations as required. Pay attention to placement relative to weld joints and the possibility of fire.

Step 8. Apply the bonding adhesive to mating flange areas on the host and replacement panels, making sure to cover all bare metal areas.

PHOTO: EVERCOAT

ALWAYS REFER TO both the OEM repair instructions and adhesive manufacturer recommendations when creating adhesive bonds. Adhesive application instructions can vary widely depending upon the product, and some may not be suitable for specific repairs.

Apply additional beads of adhesive at the mating flange areas to ensure proper bond line thickness. Keep adhesives away from MIG/MAG weld joints.

Step 9. Install the replacement panel to the host panel. Clamp the panel in place and make the required welds on seams, cosmetic joints or where otherwise recommended by the automotive manufacturers. Follow the recommended adhesive clamp times. If adjustments are needed, slide the panel; do not lift.

Step 10. Remove any excess adhesive squeeze-out from the repair area prior to curing to properly seal the repair. Do not solvent soak the adhesive.

Note that grinding the panel to remove excess adhesive can expose bare metal and cause corrosion.

Step 11. Re-apply replacement foams at their original locations as required.

Weld bonding (spot weld and bare metal flanges)

Step 1. Using a grade 80 abrasive belt, remove the remaining weld nugget material from the host panel. Prep the remaining mating flanges on the host panel with a coarse belt to remove any and all adhesives, corrosion and coatings. Do not thin flanges.

Step 2. Use an abrasive belt or disc to remove the Ecoat from the replacement panel mating flange areas. Do not thin flanges.

Step 3. Clean the host and replacement panels mating flange areas with a VOC-compliant surface cleaner.

Step 4. Dry fit the replacement panel and complete any necessary metal straightening at the flanges.

Step 5. Use an abrasive belt to prepare metal surfaces. Do not thin flanges.

Step 6. Clean and apply weld-thru primer to all areas requiring MAG welding. Always follow vehicle manufacturer recommendation for these primers. Note that some manufacturers do not approve of using weld-thru primers on aluminum panels. No weld thru where adhesive is.

Step 7. Identify the replacement spot weld sites and remove the Ecoat using an abrasive belt where the spot weld tips contact the host and replacement panels. Remove the panel once this step is complete.

Step 8. If the vehicle construction necessitates it, apply NVH material or foams at original locations as required. Take caution regarding the possibility of fire when welding.

Step 9. Apply bonding adhesive to mating flange areas on the host and replacement panels, making sure to cover all bare metal areas. Apply additional beads of adhesive at mating flange areas. Keep adhesive away from MAG weld joint.

Step 10. Install the replacement panel to the host panel. Clamp the panel in place.

Step 11. While the adhesive remains uncured, spot weld at the prepared weld sites. Follow welder settings determined from a test panel. (A shunt clamp should be used.)

Step 12. Remove the clamps and any excess adhesive squeeze-out from the repair area prior to curing to seal the repair. Note that grinding the panel to remove excess adhesive can expose bare metal, causing corrosion.

Step 13. Re-apply foams at original locations as required.

Aluminum rivet bonding

Step 1. Using a grade 80 abrasive belt, remove remaining rivet material from host panel. Prep the remaining mating flanges on the host panel with a coarse flex belt.

Step 2. Remove the Ecoat from replacement panel mating flange areas using an abrasive belt or disc.

Step 3. Dry fit the replacement panel. Complete any necessary metal straightening at flanges areas.

Step 4. Clean the host and replacement panels mating flange areas with a VOC-compliant surface cleaner.

Step 5. Prepare the rivets. Identify the replacement rivet sites and prepare the surface for the type of rivet recommended by the manufacturer. For blind or solid rivets, drill all necessary holes. Remove the panel.

Step 6. If vehicle construction necessitates, apply an NVH Dampening Material or Flexible Foam at original locations as required.

Step 7. Apply adhesive to the mating flange areas on the host and replacement panels covering all bare metal areas. Apply an additional bead of adhesive at mating flange areas to ensure proper bond line thickness.

Step 8. Install the replacement panel to the host panel, taking care to avoid scraping off any adhesive. Clamp the panel in place.

Step 9. Install replacement rivets to all areas as recommended by the vehicle manufacturer. Note: Rivets must be installed while the adhesive is uncured. Weld any cosmetic joints/splices as necessary or recommended by vehicle manufacturer. Adhesive should not be in MIG locations.

Step 10. Remove the clamps and any excess adhesive squeezed out from the repair area prior to curing to seal the repair. An acid brush works well to remove adhesive from between clamps. Note that grinding to remove excess cured adhesive can expose bare metal, causing corrosion.

Step 11. Re-apply foams to their original locations as required.

Best practice tips: Adhesives

Manufacturers have done a laudable job of improving the durability and quality of adhesives. In many cases, they've surpassed the strength of weld bonds. They also remain one of the simplest-to-use tools in your repair arsenal.

You still need to take the time to use them correctly. Take special care in addressing these areas:

Follow all recommendations. Review both the vehicle and adhesive manufacturer recommendations. Adhesives come in many different variations with differences in mixing, curing and application times and environments. Be certain you're using an adhesive acceptable to the OEM and following guidelines, particularly those for curing times per the repair environment. Humid or cold environments, in particular, can have significant consequences on an adhesive bond. Note how a repair environment affects finishing products. The same holds true for adhesives, but they can be easy to overlook since problems aren't typically as obvious.

If the adhesive is designed for bare metal application, it will most likely require the removal of the zinc coating on steels that have it, doing this without thinning the steel requires a certain level of attention.

Maximize surface coverage. The main goal during adhesive application is getting as much surface coverage as possible. All bare metal must be covered. This entails taking sufficient time and using the right tools to apply the adhesive. Just dispensing from an applicator isn't enough. Use a plastic body filler applicator or an acid brush.

Also, be careful when applying a clamp that you don't squeeze out an excessive amount of adhesive. A very small amount may be expected. If you squeeze out any more than that, you're weakening the bond. The clamp should only be used to keep the bonded parts in the correct position. Applying excessive clamping force does nothing to build a better bond and, in fact, inhibits it.

Avoid damage. Removing squeeze out following an application can be difficult, but resist the temptation to grind away the excess since doing so can uncover bare metal. Use an acid brush or paper towel instead to remove the excess.

Best practice tips: Weld bonding

Weld bonding might be best defined as the art of combining very specific adhesive application instructions with strict welding recommendations. Information on producing these bonds can still be hard to come by, so there's a good possibility you'll need additional time to run down this information. You'll also need to verify that the vehicle manufacturer permits this kind of repair.

If that's the case, note that OEMs may require the use of specific spot welders and adhesives. Never deviate from these.

Also note that OEMs vary in weld

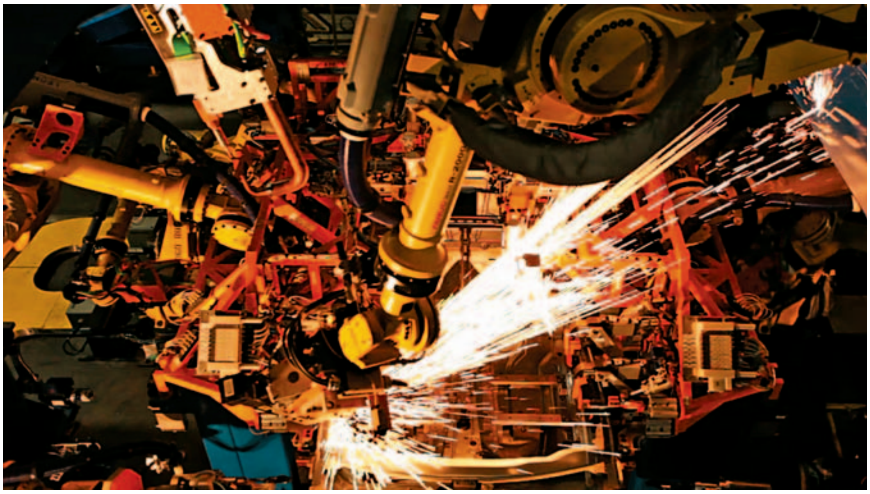

PHOTO: GM

MODERN VEHICLES INCORPORATE a wide array of adhesive bonding types. While repair procedures are relatively similar, don't miss the details.

PHOTO: GYS

HAVE QUESTIONS ABOUT RIVET BONDING? Get your answers well before doing this work since adhesives can have relatively short (30 minutes) working times.

placement requirements. A number of OEMs require a one-to-one replacement spot-weld ratio, though not in the same location as the original weld. Others require a greater percentage of replacement welds, typically 10 to 30 percent more welds depending upon the flange space.

Best practice tips: Rivet bonds

You'll need, again, to following the vehicle make's specific procedures and the adhesive recommendations noted earlier. Keep in mind that adhesive working and curing times for rivet bonding can differ markedly from other repairs. For example, rivets must be installed during the working time, which can be as little as 30 minutes. (Part replacement procedures may require several different rivet types and/or sizes be installed; this requires organization and planning in advance of adhesive application. Which rivets go in what location, and do you have to change rivet dies? Install all rivets requiring one die set then change to a different die set if needed.) If careful planning is not done in advance, you could run out of open work time for the adhesive. Fumbling with rivets and die sets is not a good place to be. If you have any questions about rivet boding or performing this type of repair, you'll want answers well before applying the adhesive.

Indeed, planning should be a part of every repair. Adhesive products, welding recommendations and repair instructions can change regularly. Spending a few extra moments preparing for this critical work can mean all the difference in the world between an A+ repair that fully restores vehicle safety and anything less, which compromises that vehicle's occupants and your shop's integrity.

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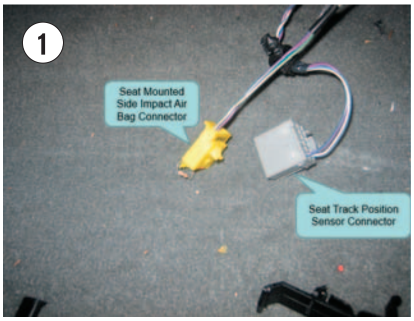
SUPPLEMENTAL RESTRAINT SYSTEM SERVICE

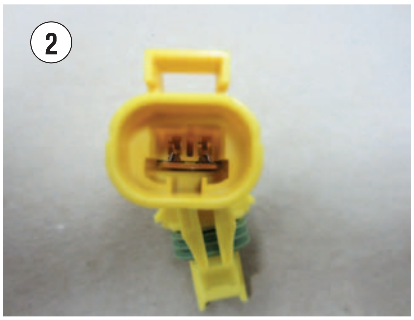
TIPS AND TECHNIQUES FOR AIRBAGS, PRETENSIONERS AND OCCUPANT DETECTION SYSTEMS

SCOT MANNA // Contributing Editor

Editor's Note: *This story was originally shared with readers of our sister publication,* Motor Age, *which serves the mechanical repair side of our industry. For many years now, this side of the business has become accustomed to accessing and reviewing OEM service information in order to insure a proper repair is made. It is more important than ever for our collision repair colleagues to do the same, and this article on the SRS (airbag) system is a perfect example. If an airbag deploys, there may be multiple components that require replacement, including the SRS control module. The related modules may require total reprogramming, with data first being farmed from the old module and then transferred to the new, or it may require downloading the needed information direct from the OEM website. Both would require special tooling and training to carry out the procedure successfully. Finally, it is increasingly critical in both arenas of automotive repair to perform before and after vehicle scans to ensure that there are no issues in any of the other vehicle systems, especially those related to safety. We hope that this article, and those that will follow, will help your collision shop and techs to be more confident in their repairs.*

Keeping vehicle occupants safe during a collision is a major concern for manufacturers and generates enormous costs for car companies in the area of crash worthiness testing and Supplemental Restraint System (SRS) engineering. Vehicle collision restraint systems have undergone steady improvements over the last several decades since their introduction in the 1970s. All passenger vehicles built after Sept. 1, 1998 are required to have driver and passenger front airbags. As system improvements continued, the number and location of inflatable restraint bags has grown considerably; modern vehicles can have 10 or more pyrotechnic charges around the vehicle to inflate airbags or tension seat belts or even disconnect battery cables in the event of a collision. This article will focus on SRS service, which can be somewhat intimidating to a technician with little or no SRS experience or training. But fear not, SRS repair can be done safely and profitably if basic caution and some common sense is followed.





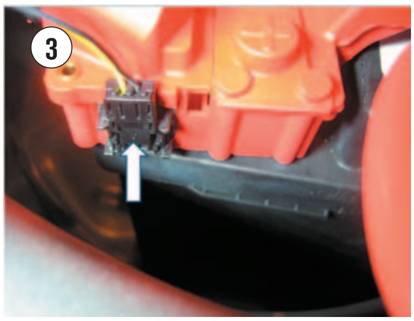


PHOTO: SCOT MANNA

A lot of letters

Let's start by mentioning that SRS will be used in this article as an all-encompassing acronym for airbags, seat belt pretensioners and occupant detection systems. There is no shortage of acronyms for SRS systems, and different manufacturers use different names for the same components. The airbag control module is called an SDM (Sensing and Diagnostic Module) by GM, an RCM (Restraint Control Module) by Ford or an ORC (Occupant Restraint Controller) by Chrysler, so just deal with the issue and we'll move on. Most often a vehicle with an illuminated airbag light will have trouble codes stored to help identify the area of concern and point the technician in the right direction. Most of my SRS experience is in fixing codes in a vehicle or getting the warning light to go out after post-collision repairs are made.

Let's discuss the issue of fixing a vehicle that develops a problem and illuminates the SRS warning light but has not been in an accident. Most of the problems I have seen are either inflator circuit issues or crash sensor problems. The good news is the inflator circuits are just two wire circuits that either develop high or low resistance faults and are not too difficult to diagnose. The SRS module constantly monitors each airbag or seat belt pretensioner pyrotechnic circuit for the proper resistance to ensure the circuit will work if needed in the event of a collision. The normal resistance in these circuits is around 1-3 ohms. The scan tool capture from a 2007 Chrysler Sebring listed many codes that were set when the vehicle was in a collision.

There are many codes for open circuits in the various inflator circuits. Chrysler calls the airbag inflator charge or pyrotechnic a "squib," but it's just another variation in naming preferences. If an airbag inflates, the inflator becomes open, so the module now codes for an open circuit. Keep in mind that most SRS modules can only fire an airbag once, so if an airbag deploys, the SRS module must also be replaced. If a vehicle comes in with a low- or high-resistance inflator circuit code, the technician's job is to determine if the fault is in the wiring or the inflator (airbag or seat belt pre-tensioner charge). This will require gaining access to the component connector, which may involve removing the airbag or any necessary interior trim to access seat belts or roof-mounted airbags. Once you access the connector, you can substitute the correct resistance into the circuit, clear the code and see if it returns after cycling the key. I have found it very helpful to keep handy in my toolbox ¼ watt resistors in 1, 2 and 3 ohm values to use as substitutes for inflator modules to test circuits.

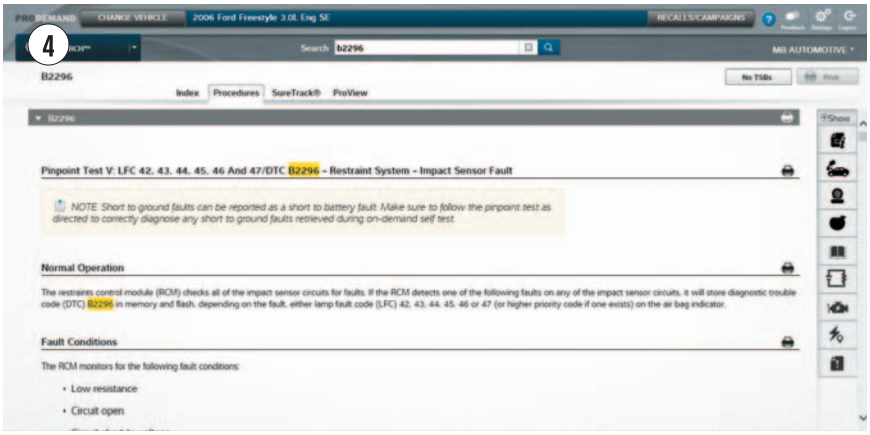


PHOTO: MITCHELL 1

You can purchase SRS load tools to substitute the removed airbag inflator, but when you service many different makes, this is way too large of an investment to cover all models.

You only need to simulate the correct resistance in the circuit to see if the code clears or changes from an active code to a history code. If the same code returns, then the problem is in the wiring from the SRS module to your test point. If you are working on a driver's side airbag inflator, you can disconnect the wiring to the steering wheel clockspring and connect the resistor there. If the code does not return, then the clockspring is defective — a pretty common problem on many vehicles. Figure 1 shows a picture of a resistor inserted into the connector of a seat-mounted side airbag to simulate the airbag inflator.

This type of circuit testing can be simplified even more when the inflator connector has a shorting bar in the connector. Many SRS connectors have shorting bars that short the two harness wires together when the connector is disconnected. This is done to prevent accidental airbag deployment. If there is a high-resistance code set for the deployment circuit and you disconnect the inflator and a low-resistance code is set due to the shorting bars in the connector, then you know the circuit is good and the high resistance is the inflator module. Figure 2 shows a replacement SRS wiring connector body before the wire terminals are inserted; the shorting bar is easy to see.

This leads to one of the more common problems I have seen following post-collision repairs. Many SRS deployment loop inflator connectors have small connector pin assurance (CPA) locks, which have to be unlocked to disconnect the connector. Often technicians lose or break these plastic locks and then a low-resistance or shorted circuit code sets because these locks also release the shorting bars in the connector. These may be difficult to find and are not available separately, so be careful when disconnecting inflator module or seat belt pretensioner connectors.

A 2013 BMW 528i was brought in to have the replacement airbag module programmed. After successful programming, the SRS light remained on and the code causing the light was revealed: Code 930993.

The code is for low resistance in the "Safety Battery Terminal." This BMW had a pyrotechnic charge at the positive battery cable clamp to open the battery cable in the event of a collision. The shop had replaced the battery cable, but the technician left the connector lock out, so the connector shorting bar had shorted the wires together, causing the code. The shop found the connector lock, and once re-installed, the problem was fixed. Figure 3 shows the battery cable with the missing connector lock.

Real-world issues

These are all very common SRS service problems. During research for this article I spoke with Bob Heipp, a lead mobile diagnostic technician working at Mobile Auto Solutions located in Chicago, Ill. Mobile Auto Solutions has seven service techs and services body and repair shop clients throughout Chicago and the suburban area. Bob stated about 75 percent of their business is with body shops, so Bob has seen it all when it comes to SRS repairs. Mobile Auto Solutions services Domestic, Asian and European vehicles. When asked what the most challenging SRS diagnostics are, Bob said without a doubt that man-made problems take the cake. Wrong parts installed, connectors crossed or poor wiring repairs can take the most time to sort out. The most common issues he sees are what was shown above — connectors not mated properly or missing CPA locks causing airbag lights to stay illuminated. Bob also pointed out the most important items to have for SRS service are the correct scan tool, usually a factory tool, and good service information. With these two items and some resistors, Bob can handle almost any SRS issue. Module programming, code clearing and Occupant Classification System seat weight calibrations are the most commonly performed jobs and constitute 40 percent to 50 percent of the jobs he performs each day. Bob felt a technician needs a good understanding of electrical system diagnostics and the ability to follow service procedures laid out in service manuals along with proper tooling to be successful in SRS repairs.

The deployment loops are the output side of the SRS control module. The

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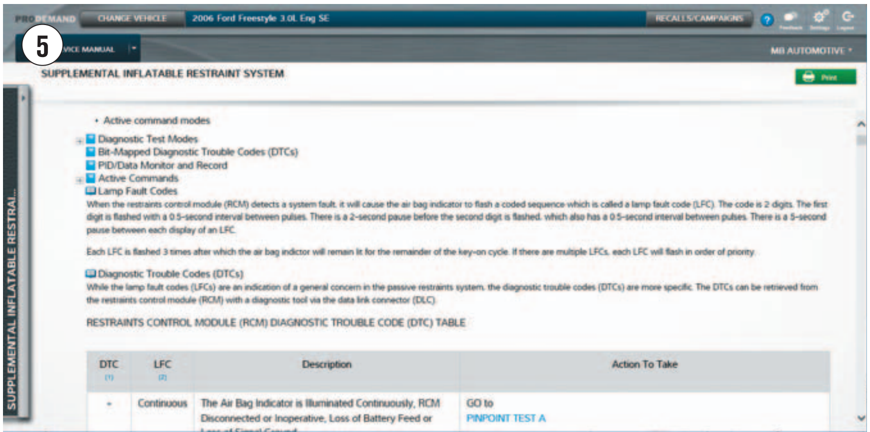

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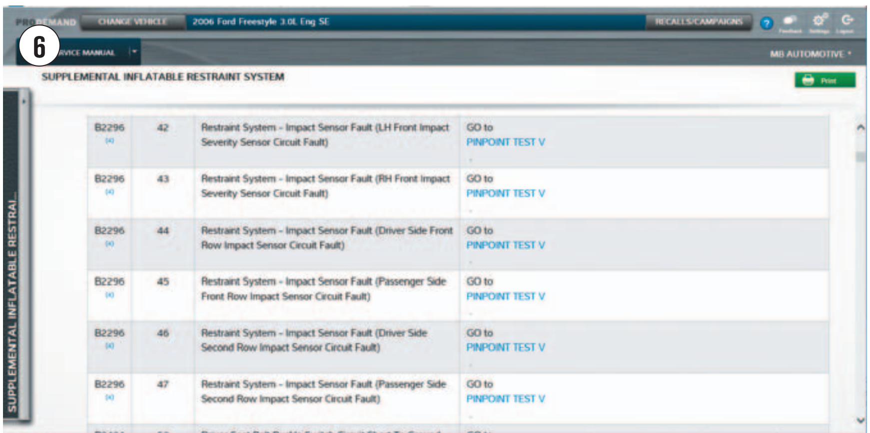
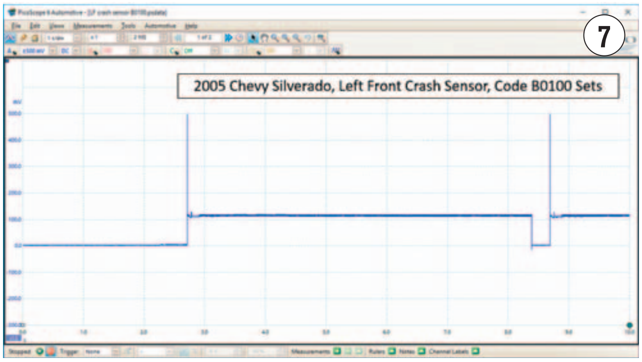
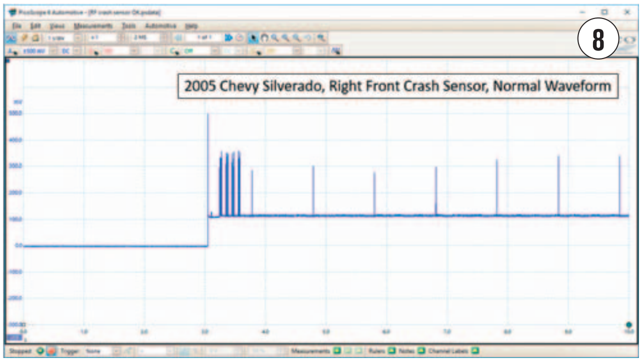


PHOTOS: MITCHELL 1





crash sensors are the input side of the SRS module, and they fail as well. Armed with a scope, it is possible to look at the signals or data that these crash sensors send out and determine if the sensors have failed. In my experience, when a crash sensor fails, the module will properly code the offending sensor, and the sensor itself is usually the bad component. Many frontal crash sensors are mounted in harm's way, and in the Midwest where my shop is located, there are always issues with corroded wiring and terminals. These failures are often found with a simple visual inspection. It is interesting to note here that some manufacturers, such as Ford, still use airbag warning light "flash" codes, which can be very helpful.

A 2006 Ford Freestyle came in with the airbag light illuminated. A scan test with the factory Ford IDS scan tool revealed a code B2296, "Front Impact Sensor Circuit Failure" stored. Unfortunately, the code description does not reveal which crash sensor is at fault. The wiring diagram shows there are six impact sensors on this vehicle. Code B2296 covers multiple flash codes, as seen in Figure 4.

When service information was accessed, the diagnostic test menu showed the LFC or "light flash code" table, as seen in Figures 5 and 6. The table reveals that light flash code 42 is for the left front crash sensor mounted behind the grille; code 42 was the light flash code this Freestyle output.

This seemingly simple issue illustrates the need for following service information and using all the resources available. Much time can be wasted trying to determine which sensor is responsible for the code when all the while the blinking airbag light can point you in the right direction.

The waveforms seen in Figures 7 and 8 were captured from a 2005 Chevy Silverado with a stored SRS code for the left-hand front crash sensor. Figure 6 is the key on capture of the failed sensor, and Figure 7 shows the right-hand sensor that is working properly. The difference is obvious. Also, note the very low-voltage scale needed to see this activity. I should mention here that correct terminal orientation is critical. The correct wire must go to the correct terminal to the crash sensors. Oftentimes, the harness may have been repaired after a collision, so don't overlook wires being crossed if you are diagnosing crash sensor codes after collision repairs. Also, remember that incorrect parts can really make you chase your tail. These are man-made faults, so verify the vehicle you are working on and the correct part numbers of replacement parts. One last item is crash sensor mounting. Make sure the mounting location is clean and the bolts are properly torqued to prevent comebacks or codes resetting.

The second issue I want to mention is SRS module replacement and set up. This is a common procedure because most cars require the SRS module is replaced after airbag deployment. This is where the correct factory scan tool is really important. Some modules require only a configuration or setup procedure and some modules will require programming to be performed, so check service information before agreeing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to take in a car so you are certain you have the capabilities to complete the repair. Most vehicles with a passenger front airbag will have some form of an occupant classification system that can detect whether or not there is a person in the passenger seat during a collision event. This system will prevent passenger side airbag deployment if the passenger seat is unoccupied. This system can save a lot of money in post-collision repair costs. Oftentimes after a collision occurs, the passenger seat weight measuring system will need to be re-zeroed or calibrated. If this is not performed, a code will be set in the main SRS module and the dashboard airbag warning will remain on. Procedures to perform this function vary greatly among manufacturers, so consulting service information is necessary before beginning. The pictures in Figures 9 and 10 show the weight set needed to perform a calibration on many Chrysler vehicles. This three-piece assembly will simulate a rear-facing infant seat (RFIS), six-year-old child, and a fifth percentile woman weight levels and are installed on the passenger seat one at a time while the scan tool performs the calibration. Without this special tool, you should not attempt to perform the calibration.

One issue that is somewhat common is SRS modules being replaced on Ford vehicles without following Ford's scan tool procedure called PMI, or Programmable Module Installation. The PMI procedure, which should be performed when replacing most modules on a Ford product, involves having the factory IDS scan tool copy or "inhale" the module configuration files and reinstall or "exhale" the file in the replacement module. If this is not performed, you have two options. First, you could reinstall the original module and do the PMI or using the scan tool, write in the original "as-built" data for the module. The IDS scan tool may have the as-built data on the computer's hard drive or you can find it on the Ford service website at https://www.motorcraftservice.com/QuickGuides/QuickGuides. Another problem I have seen is on Hyundai\Kia vehicles when a replacement SRS module is installed and there is still a failed component on the vehicle. Installing a new SRS module on these newer vehicles requires something called "variant coding," which tells the module that the SRS components are installed on the vehicle. If there is a bad component, such as a deployed seat belt pretensioner, the variant coding will fail without any indication as to why. Because the replacement module is not coded, it cannot set fault codes, but with the factory GDS scan tool, you can get a screen.


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The administrative side of vehicle scanning

Effectively managing scanning service requires thought and preparation

Many OEMs have published position statements regarding pre-repair/post-repair health scans. As a business owner, you must decide how to follow these statements and procedures that require scanning. I want to share insight into the administrative side of scanning and how to address it effectively in your business.

The easiest method for scanning vehicles is to utilize a sublet vendor. There are three main options: a dealer, a mobile scanning company or a remote diagnostic company. Shops located near dealerships may be able to partner with the service departments to complete health scans and other calibrations.

But, at what volume does it become unreasonable to transport cars to and from the dealership? Enter the second sublet option: a mobile scanning company. This has the advantage of on-site diagnostics. However, it is also necessary to proactively schedule your scanning needs in order to receive timely service.

STAFFING AND TRAINING ARE TWO ADMINISTRATIVE ITEMS THAT GO HAND IN HAND WITH IN-HOUSE SCANNING.

The final sublet option is to use a remote diagnostics company, such as Collision Diagnostic Services, that scans vehicles remotely over the internet, on demand. Remote diagnostic companies have a leg up on the previous two sublet options because they eliminate the need to transport the customer's vehicle offsite and also present an almost on-demand availability that would be tough for a mobile scanning company to match.

There is another scanning option for those who choose a more hands-on approach: scanning vehicles in-house. But investing in the equipment is just the beginning. There are several administrative items that will need addressing as well, with the three largest being IT, staffing, and training.

To successfully manage the IT portion of in-house scanning, you will need to be prepared. OEM scan tools are generally composed of three basic parts: the vehicle interface module, the computer or tablet and the diagnostic software that is subscription-based. Not all OEM scan tools come with a computer, but all OEMs provide the basic hardware requirements to operate their diagnostic software. You will have to make the decision about whether you are comfortable setting up the computer, deciding if the computer will be on the company domain and installing the diagnostic software. If this isn't within your comfort zone, then you may need to look at having a managed IT provider perform these actions for you. The IT administration continues after the initial setup is complete.

OEM scan tools are constantly updating, and each tool updates in a different manner. It is important to have a centralized storage location for the scan tools. The area needs access to power for charging and either a WIFI or cabled connection for updating. Managing updates is important to ensure you are using the latest software when scanning vehicles. Some scan tools, and all subscription-based OEM websites, require login credentials. It is advisable to create and maintain a secure master list of user names and passwords to minimize downtime trying to login.

Staffing and training also go hand in hand with in-house scanning. You may be able to scan all the vehicles with your existing workforce, but at a certain point, it may become cost effective to create a new position within your company for a technician who focuses solely on scanning and diagnostics. This is where the training aspect comes into play. Operating OEM diagnostic software is a skill. Each user interface is different, the terminology is different, and the functionality varies. It may be necessary to divide the brands among several employees and focus their training on those specific brands. The training provided to these employees needs to encompass more than just the user interface of the diagnostic software; it must include accessing and utilizing OEM service information as well. Knowing both the user interface and service information is critical for safe and effective vehicle scanning.

Effectively managing the administrative side of scanning requires thought and preparation. No matter which method you choose, it is just important that you are scanning your customer's vehicles to ensure a complete and safe repair.

WILL LATUFF is a manager of Latuff Brothers Auto Body in St. Paul, Minn. He is an active member of AASP-MN, participating on the board of directors as well as serving as AASP-MN Collision Division director. *wlatuff@latuffbrothers.com*

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