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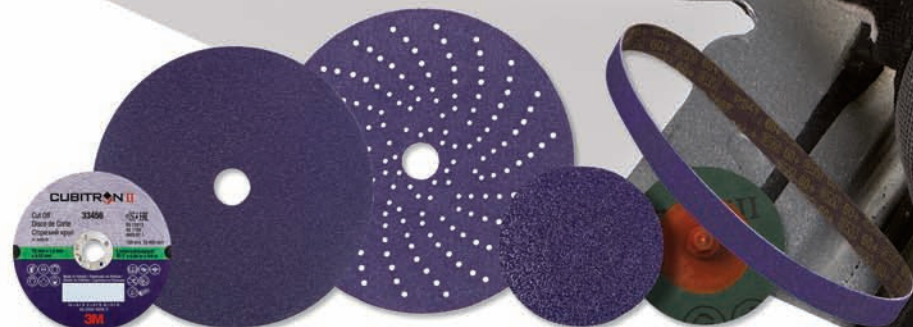


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*AS OEM DESIGNS, MATERIALS EVOLVE, SO MUST COLLISION REPAIR SHOPS*

TECHNICAL

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Phone: (440) 243-8100  
Fax: (440) 891-2675  
**WWW.ABRN.COM**

**EDITORIAL**

**MICHAEL WILLIAMS**  
GROUP CONTENT DIRECTOR  
mwilliams@advanstar.com  
(440) 891-2604

**KRISTA MCNAMARA**  
CONTENT CHANNEL DIRECTOR  
kmcnamara@advanstar.com  
(440) 891-2746

**CHELSEA FREY**  
SENIOR ASSOCIATE EDITOR  
cfrey@advanstar.com  
(440) 891-2745

**LARRY MONTANEZ**  
CONTRIBUTING  
TECHNICAL EDITOR

**STEPH JOHNSON-BENTZ**  
ART DIRECTOR

**CONTRIBUTORS**

**BRIAN ALBRIGHT**  
b-albright@sboglobal.net  
(614) 237-6707

**MIKE ANDERSON**  
mike@collisionadvice.com  
(301) 535-3333

**MIKE LEVASSEUR**  
mikel@keenanautobody.com  
(484) 257-5410

**JAMES E. GUYETTE**  
jimguyette2004@yahoo.com  
(440) 564-9180

**GREG HORN**  
greg.horn@mitchell.com  
(858) 368-7796

**KEVIN MEHOK**  
k.mehok@comcast.net  
(708) 516-2936

**TONY PASSWATER**  
tony.passwater@aeti.net  
(317) 290-0611

**KEITH MANICH**  
kmanich@autotraining.net  
(888) 471-5800

**TIM SRAMCIC**  
tsramcic@yahoo.com  
(330) 475-5965

**ALFRED THOMAS**  
athomas@pct.edu  
(570) 329-2712

**JOHN YOSWICK**  
info@crashnetwork.com  
(503) 335-0393

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**LISA MEND**

ASSOCIATE PUBLISHER  
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NEWS ANALYSIS, INDUSTRY ISSUES & PRODUCTS NEWS

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BY WIRE REPORTS

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**FEATURE**

## HOW DO YOU COMPARE TO YOUR INDUSTRY COMPETITORS?

BY BRAD MEWES | ABRN BLOGGER

Public disclosures can offer a treasure trove of information to help drive profitability

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**WHAT IS ABRN COMMUNITY?** The ABRN community is an online NETWORK for your business. It's a place to go to post articles, blogs, videos, photos and audio clips to share ideas with other collision repairers. Community content is used in ABRN's twice weekly e-newsletters. Check it out at <http://workshop.search-autoparts.com>



**MINDING YOUR BUSINESS**

**MEASURING FOR SUCCESS**

BY **JIM COMPTON** | CONTRIBUTING EDITOR

You can't manage what you don't measure, so keeping track of KPIs is vital for assessing shop success

IN THE NEXT ISSUE OF ABRN

**Don't miss our first ever aluminum supplement featuring everything you need to know to prepare your shop.**

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FROM ABRN CONTRIBUTING EDITOR AL THOMAS.

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ONLINE COVERAGE

**THERE'S MORE ONLINE:**
**ASA PUBLISHES NOT-INCLUDED OPERATIONS**

The Automotive Service Association released the latest update to its Not-Included Operations chart.

»» [ABRN.COM/NONINCLUDED](http://ABRN.COM/NONINCLUDED)

**I-CAR'S PLATINUM DESIGNATION GAINS TRACTION WITH USAA**

I-CAR is working with insurers like USAA to help infuse the information, knowledge and skills necessary to perform safe, complete and quality repairs on redesigned vehicles hitting the market.

»» [ABRN.COM/PLATINUM](http://ABRN.COM/PLATINUM)

**MICHIGAN LEGISLATION WOULD STOP PARTS MANDATES**

The Automotive Service Association asks Michigan repairers to contact legislators in support of Senate Bill 430, which would prohibit insurers from mandating parts vendors.

»» [ABRN.COM/SB430](http://ABRN.COM/SB430)

**INFRARED WELD ANALYSIS TOOL DEVELOPED**

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NEWS ARTICLES TO STAY INFORMED


Mike Anderson

**NON-INCLUDED SURVEY**

## Survey: Who pays for non-included items

Fully one-third of collision repair shops nationwide said they have never asked to be paid for "masking the engine compartment" when this "not-included" procedure has been necessary as part of a repair, yet another one-third of shops who do seek to be paid for it say they receive that payment "always" or "most of the time."

That finding is just one of hundreds revealed in a survey conducted recently by Collision Advice, which is also launching a new survey this month.

"This confirms something I see as I work with shops around the country," said Mike Anderson of Collision Advice. "On this one procedure alone, for every shop not including this necessary procedure on their estimate, another shop is getting paid for it most if not all of the time."

More than 980 shops around the country responded to the survey, which asked them to report how often they are paid for 26 refinish-related procedures by the eight largest auto insurers.

"With that level of response, I believe is the largest survey ever examining this subject," Anderson said.

He said it is clear from the results of this survey that whether or not a repair facility is reimbursed for a particular procedure depends, to some degree, simply on whether or not the shop negotiates for that operation. Though the survey found that reimbursement frequencies

&gt;&gt; CONTINUES ON PAGE 8

**BREAKING NEWS**
**OEM CERTIFICATION**

## HYUNDAI LAUNCHES COLLISION REPAIR PROGRAM

Hyundai Motor America launched its all-new Hyundai Recognized Collision Repair Center program. This program ensures both independent and Hyundai dealership-owned collision repair centers have the training, tools, equipment and facilities needed to properly repair Hyundai vehicles after they have been involved in a collision.


**HYUNDAI**

Customers can look for the Hyundai Recognized Collision Repair Center plaque at their local collision repair center to know if their Hyundai will be repaired properly and safely to manufacturer specifications. The program will allow Hyundai to refer Hyundai owners in need of collision repair to a recognized center.

"We want our customers to know we have their well-being in mind after they have been in a collision," said Frank Ferrara, executive vice president, customer satisfaction, Hyundai Motor America. "Hyundai owners benefit from this

&gt;&gt; CONTINUES ON PAGE 8

Photo: Mike Willins





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[CAPAcertified.org](http://CAPAcertified.org)

*If it isn't CAPA Certified, it isn't a genuine replacement part*



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&gt;&gt; CONTINUED FROM PAGE 6

## SURVEY: WHO PAYS FOR NON-INCLUDED ITEMS

do vary by insurance company, DRP status and region of the country, it is clear that none of the procedures are universally rejected by insurers.

Anderson said the quarterly surveys help raise awareness of not-included items and operations that shops may be doing but not itemizing on estimates.

"The surveys will help shops understand what these operations are, and whether other shops seek and receive compensation for them – or if they truly are 'the only one,'" Anderson said.

The 62-page report of the first survey findings is now available by clicking on the "Who Pays For What?" logo

on the Collision Advice website ([www.CollisionAdvice.com](http://www.CollisionAdvice.com)).

Shops can also use that link during the month of July to take the latest of the surveys, which covers structural/frame and mechanical-related operations.

Anderson said each survey, which will take about 15-30 minutes, should be completed by the shop owner, manager or estimator who is most familiar with the shop's billing practices and the payment practices of the largest national insurers. Each individual shop location (whether a stand-alone business or part of a multi-shop operation) may submit one response to the survey.

Those who complete the survey (and provide optional contact information) receive the survey findings at no charge.

Each shop's individual responses are held in the strictest confidence and are not released in any way; only cumulative data is released.

Collision Advice ([www.CollisionAdvice.com](http://www.CollisionAdvice.com)) is an independent training and consulting firm featuring some of the most respected and experienced experts in the collision repair industry. Mike Anderson and his team offer real-world, cutting edge training and guidance both in the classroom and one-on-one in the shop.

&gt;&gt; CONTINUED FROM PAGE 6

## HYUNDAI LAUNCHES COLLISION REPAIR PROGRAM

program through the assurance that centers will ensure the fit, finish, durability, safety and value of the vehicles being repaired. Having a network of recognized shops is critical to make sure our cars are repaired properly."

Hyundai has teamed up with Assured Performance Network on this program. Assured Performance Network is a non-profit consumer advocacy organization that will guarantee both Hyundai dealership-owned and independent collision repair centers meet the program's specified capability requirements, and pass an annual onsite audit and inspection. Assured Performance Network will also manage enrollment, online support systems, proof of compliance documentation and marketing. Collision repair centers can call 949.221.0010 or visit [www.GetHyundaiRecognized.com](http://www.GetHyundaiRecognized.com) for more information.

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# COLLISION REPAIR INDUSTRY Stats & Trends

**42 percent -**  
The amount of comprehensive automotive insurance claims filed during the second quarter as a result of hail.



## How do you compare to your industry competitors?

Public disclosures can offer a treasure trove of information to help drive profitability

BY BRAD MEWES | ABRN BLOGGER

In past blogs, I have discussed the importance of developing a strategy and the implications consolidation has on your business. A big part of developing a strategy — whether it is stand pat, buy or sell — is understanding what your competitors are up to in the marketplace. I am often asked about the goings on of other large players in the industry. It is good business to be aware of the goings on of key competitors in your marketplace. But many owners do not realize that much of this competitive intelligence they seek out is at their fingertips if they know where to look.

Acquisitions, who acquired whom and the price paid for such acquisitions is always a topic of much speculation. When acquisitions are completed by a public company, or a semi-public company perhaps planning to go public, often much of this information is disclosed in required public filings. In-

dustry trade associations or investment banks will put out research reports that provide substantial competitive information as well.

Public companies often provide substantial insight into the drivers of profitability. For example, looking slightly outside the collision industry, the Sonic Automotive Group, one of the largest vehicle retailers in the country, recently reported that the service, parts, collision and warranty segment of their business accounted for only about 15 percent of revenues but a whopping 40 percent of profits. Tracking the drivers of profitability often provides clues to the strategy of a major competitor. In Sonic's case, clearly servicing and repairing vehicles is nearly as important as selling vehicles.



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##### In-house training success BY MIKE LEVASSEUR

A year ago, I wrote about our initial progress with what we call the Collision Repair Opportunity Program (CROP), a response to the industry's shortage of collision repair technicians. We've had some continued success with it this year, so I thought it would be worthwhile to offer an update.

First, a reminder about what CROP is. CROP grew out of a strategic planning session we had in 2012, when "cultivating talent" was among the issues we discussed. Once we created a basic framework for CROP, Max Sorensen, who manages one of our locations, took the lead and laid the groundwork for the project, working with our marketing direc-

tor Craig Comacho to get the word out to the schools in our area.

"It all starts at the local high schools," Max says. "We present CROP to the students enrolled in the collision repair programs, as an alternative to tuition-based secondary education centers."

Graduating high school seniors apply for the internships through our website, just as if they were applying for a regular position with our company. We then select interns through a basic aptitude test and a 3-interview screening process. Our employee who will be serving as that student's mentor during the program participates in the third interview to help us ensure the two will be a good fit.

The chosen students begin a 9-month internship working with

the mentor in either our body or paint department. We provide them with a starter set of tools as well as a workbook that spells out the curriculum.

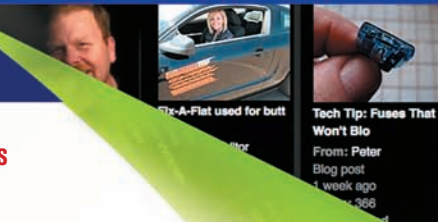
At the end of the first 3-month "term," the intern must complete both a written and a hands-on test. Upon successful completion of the testing, they can move on to the remaining two 3-month terms of the internship.

As I wrote last year, Oscar Cantone Corona completed the program in 2014 as a paint tech. Oscar is now working in our paint department, has zero student debt, and kept the tools (valued at about \$1,500) that we provided at the start of the program.

We are pleased to say that this past spring we graduated a body technician through the program.

Sergio Cerrato works with our A-level technician John Scully as his mentor. It was really satisfying to have Sergio's proud parents here when we presented Sergio with his plaque for successfully completing the program. And we have another student in the pipeline who is on track to graduate this year.

I can't say there haven't been some hiccups along the way. We had one student who five weeks into the program decided body work was not the career he wished to pursue. Although not an ideal outcome, we felt good that he gained some work experience. To read the entire article you can go to [ABRN.com/inhouse](http://ABRN.com/inhouse).



**How to use consolidation trends to your advantage**

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THE SHOP OWNER

MIKE LEVASSEUR

Robotic, gas catalytic drying



MIKE ANDERSON

Don't just survive — thrive

There is a treasure trove of operational and financial information contained in the public disclosures. The Boyd Group, one of the largest collision repair companies in the world, publishes reports outlining business results in incredible detail. Boyd runs a very effective collision repair and glass business and is currently valued at over \$1 billion on the Toronto Stock

Exchange. Because they are a publicly traded company they are required to disclose anything "material," or substantially important in other words. As a result, we can learn a lot from the state of the collision repair industry from what they tell us. But it is important to understand how to read these disclosures. Continue reading at [ABRN.com/Boydinfo](http://ABRN.com/Boydinfo).

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Why do new strategies work in some shops and not in others? It can be demographics, but the vast majority of the time the strategy is implemented incorrectly and shop gives up on it. See how in this Tip of the Week with Chris "Chubby" Frederick, CEO of Automotive Training Institute (ATI). [URL: [ABRN.COM/TIPS](http://ABRN.COM/TIPS)]

• **Five areas beyond repairs to drive growth, profits**

There are many options in today's market that collision repair shops can take, and certainly one of the most talked about is growth. In this video Brad Mewes discusses the five areas beyond vehicle repair that shop owners must focus on in order to grow and make money. [URL: [ABRN.COM/FIVEAREAS](http://ABRN.COM/FIVEAREAS)]

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It seems today's infotainment systems can provide nearly every comfort of home for us to enjoy in our vehicles. My question is why? [MotorAge.com/infotainment](http://MotorAge.com/infotainment)

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NAPA Expo in May does a stellar job for their extended family of 18,000 people. [AftermarketBusiness.com/napaexpo](http://AftermarketBusiness.com/napaexpo)



*Noteworthy*

READER FEEDBACK TO ONLINE ARTICLES

**On LinkedIn, UBM Advanstar Social Media Coordinator Nancy Bishop wrote:**

Vehicle Electronics: What's good for the consumer isn't necessarily good for the tech. Customers love bells and whistles, as long as they are working properly. Tech too love bells and whistles... when they are working. When a vehicle comes into the shop after a collision the apparent damage is no surprise. After all, that's what you do, it's what you're there for and you're good at it. However; chances are that there is some type of sensor somewhere connected to some electrical or electronic component that is also damaged. This may require a lofty sounding sigh before tackling. At this point? We are not loving the bells and whistles as much.

Here is my question: With more and more vehicles gracing the bays of your shop with increasingly better and more complicated technology loaded in

them, how is it affecting your shop? Do your techs constantly need to be trained on this newer technology? How much time is continuing ed taking up? How much does technology now play a part in how these vehicles are repaired?

Michael Kobrin, Margin Manager, Uniselect USA: With the addition of telematics to vehicles, technology will play a huge part in repairs. With the new Delphi "smart link" installed in any vehicle newer the 1996 with an OB2 connector, this will relay and alert the driver and a shop of their choice any repairs the vehicle needs. Not only is this great for consumers and businesses it is also a major safety net for today's families.

Robert Medved, Senior Account Manager/Industry Representative, S/P2: The best answer I ever heard to this question was a quote I saw recently. A manager for a company said to the CEO "what happens if after we invest in training our employees they leave?" The CEO responded "What happens if we don't train them and they stay?" Read more at [ABRN.com/bells](http://ABRN.com/bells)



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# Robotic, gas catalytic drying

New equipment and production system being implemented at brownfield shop

**I**'m excited that one of our Philadelphia area shops is the first in the region to have a "gas catalytic drying" system up and running. We opened a new brownfield shop in Aston, Penn., in April, with a complete gas catalytic drying system in both the body and paint departments, and the early results are really encouraging.

If the term "gas catalytic drying" isn't familiar to you, you're not alone. It's a type of product that has been in use in Europe and Australia for more than a decade, but it's just now hitting the United States. At least three companies are selling systems here.

The equipment, which requires only standard electrical and natural gas hook-ups, uses infrared energy to rapidly cure filler, primer and paint. How fast? Think of a body tech no longer letting a car sit idle. He applies the body plastic, uses a ceiling mounted robotic unit to cure the filler in 1-3 minutes, roll-primers the area, dries it with the system, sands it and preps the car to head over to paint.

Doing some adhesive bonding? This system cut the cure time in half.

In the paint shop, the car is then mounted on rollers so that it can be rolled into the booth. Once it is sprayed, a robotic arch mounted in the booth automatically cycles across the car and back. The traditional booth cycle time of 60 to 90 minutes can be cut to 35 to 50 minutes.

**"THE EQUIPMENT, WHICH REQUIRES ONLY STANDARD ELECTRICAL AND NATURAL GAAS HOOK UPS, USES INFRARED ENERGY TO RAPIDLY CURE FILLER, PRIMER AND PAINT. HOW FAST? THINK OF A BODY TECH NO LONGER LETTING A CAR SIT IDLE."**

Sound intriguing? Well, there are some caveats. It's not inexpensive. As with any installation situation, there are variables but the booth arch alone can require an investment of as much as \$90,000. I believe the energy savings and added throughput at the new shop will help it pay off, and I could see how it could also make sense, for example, for a maxed-out shop considering adding another booth.

In addition to the arch, we installed a ceiling-mounted "half-arch" system that allows us to move the robotic arm anywhere over six stalls in our body department. The installation of 60-feet of tracking system was a feat of engineering, with even tighter tolerances than we need to meet in bringing cars back into OEM specs. We also purchased a couple of hand-held units for small areas.

We looked at a couple brands of the equipment and I was impressed with them all. One of the things I liked about the one we chose is that it comes along not just with technical training on how to use it, but also consulting and training to set up a new production process (based on the "theory of constraints") designed to enable a continuous work flow that helps us take advantage of the speed the equipment offers. We thought the new location was an ideal place to test the concept, which takes a new approach for everything from job descriptions and pay plans to parts management and scheduling.

It clearly, therefore, requires the right type of crew. As one of my technicians told me, it takes some time to "get out of the rut" and even just get used to the equipment. But the technical aspect of it hasn't proved to be a big hurdle.

As I write this, it's still too early to have much to report in the way of overall results at the newly-opened shop. But our initial experience has been positive, and I'm looking forward to sharing some numbers with you in the future as we decide whether to add some of the equipment in some of our other stores, or continue to implement the complete equipment and production system in future brownfield or greenfield expansion we do. 📶

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Mike LeVasseur is president and COO of Keenan Auto Body, which has 12 shops. It was recently acquired by ABRA Auto Body.



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## MINDING YOUR BUSINESS

# MEASURING FOR SUCCESS

## YOU CAN'T MANAGE WHAT YOU DON'T MEASURE, SO KEEPING TRACK OF KPIS IS VITAL FOR ASSESSING SHOP SUCCESS

BY **JIM COMPTON** | CONTRIBUTING EDITOR

**YOU SHOULD** know the phrase Key Performance Indicators, or as some prefer, Critical Profit Variables (CPVs), are simple statistics that measure a business's performance over a set period of time.

Why do KPIS matter? One simple statement that bears repeating — “You can't manage what you don't measure.” Without using KPIS how do you know if you've improved or gotten worse? KPIS help us see our world and our industry from a broader perspective. The average batting average by a team in Major League Baseball (MLB) is about .251, with the top 10 players hitting over .330, so it's pretty easy to see where a player ranks as a hitter. MLB is a great example of KPIS or statistics; but they seem to have a statistic for everything. As a fan, I sometimes think there are too many statistics used in MLB. In the business world I call this DAP, but more on that later.

During a recent conversation with Craig Seelinger from BASF, we found that we share quite a few opinions about KPIS. We spoke specifically about those KPIS related to the refinishing department. With more than 30 years in the collision industry, Craig has become very fluent in KPIS. Overseeing the BASF Vision PLUS program has given Craig an

even greater understanding of the influence of KPIS on body shop gross and net profits.

The BASF Vision PLUS program measures just over 30 KPIS. When I asked why so many, after a chuckle, Craig said that this allows different shops at different points in their growth to pick the KPIS that they can best relate to and work on them first, as the shop grows and progresses operationally. We both agreed that four to five KPIS was a good number for most shops to concentrate on and place in the forefront of their dashboard. Often shops will switch their target KPIS to stir things up, refocus or add new discussion points to their meetings. Keeping other KPIS in more of a “side-view mirror” type of monitoring perhaps makes more sense.

When asked to shorten the list of KPIS from the 30 produced by the Vision PLUS program, Craig's top three refinishing-related KPIS were:

- Sales per RO
- Paint hours per RO
- Touch time

Sales per RO is still the apex of KPIS for most all shops. This is the single greatest area where improvements have the biggest impact. While this may seem obvious, the methods used to get there differ from shop to shop.

Paint hours per RO sometimes reflect smaller items that can cascade into bigger gains. With as little as 0.4 of an hour more in refinishing, we can see gains in paint and materials (P&M) gross profit, paint labor gross profit and overall gross profit. A shop averaging 9 refinishing hours per RO and a shop averaging 9.4 hours will have significantly different profitability on materials. While sometimes challenging, Craig noted these 0.4 hours can often be found in non-included items (P-Page





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items) such as refinishing a pinch weld that had been clamped, adding back the sound deadener material and undercoating and corrosion protection.

Dollars per refinish hour often seems market driven, or set based on other influences. That doesn't mean we shouldn't make this a constant area to strive to improve. Any increase here

translates directly to profits.

Touch time, or billable hours per RO per day, levels the playing field. Regardless of the total RO dollar amount, this KPI allows for comparison as repair size varies.

**20 group involvement**

Performance groups or 20 groups are

a great place for businesses to gather and share KPIs. Many shops have found the value with their membership in these groups and sharing and comparing KPIs. Many of these groups have found that focusing on just a few KPIs where there is a demonstrated opportunity for improvement — or where a shop is underperforming compared to their peers — is the way to go.

Most shops can't afford a board of directors, so these 20 groups often fulfill that void with the added value of being composed of industry professionals who have or will share the same challenges. And what a difference a board can make. When comparing results, Craig noted that a Vision PLUS member had sales in 2013 of \$3.5 million; this same member added \$900,000 in sales for 2014 with \$350,000 of that being added profit. We won't attribute all of that improvement to these shops having a "Board of Directors" and tracking their KPIs, but these two factors did contribute significantly.

**Good vs. bad KPIs**

With so many KPIs to choose from are there any bad KPIs? I for one say yes. KPIs need to be actionable and meaningful to the people you expect to help improve those them. For example, P&M gross profit percentage is a great indicator of performance. But this KPI is controlled or influenced by two different groups — the sales side by those writing the estimates and repair plans, and the cost side by those performing the repairs. By breaking this KPI into its two component parts, each involved member of your staff can measure their own impact. The production staff can use cost per refinish hour and the estimators or repair planners can use hours per RO, creating a better measurement for both teams.

A bad KPI is one that can't be translated into action for an individual or group/team in your shop. Another example of bad KPIs are those that never leave the boss's desk. Too often the greatest value of the KPI process is lost when it is not shared. Sharing your KPIs with staff and your business partners adds team members to help achieve improvements in KPIs. Too few shops post a scoreboard for their employees. The scoreboard should be the rallying point for staff and production meetings. The



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scoreboard needs to be expressed in terms that allow each individual or team member to see their impact on improvements.

### KPI focus

Earlier I mentioned DAP, or Datum Analysis Paralysis. Too much information can be overwhelming. Focusing on just a handful of KPIs for overall shop performance, and refining this to just a few related KPIs by department or team seems to have the best success. It is fine to keep track of lots of KPIs, but focus on a select few, especially with staff and extended staff. This is where some have taken to the term CPV or Critical Profit Variables. Separate out the most important KPIs and focus your staff on those.

KPIs need to be more than just a buzzword or something discussed at high-level meetings. They need to be presented to all the members of your staff. If you've been measuring a particular KPI for years and it hasn't improved, it is a buzzword, not a KPI. Consider changing to a different measurement, one that is more easily related to by your staff, and one that allows each member of your staff to see their contribution.

Some KPIs matter more than others. The best KPIs are those that matter to you and your shop:

- They are actionable. (An improvement or change can clearly be seen.)
- They can easily be measured. And shared! (Simple, timely Reporting)
- They have an opportunity for improvement. (KPIs where by comparison you are missing the mark set by your peers.)

### Making improvements

After gathering a list of KPIs and narrowing the list down to those few that we find actionable, how do we start making improvements? First, bring the team together to share those KPIs that you have gathered and ask for their input. Listen carefully to every idea, allowing everyone to express their opinion; this will help your staff feel that they are part of the solution, rather than part of the problem. Second, look for the low-hanging fruit. There will likely be some changes that will result in fairly quick improvements in a KPI or two. Share this win with staff to spread the credit to as many people as reasonably possible. Now you have a winning team; they will want to win again.

Without any KPIs we don't know where we are doing our best and where we are not. Whether we are watching the scoreboard at the baseball game, or reviewing our children's report card, KPIs matter. Without the measurement and comparison, we can't really manage change. Several recent surveys have shown that those businesses that regularly track and share KPIs achieve better results. Establishing KPIs and setting goals for improvement is crucial to any business. Bringing this to the employee level is the where you'll find the fastest improvements.

People outside of your shop can help with your KPIs. Beyond the benefits of having a board of directors or 20 group, there are other people on your extended team that can help you achieve your goals using KPIs as a tool. Car rental companies such as Enterprise have systems to track LOR (Length of Rental), a KPI sighted or used by several insurance companies. The dealer where you buy your parts may have tracking reports that can help. Some reports are as simple as fill rate and backorder status, while others have much more detail, such as by manufacturer and model days to 100 percent delivery. Sharing your KPIs with your major suppliers and asking them how they can contribute expands your team at very little, if any, cost.

The paint manufacturers and distributors also play a significant role. Some jobbers provide specific KPIs that drive paint shop reports, tracking costs per hour, material per RO and ounces per refinish hour. Set your goals, enlist their help and share your KPIs with them. Some jobbers do this in-house; others rely on third-party sources to provide these reports.

KPIs matter because they can help us improve. We can clearly see where we can best spend our efforts and time to become more profitable, more efficient or more of what our customers want us to be. KPIs matter because we are not alone! Rather, we are measuring how our performance measures against our industry peers. KPIs show us where we can improve, with the support and help of our staff and extended team members. 📧



**JIM COMPTON**  
CONTRIBUTING  
EDITOR

Jim Compton, owner and general manager of J. Hunter & Associates, has worked in the auto body industry for over 30 years. He has a special interest in the areas of lean material management, environmental protection and work place safety.

✉ E-mail Jim at [jhcompton@att.net](mailto:jhcompton@att.net)

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# SHOP PROFILE

A snapshot of one of the industry's leading shops

SUBURBAN COLLISION / NORTH OLMSTED, OH



## Growth strides

From unibody to aluminum, family business is at home with innovations

BY **JAMES E. GUYETTE** | CONTRIBUTING EDITOR

In keeping with a long-standing tradition of embracing the most up-to-date wrinkles in automotive repair technologies, Suburban Collision has again moved to the forefront by establishing an innovative aluminum production facility.

The third-generation family business is steadily obtaining OEM certifications for serving a specialized market that shows solid signs of ongoing growth.

"Body shops basically work for the insurance company," says owner Angelo Papotto Jr. "With aluminum, I work for the manufacturer. For the first time ever, we are getting control of the repair process."

Based in North Olmsted, Ohio, Papotto's three locations grossed \$9.54 million in 2014, with expectations of reaching \$11 million this year.

Suburban is among a limited amount of repairers certified by Tesla, and the ambitious enterprise additionally holds aluminum certifications from Jaguar, Land Rover, Ford F-150 and Mercedes, and is currently in the final audit process with Porsche.

"We are always in the process of evaluating other OE programs to see if they fit within our future strategy – this includes Volkswagen, Audi, and others," reports Candace Papotto, Angelo's daughter who serves as managing director. Another daughter, Lauren, is also involved with the operation.

Aluminum-bodied vehicles have pulled up to the bays atop flatbed trucks from as far away as Maine, Massachusetts and Virginia.

"We recognized the trend early and began our first OE certification in aluminum almost 10 years ago in conjunction with Jaguar. We took a slow and steady approach, researching programs and making sure they fit in with our strategy and with our other programs before initiating a new application," Candace recounts.

"For instance, on the heels of Jaguar we were approached by another program that we didn't feel was a good fit at the time, and we passed based on the duplication of equipment required and what we felt was a cost factor that would decrease in the future along with demand. We're seeing this happen now, as other programs have allowed for shared equipment in certain cases," she explains.

"The key was to recognize the trend early, just as with introduction of unibody repairs many years earlier, and take a slow and measured approach to the programs, selecting the best ones for our facilities," says Candace. "We also maintain a strong

### SUBURBAN COLLISION

**North Olmsted, Ohio**

Main location

**Angelo Papotto Jr.**

Owner

**3**

No. of shops

**54**

Years in business

**55**

No. of employees

**16**

No. of DRPs

**30,400**

Total square footage of shops

**55**

No. of bays

**5-7.3**

Average cycle time

**\$1,990**

Average repair order

**100+**

No. of vehicles per week

**\$216,000**

Average weekly volume

**\$9.54 million**

Annual gross revenue

**Sherwin-Williams**

Paint supplier

**Car-O-Liner, Celette Bench**

Frame machines used

**CCC Once**

Estimating system used

**www.surburbancollision.com**

Website

business in our non-aluminum segment in order to fund the investment in the future. It's a balance we've always felt was the key to success in innovation and profitability."

Shop owners interested in moving forward with automaker certifications are advised to consider a series of factors when weighing your decisions.

"Each shop must look at their current work mix along with their strategy for the future in deciding whether or not to pursue an OEM program," according to Candace. "We would encourage shops to be prepared not only for the upfront cost, but for the continuing costs of education and loss of technicians for the training periods. Most of the OEM programs require travel – we've sent technicians to San Jose, Calif.; Atlanta; and Wisconsin, to name a few."

An important element of the negotiations is to ensure that the OEM has parts-delivery restrictions in place. "This means that non-certified shops cannot receive the parts, thus prohibiting false entry into the programs. This is one of our key requirements for considering a program," she says.

"Another topic with the manufacturer is supply and demand. How many shops do they plan to allow entry for in your area? Are there non-compete terms within a zip code region? Shops considering OEM programs must above all have a solid financial footing before considering what will be a significant investment with a longer-term payoff," according to Candace.

"We have made a huge investment in training," she notes. "Now we just have to hope the brands are selling. But it can take several years from a vehicle's release before we will start to see it in our shops."

**Thriving on progress**

Angelo Papotto Jr. has had a keen interest in exploring industry innovations dating back to his teenage years of working in the original Suburban Auto Body business owned by his late father, Angelo Sr. He recalls realizing that he had higher aspirations from Day One, knowing that he did not want to be wearing a technician's uniform for the duration of his career. Can we eliminate this? I don't want it to come across demeaning.



Reception and front offices at the North Olmsted location.



Among the shop's OEM certifications is Tesla. Suburban Collision is the only shop north of Columbus, Ohio on the East Coast that is a Tesla-certified shop, Papotto says.

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"He was a painter, and then he learned to write estimates in the front – and he found that he had a knack for growing the business; he also has a brain that's always looking for 'the next thing,'" says Candace, admiring her dad's willingness to contemplate the latest in lean technologies and his steadfast insistence on running an honest and reputable operation where all of the employees are treated as family members.

"When unibody came out many, many years ago, my father was among the first to get a unibody frame machine and recognize that this was the direction that the industry was heading," she recounts.

Angelo adds that he thrives on process, scheduling, and properly load-leveling his technicians for continued success. "There is no perfect system," he asserts. "You've got to keep thinking."

This thought process includes a bold willingness to reach out for professional advice, carefully contemplating the suggestions and then following through with implementation.

The shop-design department at paint supplier Sherwin-Williams was enlisted to assist with a remodeling plan for the North Olmsted headquarters location to remedy a pattern of split paint and body operations because of the main structure's limited space.

"We thought that we couldn't house that all under one roof given our sales volume," says Candace. A small addition combined with shifts in the production pattern solved the problem. "We took the Sherwin-Williams design and applied it to operations – how we staged the cars and moved them around."

"Immediately after construction was complete, Suburban rec-

ognized reduced cycle time, improved quality of repairs, and a better culture for the technicians as they are now one team," reports Judy Lynch, marketing manager at Sherwin-Williams' Collision Repair Design Service. "This really started the facility on their lean journey. A new profit center was created as the old paint shop now became a stand-alone Geico facility."

"Geico has a specific business model that's significantly different from the other accounts, so we decided to dedicate that building to that account," Candace explains, noting that the plan has resulted in improved efficiencies.

Suburban's adoption of aluminum repairs required a similar forward-looking stance, according to Lynch.

"Equipping an aluminum repair room requires an investment in technician training as well as tools, equipment and space," she says. "Every manufacturer requires strict guidelines to be followed before certifying; not only individual technicians, but the shop itself. This requires a huge financial investment for a collision shop owner but also a large portion of their current production space may now be allocated to aluminum repair," Lynch continues.

"Realizing the possible loss of production space and the change in their process of including aluminum repair is critical," she says. "It is beneficial to take a look at their entire process and ensure space requirements are met for the entire facility."

"There has to be a section of the shop that is separate from where the steel repairs are done. It's like a shop within a shop," says Candace, referring to a curtained-off area on the shop floor. "You have to avoid cross-contamination."

### Price matching parts

Along with developing numerous body repair partnerships with car dealers throughout the Northeastern Ohio region, Suburban promises its customers that it will effectively work with all insurance providers while carrying 16 direct repair program (DRP) affiliations.

Ensuring excellent customer satisfaction through personalized service and attention to details drives a strong array of repeat business and referrals. Maintaining positive relationships with insurers is achieved by adhering to the various programs and delivering on the desired performance metrics.

"Back when my grandfather operating the business it was there it was all about relationships," according to Candace. "Now it's all about performance – they're looking at other shops and they're looking at the numbers."

Regarding aftermarket verses OEM parts and other variables of a given repair, "It all depends on the customer's policy. We also price match a lot; we don't buy the aftermarket part. We will often purchase the OEM option if the supplier will price match it to the OEM," she says.

As the component procuring process unfolds "our No. 1 priority has become how quickly they can get the part to us," says Candace. "We expect a 24-hour turnaround and we expect the vendors to have daily deliveries." ☞



**JAMES E. GUYETTE**  
CONTRIBUTING EDITOR

James E. Guyette is a long-time contributing editor to ABRN, Aftermarket Business World and Motor Age magazines.

✉ E-mail Jim at [JimGuyette2004@yahoo.com](mailto:JimGuyette2004@yahoo.com)



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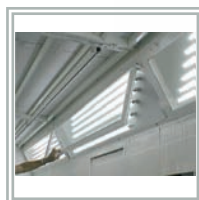


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# UNDERSTANDING ALUMINUM STRUCTURAL REPAIRS

Porsche 970 lower uni-rail sectioning

## ALUMINUM AND STEEL REPAIR PROCEDURES GREATLY DIFFER – ARE YOU DOING THEM CORRECTLY?

BY **LARRY MONTANEZ** | TECHNICAL EDITOR

If I were to tell you that repairing plastic bumper fascia is the same as repairing a steel panel, you would think I am crazy. So why is it that there are so many people trying to convince people that repairing aluminum panels is the same as repairing steel panels? In this third article of a six-part series, we will be discussing structural repairs on aluminum-intensive vehicles. The OEM Certified Collision Facility programs started due to the differences in the repair processes for alu-

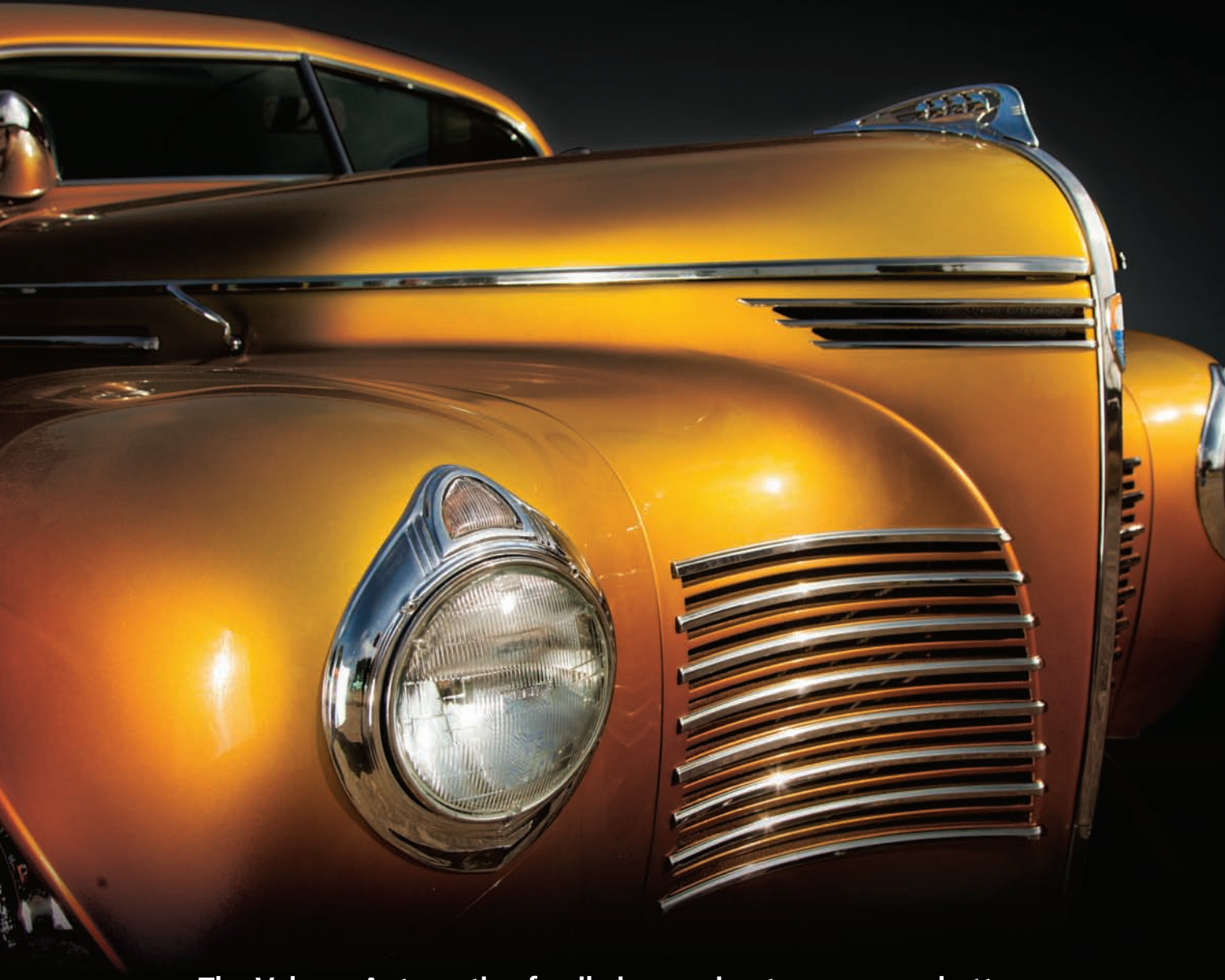
minum intensive vehicles and the lack of knowledge on how to repair them, and it all began with the European OEs and high-end vehicles.

Over the past 20 years as the European OEs have set the standard on the high-end vehicles, we have seen the influence of aluminum trickle down to the more popular vehicles. Fifteen years ago many OEMs started to utilize aluminum for closure panels, bumper reinforcements and suspension components. Then we saw the advent of hybrid con-

struction (primarily steel monocoques with aluminum structural components) in the early 2000s, where strut towers are rivet-bonded to steel uni-rails, lower uni-rail (frame) extensions are bolted to steel uni-rails and multiple steel and aluminum monocoque structural components rivet-bonded to each other. We have also seen the changes of anchoring the vehicles to the structural realignment apparatuses, where pinch weld clamping is prohibited and additional anchoring is required.



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**Structural repair overview**  
— **Anchoring**

Celette, Car-O-Liner, CarBench, Global-Jig and Spanesi are very similar in design. They are a machined top plane, rectangular steel structure where multiple fixtures (Celette) or universal jigs (the others) are affixed to the machined plane, which are then attached to the vehicle. The fixtures/jigs are utilized to measure the vehicle, except Car-O-Liner where they utilize electronic mea-

suring with their EVO Jigs. Generally, there will be eight basic anchoring points at the front and rear suspension cradle mounting locations, with or without the engine or suspension cradles installed (the equipment allows for either anchoring depending on the extent of sustained damage and required repair procedure). On average, an additional two to eight anchoring points will be affixed to the vehicle, depending on the extent of damage. The ad-

ditional anchoring point will also be utilized to install new OEM components to replace the damaged ones. A pull-back tower can be affixed to the apparatus, but in the case of most of the OEMs on aluminum-intensive vehicles, structural realignment is prohibited. For aluminum-intensive vehicles, Chief is only permitted by Ford for the aluminum-bodied 2015 F-150 and utilizes traditional full frame anchoring with additional attachments for the aluminum upper monocoque structure. Ford is one of the very few OEMs that allows aluminum structural realignment; this is due to their extensive use of T4 aluminum, as opposed to the European and Tesla extensive use of T6 hardened aluminum.

**Structural repair procedures**

What I am about to write may not make many happy, but it is the truth. Structural repairs on aluminum-intensive vehicles are for the most part, limited to the following:

1. Measure the vehicle on the approved equipment (no thinking or opinion here, you must follow what the OEM requires). After determining what components are misaligned, you will then know what must be changed. General rule of thumb is any direct and secondary damaged components will require replacement. In the case of Ford, some secondary damage may be attempted to be realigned, but care must be taken to ensure no bonded areas are stressed.

2. After removal of the damaged components the mating areas will be prepared for new OEM component replacement, as per the OEM required procedures. Please keep in mind that most of the OEMs prohibit the sale of structural components to the certified repair facilities.

3. The new OEM components are then prepared, as per the OEM required procedures, and then affixed to the vehicle using the OEM required materials, protocols and equipment. The protocols may include any of or combination of rivets, rivet-bonding, bonding and/or welding.

Now here is an issue you must be aware of when working with vehicles such as the Audi TT, Ford F-150, Mercedes-Benz S-Class, Porsche 911 or similar hybrid construction vehicles. Because the vehicles are constructed from



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steel and aluminum, care must be taken during structural repairs not to cross contaminate the vehicle, equipment and clean room.

For example, the 2015 S-Class V222 has an aluminum front and rear structural components attached to a primarily steel body (occupant area), the Ford F-150 is an aluminum upper body bolted to a steel perimeter frame and the Audi TT and Porsche 911 (991) are primarily aluminum monocoques with steel structural components attached. During the repair process, there may be times where you will be repairing aluminum and steel components due to the vehicle design and construction. For example, the Mercedes-Benz quarter panel is steel and is attached to an aluminum rear body panel and rear floor extension. When replacing the quarter panel, the steel portions are STRSW and the aluminum to steel areas are rivet-bonded with hardened steel rivets. During the drilling procedure, fragments of steel and aluminum particles can be tossed around the area,



Porsche 970 front lower uni-rail sectioning

so you must insure that you use blankets and covers to protect any cross contamination. Blankets and covers will be required to cover the bench, undamaged areas and nearby equipment. Duct tape can be used to seal

seams and crevices to prevent fragments from getting into those areas, which could cause galvanic corrosion over time. All the fragmented particles from drilling and sanding will need to be vacuumed carefully. All blankets

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and covers will need to be vacuumed or washed.

Now, the 2015 Ford F-150 has a little bit of a different issue. The upper body is all aluminum, except for the radiator core support and door intrusion beams, and the frame is steel. If you had an F-150 that had an impact to the right front corner, where the upper body and frame sustained damage, the vehicle will be repaired in the aluminum repair clean room. The repair procedures may include sectioning on the steel frame rail and sectioning on the upper aluminum rail. The same type procedures for cleanliness and protection would have to be adhered to. Remember — never use compressed air to clean areas for two reasons. The first is that the air will cause all the particles and fragments to become airborne, and those particles could wind up landing in areas that could cause galvanic corrosion. The second reason is that most compressed air lines contain particles and oils, which would coat the aluminum and cause adhesion problems.



Porsche 970 front lower uni-rail sectioning

**Equipment**

When getting prepared to get involved with aluminum repair, please keep in mind that not all equipment is created equally and not applicable to other

OEMs. The first thing to do prior to purchasing any equipment is to get dealer sponsorship, which is required for all the European programs, Tesla, the Nissan GT-R and Lexus LFA pro-

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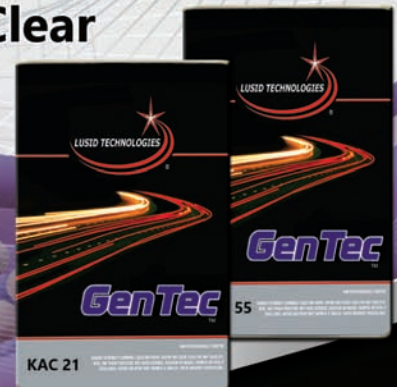
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**ASK**



Porsche 970 front lower uni-rail sectioning




Mercedes-Benz 231 upper rail sectioning welded

grams. What has become apparent is a wide price range between some equipment. We want to stress that there is a big difference among a \$3,500, \$6,000, \$9,000, and \$25,000 aluminum MIG welder. There is also a huge difference in some of the structural repair equipment and riveting guns. The warning we are trying to point out is that we have seen too many shops spend \$75-\$80k on one particular manufacturer, then they obtain another OE just to find out that all of that lower-grade equipment is not approved or even capable of performing properly for the new OEM program, and you must purchase more equipment. Make sure you know what the requirements are and what you are getting yourself into prior to opening your checkbook.

### Joining procedures

In our next two articles, we will cover the different joining methods such as

welding, riveting, bonding and/or any combination thereof.

We hope this third article of a six-part series has helped you understand some of the differences with structural repairs on aluminum intensive vehicles. This is an overview, and we will delve deeper in to each area in detail in our following articles through 2015 and beyond. As always, if any questions arise please feel free to contact me. 



**LARRY  
MONTANEZ**  
TECHNICAL  
EDITOR

Montanez is co-owner of P&L Consultant, which works with collision shops on estimating, production and proper repair procedures. He is also a certified technician for multiple OEM collision repair programs.

 E-mail Larry at [info@PnLEstimology.com](mailto:info@PnLEstimology.com)

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TRAINING  IN FOCUS

# NOT YOUR FATHER'S STEEL

AS OEM DESIGNS AND MATERIALS CONTINUE TO EVOLVE, COLLISION REPAIR SHOPS MUST ALSO EVOLVE

BY **BOB KEITH** | CONTRIBUTING EDITOR

Aluminum! Aluminum! Aluminum!

Now that I have your attention, this article is not about aluminum. It is about steel, the material of choice for automotive manufacturers for more than 100 years. But it certainly isn't the same steel that we repaired just a few short years ago. Today we have UHSS, AHSS, Boron, Martensitic, Bake Hardened, Dual Phase, Nano Steels and/or some cocktail of alloys that no one has even named!

The recent Great Designs in Steel (GDIS) seminar in Livonia, Mich., in May made it clear that the core material of choice for the manufacturers is still steel. But not just mild steel — advanced steels are the core of most new vehicle designs. Advanced steel content is increasing with each new design to as much as 60 percent to 70 percent.

Why these trends? We all know that a big driver is CO<sub>2</sub> emission reductions mandating that the C.A.F.E. standard of 54.5 mpg be achieved by 2025. Dur-

ing GDIS, Abey Abraham of Ducker Worldwide said, "A curb weight reduction of 460 lbs. per vehicle is needed to meet the 2025 CO<sub>2</sub> compliance levels. AHSS continues its growth trajectory with approximately 254 lbs. per vehicle in 2014, surpassing our estimates in 2010 for 2014 by over 20 lbs. per vehicle (prior 2014 estimate was 232 lbs)."

Lighter bodies also allow for smaller, more efficient engines with similar performance characteristics and higher fuel economy. Improved fuel economy is just one piece of the puzzle. The other incentive is safety — the new roof crush, side impact and offset crash test standards have also accelerated the use of advanced steels. These steels are capable of handling extreme collision energy, but it is thinner and lighter. Also, new crash energy designs like Honda's "ACE" allow for crash energy to be directed around the passenger compartment. There is also increasing use of steels in the 1000+ Mega Pascal (Mpg)

range in tensile strength (a measure of crushability).

American Honda announced a breakthrough rear rail that is 1500 Mpg, yet has "softened areas" (780 Mpg) at the end, allowing the rail to crush in a "Z" shape to absorb energy.

At the steel seminar, many manufacturers displayed cut away bodies and had presentations on new designs along with how they used advanced steels to create lighter/safer vehicles. Here are some highlights:

#### 2016 Nissan Maxima

- 8th generation/80 lb. weight reduction
- First use of steels in the 1.2 Giga Pascal (GPa) in this model
- Upper body is 45 percent advanced materials
- Platform is 55 percent advanced materials

#### 2015 Nissan Murano

- 51 percent use of advanced materials including 1.2 GPa steel allowed

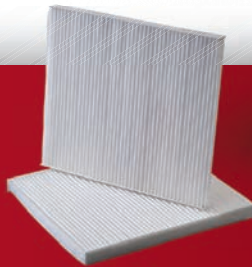


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for a 6 percent reduction in mass in a longer/wider vehicle.

- Nissan is also using material removal (scallops, notches, holes) to reduce weight.

#### 2015 Acura TLX

- 52 percent advanced material usage, 35 percent of that 590 MPa
- 1500 MPa hot stamped one piece front door ring (inner structure)

#### 2015 Ford Edge

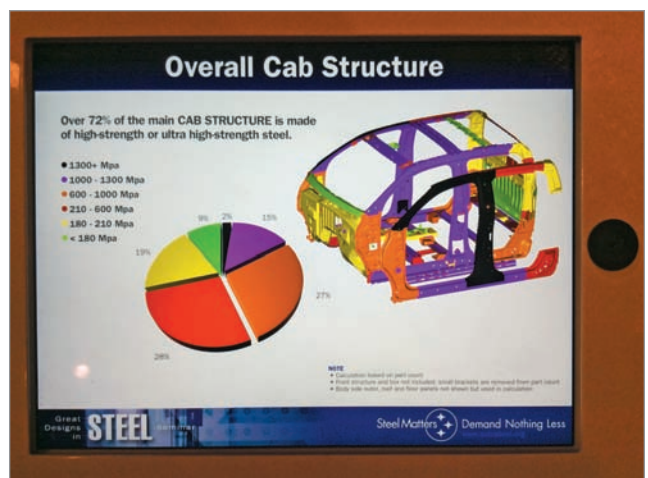
- 66 percent advanced materials
- Bake-hardened outer body panels
- Boron “B” pillar and rocker reinforcements and a Hydro-Formed Dual Phase 1000 MPa front roof rail

#### 2015 GM Colorado/Canyon

- 42 percent of lower cab structure is advanced materials with UHSS rocker inner reinforcements
- 53 percent of upper cab structure is advanced materials with 26.5 percent of that material being UHSS (rocker, roof rail, and “B” pillar reinforcements)

What does all of this mean to the average collision repair shop?

As the OEMs evolve, the collision repairer also needs to evolve. There has been tremendous press around aluminum



The 2015 GM Colorado/Canyon cab structure



The Colorado/Canyon







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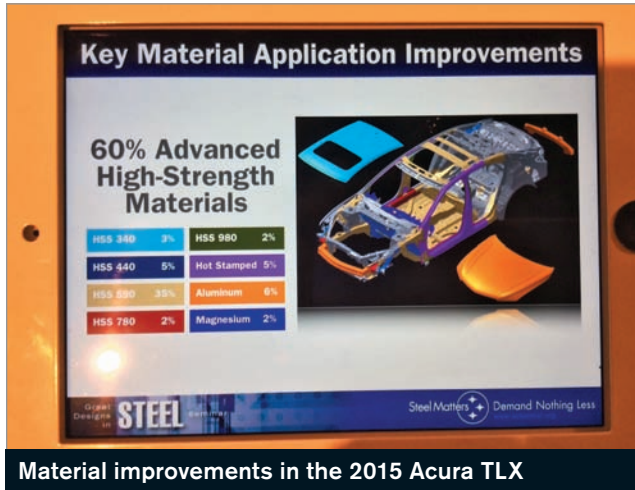
vehicle construction. Repairers need to be prepared as we will see more aluminum content in tomorrow's vehicles. But don't get caught up in the hype around any one material. Ninety nine percent of what we are repairing today and for the foreseeable future will be some combination of advanced steels and other materials.

As we all know, the 2015 Ford F-150 body is almost 100 percent aluminum

and Cadillac has announced the new CT-6 and its hybridized aluminum/steel unibody construction. However, not all OEMs are moving down the aluminum road. Other manufacturers are backing off as recently exhibited by Fiat/Chrysler's announcement not to have an aluminum body on the 2017 Jeep Wrangler.

So this is what I think that our evolution looks like.

1. Repairers need to have access to and use OEM information in the repair planning phase. We need to know what grades of steels are in use, where they are located, what the repairability is, can the part be sectioned or is full replacement needed. If repairers wait to discover this during the repair, it is too late. To maintain cycle time goals, these repair/replace decisions need to be made during the disassembly for



Material improvements in the 2015 Acura TLX



The 2015 Acura TLX

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repair (DFR) process. We also need to identify adhesive/sealers/foams needed to make sure that they are replaced accordingly.

This data also needs to be made available to our technicians so that they have all the information needed to do a complete, safe and accurate repair.

2. Pre-measuring at the DFR phase is also a necessity, with the load path designs that are in place today. The old visual standards on vehicle structure damage analysis are less likely to be as pronounced and may be missed. One example: front rails now being tied into rockers to disburse crash energy away from the passenger compartment. This energy disbursement can cause outward damage to the rocker panel after a hard front-end hit. Only accurate measurements documenting this damage will validate the need for additional repairs and possible structural alignment.

3. Welding skills and equipment have to be upgraded. Heat is the number one enemy of advanced steels and welding skills in the industry are sad at best. Our technician's ability to weld today's high-strength materials are severely lacking and has to be a focal point for the industry. Recent I-CAR analysis states that only 31 percent of the technicians in the industry have training and certifications in basic welding skills; 6 percent have aluminum training and certifications; and 2 per-



The 2015 Nissan Murano

cent have structural steel training and certification. This does not include squeeze-type resistance or MIG brazing (required by Honda/Acura for specific UHSS applications). If these statistics don't scare you, they should! They certainly scare me!

Welder technology is also changing, and if you haven't upgraded in the last few years, you may not have what is required to meet OEM specs. This also includes varying wire alloys that may be required to meet the tensile strengths of today's steels. Here is an example of American Honda's welder requirements for their ProFirst Certified program.

**Pulse control MIG weld equipment:** 180 amp, 220 V with pulse control, used with silicon bronze wire (ERCuSi-A) and 100 percent argon gas for MIG brazing.

**Silicon bronze wire for MIG brazing:** ERCuSi-A/CuSi-3 Silicon bronze wire required for MIG brazing. Must be used with pulse control MIG welder & 100 percent argon gas.

**MAG Wire for 590 to 980 Mpa steel:** MAG welding wire required for welding 590-980 MPa steel parts. Wire must be  $\geq 142$  ksi (980 MPa) minimum tensile strength.

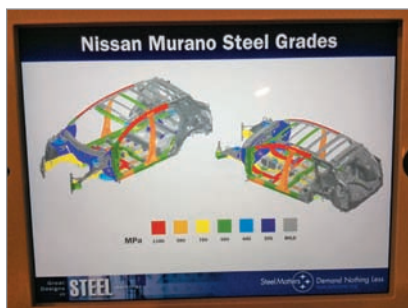
4. Culture — We as leaders in our businesses have to create a different culture in our repair facilities. Do not support the "We have always done it this way so why change" or "We can repair anything." Your shop culture has to be centered on getting all of the pertinent information needed to do a correct repair before you start the repair. You need to embrace learning, not just training for training's sake! We have

to have a culture of continuous improvement and a strong need to gain knowledge. We have to have the courage to turn away vehicles that we are not equipped to repair correctly, whether by our lack of equipment or skills.

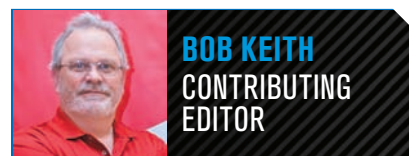
I want to leave you with a few challenges:

- Train everyone in the shop who works on the vehicles. Too many shops just train what is required to meet a program.
- Have those who are trained share their knowledge with others.
- Train and certify everyone in the shop who welds (not just what is required for a program).
- Make sure that your repair planners and techs have access to and use OEM repair information in the planning and repair phases.
- Create, install and hold everyone accountable to an in-process quality control standard.

Advanced steels and advanced vehicle structures are here to stay. Keep ahead of the curve and make sure that every repair that goes out your door is of the highest quality and meets the safety standards that the OEMs built into the vehicle! 📧



Advanced materials usage in the 2015 Nissan Murano have reduced weight by 6 percent.



**BOB KEITH**  
CONTRIBUTING  
EDITOR

Bob Keith is the Senior Director-Operations Training with CARSTAR Franchise Systems, Inc. He also co-owns four CARSTAR franchises in Nebraska and Kansas.

✉ E-mail Bob at [bkeith@carstar.com](mailto:bkeith@carstar.com)



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TRAINING  IN FOCUS



Photo: Urethane Supply Company

# STICKING WITH ADHESIVES

CREATE THE BEST URETHANE BONDS POSSIBLE

Always use dedicated cleaning products to remove contaminants that might otherwise weaken an adhesive bond.

BY **TIM SRAMCIK** | CONTRIBUTING EDITOR

Competition drives every industry. The collision repair industry has its fair share of manufacturers offering products that promise to either top or replace those from their competitors.

One of the more interesting competitions has been between bonding solutions such as rivets or welding and urethanes. Each has applications where one is by far the better choice (sometimes the only choice), along with cases where the two compete directly. In the relatively new frontier of aluminum repairs (gaining in significance with each passing year), rivets and MIG welding have become indispensable.

Don't count adhesives out. Through steady improvements in chemistry, they too offer repair options for aluminum, along with other metals and perhaps most importantly, plastics. Refer to the following instructions for some of the latest adhesive solutions.

## Points on plastics

Broken, torn or ripped bumper covers are the usual candidates for plastic adhesive repair. Considering the extensive use of plastics through most vehicles, many other areas also may need repaired. The following steps, supplied by the Urethane Supply Company, outline the basic steps for using most adhesives regardless of the damaged part.

**Step 1: Identification.** Working with plastics almost always begins with the identification of the plastic type. Plastics react differently with adhesives depending on their makeup. Shops must first identify the type of plastic in the part, which typically is indicated by a code stamped into the part. If you are unable to locate this, refer to the manufacturer information. From there, locate the adhesive recommended for the repair.

Note here that some manufacturers offer adhesives that work despite the

plastic or substrate type, saving shops some significant time.

**Step 2: Cleaning.** Clean both sides of the plastic with warm water and soap. Next, use a plastic cleaner to remove any wax or remaining contaminants.

**Step 3: Clamping.** Fix the front side of the part with aluminum tape or clamps to hold it together while the adhesive on the backside (to be applied later) cures.

**Step 4: Sanding.** Use 50 grit sand paper or coarser to abrade the backside of the repair area. Then, use a DA sander with 80 grit paper on the surrounding area on the front. If the opposite side of the part also needs sanded for cosmetic reasons, you'll need to create a v-groove. The extensive sanding is necessary since "heavy grooving" of plastic helps maximize the strength of the bond. Use dry, clean compressed air to blow away any remaining sanding particles.





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Note: Some plastics (for example, PP, TEO and TPO or PP) also will need an adhesion promoter following the sanding.

**Step 5: Backing and reinforcement.** Select a reinforcing method for the back of the part. For flat areas, it may be easier to cut a backing plate out of scrap material. For contoured areas, drywall tape or fiberglass cloth will work better.

Prepare the reinforcement by cutting 1-3 pieces of glass cloth to cover a damage area that is 2-4 in. wide. If you're also using a backing plate, make sure it extends at least 2 in. beyond the damage areas in all directions. You'll also need to rough grind the side of the backing plate that will be applied to the surface.

**Step 6: Mix and apply the adhesive.** Mix according to package directions. Apply a generous amount on the back of the part. When using a backing plate, press the plate firmly into the adhesive, so a small amount of adhesive will squeeze out from the edges. If you're using fiberglass cloth, lay the cloth into the adhesive and wet the fibers with a

saturation roller. Apply more adhesive over the area. Embed another layer of fiberglass cloth, if necessary.

For repairs using a v-groove, apply the adhesive into v-groove with the body spreader. Slightly overfill the v-groove so it can be sanded flush when finished.

**Step 7: Final moves.** Once the adhesive on the back has cured, peel the aluminum tape off the front.

For repairs utilizing a v-groove, use a die grinder and/or a coarse sanding disc to create a 1-2 in. wide groove. Sandscratch the inside of the v-groove coarsely. Round off any sharp edges and feather the paint back with 80 grit paper using a DA sander.

When the adhesive on the front side is fully cured, sand with 80 grit in a DA sander. To finish, gradually progress to finer grits prepare for painting.

**Metal patching**

Adhesives can often create bonds on metals just as strong as those built with welding. They can be particularly useful when patching panels when

welding isn't an option. The following steps, from the Eastwood Company, detail patch panel work on both steel and aluminum.

Note: When finishing, panel adhesives can withstand temperatures up to 250 degrees F. Also, any welding performed near must be done at least 4 in. away from the cured panel.

**Step 1: Preparation.** Use a DA sander and 180 grit paper to remove all paint. At least 1-2 in. of corrosion-free metal should surround the repair.

Prepare cut lines at least 2 in. from the damage or near panel edges or parting lines.

Feather paint 2-3 in. around the cut lines for later blending. Use a drill or pneumatic nibbler to cut out the scribe line (a hand nibbler or shear can be used, though it will be more difficult).

**Step 2: Create a flange.** Use a panel flanger to neatly and accurately flange around the opening of the cutout section. Adjust the vise grip to produce a flange deep enough for a flush repair. Check the flange with a piece of scrap metal of the same gauge to make sure

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the flange is correct and that both pieces create a level surface.

Lay out the dimensions of the cut-out area on a piece of cardboard. Measuring from the outside of the flange, cut to the exact shape and transfer to your patch panel (which must be the same gauge as the original metal). Check for correct fit, using a straight edge. Adjust the patch panel by carefully trimming it to fit level and flush all around flange area.

**Step 3:** Lay out the rivet pattern on the patch panel. Keep the rivet holes centered in the overlap area. Start the rivet layout at a corner to assure it lays flat when completed.

Depending on the size of the patch, space rivets about  $\frac{3}{4}$ -1 in. apart. For smaller repairs (for example, if the patch is only 5 in. long by 3 in. high), use  $\frac{3}{4}$  in. spacing. If the patch is larger, use the 1" spacing.

Note: Use only aluminum rivets and patch panels on aluminum and steel rivets and panels on steel.

**Step 4:** Put the patch panel in place. After laying out an accurate rivet pattern, clamp the patch panel using edge clamps (and c-clamps if needed). Check for flush (level) positioning of the panels using a straight edge. Drill the rivet holes with a 1/8 in. bit, starting in the corner and using blind holders in the drilled holes to secure the panel. Once



Adhesives require extensive sanding of the repair area to build the bond.

Photo: Car Finishers

all the holes are drilled, remove the clamps and patch panels and de-burr all holes.

**Step 5:** Dimpling. Use dimpling pliers to countersink (dimple) all holes in both the patch panel and the attachment area. Once the holes are dimpled, install patch panel with the blind holders and test fit. The panel should be flush with the surrounding area and should follow any contours on the original panel.

If the panel doesn't fit flush, the original panel holes may not be correctly dimpled or the edges could be deformed. Fix either by straightening the edges or increasing the depth of the dimpling tool. If necessary, reform the lower or original panel dimples.

**Step 6:** Clean and prepare the adhesive. Remove the blind holders and clean the flanged area on both panels with a pre-painting product. Wipe the panels completely dry with a clean cloth or paper towels. Prepare the adhesive using manufacturer directions.

Note that adhesives have strict working times (usually, 30 minutes or less). If a mixing tip is used, they are typically not reusable.

**Step 7:** Application. Apply the adhesive on the original panel along the center of the rivet line in a  $\frac{1}{4}$  in. bead. Use blind holders to attach the patch panel in every hole, keeping the panel flush using a straight edge.

Some adhesive will be squeezed out along the flange area. Once the rivets are set, it can be smoothed with a body filler spreader.

**Step 8:** Riveting. Remove the blind holders one at a time, replacing them with a rivet. (Be sure to soak the hold-

ers in lacquer thinner to prevent the adhesive from setting up or the holders will be inoperable.)

To keep the panel flush, begin riveting at a corner or radius. Working evenly from the starting point, continue installing rivets until all of them are set. Use a spreader to smooth out the adhesive, which should protect the entire flange area from rust on both sides of repair.

**Step 9:** Following the adhesive manufacturer's directions, give the adhesive the recommended time to set up before sanding the repair area level. In most cases, the area can then be sanded as it would be if a conventional filler had been applied. The repair area will need additional time to cure before shops can apply any fillers, primers or topcoats, depending on manufacturer recommendations.

One final note: don't hesitate to speak with your vendors about the latest adhesives they offer. Adhesives come in an increasing array of solutions for nearly every bonding need. They could be saving your shop time and money at this moment. ☑



Adhesives have improved to the point where they can handle a range of plastic and metal repairs that once would have called for a replacement part.



Adhesives require extensive sanding of the repair area to build the bond.

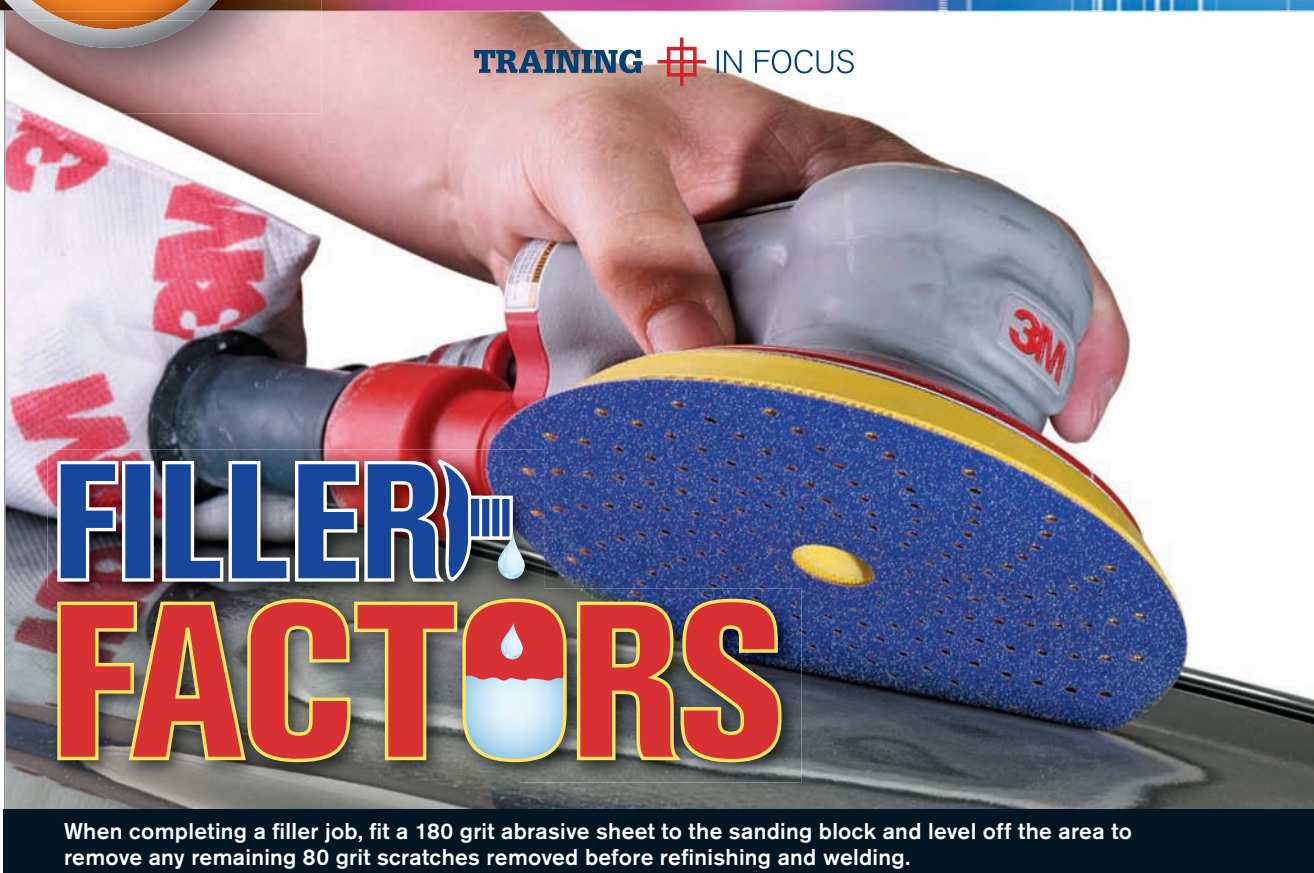
Photo: Hannibal Body and Paint

Photo: Lord Fusor



Tim Sramcik has written for *ABRN*, *Motor Age* and *Aftermarket Business World* for more than a decade. He has produced numerous news, technical and feature articles covering every aspect of the collision repair market. In 2004, he was recognized for his work by the American Society of Business Publication Editors.

E-mail Tim at [TSramcik@yahoo.com](mailto:TSramcik@yahoo.com)

TRAINING  IN FOCUS

# FILLER FACTORS

When completing a filler job, fit a 180 grit abrasive sheet to the sanding block and level off the area to remove any remaining 80 grit scratches removed before refinishing and welding.

BY **TIM SRAMCIK** | CONTRIBUTING EDITOR

## MISTAKE PROOF YOUR NEXT BODY FILLER REPAIR WITH THESE TIPS

Work in the business world long enough and you'll discover that oftentimes a less-than-stellar reputation is not deserved. The automotive industry is rife with examples.

In collision repair, body fillers sometimes have been stuck with similar undeserved criticism. Mention fillers to customers and you're likely to set off negative perceptions borne from witnessing the worst of filler repairs — namely, jobs performed by DIYers who misuse these products or fly-by-night used vehicle lots that overuse/misuse fillers to disguise deeply flawed cars requiring more professional work.

The truth is, body fillers are vital, central parts of collision repair that manufacturers have significantly improved over the past several decades.

When given the attention they require, they can perform flawlessly.

Refer to the following application steps, recommendations and tips to get the most from the latest fillers.

### Application basics

Sticking to the instructions from each filler manufacturer is vital. The following steps, supplied by 3M (the manufacturer of Bondo), provide the basic instructions for most filler applications.

**Step 1.** Clean the area. Begin by using hot soap and water to clean the filler area. Then, use a residue remover to eliminate any remaining wax, grease, tar or other residue. Remover is especially important here since road and other debris can contaminate the filler and hinder its adhesion.

**Step 2.** Sand the area. Using 80 grit paper on either a block or orbital sander, remove all paint in a two-inch area surrounding the area to be filled. When finished, be sure to remove any grit debris from the area using the residue remover.

**Step 3.** Mixing and application. Because filler begins hardening as soon as it's mixed with hardener, dispense only an amount that can be applied within three minutes (normally a pool with a four-inch diameter). Make sure the mixing surface is clean and nonporous. Spread the initial layer of mixed filler over the repair area, applying firm pressure to ensure maximum adhesion. Add additional layers to build the repair. Avoid over-application since you'll sand off any excess. Allow the filler to dry for

Photos: 3M



15 to 20 minutes, depending on humidity and temperature, before sanding.

**Step 5. Shape the repair.** Using a sanding block suitable to the size of the repair, attach an 80 grit sheet and begin shaping the repair area. Make sure to keep the block flat to the surface, and do not over sand. Examine the repair area, looking for any low spots that will need filler applied. If necessary, apply the additional filler and repeat the sanding/examination process.

When complete, fit a 180 grit abrasive sheet to the sanding block and level off the area and remove any remaining 80 grit scratches.

**Step 7. Featheredge.** Using the same 180 grit abrasive sheet, featheredge the paint away from the body filler. Remove any straight line scratches.

**Step 8. Final cleaning.** Remove any remaining sanding debris. You can also use glazing and spot putty to fill any pinholes or minor imperfections, says 3M.

**Professional recommendations**

Basically, most filler jobs involve prep,

mixing the filler and hardener, application and sanding. As simple as that may be, there's plenty of room for mistakes if shops don't attend to other rules and recommendations during this process.

**Fresh product.** When properly sealed and stored, filler remains usable for some time. Hardener, on the other hand, can begin to break down and lose its effectiveness even before it's opened. Always check the manufacturer recommendations on both with a special eye on hardening products.

**Mixing the filler.** Resin can begin separating from filler in both used and unopened containers. Before using, use a paint stick to stir the filler and blend the resin back into the compound. Never shake the container to blend the filler. According to US Chemical and Plastics Product Manager Bob Olszak, doing so (especially with a can shaker) creates pin holes in the filler that will need repaired.

**Catalyst ratio.** Pinholes can also result when filler and hardener aren't mixed correctly. Brian Lewis, a technical man-



Begin any filler repair by using hot water and soap to clean the area then follow with a residue remover to eliminate any remaining contaminants.

ager for US Chemical and Plastics, says the most common mistakes he helps customers address deal with mix ratios. Ideally, the ratio of filler to hardener for most products is 50:1. Lewis notes that using too much hardener produces pin holes and bleaching of the paint. Use too little, he says, and the result is staining and de-lamination of the paint.

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Typically, shops measure out hardener by forming the filler into a circle (four inches in diameter) and squeezing out a bead of hardener from one edge of the circle to the opposite side. Because there is some guesswork here, Lewis says his company has responded by creating hardener tubes with openings designed to consistently deliver an accurate amount.

After the hardener has been placed on the filler, the two must be mixed by continually folding and pressing them together until the color of the filler has changed throughout. Never stir the filler and hardener together since this creates air pockets that later produce pin holes.

**Layered effect.** Filler always must be applied in multiple layers, with firm pressure placed on the foundation layer to push out any air pockets. Ricky Miller, Senior Technical Service Engineer, 3M Automotive Aftermarket Division, notes that one of the biggest mistakes shops make is creating a primary layer that is too thick since forcing air out of a thick layer can be particularly difficult. Any air that remains could blister and damage the repair.

Miller also notes that repairers need



Always apply the filler in multiple layers.



Use 180 grit sandpaper to level off the repair area and remove any of the 80 grit scratches.

to smooth out spreader trails between layers. As the technician completes each layer, a small edge is produced by the smoothing action of the spreader. This edge needs to be rolled over to push out any remaining air (that, once again, creates pin holes).

**Depth dimensions.** As tough as filler is once it hardens, the repairer must never exceed the recommended usage. Repairable dents can be no deeper than 1/4 in. Putty can be applied to scratches no deeper than 1/8 in. Exceeding these limits means risking the integrity of the filler, which can begin to crack over time.

**Proper temperature.** Extremes in temperature and humidity can affect hardening times in fillers, making application difficult. In warmer climates where the filler can begin hardening quicker than normal, technicians compensate by cutting back on hardener to slow the process. In colder areas, techs add a bit more hardener to speed up a process slowed by cooler temperatures. With a little experience, determining the revised ratio of hardener to adjust the filler's working time should be no problem (also contact the manufacturer's tech line for recommendations).

Lewis points to a low temperature problem some small shops experience when they choose to perform filler work at the end of the day with the intent of letting the filler dry overnight to be painted the next morning. In normal shop working temperatures (around 70 degrees F) this practice would be fine. If night time temperatures dip below 55 degrees F and the shop turns down its heat, the filler will stop drying. In the morning, the shop will have to continue to wait for the filler to dry to be painted.

High humidity is a much larger factor since it has the potential to greatly extend curing times. In some cases (such as the high humidity areas of South Florida), the filler won't dry properly on its own, and the job will need to be re-done. Olszak recommends shops located in these climates use a heat lamp on the filler after it has been applied.

**Paint prep.** Before any filler is painted, Miller says shops need to examine the work one more time to find flaws. Because the lighting in some shops is poor, Miller recommends techs or paint prep workers blow off any remaining grit and use a small flashlight to look for pin holes or grit scratches. Aim the




Using 80 grit sandpaper, remove all paint in a 2 in. area surrounding the repair.

flashlight at the side of the repair, not directly on it, for best results.

**New products.** Many of the challenges shops have traditionally faced using fillers have been addressed by new products designed to make this work easier and even more practical. Miller says 3M's Dynamic Mixing Systems now include products designed for use in hot and cold temperatures. For example, 3M's Dent Filling Compound - 95 provides 3.5 minutes working time when used at 95 degrees F. The cool weather version can be used in temperatures as low as 55 degrees F, with the product being ready for sanding after 15 minutes.

Lewis says shops interested in powder coating can turn to US Chemical and Plastics' All-Metal filler. Fillers typically can't be powder-coated since they don't work properly with the 400-450 degree F heat required (the substrate cools before filler and pulls away, creating a gap). All-Metal filler can and therefore gives the collision market, especially specialty and restoration shops, an important product option.

Of course, both of these fillers and many similar products making their way to the market must be used correctly. When they are, they can help your business build the kind of great reputation they too deserve. 



**TIM SRAMCIK**  
CONTRIBUTING  
EDITOR

Tim Sramcik has written for *ABRN*, *Motor Age* and *Aftermarket Business World* for more than a decade. He has produced numerous news, technical and feature articles covering every aspect of the collision repair market. In 2004, he was recognized for his work by the American Society of Business Publication Editors.

 E-mail Tim at [TSramcik@yahoo.com](mailto:TSramcik@yahoo.com)

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# UNDERSTANDING Well Bonding

IT IS A SIMPLE PROCEDURE, BUT THE TECHNICALITIES AND TECHNIQUES ARE VITAL FOR SUCCESS

Crash-durable adhesives provide higher impact strength performance and excellent corrosion protection, and can be welded immediately after application.

BY **ED STAQUET** | CONTRIBUTING EDITOR

Weld bonding is a procedure that has been commonplace in most collision repair shops for the past 15 years. However, though weld bonding is not really a “new” technology, repair shop technicians have much to learn. Knowing how and when to use welding bonding in the repair process can help technicians become more productive and ultimately lead to higher customer satisfaction metrics for the repair body shop.

The weld bonding process uses adhesive bonding and resistance spot welding to deliver a sealed joint that is stronger than either of these procedures used individually. After the adhesive is applied and the parts are assembled, spot welding is done through the adhesive. The adhesive is then

cured to complete the assembly.

Repair weld bonding not only duplicates the original OEM manufacturing construction but also reduces the Heat Affect Zone (HAZ). HAZ refers to the portion of metal surrounding a weld that has not been welded (melted), but has had its properties altered during the welding process. It is crucial to keep the HAZ as small as possible in order to not weaken the original properties of the parent material.

It sounds like a simple procedure, and, in reality, it actually is – but using the proper adhesive and equipment, and knowing how to use them properly, can make all the difference between a successful repair and one that fails. It's more than just “putting adhesive on a

part” – liability issues can develop if the repair job is not properly executed. Furthermore, if a repair technician is not using the appropriate repair products and the approved procedures, a vehicle will not be restored to its pre-loss condition, and the customer will not be satisfied.

### The weld bonding process

In the weld bonding process, squeeze-type resistance spot welding (STRSW or RSW) is used as opposed to metal inert gas (MIG) or metal active gas (MAG) welding techniques. STRSW forms a welded attachment similar to the original assembly. With STRSW, the weld joint is not impacted by the zinc coatings present in the substrate steel metals.





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Zinc coatings can affect MIG or MAG welding by creating porosity in the weldments. These welding techniques also impart excessive heat into the steels, which adversely affects the surrounding material and can lead to joint corrosion. Consequently, MIG or MAG welding is unsuitable for weld bonding.

Do not confuse the zinc coatings with other "coatings," such as the paint or e-coat that is applied to a part. The zinc galvanized coating is applied to steel materials for corrosion protection. Structural metal epoxy adhesives are not affected by the zinc coatings on steel, as with acrylic adhesives.

Along with STRSW, the weld bonding process uses a structural metal adhesive in the middle of a joint or assembly. The STRSW can weld right through the adhesive to provide a complete, bonded interface for replacing structural or non-structural autobody panels. The adhesive significantly increases the strength of the joint.

**Picking the right repair solution**

So how does a repair technician know when to use weld bonding, or MIG or MAG welding, to repair a damaged vehicle? And which are the correct adhesives and bonding sealants to use? Presently, there are no industry standards that can help with these determinations. It is necessary, therefore, to rely on each individual car manufacturer's recommendations for repair techniques and products. There are courses offered that teach weld bonding, and collision shop owners should also confer with their product suppliers for "how-to" information.

By law, all auto OEMs must provide servicing and repair information to the general public. Most auto manufacturers' websites feature some level of information that relates to collision repair and autobody rebuilding instructions. While it is easy to access an auto OEM site, it can be confusing to navigate each site to find the repair information.

To make it easier to find specific auto model repair instructions, the National Automotive Service Task Force (NASTF), at [www.nastf.org](http://www.nastf.org), provides access to auto OEM websites. NASTF is a cooperative effort among the automotive service industry, the equipment and tool industry, and automotive manufacturers to facilitate the accessibility of automotive service information, train-



**In the weld bonding process, squeeze-type resistance spot welding (STRSW) forms a welded attachment that replicates the original assembly.**

ing, and diagnostic tools and equipment for automotive service professionals. NASTF's site, [oem1stop.com](http://oem1stop.com), has direct links to more than 60 auto manufacturers and their OEM Electric/Hybrid Vehicle Handling Guidelines.

**Getting educated**

Welding training and certification courses are offered from the Inter-Industry Conference on Auto Collision Repair I-CAR ([www.i-car.com](http://www.i-car.com)), an international not-for-profit organization dedicated to providing the information, knowledge and skills required to perform complete, safe and quality repairs. According to I-CAR, "when a poor or improper weld is performed during a structural collision repair, it can compromise the vehicle's structural integrity. The result may be a "repaired" vehicle that is dangerously unsafe to drive."

I-CAR not only offers courses on STRSW and other welding techniques, it can also perform a comprehensive evaluation of your collision repair facility and equipment to ensure that it is equipped to perform safe and proper welds. All I-CAR training courses are based on auto OEM-approved procedures and recommendations.

Suppliers of weld bonding adhesives are another good source for training information. Many suppliers host in-house training courses or feature training videos on their websites with details on how to use weld bonding adhesives for repairing damaged auto panels. Speak to your supplier about how you can access these programs to help educate collision repair technicians.

**Crash durable adhesives**

A significant advancement in structural adhesives has been the development of crash-durable formulations. Crash-durable structural metal bonding ad-

hesives are designed to replace all OEM one-component crash durable adhesives, returning vehicles to pre-accident condition. They are ideal for weld bonding of replacement structural and non-structural autobody panels.

The inherent strength of crash durable adhesives is what makes them different from other bonding/structural adhesives. All bonding/structural adhesives are strong, but crash durable adhesives take strength "to another level." The enhanced toughness allows any crash durable adhesive to handle excessive stress over its lifetime, resulting in a repair that is not only as good as the original construction, but at times, even better.


Crash durable adhesives offer higher impact strength performance, excellent corrosion protection, and are immediately weldable after application. It is important for the collision repair technician to follow auto OEM instructions and supplier directions for using crash durable adhesives in weld bonding.

Nevertheless, weld bonding can be used as a repair technique on most auto

parts – bumper-to-bumper (depending on the auto OEM manufacturer) – and is employed for steel-to-steel applications. As with any other in-shop repair procedure, make sure to use the proper personal protective equipment (PPE) when using STRSW equipment.

Proper application of the weld bonding adhesive is also crucial to achieving a successful repair. Carefully follow both the vehicle manufacturer's guidelines for replacement panel fastening and the removal of any metal coatings, and the supplier's instructions for applying the weld bonding adhesive. When the proper metal preparation, product preparation and application procedures are followed, the weld bonding adhesive will provide an excellent bond with corrosion-protection properties. Once the adhesive is cured, it can be painted.

Collision repair shops only get paid once to do a repair job. If the weld is not done properly, the result is not only liability and safety issues, but a job that must be done over at a cost disadvantage.

Weld bonding is an efficient method to repair damaged vehicles and to return them to pre-accident condition. Knowing how to weld properly and how to select and use the correct adhesives is essential to achieving a successful repair job. Crash durable structural adhesives offer the versatility and ease-of-use necessary to attain a strong, corrosion-resistant weld. With the proper training, equipment and adhesives, weld bonding can be a valuable tool for remaining competitive in the collision repair business. 



**ED STAQUET**  
CONTRIBUTING  
EDITOR

Ed Staquet has more than 40 years of experience in the auto body repair business. For the past 20 years, he has worked for Fusor Repair Systems and LORD Corporation and is now the senior staff technical support manager. He has been an instructor at I-CAR for 30 years; and he served two terms on the I-CAR Board of Directors.

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# FWD drivetrain components

What to look for when assessing a vehicle post collision

BY **PETE RUDLOFF** | CONTRIBUTING EDITOR

**WHEN AN** automobile is involved in a collision, it is important to not overlook damage to drivetrain components that are attributed to the collision. Not only is it in the best interest of the vehicle owner to get their vehicle made whole, a collision shop opens up a whole new revenue source when they perform repairs beyond the sheet metal.

This month we will cover typical FWD components and what to look for when assessing a vehicle post collision. For the past 10-15 years, FWD is the most common of the drivetrain you will find in most cars, mini vans and small SUVs. Most 1500 series and up trucks and vans still use Rear Wheel Drive (RWD), but cars typically utilize FWD.

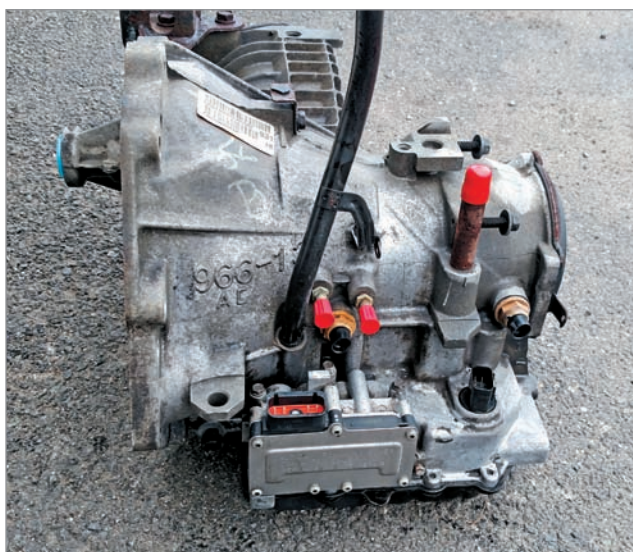
Using the front tires to pull the rest of the car forward, you won't find much going on in the back of a FWD car — just normal suspension of various types with the only spinning components in the back being the tires and related wheel bearings. Most of what comprises a FWD drivetrain is going to be located forward of the passenger compartment.

## Transaxle

Transaxle is a fancy name to describe a FWD transmission. A transaxle combines two major components into one: the transmission and the differential. Transaxles are designed in three basic flavors: Manual, Automatic, and Constant Variable Transmission (CVT). From a collision aspect, the different types do not matter much, as most share similar dimensions and external components that are easily damaged during a significant impact.

In all types of transaxles, the transmission part connects directly to the engine and harnesses the power from the crankshaft to the torque converter or mechanical clutch depending on which transmission type you have. From there, the power works through the transmission portion to the differential which is either integrated directly into the transaxle case or bolts immediately to the transmission housing.

When inspecting the exterior case of a transaxle, pay special attention to any impacts and look for cracks. Transaxles typically utilize an aluminum housing, and aluminum tends



Typical FWD powertrain configuration of a 2004 Chrysler Town and Country

to crack and break when impacted. One of the reasons engineers use aluminum is because it is quite rigid and will retain its form under normal use. Unfortunately, this rigidity becomes a detriment during a collision. While this is bad for the crashed car, it is good for those of us doing the inspecting, as generally aluminum damage stands out quite well.

## Bell housing

The bell housing is the section of the transaxle that bolts to the engine. This is a common spot for fracture, as the aluminum can be pretty thin in spots. Any signs of cracking or fractures should be a flag that the transmission will need to be removed and inspected more carefully. Either the entire transmission will need to be replaced or, for the more technically savvy, the damaged housing can be replaced. When inspecting the bell housing, do not forget to look at the engine, too. Many cars utilize an aluminum block engine and if a transmission is damaged often the engine will suffer damage as well.

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### Transmission case

Cracks in the automatic transmission case often result in leaks because you have an internal pump pressurizing passages inside the case. So, if you have a crashed car spewing out transmission fluid, that is an indicator that the main housing of the transaxle may have been fractured. Usually just cleaning off the fluids and having a helper start the car and cycle through the gears is sufficient to nail down the source. Manual transmission cases generally won't spew fluid running so you may have to drive and re-inspect for leaks. Sometimes a chunk of case will break off and not create a leak. Inspect mount locations carefully because they often take the brunt of a collision.

### Transmission cooler

Like case sections, damaged transmission coolers tend to leak badly when the engine is running. Keep in mind transmission coolers are exclusive to auto-



Broken Bell housing/case in a 2004 Chevrolet Monte Carlo



This cooler from a 2004 Chrysler minivan has separated from its mount during a collision. It's tricky to spot but if let go, the long term vibrations will cause cooler or related component failures.



Typical axle shaft

matic type transmissions. Generally, if equipped, the cooler will be located in front of or integrated into the radiator.

### Differential

The differential is used to convert the power coming from the transmission and to split it to both drive tires in a way that allows for smooth driving. Like the transmission case, these housings are typically aluminum; however, they may not leak with just the engine running and in gear. Like with a manual transmission, this is something that may need to be driven and double checked post repair. On top of physical damage externally, differentials can be broken internally during a collision, so when performing quality control check post repair, pay attention to any odd noises or vibrations.

### Axle shafts

All FWD cars have two axle shafts that deliver power from the differential to the wheels. These are a very common component broken during a collision. They are comprised of three major components: shaft, joint and boot. Shafts and joints break and boots tear. Any damage to these components should be remedied by replacing the respective assemblies.

### Electrical

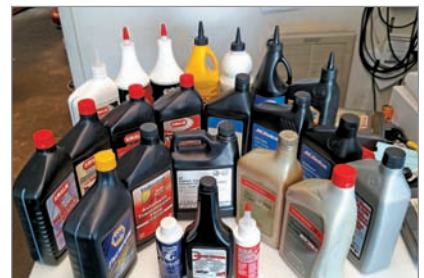
You won't find a modern car that doesn't have some sort of wire or sensor going to it. Many automatic transmissions even have Electronic Control Modules (ECMs) and/or solenoid packs mounted externally to the case. Damage to ECMs, solenoid pack or sensors warrant replacement. Damaged wire harnesses should be assessed for either reconstructing or replacing depending on your shops skill level. Do not try and reuse cracked or smashed electrical connectors and remember that ECM and solenoid pack replacement may require special manufacturer specific scan tool procedures or programming to get them operational.

### Fluids

Often overlooked, it is important as a service professional to make sure you are putting the correct Automatic Transmission Fluid (ATF) in when you are topping up after a repair. Red is not an indication of transmission fluid type



Wire harness, solenoid packs and ECM are often exposed and easy to damage in a collision, visual inspection can often identify damaged components.



Automatic transmission fluid is no longer something that is ideally kept in bulk containers. Using the correct fluid is part of being a professional. If you are not stocking multiple transmission fluid options, you are doing it wrong!

and failure to use the OEM spec fluid could cause shifting concerns or, even worse, a premature failure. Universal transmission fluids often do not meet the OEM spec. Use your service information to ensure you are ordering the right ATF.

Taking the time to identify powertrain concerns while doing your post-collision damage assessment adds a higher level of service for your customer and will bring a lot of money to your bottom line in broken components. Failing to take the time to verify the condition of powertrain components is doing your clients a huge disservice! 🛠️



**PETE RUDLOFF**  
CONTRIBUTING  
EDITOR

Pete is a technician, instructor, technical writer and co-owner of Pete's Garage Inc. in Newark, Del., which is a friend to the general repair auto shops. He created the Delaware Training Group to bring techs together for education.

✉️ E-mail Pete at [PeterVRudloff@gmail.com](mailto:PeterVRudloff@gmail.com)



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#### CONTACT INFORMATION:

#### Axalta Coating Systems

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#### Quality construction

"We chose Blowtherm based on product, service and quality; and their footprint as the premier manufacturer of spray booth systems," says Christian Nogueiras, president, Red Hill Collision, Costa Mesa, Calif.

#### Longevity

"Twenty five years later and still performing like the day I bought it," says John Roper, owner, Cutters Auto Body, Tewksbury, Mass.

#### Performance means profitability

"My painter is getting more production and up to 50 percent more efficiency out of the Blowtherm booths. Our cure time and energy use are down considerably," says Scott McDaniel, owner, Scott's Custom Colors Inc., Terre Haute, Ind.

#### Protect your company's good name

"We have to deliver a first-rate product.

Blowtherm spray booths make that happen," says Larry Newman, body shop manager, Land Rover of Dallas, Texas.

#### Do the research. Make a smart decision.

"I looked at every spray booth around; Blowtherm was the best decision," says Mark Kowalski, president/owner, Marksman Auto Body, Brunswick, Ohio.

You've read what Blowtherm-USA can do. Now it's up to you. We look forward to helping your business grow.



#### CONTACT INFORMATION:

#### Blowtherm USA

(855) 463-9872

[www.blowtherm-usa.com](http://www.blowtherm-usa.com)

## EAGLE ABRASIVES

[www.eagleabrasives.com](http://www.eagleabrasives.com)

### The next generation abrasives for today's paint technology

Eagle Abrasives, Inc by Kovax offers a wide selection of top quality coated abrasive products for refinishing in autobody repair, woodworking and industrial fields.

Since its inception in 1930, Kovax Corporation has played a leading role in the abrasives manufacturing industry. By adhering to rigid quality control standards and research, Kovax is now recognized as one of the most respected and reliable specialists in the industry.

As finishing technology continues to advance, quality demands in coated abrasives are higher than ever before, especially in the fine sanding area. Besides the longevity and cutting speed in sanding products, a uniform finish with shallow scratches is essential for today's New Generation painting technology. Introducing...

#### Super Assilex - DRY

A dry sanding medium that provides speed, uniform coverage and an extremely shallow sanding pattern. It prevents irregular scratches that can be caused by

non-woven products or the risk of oversanding by standard abrasive sheets.

#### Tolecut System - Topcoat Touch-Up system - DRY

The most advanced system for removing dust nibs on topcoat finishing. Utilizes state of the art Dry Lube technology to prevent loading. Speedy and extremely uniform fine finish can be removed easily by Buflex or micro finishing compounds. Instant scratch monitoring is possible thanks to a completely dry application. Ideal for Waterborne and High Solid paint systems.

#### Super Buflex - DRY

An innovative dry sanding and polishing system that cuts long buffing time by 50% or more and removes topcoat-sanding scratches effectively and efficiently. The finish left behind by Buflex can be polished easier than grit P3000. Buflex has proven that compound polishing processes can be largely reduced, thus achieving the best finish in the shortest time.



#### CONTACT INFORMATION:

#### Eagle Abrasives

(888) 683-2453

[www.eagleabrasives.com](http://www.eagleabrasives.com)

## GARMAT USA

[www.garmat.com](http://www.garmat.com)

### GARMAT USA = Reliability

*Reliability is defined* as the ability of a system to perform and maintain its functions in routine, as well as in unexpected circumstances. There is probably no better way to describe Garmat USA as business partner and manufacturer. Many of our paint spray booths have been operating in the field for over 20 years, still providing the high performance their owners



Garmat touchscreen controls with user friendly interface includes self-diagnostics and paint recipe functions. Optional WiFi connectivity and customized data retrieval functions available.

expect. This reliability factor is why Garmat has been the paint spray booth of choice in the automotive market for the past 27 years.

#### Consistently Innovative

Manufactured in the Englewood Colorado, all of our booths are specifically

designed to suit each individual shop environment. By manufacturing our own air handling systems and controls we can ensure consistent performance with leading edge technology that targets an ever-changing industry. Garmat's standard product line is ETL listed and built to comply with standards set forth by National Regulatory Agencies. Designed to perform, the Garmat booth offers superior airflow and the most effective lighting packages in the market and also includes features that increase productivity and reduces operating costs.

#### Dependable Partner

Dependability is key to selling equipment as complex as a Garmat Paint Spray Booth. Most of our distributors have been with us since we opened our doors in 1988, offering support across the United States and Canada. They understand they are selling more than just a paint spray booth. They are selling a business model and the paint spray booth is the integral part of that equation. Purchasing a quality



Garmat sideload system featuring flush-mounted track system, robotic dryer and 8-tube light fixtures.

brand such as Garmat and having dependable after sale support can give you the confidence needed when making your equipment investment.



#### CONTACT INFORMATION:

#### Garmat USA

(800) 442-7628  
[www.garmat.com](http://www.garmat.com)  
[info@garmat.com](mailto:info@garmat.com)

## INDUCTION INNOVATIONS

[www.theinductor.com](http://www.theinductor.com)

### The INDUCTOR drives down cycle time with invisible heat

The INDUCTOR® product line by Induction Innovations removes glass, trim, vinyl graphics, self-leveling seam sealers, cures or de-bonds adhesives on metal and releases all types of miscellaneous hardware and mechanical components from corrosion or thread lock compounds using Invisible Heat® (High Frequency Magnetic Fields)! Drastically reduces cycle times while minimizing the need for expensive consumables and flammable toxic solvents while salvaging parts normally discarded in the repair process.

#### Tool pays for itself in just 3 jobs!

Customers tell us our tools are NOT like the others. They use them every single week. Even simple tasks like removing a seam sealer can save you big labor time. As one customer who had used another's

induction heat tool tells us, "We at IMPLEX love our Inductor and cannot live without it! It is rare to find a tool that really SIMPLIFIES work and cuts time... On just one job we do every week — book pays 5.5 hours to replace. With our Inductor, we get it done in 1.0 — SAVING 4.5 hours EACH JOB — our PRO-MAX™ paid for itself in just THREE jobs!" says Julio Piazza, President.

#### Choices to suit your way of working!

With a model for every budget, the INDUCTOR PRO-MAX™ offers Best Warranty and the most applica-



tions, the INDUCTOR MAX™ is best for portability and affordability, the GLASS BLASTER® KIT is ideal for encapsulated glass and spray-on bed liner removal.

Reduce labor, expensive consumables and salvage parts!



#### CONTACT INFORMATION:

#### Induction Innovations

1175 Jansen Farm Court  
 Elgin, IL 60123  
 (877) 688-9633  
[www.theinductor.com](http://www.theinductor.com)



# 2015 COLLISION INDUSTRY PROFILES

## INNOVATIVE TOOLS

[www.innovativetools.com](http://www.innovativetools.com)

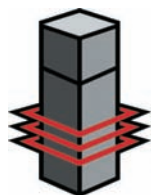
### Innovative Tools Stands for Quality and Innovative Designs

Founded in 1996 in St. Paul, Minnesota, by a 21-year auto body technician, Innovative Tools & Technologies knows the needs and problems of automotive centers, owners and techs first-hand.

Innovative creates and manufactures work and parts management systems for the automotive repair market worldwide. Its products are designed to save space and steps, minimize clutter, enhance efficiency, make processes leaner, and increase profitability. Most recently Innovative Tools has been named the exclusive U.S distributor for the Scangrip Color Matching Lights. Specifically designed as a work light with color matching properties to meet the rugged demand of day-to-day use in any body shop.

The company has numerous patents and patents pending. More than 285,000 Innovative products are in use throughout North America, Europe, Asia, Australia, and New Zealand.

INNOVATIVE PRODUCTS ARE OFTEN COPIED,  
BUT NEVER DUPLICATED.  
QUALITY GUARANTEED.



**INNOVATIVE**  
TOOLS & TECHNOLOGIES, INC.



CONTACT INFORMATION:

**Innovative Tools**

1-(866) 438-4884

[www.innovativetools.com](http://www.innovativetools.com)

## KAESER COMPRESSORS, INC.

[www.us.kaeser.com](http://www.us.kaeser.com)

### Built to perform. Built to last. Built for a lifetime™.

Kaeser is a global leader in superior rotary screw compressors and compressed air equipment, providing the automotive market with a compressor that has a higher capacity, more stable pressure, consistently higher air quality, and much quieter operation. With thousands of collision customers, Kaeser understands that automotive shops have high standards, and with the rising cost of labor, tools, paints, and other materials, you cannot afford re-work.

Dry, clean, compressed air at a stable system pressure is essential for high-quality results. With a Kaeser air system, you get products that have proven their reliability and efficiency over and over in demanding industrial applications. Whether your concern is air quality, reducing shop noise, or reducing



time spent on maintenance, Kaeser products can help increase quality, efficiency, and productivity.

Kaeser's AirCenter is a packaged compressed air system with a Sigma rotary screw compressor, refrigerated air dryer, and optional filter—all compactly mounted on a receiver tank. Simply connect the power and air-line, and you have a fully operational compressed air system. Compressor size ranges from 3 to 20 hp with working pressures available from 80 to 217 psig.

Kaeser's Airtower gives you a reliable source of good quality air with a lower initial investment. These 100% duty cycle units are a great step up from piston compressors in tire service, general repair, and smaller painting and fabrication applications. Available in 4, 5, and 7.5 hp with single or three phase electrics.

Kaeser builds products and air systems for reliability, ease of maintenance, and energy efficiency. Built to perform. Built to last. Built for a lifetime™.



**KAESER**  
COMPRESSORS

**Built for a lifetime™**

CONTACT INFORMATION:

**Kaeser Compressors, Inc.**

(866) 516-6888

[www.us.kaeser.com](http://www.us.kaeser.com)

# 2015 COLLISION INDUSTRY PROFILES

## LUSID TECHNOLOGIES

[www.lusid.biz](http://www.lusid.biz)

### America's fastest growing automotive paint company

#### Big company quality, small company values

Lusid Technologies' award-winning paint manufacturing company provides a full range of superior paint coatings for automotive, fleet, OEM, and light industrial applications for jobbers and end users throughout North America, including Northstar, GenMax and GenRock as well as the environmentally friendly, low VOC GenVerde and Waterborne Gen2O lines.

#### Flexible solutions

Higher gloss, faster dry times, better coverage, and superior durability char-



acterize these coatings, and all lines exceed the industry standard of quality as well as meeting all applicable VOC regulations. Lusid's team of chemists and technicians has more than 200 years of combined experience, not only ensuring quality product development but permitting Lusid products to be custom-manufactured for end use applications and tailored for special applications – increasing customer satisfaction and productivity. A number of color tools are available, including an online formula database, field and laboratory multi-angle spectrophotometers, color chips hand sprayed with their own toners for complete accuracy, and in house color experts to answer questions from the field.

#### Relentless advancement

To meet current and projected rapid growth, Lusid's state-of-the-art facilities, near Salt Lake City feature the latest in paint for-

mulation and manufacturing systems and have just undergone an extensive remodel including expansions to the Finished Goods, Production, and Front Office areas. A new Training Center rounds out the revamped facilities with space for classroom and hands on instruction for Jobbers and End Users from around the country.



#### CONTACT INFORMATION:

#### Lusid Technologies

5195 West 4700 South  
Kearns, UT 84118  
(801) 966-5300  
[www.lusid.biz](http://www.lusid.biz)

## MARTIN SENOUR AUTOMOTIVE FINISHES

[www.martinsenour-autopaint.com](http://www.martinsenour-autopaint.com)

### The single source for your automotive refinish needs

In 1928 The Martin Senour Company became the exclusive supplier of refinish products to the National Automotive Parts Association (NAPA). The Martin Senour Company provides a complete line of advanced technology paint and coatings systems for automotive and fleet refinishing, industrial and manufacturing customers.

#### Distribution

- 6,100+ NAPA AUTO PARTS Stores
- 64 distribution centers serve all states
- Over 422,000 quality parts and accessories for automotive and industrial applications, which is the most extensive inventory in the industry



#### Paint Store in a Parts Store

- Your trusted parts store is now your trusted paint store
- Parts + Paint = NAPA
- NAPA is your single-source for ALL your automotive needs

#### Products

- Vortex® premium waterborne basecoat system is an easy to apply, fast-drying and designed to perform like a traditional solvent system.
- Tec//BASE® premium solvent-based refinish system is formulated to achieve superior performance, excellent color match and high productivity.
- PRO//BASE™ mid-tier solvent-based refinish system is both National Rule & 3.5 VOC compliant.

#### Services & Programs

- Business Consulting offers custom tailored analysis and business solutions to help optimize collision repair operations.
- Express Scratch Repair™ program helps shops capitalize on small damage repair and generate a new revenue stream.

- Collision Repair Design Service (CRDS) assists collision facilities in workflow efficiency and space utilization.
- Best Demonstrated Practices (BDP) provide instructions to illustrate recommended usage of Martin Senour products.
- NAPA AutoCare Collision Center Program provides access to the largest network of independent mechanics and the tools to build a best in class repair facility.



#### CONTACT INFORMATION:

#### Martin Senour Automotive Finishes

(800) 526-6704  
[www.martinsenour-autopaint.com](http://www.martinsenour-autopaint.com)





## GENUINE MERCEDES-BENZ PARTS

[www.mbwholesaleparts.com](http://www.mbwholesaleparts.com)

### The quality of our parts is only part of the story.

While it starts with a manufacturing process designed to ensure a perfect fit and top performance, there is so much more that goes into every Genuine Mercedes-Benz Part that is made. Such as an exclusive Parts Warranty that features:

- 12 months of unlimited mileage
- 24 months or 24,000 miles for transmissions
- 48 months or 50,000 miles for engine and long blocks (which is the same coverage as for a new Mercedes-Benz)

Plus, this comprehensive warranty includes labor when the work is performed at an authorized Mercedes-Benz Center.

How many productive hours are lost when you have a vehicle in your shop and no parts with which to fix it? Or when you have to call multiple suppliers, wait on multiple deliveries and

write multiple checks? And even when you get the part, how much valuable time is wasted just getting it to fit?

With dedicated wholesale representatives, multiple daily deliveries, hot-shot deliveries, where available, and access to over 300,000 readily available, custom-fit Genuine Mercedes-Benz Parts, a certified PartsPro dealership provides comprehensive care and customized solutions. They'll even offer a complimentary consultation to help streamline the ordering process and avoid costly delays.

Mercedes-Benz CollisionPro, powered by CollisionLink®, enables collision shops and independent service providers to order original equipment parts online. From easier ordering to special discounts, Mercedes-Benz CollisionPro is the right way to find the right parts at the right price.

We do all this so that your experience is as exceptional as the parts you use. To learn more, visit [www.mbwholesaleparts.com](http://www.mbwholesaleparts.com).



Mercedes-Benz

CONTACT INFORMATION:

**Genuine Mercedes-Benz Parts**

[www.mbwholesaleparts.com](http://www.mbwholesaleparts.com)



## PRO SPOT INTERNATIONAL, INC.

[www.prospot.com](http://www.prospot.com)

### Quality welding products

Pro Spot International specializes in quality welding and repair products for the collision repair industry. Pro Spot owns three patents for special welding equipment and works with the majority of the largest auto manufacturers in the world. Pro Spot is a proud MADE IN THE USA manufacturer in Carlsbad, CA. The turnkey facility includes Engineering, Machine & Sheet Metal Shops, Powder

Coating, Assembly, Training and Technical Support.

#### Pro Spot Training and Service

Pro Spot provides on-going training to all of our distributors and their technicians, therefore, all owners of Pro Spot products receive complete training firsthand. Pro Spot has two ASE certified training programs that are I-CAR alliance approved. Pro Spot also has a training facility at its headquarters in Carlsbad, CA for groups to train on any and all products. Pro Spot also offers their unique My.ProSpot.com, which includes interactive training courses for shops and technicians to access online, and is an ongoing source of information on the industry.

#### Pro Spot Products:

- Resistance Spot Welders (STRSW)
- Battery Operated Spot Welders
- Aluminum Repair Equipment
- Dent Repair Tools & Equipment
- Weld Stations
- MIG Welders
- TIG Welders
- Self-Piercing Rivet Guns
- Plasma Cutters
- Plastic Welders
- Fume Extractors
- and more...



**PRO SPOT**  
QUALITY WELDING SYSTEMS

CONTACT INFORMATION:

**Pro Spot International, Inc.**

(877) PRO-SPOT  
[www.prospot.com](http://www.prospot.com)

## MATRIX

[www.Matrixsystem.com](http://www.Matrixsystem.com)

### Matrix Automotive Finishes

"We use Matrix in our shop every day. It is our only paint brand. After I got hands on training, it was an easy switch. With Matrix, we stand above and beyond our competition to give them (our customers) a better product. The reason a shop would want to switch is the ease, the technical help, the warranty and the durability." – *Mike Lumpkins, owner Dick Lumpkins Autobody and former OE paint brand user for 37 years*

#### Productive Systems for Collision Repair

For over three decades, Matrix Automotive Finishes has delivered complete refinish systems, excellent color match, customer-focused service and award-winning clearcoats to collision repair centers of all sizes. Born in the Motor City, Matrix is the American brand that delivers increased productivity and easy-to-use refinish coatings, at a value that returns profitability to your shop. What's more is the Matrix refinish system

is supported by broad lineup of color tools, software and app, field technical support, I-CAR approved training and a comprehensive warranty.

#### Coast-2-Coast Compliant Basecoat

A 'true' low VOC solvent basecoat system, Matrix MPB-LV 3.5 VOC Basecoat sets the standard for performance in regulated and non-regulated areas. Because the entire system is compliant, the color positioning, coverage and application outperforms competitive, modified low VOC basecoats and waterborne basecoats as an alternative solution. Shops report as much as 35% increased efficiency over waterborne, when using Matrix MPB-LV, and the color is supported by a full range of compliant undercoats and clearcoats.

#### FX Series Custom Color

From loud to mellow, old school to radi-



cal, the Matrix FX Series Custom paints are used by award-winning custom painters, pin strippers, and airbrush artists around the globe. That's why Ryan Evans (Counting Cars), Nub, Josh Culver and more trust Matrix to create their true originals. Check out the new striping paints at [www.Matrixsystem.com/stripping](http://www.Matrixsystem.com/stripping)



#### CONTACT INFORMATION:

#### Matrix® Automotive Finishes

(800) 321-0672  
[www.Matrixsystem.com](http://www.Matrixsystem.com)

## PROSPRAY® AUTOMOTIVE FINISHES

[www.ProprayFinishes.com](http://www.ProprayFinishes.com)

### Prospray® Automotive Finishes

#### Passion for Colour.

Our story begins nearly three decades ago in Cambridgeshire, England, when the elite minds of European automotive refinishing technology partnered with the world's foremost pigment and resin manufacturers and asked, "If we could create the perfect paint line, what would it look like?" The answer: Prospray. A new breed of Paint Company set on one goal: to deliver supremely refined, profitable and streamlined automotive refinishing systems, with precise colour match and high-performance products and tools.

#### Instruments for Mastery.

Streamlined and refined, the Prospray name adorns only the best, most uncompromising coatings. Our colour and automotive refinish systems serve as instruments for collision repair profession-

als that believe in mastery. Our complete line of compliant refinishing products, from surface prep and undercoats to colour and clearcoats, deliver the ultimate stand-alone system for shops that attain stunning results, time after time. Confident and sophisticated, our universal activators and thinners create an intelligently optimized system for any condition. When it comes to peace-of-mind and performance, Prospray's comprehensive Warranty and I-CAR approved training delivers focused service and customer-focused support.

#### Uncompromising Colour.

Precise colour match and invisible repairs begin and end with Prospray. Globally-conscious, precise and compliant, we've developed systems used by discerning painters worldwide. Water or solvent, high



or mid-solids, single-stage or basecoat, Prospray offers perfect refinish solutions and outstanding colour, all within a fully-integrated system. Our consistently accurate colour delivers a finish with exceptional hiding power so complete that large collision repairs and MSOs rate Prospray as an accepted alternative to OE paint brands.

#### CONTACT INFORMATION:

#### Prospray® Automotive Finishes

(800) 321-0672  
[www.ProprayFinishes.com](http://www.ProprayFinishes.com)



## U.S. CHEMICAL & PLASTICS

[www.USChem.com](http://www.USChem.com)

### U.S. Chemical & Plastics

"When you look at all of the USC products that we're using right now, it's a great package. The quality is superior. Price attracted us then the performance sealed it!" –*Tim Wood, owner Wood's Collision Centers (three locations)*

#### The Collision Repair Product Experts.

With over six decades of product expertise, U.S. Chemical & Plastics sets the standard for high performance body repair, refinishing, and accessory products. Professionals depend on USC for premium fillers, putties, fiberglass repair, masking products, refinish coatings, truck bed liners, abrasives, aerosols and more.

#### Advanced, New Product Lineup.

USC recently introduced the most advanced, productive, high-performing body repair lineup available for collision repair. The streamlined system consists of four new repair products: AU79™ Advanced Lightweight Filler, WG55™ White Gold Super Smooth Filler (lower viscosity), AG47™ Lightweight GRIP Filler and Icing® Lite Gold Finishing

Glaze. These power repair products feature INVISX™ Micro-perfecting Surface Technology for an ultra-smooth, pinhole-free finish, and Z-Tek™ Adhesion Booster for maximum substrate grip and a tough, durable bond.

"We love the AU79 because it's so easy to sand and we don't get pinholes, which is a real plus. It's a top of the line product and it proves itself time and time again." – *T. Wood*

#### Nothing is Better for Aluminum Repair.

Meet AG47™ Lightweight GRIP Filler and Icing® Lite Gold Finishing Glaze – the aluminum repair power duo. In a technical and laboratory study where fillers and putties were applied to actual Ford military grade aluminum alloy, AG47 and Icing Lite outperformed leading competitive fillers and putties by up to 34% with stronger bonds, durability and better cure and sanding.

"The AG47 goes over aluminum and steel. It's our workhorse and we use it most of the time because we know it will perform well and gives us a great result." – *T. Wood*



#### GOLD PRO Paperbacked Abrasives.

The gold standard in paper-backed abrasives, GOLD PRO's multi-layer construction combines sharp, precise grains with ultra-durable backing and a specialized coating to consistently achieve the fast, uniform finish bodyshops want, and customers demand, at an unbeatable value! See why more shops are switching to GOLD PRO.



#### CONTACT INFORMATION:

**U.S. Chemical & Plastics**

(800) 321-0672  
[www.USChem.com](http://www.USChem.com)

## RBL PRODUCTS

[www.rblproducts.com](http://www.rblproducts.com)

### RBL creates industry game changer

RBL Products takes pride in bringing "one of a kind" products to the aftermarket. Our latest is our PPFS System (Professional Paint Finishing System).

"The PPFS System was born out of the OEM paint shops. When vehicles are moving continuously on a conveyor line, paint defects have to be removed quickly and efficiently," said Ron Lipson, RBL presi-

ent. "The PPFS System is currently in use in virtually all paint shop assembly plants."

We now offer this same system to the aftermarket. When a vehicle is finished being painted and there are small defects such as dirt or a fisheye the PPFS system will allow you to remove them in seconds. The customer will not be able to tell where the defect was removed.

Lipson stated, "The system is so simple to use because it is one-step using one abrasive grit, one polish, and one polishing pad. Painters appreciate the value it offers."

Every component is unique, the abrasive is engineered digitally allowing a fast cut with a consistent sanding pattern. The tools consist of a 32mm nibber sander and a 3" 14mm orbital polisher. The cutting and finishing pads are polyester and allow the user to cut faster than traditional wool and foam. The polish removes the sand scratches and leaves a high gloss finish in seconds.

Our goal is to launch these "one of a kind" products regularly.

**RBL PRODUCTS, INC.**  
Detroit/USA



**1-STEP PPFS**

#### CONTACT INFORMATION:

**RBL Products, Inc.**

(800) 584-8111  
[www.rblproducts.com](http://www.rblproducts.com)

# 2015 COLLISION INDUSTRY PROFILES

## ROME TECHNOLOGIES

[www.rometech.com](http://www.rometech.com)

### Increase your performance and bottom line with Rome Technologies

Rome Advanced Process Management – See a 30% increase in performance and an additional 8-12% net to the bottom line.

#### Your Solution for Running The Very Best Body Shop

Rome Management software allows you to realize the full potential of a process driven, factory based solution for your dealership or independent collision center. Rome distinguishes itself from the competition by offering more than

just collision management software, including business consultation, ongoing education and training, outstanding technical support, and continuous product development. As a result, Rome promises shops will see a 30% increase in performance and an 8-12% increase in net profit.

#### Why Rome?

Fast and user friendly, Rome is wireless, paperless, and accessible from anywhere. Rome integrates with all major estimat-

ing and accounting systems to ensure your body shop operates as efficiently as possible. Rome continues to develop new features based on user feedback. We are proud to integrate our state of the art technology with your tablet or

mobile with apps such as Easy Check-In allowing you to manage production from anywhere in the shop.

#### No Contracts

Our business model recognizes “delivering what you sell and standing behind it”. No contracts, just results.

Call or visit us online to learn why so many body shops are improving efficiency, raising their bottom line, and expanding operations using the Rome Management solution as their model for success.



# ROME

CONTACT INFORMATION:

**Rome Technologies**

(800) 373-ROME

[www.rometech.com](http://www.rometech.com)

## SHERWIN-WILLIAMS AUTOMOTIVE FINISHES

[www.sherwin-automotive.com](http://www.sherwin-automotive.com)

### Your partner in service, support and products

When you choose a paint supplier, you are not just selecting the source for your paint and material needs. You are choosing a PARTNER that should provide the best service, support and products. With nearly 100 years of refinish coatings experience, Sherwin-Williams is the right partner for you. What sets us apart from other paint companies is that we service your shop directly with company trained experts through over 190 company owned branches.

With both the AWX Performance



Plus™ waterborne and Ultra 7000® solventborne premium basecoat systems, we have the right solution for your productivity, equipment and climate needs. When you combine our premium basecoats with our patented, HP Process™ primers and clearcoats, you will not only be able to meet customer and insurance expectations, you will be able to exceed them.

The HP Process™ primers and clearcoats have Air-Dry Technology that allow them to dry in 15 minutes at 75° F. That means you get fast results without even having to turn on the bake cycle, saving you time and money. When used with one of our premium basecoat systems, you can complete 1-3 panel repairs, from “Prime to Shine” in 40 minutes or less.

In addition to our highly productive paint products, we also distribute all the equipment and associated products that your shop needs to get the job done right. This unique approach is partic-

OFFICIAL AUTOMOTIVE PAINT OF  


ularly valuable if you have multiple locations. Through our distribution model, you will receive premium, standardized service (e.g. billing, replenishment, product offering, training) for all your locations, delivering a consistent, repeatable and reliable experience.



CONTACT INFORMATION:

**Sherwin-Williams Automotive Finishes**

(800) 798-5872

[www.sherwin-automotive.com](http://www.sherwin-automotive.com)

NASCAR® Inc., is a registered trademark of the National Association for Stock Car Auto Racing, Inc.



## SPANESI

[www.spanesi.com](http://www.spanesi.com)

### Spanesi: The One-stop Solution for Collision Repair Equipment

Spanesi is your one-stop solution for collision repair equipment, including:

- Structural Repair Benches
- Spanesi TOUCH Measuring System
- Fixture Measuring System
- Dent Repair Tools
- Dust collection systems
- MIG And Resistance Welders
- Nitrogen Plastic Welders
- Aluminum Repair Tools
- Aluminum Repair Bays
- Aluminum Dust Extraction System
- Rivet Guns
- Complete Line Of Spray Booths and Prep Stations.

Our complete line of products are designed to make collision repair busi-



nesses and technicians as efficient as possible while repairing the most current vehicle technology.

#### The global collision repair industry benefits from Spanesi research and development

There are no secrets behind Spanesi success, just one rule behind every choice: be a technician, think like a technician, and gear your production to technicians. Equipment designed by technicians for use by technicians.

Being on the customer's side is not just a slogan for Spanesi but a fact of daily life demonstrated by the company's decision to keep a real body shop in operation alongside its production plant where each new prototype is tested. This is the site of the real "field testing" that guarantees the exceptional Spanesi performance and continuous innovation. Take a look at the Spanesi TOUCH measuring system and TOUCH VIRTUAL glasses and you'll quickly see quality, performance and innovation.

For some companies, the only thing that counts is business; others give more attention to the smiles on the faces of their customers and partners. Quality is a direct extension of their happiness.

Call us today at 1.224.SPANESI (772.6374) or by email at [sales@spanesi-america.com](mailto:sales@spanesi-america.com) to schedule a Spanesi Touch in-shop demo or for more details about other Spanesi products and solutions.



#### CONTACT INFORMATION:

**Spanesi**

1.224.SPANESI (772.6374)

[www.spanesi.com](http://www.spanesi.com)

## STECK MANUFACTURING

[www.steckmfg.com](http://www.steckmfg.com)

### Value Proposition: Aluminum Door Skinning and SPR Bundle Tool Kit

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## THE LAST DETAIL [✓]

W

hen I think about the questions I hear most from shop owners, they tend to focus on concerns about the future: Do you think independent shops will be able to continue to compete with the multi-shop operators? Can a shop continue to survive without direct repair programs? How important will automaker certifications be in terms of success in the coming years?

I'd like to address all these sorts of questions with a series of articles over the next several months that talk about how to position your business to thrive — not just survive — in the collision repair industry. Now, I don't know about you, but I believe that if you're in business, you should be in business to thrive, not just survive. Thriving means things like having the capital to reinvest in your business, making a good profit, having quality time off, etc.

In order for any business to be successful and thrive, it takes an owner or manager who can really focus on three things. I use a metaphor of a 3-legged stool. If any one or two legs of the stool are too long — because you've focused too much of your time and energy on those legs — the stool won't sit straight. If you ignore any one of the legs almost entirely, the stool — or your business — will fall.

Here's what I believe are the three legs of the stool that a collision shop that wants to thrive not just survive needs to spend time working on: sales and marketing, production, and finance and human resources.

Some of what I'll talk about in these columns is based on some of what I learned from *The E-Myth Manager Revisited* by Michael Gerber. I can't recommend this book highly enough. It's definitely among my top three books.

One of the things Gerber writes about is the "entrepreneurial seizure" that often leads to a new business. In our industry, that's what happens when a really good technician or manager or estimator has an "entrepreneurial seizure" and decides to start his or her own collision repair business.

There is, of course, nothing wrong with that. That's how many successfully and thriving collision repair businesses out there got started. But here's what often happens after that "entrepreneurial seizure." That former technician or estimator tends to gravitate toward the area of the business that they are the most comfortable with, neglecting other key aspects of the business.

“The three legs of the stool for collision businesses to focus on are sales and marketing, production, and finance and human resources.”

# DON'T JUST SURVIVE — THRIVE

## Understand the three areas of focus that will help your collision business to thrive

So a technician who opens his or her own shop, for example, may gravitate toward fixing cars and hiring good technicians, but may not pay much attention to the business' finances. They often abdicate responsibility for that portion of the business.

As I often explain, abdicating responsibility means dumping it onto someone else and walking away. That's different from delegating, where you assign tasks to others, but then stay involved to make sure the person knows what is expected, has the skills and tools to succeed, and gets regular follow-up to ensure they're performing.

In other words, businesses that begin with "entrepreneurial seizure" sometimes fail to survive (let alone thrive) because the business owner doesn't pay enough attention to all three legs of the stool.

So in upcoming columns, I'll discuss what I see as the three keys to a thriving collision repair business:

1. Sales and marketing: Shops that will thrive understand the need to make sure they have lots of work, and we'll talk about some different strategies shops can use to get work and stay busy.

2. Production: You can't just get work TO the door; you then need to get it THROUGH the shop. So we'll talk about "cell-team systems," team pay-plans and other tools shops are using to focus on production.

3. Finance and human resources: In order to thrive, you have to hire the right people, and you have to manage them properly. You also need to know how to manage your cash and understand your company's financials and key performance indicators.

All three of these areas are equally important. Stay tuned as we take a look at each of them in upcoming columns to help you understand how to position yourself to thrive in this industry. ▮

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# Quality Connection

Dedicated to Quality Kia Vehicle Repairs

SUMMER 2015 VOL. 10 | NO. 2



**2016 OPTIMA**

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## CANCELING THE 'CLICK'

A flexible coupling may cause steering noise

## CRACKING THE CODE

How to determine the fault to reset the airbag system

## THE WEATHER REPORT IS 'PERFECT'

Meet all your customers' climate control needs with an HVAC system check



Genuine Parts

# Topping Ourselves

20th year sets up the next 20... and beyond.

**W**hile some vehicle brands and models were disappearing over the last 20 years, we were busy establishing Kia as, first, a viable brand, and later, as a preferred brand in one of the most competitive industries on earth.

Celebrating our 20th anniversary last year, our rise in the market has been no less than meteoric. Last year we sold our five-millionth vehicle in the U.S. and delivered the best first half, third quarter, fourth quarter and full year sales totals in our history. By doing so, Kia has become the 8th largest auto brand in the U.S. by sales volume. Sales were led by the U.S.-built Optima, which established a single-nameplate record of more than 159,000 units sold, and the Soul, with sales increasing for the fifth year in a row.

Committed to an aggressive launch cycle strategy, we launched more than 20 all-new or significantly redesigned vehicles since 2009. In 2014 alone we launched the K900, the brand's first rear-wheel drive luxury sedan, the all-new

Sedona multi-purpose vehicle and the Soul EV, the centerpiece of Kia's clean mobility program. Additionally, the launch of the completely redesigned 2016 Sorento CUV shook up its segment with unmatched refinement, capability and value.

**We will continue to challenge the status quo with inspired designs, attention to quality and advanced technology.**

We believe our success is unprecedented. For example, take Interbrand's ("the world's leading brand consultancy") list of 100 "Best Global Brands," which indicates that Kia's brand value has risen 480-percent since 2006. To put that in perspective, that means Kia has outpaced the average growth rate of all 11 other automakers on the list for the last eight years.

Other 2014 recognitions are equally impressive. Kia ranked 6th in the J.D. Power 2014 U.S. Initial Quality Study<sup>SM</sup>, which is our second Top 10 ranking; achieved the highest-ranked mainstream brand in Strategic Vision's Total Quality Index Study; was named "Best Value Brand" by Kelley Blue Book®; and ranked 35th by Interbrand as a Top 50 Green Brand.

Our plan going forward is much like the plan that got us to this point: to keep topping ourselves. We will continue to challenge the status quo with our inspired designs, attention to quality and the pursuit and practice of advanced technology.

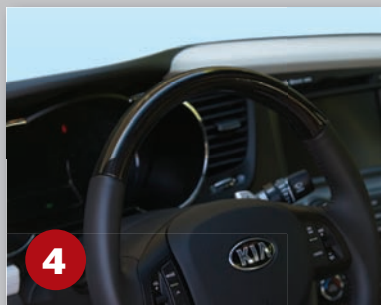
What we think this means for you is that our success will be your success because Kia vehicles will be available for your maintenance and repair services for many years to come. And we will be there to assist you in every way we can.

**Kia Motors America, Inc.**

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### Canceling the 'Click'

A flexible coupling may cause steering noise



### Cracking the Code

How to determine the fault and reset the airbag system



### The Weather Report is 'Perfect'

Meet all your customers' climate control needs with an HVAC system check

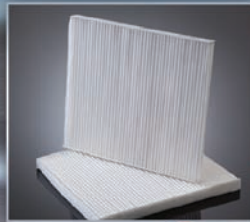
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Genuine Parts

# Canceling the ‘Click’

A flexible coupling may cause steering noise

PARTS INFORMATION			
Part Name	Part No.	Qty. Required	Replacement Part
Flexible Coupling	56315 2K000FFF	1	

AFFECTED VEHICLE PRODUCTION RANGE		
Procedure	Model/Year	Applicable Production Range
1	Forte (TD) / 2012~2013	From Jan. 05, 2012 ~ Mar. 31, 2013
2	Soul (AM) / 2010~2013	From Sep. 01, 2009 ~ Aug. 15, 2013
	Optima (TF) / 2011~2014	From Aug. 17, 2010 ~ Dec. 18, 2013
	Optima (QF) / 2011~2014	From Aug. 12, 2011 ~ Dec. 18, 2013
	Cadenza (VG) / 2014	From Feb. 01, 2013 ~ Apr. 19, 2014
	Forte (YD) / 2014	From Jan. 7, 2013 ~ Dec. 18, 2013

**S**ome Kia vehicles (listed in the table below), while they are stopped, may experience a “clicking” noise emanating from the MDPS when turning the steering wheel left or right. This condition may be caused by premature wear of the flexible coupling in the MDPS. To correct this concern, replace the flexible coupling as outlined in this article.

### Replacement Procedure 1:

*This procedure applies to Forte (TD) models.*

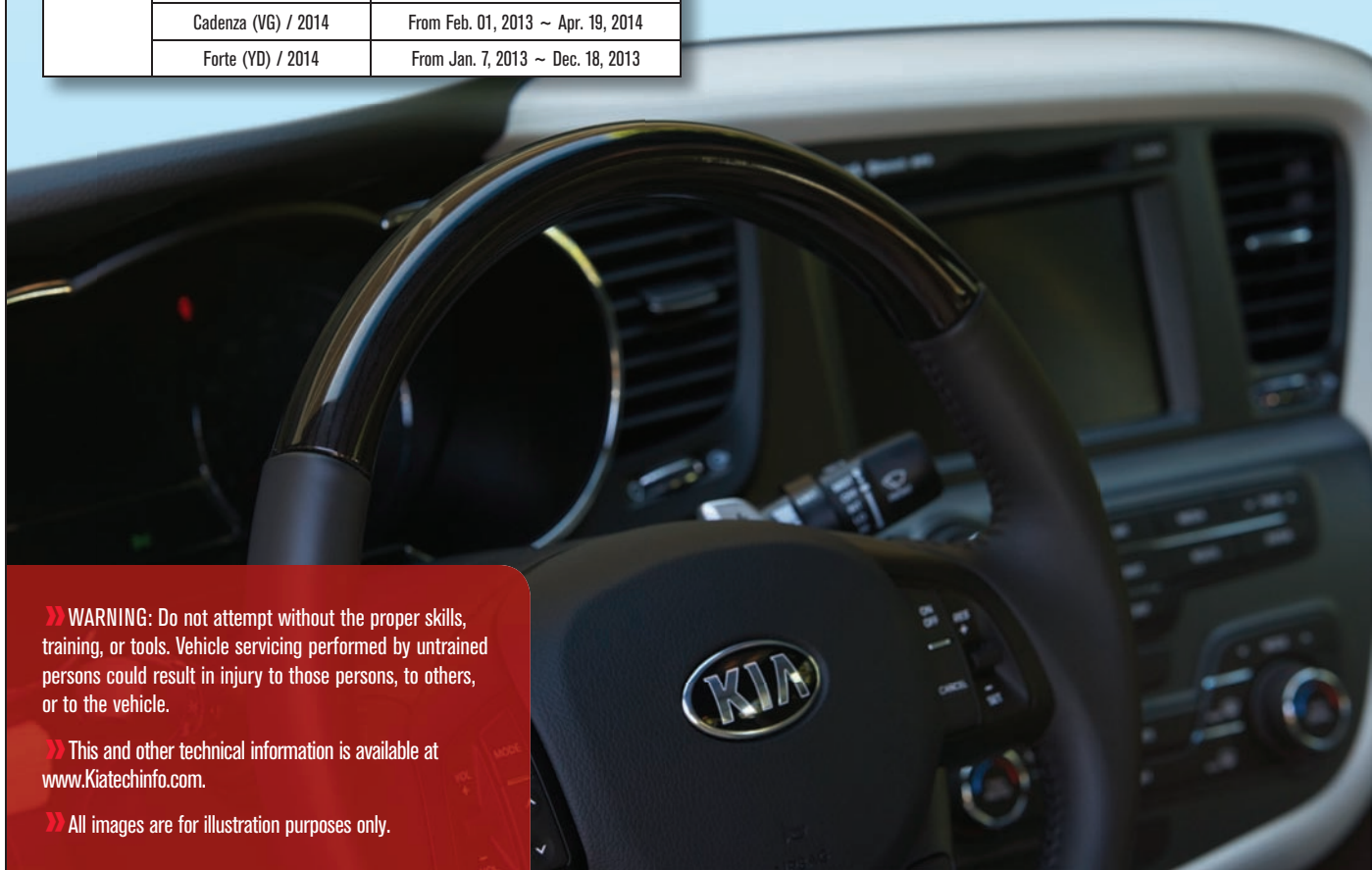
**1** Remove the MDPS unit by referring to the applicable procedure on Kia Global Information System (KGIS: [www.techinfo.com](http://www.techinfo.com)).

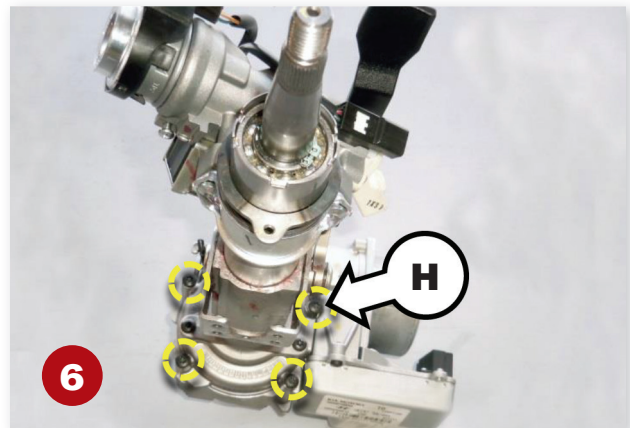
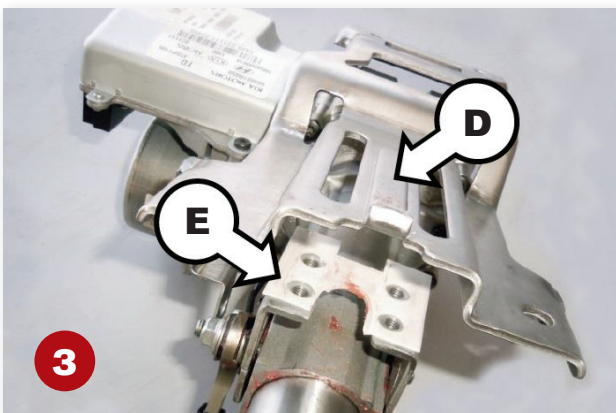
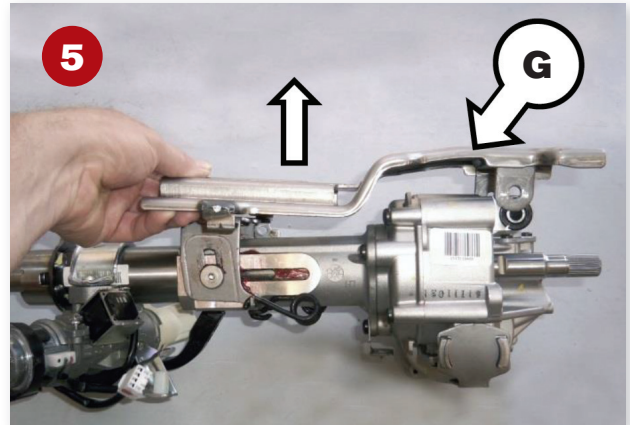
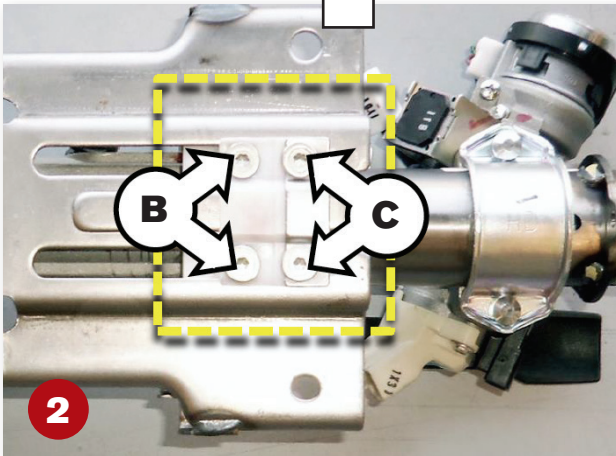
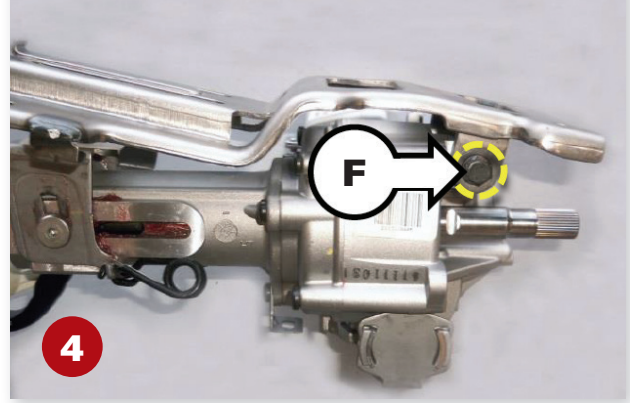
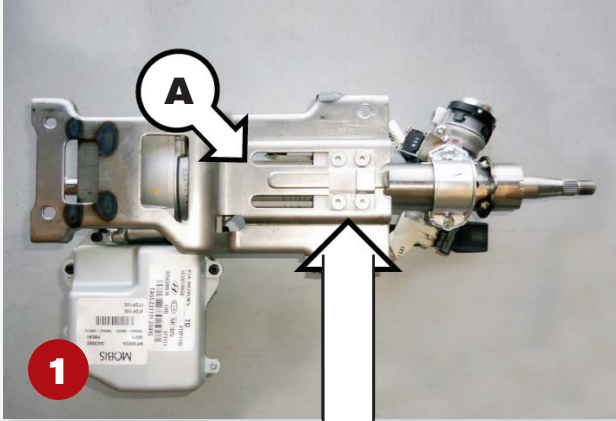
*Notice: Before removing the MDPS unit, make sure to align the steering wheel to the center position.*

» **WARNING:** Do not attempt without the proper skills, training, or tools. Vehicle servicing performed by untrained persons could result in injury to those persons, to others, or to the vehicle.

» This and other technical information is available at [www.Kiatechinfo.com](http://www.Kiatechinfo.com).

» All images are for illustration purposes only.





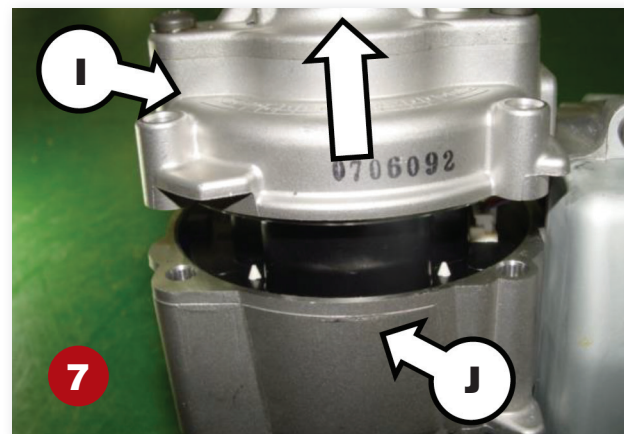
**2** Locate the steering column guide bracket (A) and remove four (4) Torx® head screws (B/C) securing it to the steering column. Tightening torque: B: 3.6 lb.-ft. (4.9 Nm) C: 2.2 lb.-ft. (2.9 Nm).

**3** Lift the steering column guide bracket (D) and remove the plastic spacer (E). Retain all parts as they will be reused.

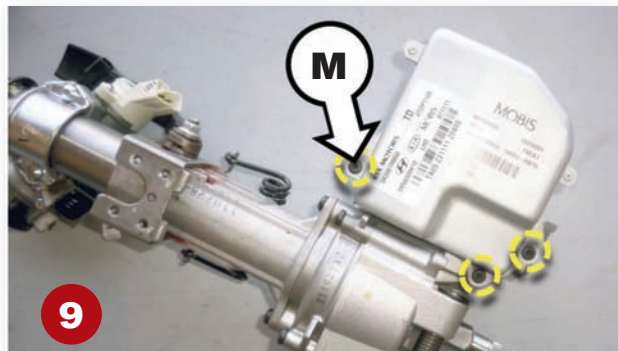
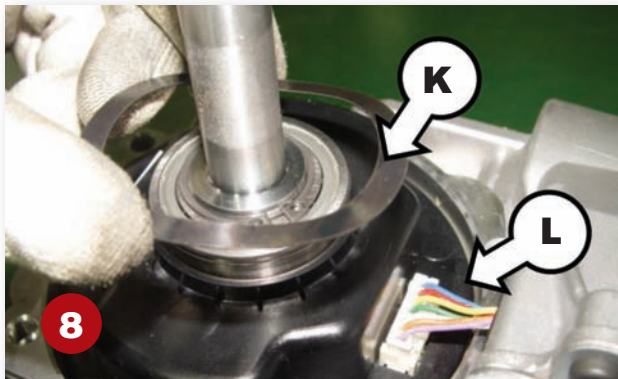
**4** Remove the steering column guide bracket hinge bolt (F). Tightening torque: 13~14.5 lb.-ft. (17.7~19.6 Nm)

**5** Remove the steering column guide bracket (G) from the steering column.

**6** Hold the MDPS upright and loosen four Torx® head screws (H) securing the column to the motor housing. Tightening torque: 6.5~9.4lb.-ft. (8.8~12.7 Nm)



**7** Separate the upper half (I) of the motor housing from the lower half (J).



**8** Remove the washer-gasket (K) and connector (L) from lower portion of the MDPS.

**Caution:** To avoid damage, use caution when removing the connector.

**9** Remove three Torx® head screws (M) securing the MDPS ECU cover. Tightening torque: 3.6~5.1lb.-ft. (4.9~6.9Nm)

**10** Remove four Torx® head screws (N) securing the MDPS motor cover. Tightening torque: 3.6~5.1lb.-ft. (4.9~6.9Nm). Remove the MDPS motor cover.

**Caution:** To avoid damage, use caution when removing the connector and the wiring harness.

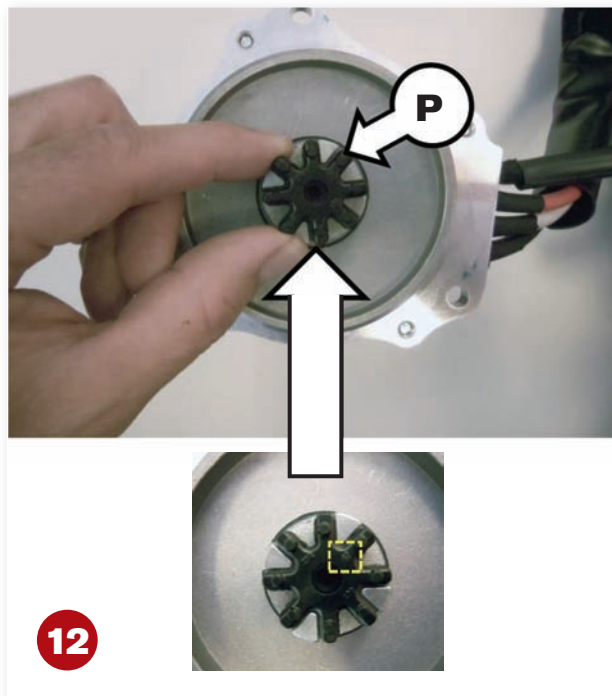
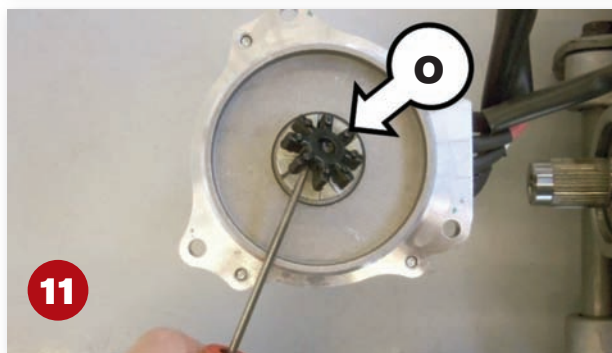
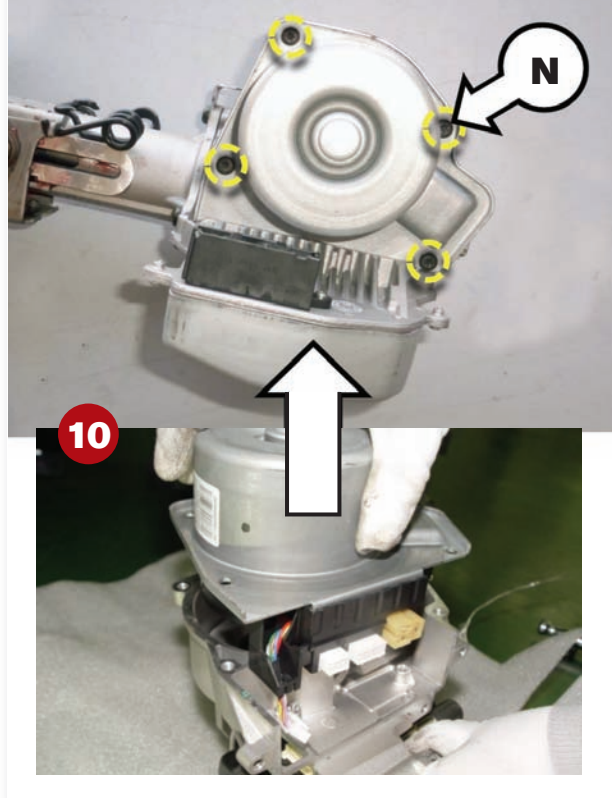
**11** Remove the original flexible coupling (O) from the housing. In addition, use an air gun to remove any foreign matter from the motor and/or the housing.

**12** Replace the original flexible coupling with the new part (P). Refer to the graphic (yellow-dotted square) below to properly align the flexible coupling with the motor housing.

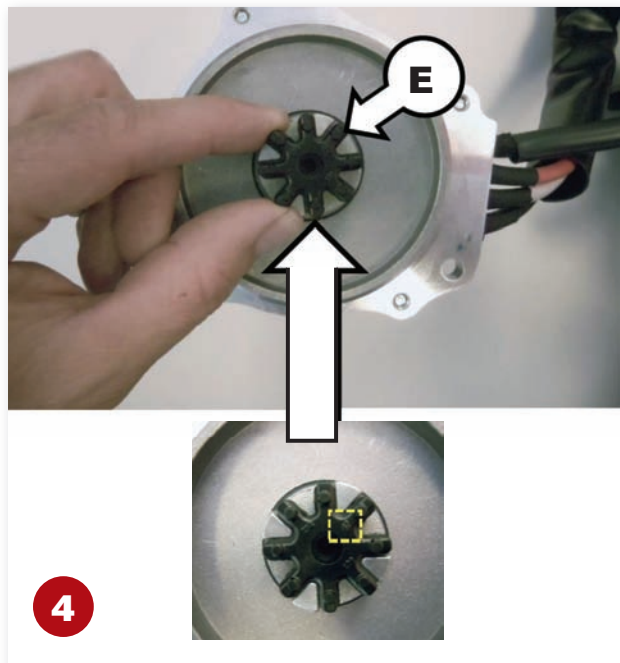
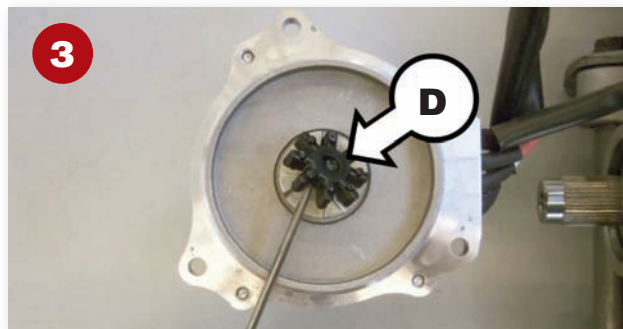
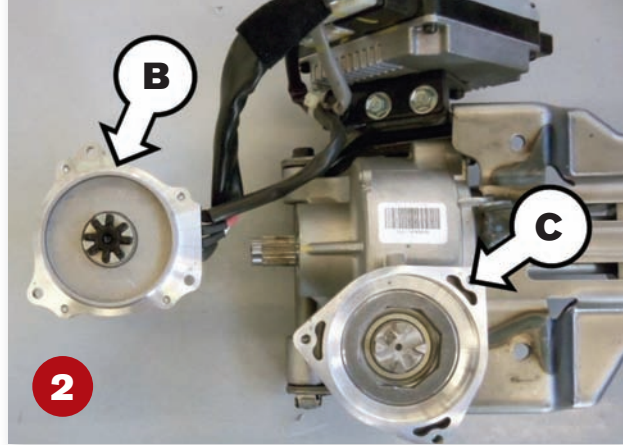
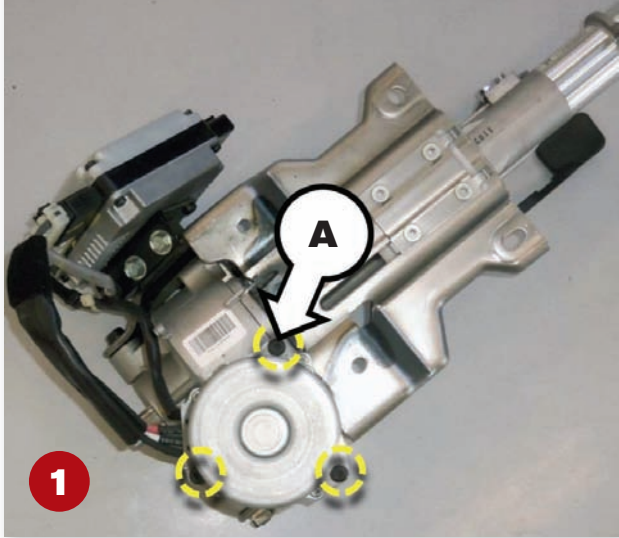
**Notice:** Before installing the new part, make sure it has “4P” embossed on the surface.

Reinstall all removed components by reversing the order of removal.

**Notice:** Before re-installing the MDPS unit, make sure the front wheels are pointing straight ahead.







## Replacement Procedure 2:

*This procedure applies to Soul (AM), Optima (QF/TF), Cadenza (VG) and Forte (YD) models.*

*Notice: Before removing the MDPS unit, make sure to align the steering wheel to the center position.*

**1** Remove the MDPS unit by referring to the applicable procedure on KGIS. Remove 3 bolts (A) securing the MDPS motor to the housing.

**2** Separate the MDPS motor (B) from the housing (C), as shown.

**3** Remove the original flexible coupling (D) from the motor. In addition, use an air gun to remove any foreign matter from the motor and/or the housing.

**4** Install the new flexible coupling (E) onto the MDPS motor, as shown.

*Notice: Before installing the new flexible coupling, make sure it has "4P" embossed on the surface.*

*Notice: Before reinstalling the MDPS unit, make sure the steering wheel is aligned to the center position, with the front wheels pointing straight ahead.*

Reinstall all removed components by reversing the order of removal.

## Calibration Procedure:

**1.** Connect the power supply cable to the GDS.  
**2.** Connect the USB cable between the VCI and the GDS.  
**3.** Connect the Main 16-pin DLC cable (GHDM – 241000) to the VCI.

**4.** Connect the Main 16-pin DLC cable (GHDM – 241000) to the OBD-II connector, located under the driver's side of the instrument panel.

**5.** Select EPS and click on OK.

**6.** Select Option Treatment under the Vehicle S/W Management tab.

**7.** Select ASP Calibration.

**8.** Click OK to continue with ASP calibration. Start the engine and center the steering wheel. Then, click on OK.

**9.** Turn the ignition OFF and wait 15 seconds. Then, turn the ignition ON and click on OK.

**10.** Access Current Data and verify the Steering Angle Sensor value is at  $0.0 \pm 5.0$  degrees. **KIA**

# Cracking the Code

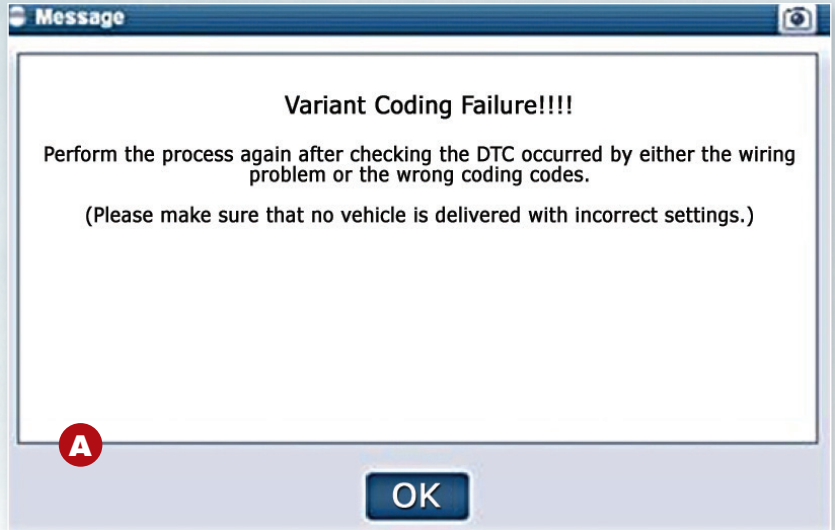
How to determine variant coding failure.

## The problem and its cause

After the replacement of the Airbag Control Module/Supplement Restraint System Control Module (ACU/SRSCM), the Variant Code may not be accepted by the SRSCM. This is usually because there is a fault in the system.

This may occur after a vehicle has been in an accident and the SRSCM has been replaced by the shop. The SRSCM will not accept the Variant Code if there is a fault in the system, but the Diagnostic

*– Continued on page 10*



» **WARNING:** Do not attempt without the proper skills, training, or tools. Vehicle servicing performed by untrained persons could result in injury to those persons, to others, or to the vehicle.

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# GENUINE KIA PARTS

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ALWAYS SPECIFY GENUINE KIA PARTS FOR THE HIGHEST LEVEL  
OF FIT, FINISH & QUALITY.

Kia vehicles are at the forefront of today's automotive design. Unique details in our Kia vehicles demand precise engineering and fit. Kia customers deserve Genuine Kia collision replacement parts to keep them satisfied for years to come. Our brand's popularity continues to grow meaning more Kia customers for your shop.

**Contact your local Kia dealer today for assistance and delivery of your parts.**



Genuine Parts

- Continued from page 8

Trouble Code (DTC) for the fault will not display without the Variant Code being set. Use the procedure below with a Global Diagnostic System (GDS) to resolve this issue.

## The Fix

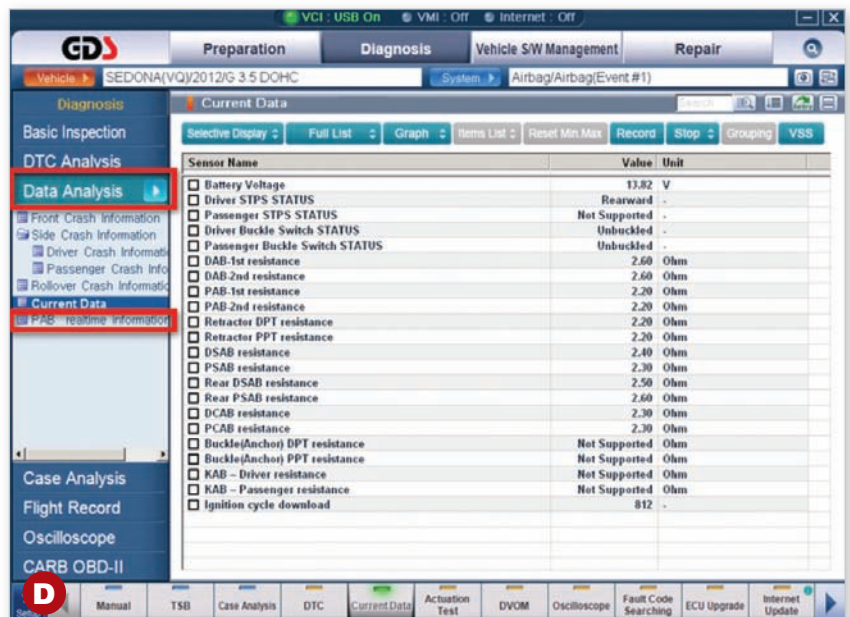
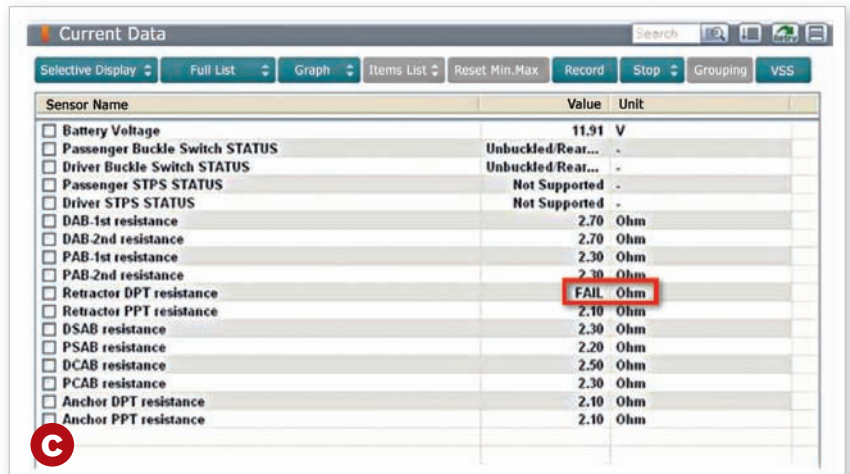
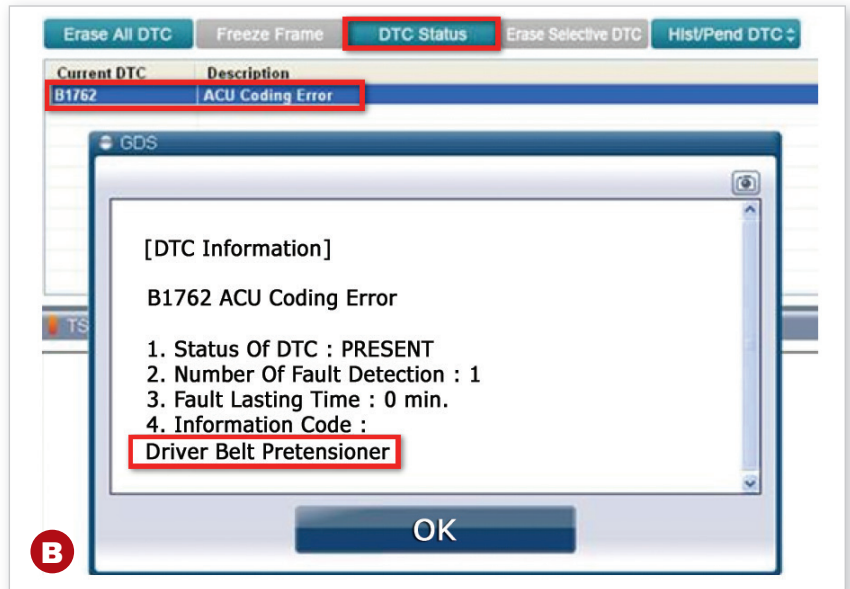
In most cases, you can determine the fault in the system by performing the following (Screen B):

1. Click on DTC Analysis
2. Click on the Current DTC, described as the "ACU Coding Error"
3. Click on DTC Status

The system at fault is listed near the bottom of the pop-up "DTC Information" window. In the sample window above (Screen B), DTC Information indicates that the fault is in the Driver Belt Pretensioner circuit. After acquiring this information, you can proceed to diagnose and repair the appropriate system.

You also can check air bag-related Current Data to determine which system is at fault. Current Data can be displayed before the Variant Coding is set, as in the example on Screen C.

In most cases you will need to click on Data Analysis (Screen D), then on Service Data or Current Data on the left side of the page to retrieve the air bag-related Current Data. **KIA**



## GOT A KIA ON THE LIFT?

Be prepared with all the information you need to service it

Just sign up at [www.kiatechinfo.com](http://www.kiatechinfo.com), log in and pull up thousands of pages of documents, including:

- ▶ Service manual data
- ▶ Technical Service Bulletin data and other related materials
- ▶ Scan tool, reprogramming tools
- ▶ Technical training materials

And don't forget to use Genuine Kia Parts to keep Genuine Kia customers coming back.

# How do you tell a new Genuine Kia A/C compressor from a remanufactured Genuine Kia A/C compressor?

Answer: **The label.**

Otherwise, you can't tell the difference. That's because the reman part looks the same as a new part, fits the same as a new part, performs the same as a new part and has the same warranty as a new part. In other words, a Genuine Kia part is a Genuine Kia part, whether it is new or reman.

How is this possible? We have an extensive reengineering process that assesses cores individually — by closely inspecting, cleaning, dismantling, and checking and evaluating them for defects. Then they are brought back to OE spec with new and updated components. In effect, what was used is new again.

You can install this Genuine Kia reman A/C compressor — or any Genuine Kia reman part — with complete confidence that it will work like a new part. That's peace of mind for you and your customer. And all at a reduced cost to the customer which builds confidence in you.

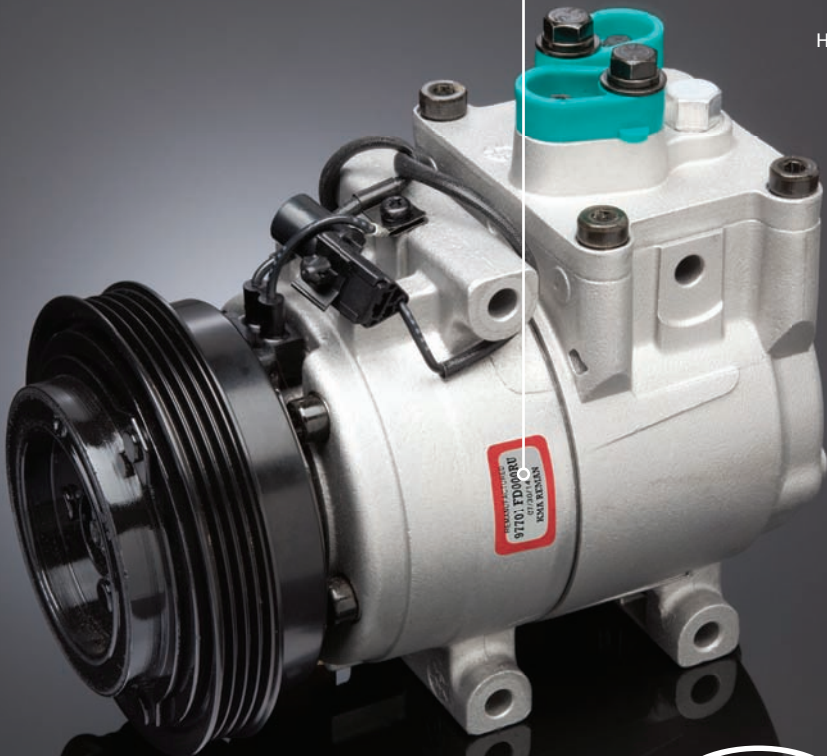
**Genuine Kia Reman parts  
— every bit as Genuine as  
new Genuine Kia parts.**



**Genuine Parts**

\*Contact your local Kia dealer today for assistance and delivery of your parts.

Kia Genuine remanufactured parts sold by Authorized Kia Dealer under warranty are covered for the greater of (1) the duration of the New Vehicle Limited Warranty or (2) the first 12 months from the date of installation or 12,000 miles. Labor charges not included when not installed by an Authorized Kia Dealer. Warranty is limited. See retailer for details.



# The Weather Report is 'Perfect'



We all relish perfect weather, however, it isn't something you can count on. But whatever the weather is outside, your customers not only seek to be comfortable inside their vehicles — they expect it.

They flip a switch, push a button or turn a knob to adjust the temperature to their liking. Immediate and responsive climate control under the most severe conditions is taken for granted. Seems as the law for climate control (the Heating/Ventilation/Air Conditioning system) is that it's never an issue until it stops working or not working as well as it should.

To avoid this issue, make an HVAC system check part of your maintenance/service routine so that you can alert your customers to possible problems. And if there are any, we have a full line of Genuine Kia parts — from evaporators to cabin filters — to meet all of your customers' climate control needs.

Genuine Kia climate control parts for perfect weather — anywhere, anytime, all the time.



Genuine Parts



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