Industry Trends Report

OE Versus Aftermarket Part Price Deltas: In Search of the Big Deal

By Nate Raskin
Senior Manager, Analytics, Mitchell Auto Physical Damage

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Industry Trends Report

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Volume Seventeen Number Two

A Message from the CEO

AI's Industry Impact

Alex Sun
President and CEO, Mitchell

Welcome to the Q2 edition of the 2017 Mitchell Auto Physical Damage **Industry Trends Report**. In this issue, we start off by exploring a topic that is top of mind for many in the Property & Casualty industry, artificial intelligence (AI). From computer vision to natural language processing, there are numerous applications for AI, and since many organizations are turning their investment focus to it, we asked our general managers to explain how it's beginning to be used in the industry today.

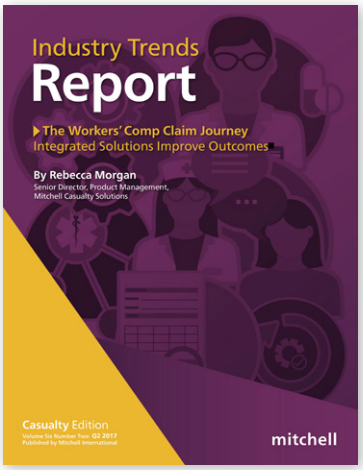
In our feature article, *OE Versus Aftermarket Part Price Deltas: In Search of the Big Deal*, author Nate Raskin asks whether aftermarket parts still represent the largest opportunity for collision repair cost savings. By focusing his analysis on the price gaps between OE and aftermarket parts over the last seven years, Nate shows how increased competition has shrunk the gap. While there is still opportunity for savings, it's not at the same level as in years past.

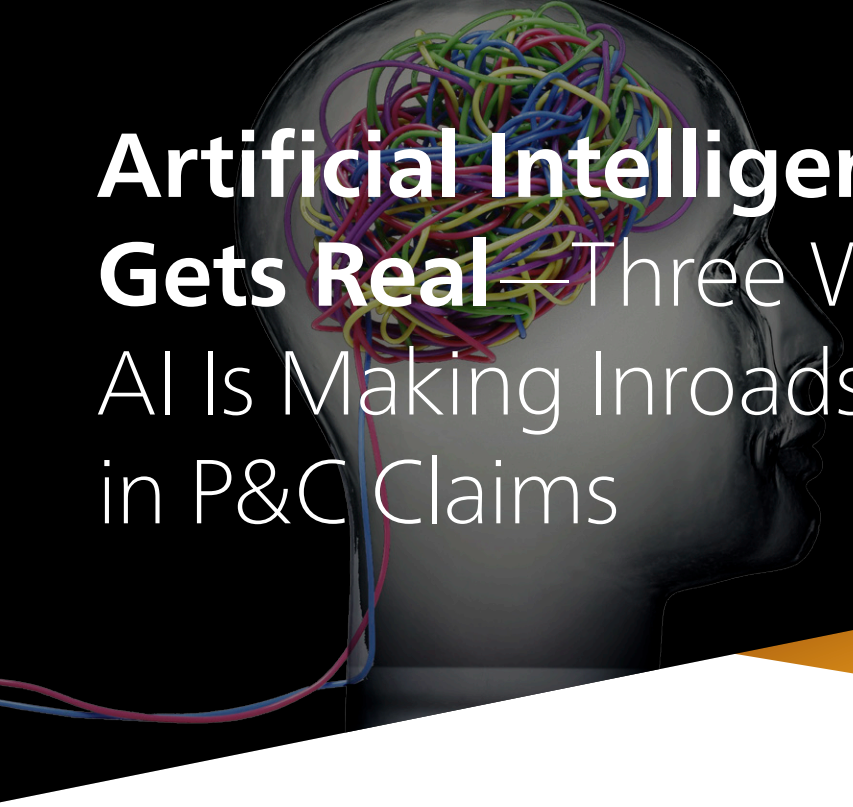
In this issue, we also look at how increased vehicle complexity has fueled the debate around the need for pre- and post-repair scanning. We share the current options available for collision repairers and how many in the industry believe that in-house scanning tools are a must for safe and complete repairs.

Thank you for your continued readership of the **Industry Trends Report** and I look forward to sharing more insights on exciting changes in the industry and what they may mean for your business as the year progresses.

Alex Sun
President and CEO
Mitchell

View the
Casualty Edition





Artificial Intelligence Gets Real—Three Ways AI Is Making Inroads in P&C Claims

FOR MANY OF US, ARTIFICIAL INTELLIGENCE (AI) STILL SEEMS LIKE THE STUFF OF SCIENCE FICTION, BUT IN REALITY, WE INTERACT WITH AI EVERYDAY THROUGH DEVICES LIKE AMAZON ECHO AND GOOGLE HOME.

Gartner named AI a top strategic trend for 2017, and according to a recent study by **Accenture**, 85 percent of insurance executives surveyed plan to invest significantly in artificial intelligence over the next three years.

The value of AI applications in insurance is clear—it supports human decision making in a multitude of ways that could streamline the claims process, reduce fraud, and result in the better all-around outcomes for both claimant and insurance company. The insurance industry itself is at an inflection point in terms of AI. There are so many AI-related technologies, they are all in different stages of development, and there are many things they can and can't do—yet. The first step is to understand what each of these technologies is and where they have the potential to impact the claims process.

First, let's cover the basics: artificial intelligence is a broadly used term to describe the concept of machines carrying out activities that would normally require human intelligence to do. There are many different technologies that are considered AI. In this article, the general managers of each of Mitchell's business units break down a few of these technologies—computer vision, machine learning and natural language processing—and explain how they are beginning to be used in the P&C industry.

Machine learning is powering **intelligent claims processes**

By Dave Torrence,
Executive Vice President and General Manager,
Pharmacy Solutions and Strategy & Transformation

The insurance industry has plenty of data, but turning that data into actionable insights is easier said than done. That's where machine learning comes in. Very simply put, machine learning is a field of computer science that enables computers to learn without being explicitly programmed to do so. It can quickly review large quantities of data, organize it, extract information from it, and even make recommendations. But to really understand the value of machine learning, it's helpful to understand the types of problems it can solve and insights it can glean. Here are a couple of examples:

- Machine learning can be used to make predictions. By analyzing historical prescribing patterns and claim outcomes, it could be used to identify claimants at risk of opioid abuse. This would make it possible to intervene with clinical programs and prevent the abuse early in the process or prevent it all together.
- Machine learning can be used to generally detect anomalies—identifying anything on a claim that is atypical or just "odd." By flagging claims in this way, anomaly detection can be used for a wide range of purposes, from clinical intervention to detecting fraud to just alerting an adjuster to review a file.

These are just a few, simple examples—the possibilities are limitless. Machine learning could potentially impact almost every stage of the claims process. And each step is a step closer to an intelligent claims process, one in which decisions are made more quickly, with greater efficiency, and with better outcomes for insurer and claimant.

VERY SIMPLY PUT, **MACHINE LEARNING IS A FIELD OF COMPUTER SCIENCE THAT ENABLES COMPUTERS TO LEARN** WITHOUT BEING EXPLICITLY PROGRAMMED TO DO SO.

Computer vision is driving more than just self-driving cars

By Debbie Day,
Executive Vice President and General Manager, Auto Physical Damage

One reason artificial intelligence is particularly relevant to the P&C and collision repair industry is because of the role it plays in computer vision—and one of the most relevant applications for computer vision is self-driving cars. Computer vision basically seeks to enable computers to 'see' images and extract information from them, in much the same way a human does. It goes beyond sensors that simply capture data. It layers in deep learning—the ability to actually perceive, interpret and respond to what's happening in the environment. The ability is essential for vehicles to be truly autonomous.

But there are other use cases for computer vision in insurance—ones that are having an immediate impact on the claims process. Take, for example, a couple of steps in the physical damage claims process that are based primarily on visual inspection: first notice of loss and repair vs. replace decisions.

With technology available today, photos taken by consumers and submitted via mobile device as part of first notice of loss could be used to inform a decision about whether or not the vehicle should be declared a total loss, potentially saving a costly tow to a repair facility. Similarly, these images could be used to determine whether to repair or replace a damaged part.

While these are just two use cases, a recent report by **Tractica** indicates that the global computer vision market is expected to grow to $33.3 billion by 2019. Ultimately, both insurer and insured benefit from a streamlined claims process, and computer vision is just one of the many AI technologies available to deliver on that.

For more of Debbie's thoughts on artificial intelligence and computer vision, read her blog post: Computer Vision—from Diagnosing Cancer to Transforming the Claims Process.

GLOBAL COMPUTER VISION MARKET IS EXPECTED TO GROW

2019	**$33** billion
2018	**$20** billion
2017	**$12** billion

Natural Language Processing Isn't Just for Customer Service Anymore

By Nina Smith,
Executive Vice President and General Manager, Casualty Solutions

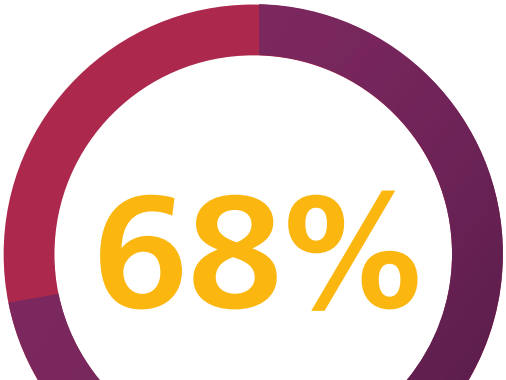
From **Geico's virtual assistant**, Kate, that answers basic policy and billing questions within an app, to Lemonade's chatbot, Maya, that signs people up for renters insurance and even processes simple claims, virtual assistants and chatbots are proliferating in the insurance industry. In fact, in a **recent Accenture study** of the insurance industry, 68 percent of respondents said their companies use some sort of AI-powered virtual assistant in at least one segment of their business.

The technology that enables chatbots to interpret language is called natural language processing (NLP). NLP hasn't yet advanced to the point where it can understand complex conversational language, but it can understand, ask questions and provide suggestions within a given context. Despite its limitations, it is already beginning to move out of the customer experience arena and into the enterprise in really interesting ways. Companies like Tableau Software and Rhiza are finding ways to integrate it into data analysis, and they are even incorporating voice interfaces—think Amazon Echo and Google Home—along the way.

Tableau's prototype software, **Eviza**, enables users who are looking at data visualizations, like points on a map showing earthquakes, to use basic queries to drill into the data—along the lines of "show me the area that had the strongest earthquake." Rhiza offers a commercial product called the **Rhizabot** that enables sales and marketing teams to create data visualizations for presentations, simply by asking questions out loud.

As Tableau and Rhiza demonstrate, as natural language processing and voice interfaces mature, chatbot functionality is poised to move from customer-facing interactions to behind-the-scenes claims processes, but the concept and the potential value are similar. Ultimately, natural language processing will likely make the vast amounts of casualty, workers' compensation and other data easier to access and more actionable.

For more of Nina's thoughts on artificial intelligence and chatbots, read her blog post: When Artificial Intelligence Gets Up Close and Personal, Does Human Interaction Fall by the Wayside?



OF THE INSURANCE INDUSTRY USE SOME SORT OF **AI-POWERED VIRTUAL ASSISTANT** IN AT LEAST A SEGMENT OF THEIR BUSINESS.

OE Versus Aftermarket Part Price Deltas: In Search of the Big Deal

By Nate Raskin
Senior Manager, Analytics, Mitchell Auto Physical Damage

From 2010 to 2016, the average price difference between OE and aftermarket primary parts shrank by almost 8 percent for domestic makes.

The last time I saw the Big Deal was back in 2010. The 6'5", 520 pound intimidator was hard to miss, strong-arming deals as William Shatner's sidekick for Priceline.com. When Priceline pitched Shatner off a cliff during a 2012 Super Bowl commercial, it signaled an end for the Big Deal. Admittedly, I was bummed. I always liked the Big Deal—he was a savings machine, he had matching "Dollars" and "Sense" tattoos, and he wore a white fur coat. Now that's what I call a trifecta.

For insurers and price-conscious consumers, aftermarket parts have long played the role of the Big Deal, representing the largest opportunity for collision repair cost savings. But is this still the case? To answer this question, we analyzed millions of Mitchell estimate rows dating back to 2010, comparing OE and aftermarket part prices for six "primary" collision components (bumper covers, fenders, hoods, headlamps, rear combination lamps, and radiators).

For this analysis, we focused our attention on the average deltas, or price gaps, between OE and aftermarket primary parts. As our goal is to simply demonstrate trends, we grouped results to include both cars and trucks across all vintages, then segmented results by vehicle origin. For example, our data suggest the average OE-to-aftermarket price gap for Asian makes shrank by 3 percent between 2010 and 2016. European makes followed a similar trend, as the average OE-to-aftermarket

price gap closed by almost 2 percent over the same period. Translation—for Asian and European makes, aftermarket parts offer slightly less savings potential today (compared to OE) than they did seven years ago.

Price Gaps Between OE and Aftermarket Parts by Vehicle Origin

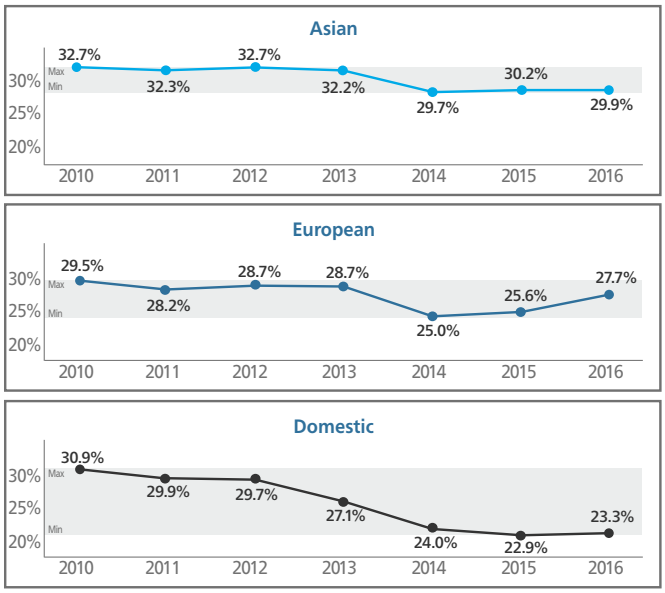


Figure 1: *This table represents the price difference between OE and aftermarket "primary" parts as a percentage of the OE price (OE-to-aftermarket price delta divided by OE price). Results are segmented by vehicle origin. Lower percentages indicate closer pricing between OE and aftermarket parts.*

The domestic vehicle segment tells a more dramatic story. From 2010 to 2016, the average price difference between OE and aftermarket primary parts shrank by almost 8 percent. As it turns out, the reason we're seeing a closing of the OE-to-aftermarket price gap with domestic vehicles has less to do with aftermarket increases and more to do with OE adjustments. Nothing exemplifies this trend more than radiators and bumper covers.

From 2010 to 2016, domestic OE radiator prices decreased by 26 percent, while domestic aftermarket radiator prices increased by 2 percent. Moreover, the average OE-to-aftermarket radiator price gap closed by a whopping 22 percent over that span.

About the author...

Nate Raskin

Senior Manager, Analytics,
Mitchell Auto Physical Damage

Nate Raskin, Senior Manager for APD Analytics, has over 17 years of experience in the auto physical damage sector. Nate began his career in claims, learning the ropes as an estimator and team leader with Progressive before serving as the National Property Damage Manager at Unitrin Direct Insurance. Prior to his current role leading the analytics team, Nate was a Senior Business Consultant in Mitchell's APD division, performing workflow visioning, SaaS solution design, and ad-hoc efficiency studies for partner carriers across North America. Nate is originally from the Pacific Northwest and earned his BA in English and Communications from Willamette University in Salem, OR. When he isn't (loudly) expressing his passion for the Seahawks, you'll find Nate focused on simplifying data and making analytics accessible for everyday business leaders.

Bumper covers experienced similar movement, although not as extreme—domestic OE prices decreased by 2 percent, while aftermarket prices increased by almost 11 percent. From 2010 to 2016, the gap between OE and aftermarket bumper cover prices narrowed by 9 percent. The takeaway—for domestic makes, aftermarket parts savings are not as compelling as they were seven years ago.

Domestic OE price reductions on radiators and bumper covers is striking, because it's not common to see part prices go down like that in our industry. What seems evident is that domestic OEs are paying close attention to aftermarket pricing and making adjustments to regain share. With greater access to data and the advent of dynamic pricing mechanisms, I anticipate we'll continue to see OEs leverage technology to reach a competitive equilibrium.

In the end, there are plenty of factors that go into parts selection that extend beyond cost. If you're simply looking to gauge OE versus aftermarket cost savings, it's all about the price delta. For domestic makes, the shrinking OE-to-aftermarket price gap suggests manufacturers are adjusting prices in a play to gain parts share. Such are the effects of competition. And while aftermarket parts may not quite be the Big Deal they were seven years ago, the big guy is still alive and kicking. He's just working a different angle.

Price Gaps Between OE and Aftermarket Radiators and Bumper Covers (Domestic Makes).

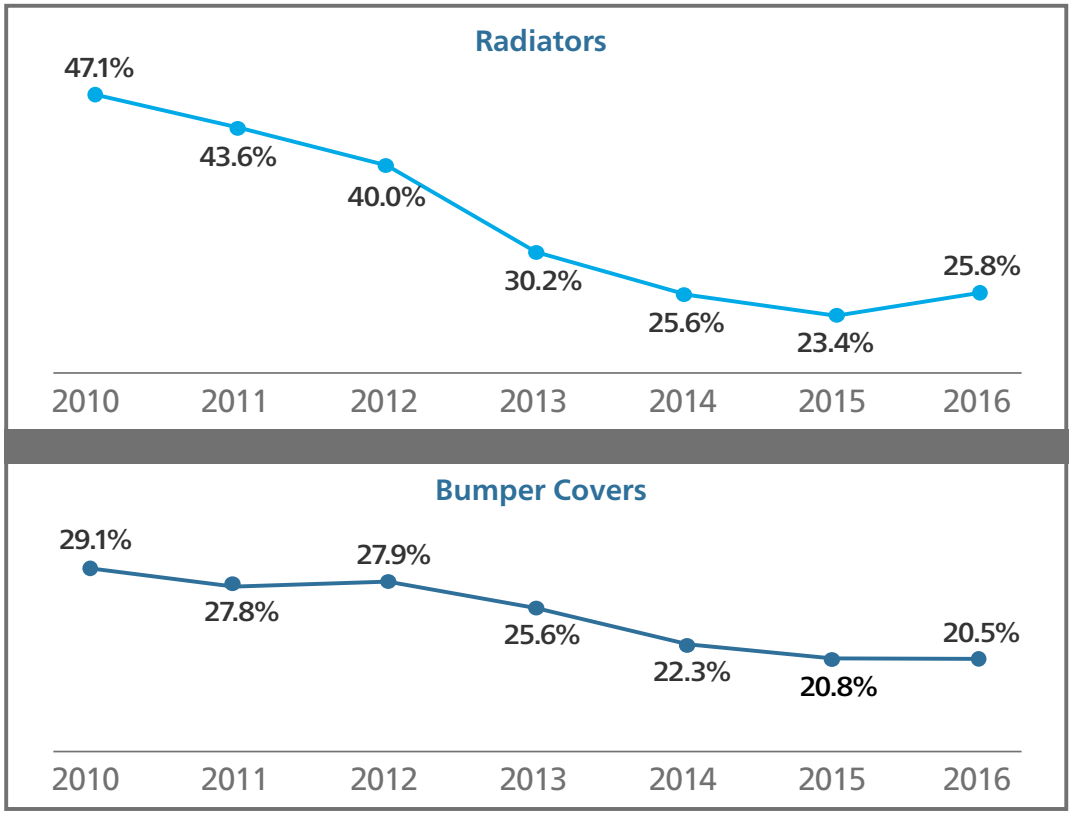


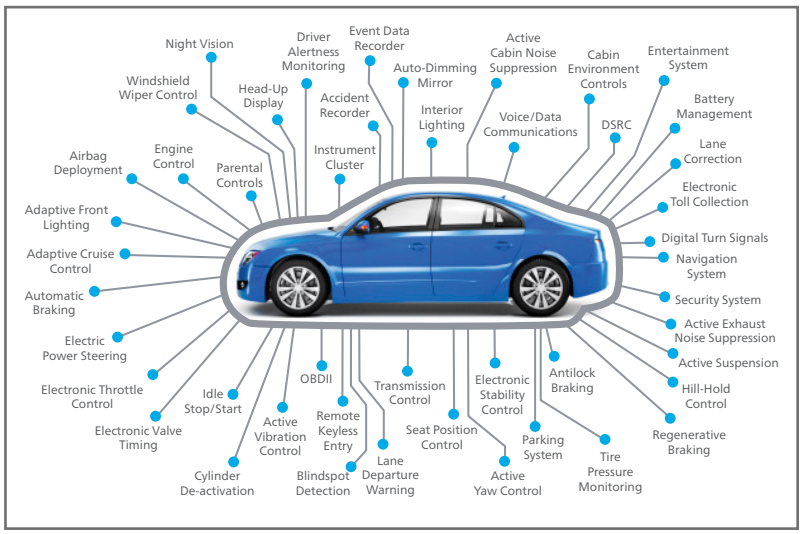
Figure 2: *This chart demonstrates the OE-to-aftermarket price gap trend for radiators (upper graph) and bumper covers (lower graph). Data pertains to domestic vehicle manufacturers only. Lower percentages indicate closer pricing between OE and aftermarket parts.*

Vehicle Scanning for a Computer Network on Wheels

Collision Repair will Never be the Same

By Mike Lawlor
Vice President, APD Strategy and Partnerships

There are many in the industry who contend that the OEM position statements go too far and that not every vehicle needs scanning during collision repair.



Vehicle complexity has exploded in the last decade, and continues to accelerate. Collision repair used to be about sheet metal, headlamp and bumper replacement; now it frequently involves sophisticated electronics. From adaptive front lighting to regenerative braking, today's auto body repair includes increasingly complex systems and electronic components. According to SearchAutoParts.com, "There can be anywhere from 40 to 100 computer controls to operate, communicate and in some cases, record information about the operation of a system or systems that can be used later for diagnosis." Today's repairers must be prepared to fix, and heed the advice of, a computer network on wheels.

We've gone from the days of using scan tools only when a Malfunction Indicator Light came on, to an era in which most collision repairs require the recalibration of electronic systems to assure a safe, quality repair. Collision repairers can't even replace a mirror or a windshield on newer models without a diagnostic recalibration to ensure that all componentry is functioning as intended.

Safety Concerns

Even when there is no visual damage and systems appear to be operating correctly, a collision can jar a vehicle's electronics and create significant hazards. If a sensor on a blind spot detection system is even slightly disrupted and rendered out of system

calibration tolerances, it may mean the driver is not alerted to a motorcycle in the lane next to them. Which in turn, could be the difference between a simple lane change and tragedy.

This is where scan tools come in. **Body Shop Business** cites a good example of the need for scan tools with the Occupant Classification System or "OCS" on newer vehicles:

"If the system is not recalibrated or re-zeroed, the seat could read an incorrect weight. The system will be operating correctly, so no MIL will be set on the dash, but it won't be correctly calibrated. This could lead to an airbag deploying when it shouldn't, which could lead to the injury or death of a child. Knowing when to recalibrate these vehicles becomes a critical factor."[2]

OEM Position Statements

In 2016, only eight OEMs had position statements on vehicle repair scanning; as of March 2017, there are few automakers yet to formally address the need.

Vehicle Repair Scanning

Source: oemonestop.com/position-statements

Honda's recent position statement includes a chart listing items needing recalibration after repair. Per Honda, "The chart at the top of the next column shows damage areas where driver assistive system components may be located in close proximity. Collision damage in these areas should be given particular attention because certain repairs and/or parts replacement may require aiming procedures to be done."

Collision Damage Area	Driver Assistive System Components Affected
Front Bumper and Grille Area	Millimeter Wave Radar Unit Front Camera (w/ Multi-View Camera System)
Windshield Area	Multipurpose Camera Unit
Front Passenger's Door/Mirror Area	LaneWatch™ Camera (Honda Only) Right Side Camera (w/Multi-View Camera System)
Driver's Front Door/Mirror Area	Left Side Camera (w/Multi-View Camera System)
Rear Bumper Area	Blind Spot Information System Radar Units Rear Camera (w/Multi-View Camera System)

Source: collision.honda.com

Many other industry participants are announcing positions on pre- and post-repair system scanning as well. According to the **Equipment and Tool Institute (ETI)**:

The electronic safety systems on today's vehicles are very important for occupant safety and must be checked after a repair for proper functionality. The pre-scan is now necessary for the repair facility to be able to help scope and estimate the repair processes required for a safe and complete repair.

To Scan or Not to Scan

There are many in the industry who contend that the OEM position statements go too far and that not every vehicle needs scanning during collision repair. This debate is likely to continue until standard industry practice is established in this area. Most all agree that heavily optioned late model vehicles in moderate to severe collisions require a pre-and post-scan to properly complete the repair. The collision repair industry has a need for diagnostic systems that can quickly complete the diagnostic portion of the repairs and properly document the process for its stakeholders.

	Dealer	Mobile	Remote Connect	In-House
Cost to Shop	$375	$175	$120-175	$50
Cost to Insurer	$450	$210	$145-$210	$135
Cycle Time	+ 2 Days	+ 1 Day	+2-12 Hours	+ 1 Hour
Issues	Dealer not focused - not a priority. Can't handle all work.	May not be available, may not have the right tool.	Must buy dongle. Some procedures still require dealership.	Requires tools & training. May not be compensated.

Four Current Options for Repairers

Currently, there are four options for repairers seeking to assure a safe and quality repair has been completed:

1. Get the car to the dealership: This option is time consuming and negatively impacts cycle time. Overextended dealers are not typically focused on sublet scans as a top priority. Also, it's expensive both in labor and sublet costs. Collision shops have even been known to hire employees just to take cars to and from the dealers for scanning, and, of course, towing the car back-and-forth is commonly required. This workflow can add days to cycle time, and significantly add expense.

2. Call the mobile service with a van full of tools: With this option, shops risk that the mobile scanning repairer may not have the right tool and skills and that leaves the process subject to the service's schedule.

3. Use an aftermarket tool: These are a good option as they cover multiple makes and models; however, there is a wide range of quality and coverage so it's important to choose the right tool.

4. Using a remote service to connect to OEM tool or software: This option has a significant cost and some procedures will still require taking the car to the dealership.

All four options add costs that often can't be recouped. Proper documentation of the scan procedure performed and the output is critical to recover costs.

Reasons for Not Scanning Vehicles

In a recent CRASH Network survey shops cited the following reasons for not scanning a vehicle post repair:

Reasons for not scanning vehicle POST - repair	
The level of damage doesn't warrant a post -repair scan	50%
There are no dash lights on, no reason to be concerned	44%
We don't get paid for vehicle scans by the insurer	31%
Vehicle has no high-tech systems to be concerned about	27%
We don't have the proper scan tools in-house	18%
Other	17%
We never considered performing post-repair scans	10%
Cycle time concerns - the scanning process takes too long	3%

While some of these may have been valid reasons for choosing not to scan vehicles a decade ago, failure to use diagnostic scanning on a late model vehicle with damage that involves ADAS and other safety systems is now a serious issue.

Where Do We Go From Here?

If collision repair facilities truly want to provide the safest and most complete repair services to their customers, a high quality diagnostic solution is an absolute must. Unfortunately, most existing scan tools were designed for mechanical repairs and there hasn't been a diagnostic system specifically designed and developed to meet the need of collision repair shops. **The Equipment and Tool Institute's position statement** says it best, "the need for affordable access to the tools that are essential to perform safe, complete and accurate repairs is extremely important."

About the author…

Mike Lawlor is Mitchell's Vice President, APD Strategy and Partnerships. He joined Mitchell in early 2017 after 25+ years in the insurance industry. Mike spent 14 years at Progressive running organizations on both coasts. In 2006, he move to The Hartford, running the Auto and GL claims organization's national operations for six years. Beginning in 2012, he spent four years the Auto and Property Strategy&Practices lead.

Mike is a Connecticut native and resident, but loves San Diego where Mitchell makes its home. He earned a BA in Economics from the University of Connecticut, and subsequently, an MBA in Finance, Management, and Marketing. Mike loves time with his family, time at the ocean, and time on a motor bike.

U.S. Length of Rental—Q1 2017

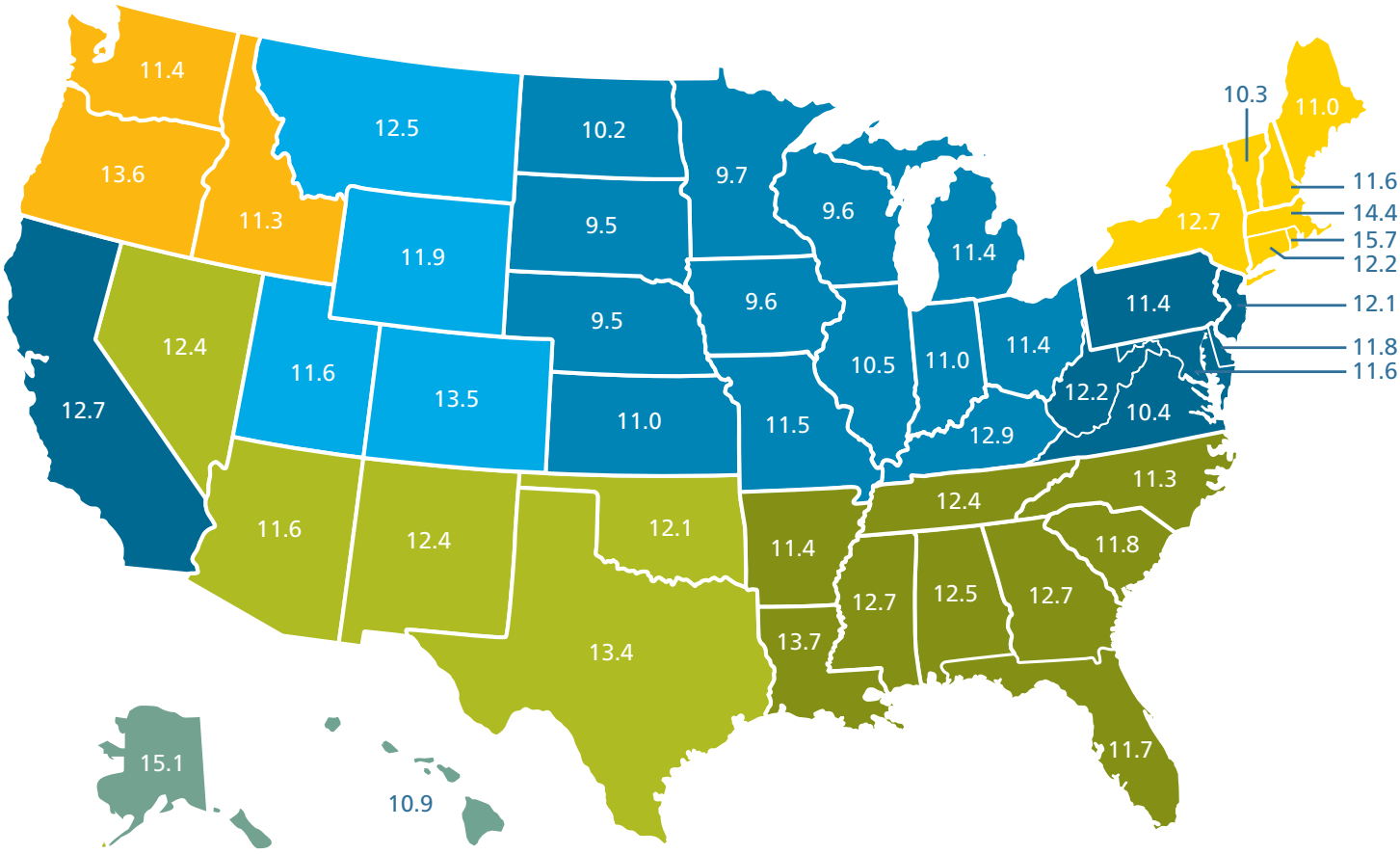
By Dan Friedman
Assistant Vice President, Collision Industry Relations and Sales, Enterprise Rent-A-Car

As mentioned in previous updates, regardless of how the market is defined, there remains a significant delta between average and best in class.

The rate of average Length of Rental (LOR) growth declined in Q1 of 2017 for the first time in multiple quarters increasing only a modest .2 days from 11.9 to 12.1. In March, the number was flat, the first month without a year over year increase in more than two years. The data demonstrates very little consistency across and within regions, therefore there doesn't appear to be a true U.S. trend. Overall average LOR ranged from a high of 13 days in the Southwest to a low of 10.9 in the Midwest, while year over year change ranged from +1.4 in the Pacific (Alaska and Hawaii) to -.3 in the Southeast. For individual states, the range was 15.7 days in Rhode Island down to 9.5 in Nebraska, and a year over year change rate of +2 days in Alaska to -.5 in Florida.

Sixteen states produced results that deviated substantially from the U.S. average compared to just nine in the previous quarter. Florida, North Carolina, Nebraska, South Dakota, Georgia, West Virginia, Louisiana and Kentucky each experienced decreases of at least .3 days, although the final four states on the list did not drop enough to dip below the overall U.S. average of 12.1. Colorado, Oregon, Montana, Alaska, Minnesota, Maine, Idaho and North Dakota each experienced increases of at least a full day, although the last four states named remain below the overall U.S. average. Minnesota, in fact, was one of only five states below 10 days.

U.S. Average Length of Rental (LOR) by State
Q1 2017



Average Billed Days for U.S.		
Q1 2016	Q1 2017	Change
11.9	12.1	0.2

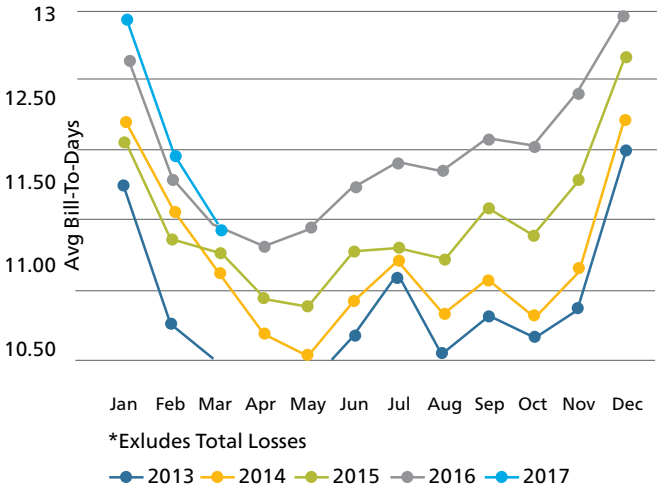
The data demonstrates very little consistency across and within regions, therefore there doesn't appear to be a true U.S. trend.

Average Billed Days for U.S.			
Region	Q1 2016 LOR	Q1 2017 LOR	Change
California	12.3	12.7	0.4
Mid-Atlantic	11.4	11.3	-0.1
Midwest	10.7	10.9	0.2
Mountain	12.0	12.8	0.8
Northeast	12.6	12.9	0.3
Northwest	11.1	12.1	1.0
Pacific	10.8	12.2	1.4
Southeast	12.5	12.2	-0.3
Southwest	12.8	13.0	0.2

Average Length of Rental for Repairable Vehicles

While the rate of increase slowed, the core drivers of LOR (miles driven, claims frequency and repair complexity) remain in place and, as a result, we expect the previous few years' historical trends to continue. It is worthwhile to note, however, that Q2 and Q3 of 2016 were significantly impacted by CATs in Texas and Colorado which could create a temporary deviation from the trend lines. As mentioned in previous updates, regardless of how the market is defined, there remains a significant delta between average and best in class. Shops that focus on building a culture of training, proper utilization of the ARMS® Auto Application and consistent execution of a robust scheduling strategy, routinely outperform market averages.

US Industry Avg Length of Rental



Canada

Canada saw its national Length of Rental (LOR) result increase .9 days from Q1 2016 to Q1 2017. Canada's national LOR number for Q1 2017 was 11.7 days, compared to 12.1 days for our southern neighbour.

Like the US, the data demonstrated significant variance across regions (provinces). This variance applied to both trends and actual results.

Overall LOR ranged from a high of 12.4 days in Alberta to a low of 9.5 days in PEI. Head to head, Alberta's LOR results were 31% higher than PEI's. Five of the seven private insurance provinces "beat" the Canadian average, including all four Atlantic provinces and Quebec. PEI finished the quarter with Canada's lowest overall LOR, at 9.5 days.

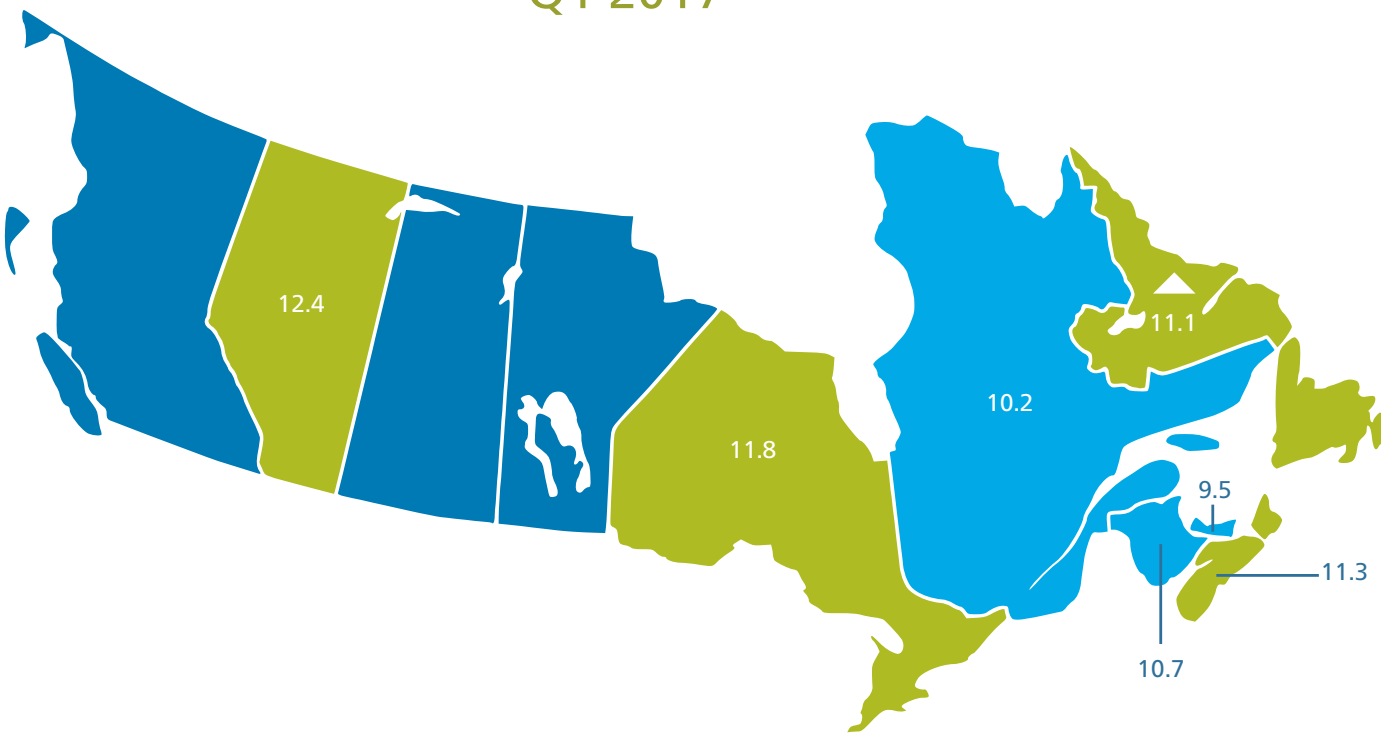
From a trend perspective, Newfoundland and Labrador led the way, with a 1.0 day decrease in LOR over 2016. Interestingly, this was the only province that improved (decreased) it's LOR result over 2016, although Nova Scotia was close behind, with a marginal 0.4 day increase over 2016. On the other side of the scale, Ontario produced Canada's largest LOR increase at 1.2 days. Owing to the distinction of being Canada's most populous province, the increase in Ontario played a significant role in shaping Canada's national trend result.

LOR trends have shown an increasing trend line over the past few quarters. Like the US, kilometers driven, claims frequency and repair complexity are the core drivers of LOR. Strong employment and relatively affordable fuel may be resulting in more driving by Canadians. Furthermore, this trend is linked with strong new car sales and their related repair complexity. 2016 was the fourth consecutive record year for Canadian new car sales, and the first time sales eclipsed 1.9 million. These strong trends continued into March, where abnormally wintry weather across Canada did nothing to cool down the record pace of new-vehicle sales. March new car sales in Canada grew 7.1% over March 2016, marking the third consecutive month of record sales volumes (source: Canadian AutoDealer).

Canada also mirrors the US in that there remains a significant gap between "average" and "best in class" LOR results at the shop level.

Shops that focus on building a culture of training, proper utilization of the ARMS® Auto Application and consistent execution of a robust scheduling strategy, routinely outperform market averages.

Canadian Average Length of Rental by Province
Q1 2017



Year-Over-Year Change

Source: Enterprise Rent-A-Car. Includes ARMS® Insurance Company Direct Billed Rentals; Excludes Total Loss Vehicles.

Average Billed Days for Canada		
Q1 2016	Q1 2017	Change
10.8	11.7	0.9

The quarterly LOR summary is produced by Dan Friedman, Assistant Vice President Collision Industry Relations and Sales at Enterprise Rent-A-Car. Dan has 21 years of experience with Enterprise working within the collision repair industry. Through its ARMS® Automotive Suite of Products, Enterprise provides collision repair facilities with free cycle time reporting with market comparisons, free text/email capability to update their customers on vehicle repair status, and online reservations. More information is available at **armsautosuite.com** *or by contacting Dan Friedman at* ***Daniel.Friedman@ehi.com.***

Average Billed Days for Canada			
Province	Q1 2016 LOR	Q1 2017 LOR	Change
Alberta	11.7	12.4	0.7
Ontario	10.6	11.8	1.2
Quebec	9.5	10.2	0.7
Newfoundland and Labrador	12.1	11.1	-1.0
New Brunswick	10.1	10.7	0.6
Nova Scotia	10.9	11.3	0.4
Prince Edward Island	8.3	9.5	1.2

Seeing What is Invisible

By Gene Bilobram
Published by: Property Casualty 360

Last November, Claims reported on five automakers that issued position statements on diagnostic scanning as a component of the collision repair process.

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Infiniti USA, General Motors (GM) and Mercedes-Benz (MBUSA) have since joined the discussion with their positions on post-collision diagnostic scanning. Infiniti's one page scan position statement was released in September; GM issued their position statement in October, and the MBUSA position statement appeared in late November.

Infiniti's scanning recommendations

The Infiniti USA scanning position was an initial industry extrapolation of Nissan's (Infiniti's parent company) June 2016 position statement. In 2012, Infiniti began to distinguish itself in corporate structure, location and name as a formidable global brand in the luxury automobile market. The September release of Infiniti's own position statement is a natural extension of that distinction. The position statement is basically commensurate with that of Nissan North America with one notable clarification, Infiniti indicates that the position applies to 1996 and newer vehicles representing the 1996 introduction of the current OBDII standard in automotive diagnostics.

Like Nissan, Infiniti recommends a pre-repair scan where appropriate and all of its vehicles 1996 and newer be scanned following a collision repair. Infiniti further dispels the myth of the dashboard light

serving as a diagnostic tool. According to the position statement, "Today, it is necessary in repair situations for the vehicle to have a pre- and post-repair system scan so that the repairer is informed of any trouble codes present, even in cases where there are no identifier lights on the dash."

Infiniti USA also released several position statements on specific resets, calibrations, initializations, inspections and replacement guidelines related to safety systems, convenience systems, as well as structural component and safety items guidelines, when handling Infiniti vehicles in the collision repair process.

GM's take on scanning

The GM position statement states that pre-and post-repair scanning of all collision damage repair vehicles must be performed. The automaker requires a pre-repair scan "during the repair estimation in order to identify the required repairs" and a post-repair scan "in order to verify that the faults have been repaired and new faults have not been introduced during the course of repairs."

The document also notes the requirement for "calibration and/or learns" when replacing various safety and security-related components, sensors and control modules. Reference is made to the available GM repair procedures that must be adhered to when repairing these systems.

Mercedes Benz sees value in scans

The MBUSA document also spells out the importance of pre- and post-repair scanning of vehicles involved in a collision repair. On pre-repair scanning, Mercedes takes the position: "Pre-repair scanning and diagnosis of the vehicle is highly recommended." While pre-repair scanning is a recommendation, post-repair scanning and diagnosis is necessary with a collision repair according to the position. MBUSA includes Mercedes-Benz 1996 and newer vehicles in the position statement.

Mercedes notes the requirement of "calibration, normalization or coding" of many of the safety and assist systems "that may have been activated during a collision." Mercedes stresses updated OEM repair procedures or instructions be consulted as part of the collision repair process.

The OEM diagnostic scanning position statements for these and other manufacturers may be found at **www.oempositions.com**.

The importance of diagnostic scanning

The recommendation or requirement of pre- and post-repair scanning is not some arbitrary suggestion, it is a real concern with the primary objective of safe and properly repaired vehicles.

According to MBUSA, "During a collision, some of the vehicle's sensors could sustain damage internally or in a manner in which failure is not evident to the driver of the vehicle."

GM says: "Even minor body damage or glass replacement may result in damage to one or more safety-related systems on the vehicle. Any action that results in loss of battery-supplied voltage and disconnection of electrical circuits requires that the vehicle is subsequently tested to ensure proper electrical function."

Honda's statement focuses on similar concerns: "The mechanical forces encountered in a collision can damage electrical circuits and components in ways that are not easily diagnosed with visual inspection methods."

Infiniti's and Nissan's position highlights a sentiment which can be shared by insurers and repairs alike: "The safety of our customers is our number one priority, and we believe these pre- and post-repair scans are more and more integral to a safe, quality repair."

What automakers state in their scanning positions is much more than a commentary on their own vehicles, the message may be appropriately carried over to other vehicle makes and models regardless of whether a scan position statement has been released by a particular manufacturer.

New challenges for 2017

With the rapid implementation of pre- and post-repair scanning, 2017 will be a year of first results. While there are additional claims costs associated with the procedures, these costs should be offset by significant returns that will help circumvent repair surprises and customer comebacks.

The additional claims costs associated with scanning have been met, in some cases with an attempt to commoditize the procedures to the lowest cost option or the lowest bid provider. Inferior tools and untrained technicians are being deployed to meet with and capitalize on the new post-collision scanning standards. Insurers should be wary. Without a qualified automotive diagnostic technician to read and interpret the data, the potential is great for misdiagnosis, which can often lead to unnecessary parts replacement or incomplete repairs. The irony of the lower cost option is that that it isn't always the lower cost option to the customer, with some shops billing as much or more than those with advanced level tools and qualified technicians.

The phrase "Scan and Clear Codes" showing up on more estimates is somewhat of a misnomer. When a repairer scans and clears "all codes," that statement should be properly qualified. The lower-end aftermarket (A/M) scan tools will not always see all the control modules and identify "all" the codes that a higher quality A/M scan tool would. An OEM factory level scan tool can reveal trouble codes that were missed by even some of the most advanced and popular A/M tools. This is especially true with the newer model vehicles where A/M tool capability is constantly playing catch up. Accordingly, some pre- and post-repair scan results can be misleading and contrary to the premise of restoring vehicle functionality to the level established by the OEMs.

Insurers should realize, it's not just the tool but the technician that counts.

Although A/M scan tools may not have access to all of the vehicle data and special tests of the "gold standard" OEM scan tools, there are advanced level A/M tools that are continually closing the equivalency gap with the OEM counterparts. An advanced level A/M scan tool can be a viable option for a majority of the vehicles and repair situations in many body shops.

Insurers should realize, it's not just the tool but the technician that counts. Some shops have invested in a costly A/M scan tool which is typically cited to justify the charges. However, with no investment in a trained technician or OEM service information, the shop's in-house program falls substantially short, such as having a respectable A/M scan tool operated by an untrained employee.

An assessment of in-house diagnostic programs at some shops has found an increasing number opting for an A/M scan tool operated by office personnel with code interpretation and troubleshooting limited to

web browser searches. While it is perfectly acceptable to "ask Alexa" for the latest recipe for pasta primavera, the core source of a shop's diagnostic and service information should not be the result of web surfing.

It is not unusual to see repairers simply scanning and indiscriminately clearing codes. Some repairers believe this is all that is necessary. "Scan and clear codes" describes only a portion of the job of complying with the automaker position statements. Auto body shops are omitting requisite procedures which are typically much more important than clearing a handful of non-active codes. Insurers are making allowances to comply with the recent OEM positions yet repairers are not always fully compliant. When safety protocols are only partially met, all parties can be placed in harm's way.

The industry should not be satisfied with one line explanations of "Scan for Codes" or "Health Scan." A higher standard of reporting may be merited with the identification of the scan tool, the technician's name, certification and/or skill level of the technician along with proper documentation of scan results, and actions taken with an emphasis on full compliance with the OEM position where applicable.

Now that the insurance industry realizes that diagnostic scanning allowances are a necessary inclusion in automobile damage estimates, it is time for insurers to be diligent about getting what they pay for by defining a higher standard and seeing that repairers adhere to it.

It is not unusual to see repairers simply scanning and indiscriminately clearing codes. Some repairers believe this is all that is necessary.

Insurers should work with shops to seek some balance with solutions that are cost-effective yet not inferior to the overall process of restoring the vehicle to the industry accepted standards. Pre- and post-repair scan allowances should be supported with the proper documentation of scan results and itemized explanations of services rendered, which serves to protect the insurer, repairer and consumer alike.

New Vehicle Sales

WardsAuto 10 Best-Selling U.S. Cars and Trucks

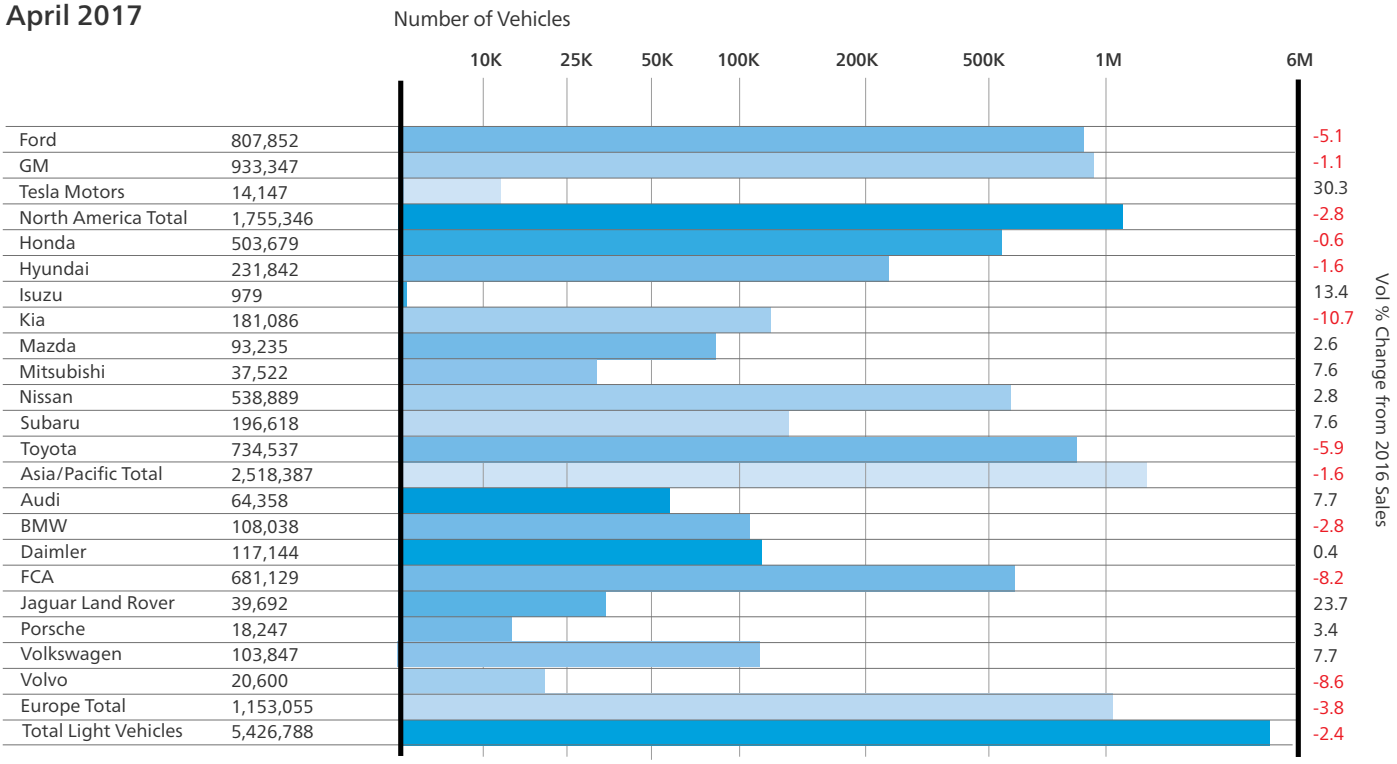
As of April 2017

Cars		Trucks/Vans/SUVs	
Camry	114,887	F-Series	256,809
Civic	112,865	Silverado	168,621
Corolla	105,222	Ram Pickup	156,675
Accord	96,753	Rogue	128,807
Altima	94,248	CR-V	126,728
Cruze	75,240	RAV4	112,290
Sentra	71,669	Escape	101,975
Elantra	70,548	Explorer	85,634
Fusion	67,483	Equinox	83,364
Sonata	54,163	Grand Cherokee	75,477

Source: WardsAuto InfoBank

WardsAuto U.S. Light Vehicle Sales by Company

April 2017



Light vehicles are cars and light trucks (GVW Classes 1-3, under 14,001 lbs.). DSR is daily sales rate. Tesla Motors monthly sales estimated.
Source: *WardsAuto InfoBank*

Current Used Vehicle Market Conditions

December 2016 Kontos Kommentary

By Tom Kontos

Executive Vice President,
ADESA Analytical Services

The following commentary is produced monthly by Tom Kontos, Executive Vice-President, ADESA Analytical Services. ADESA is a leading provider of wholesale used vehicle auctions and ancillary remarketing services.

As part of the KAR Auction Services family, ADESA works in collaboration with its sister company, Insurance Auto Auctions, a leading salvage auto auction company, to provide insights, trends and highlights of the entire automotive auction industry.

Wholesale Used Vehicle Price Trends

	Average Prices ($/Unit)			Latest Month Versus	
	Mar-17	Feb-17	Mar-16	Prior Month	Prior Year
Total All Vehicles	$10,904	$10,688	$10,793	2.0%	1.0%
Total Cars	$8,921	$8,732	$9,078	2.2%	-1.7%
Compact Car	$6,732	$6,658	$7,050	1.1%	-4.5%
Midsize Car	$8,006	$7,942	$8,107	0.8%	-1.2%
Fullsize Car	$8,346	$8,092	$7,803	3.1%	7.0%
Luxury Car	$13,235	$13,015	$13,636	1.7%	-2.9%
Sporty Car	$14,131	$13,478	$14,517	4.9%	-2.7%
Total Trucks	$12,825	$12,650	$12,657	1.4%	1.3%
Mini Van	$9,012	$9,004	$7,939	0.1%	13.5%
Fullsize Van	$13,009	$12,838	$12,769	1.3%	1.9%
Compact SUV/CUV	$10,894	$10,733	$11,065	1.5%	-1.5%
Midsize SUV/CUV	$11,459	$11,319	$11,311	1.2%	1.3%
Fullsize SUV/CUV	$13,407	$13,140	$13,372	2.0%	0.3%
Luxury SUV/CUV	$18,343	$18,258	$18,857	0.5%	-2.7%
Compact Pickup	$8,793	$8,818	$8,614	-0.3%	2.1%
Fullsize Pickup	$16,142	$15,796	$15,773	2.2%	2.3%

Source: ADESA Analytical Services. March revised.

Summary

The tale of two markets resumed in March, as wholesale prices were below year-ago levels for cars and above prior year for trucks. Nevertheless, both groups showed price increases versus February's unseasonably soft results, as retail sales and wholesale activity showed signs of the traditional spring/tax season market typical for used vehicles.

In analyzing the current bifurcated market, it seems timely to revisit a study begun during the first episode of $4.00 gas in 2008, when truck prices softened dramatically and car prices rose. At that time, the price gap between fullsize SUVs and compact cars had fallen from close to $13,000 in January of 2000, when SUVs were all the rage, to $2,162 in June of 2008, when gas prices hit $4.00 a gallon. In other words, dealers were paying high prices for small cars and low prices for big SUVs at that time, narrowing the price gap between the two. That turned out to be the all-time low for this price gap, which gradually rose to $8,293 by November 2016, as gas prices have fallen and the popularity of SUVs has recovered. Per our March data, this gap has dropped to $6,675, perhaps indicating that SUV prices are moderating and compact car prices are recovering. We will monitor this going forward.

Details

According to ADESA Analytical Services' monthly analysis of Wholesale Used Vehicle Prices by Vehicle Model Class1, wholesale used vehicle prices in March averaged $10,904—up 2.0% compared to February and up 1.0% relative to March 2016. All but one model class segment (compact pickups) showed month-over-month increases. (Note: the year-over-year growth in minivan prices is exaggerated by newer models as discussed in January's report.).

Average wholesale prices for used vehicles remarketed by manufacturers were up 1.1% month-over-month but down 1.7% year-over-year. Prices for fleet/lease consignors were up 3.8% sequentially and up 0.8% annually. Average prices for dealer consignors were up 2.7% versus February and up 1.3% relative to March 2016.

Breaking the data down by age shows that prices were down 2.5% year-over-year for current and one-model-year-old units (typically off-rental units) and down 2.6% for three-model-year-old units (a good proxy for off-lease units).

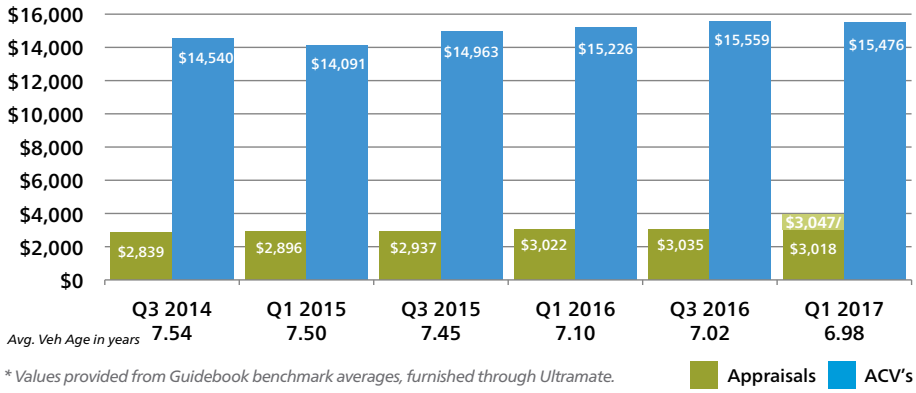
Based on NADA data, retail used vehicle sales by franchised and independent dealers were up 9.3% month-over-month, and up 1.6% year-over-year. March CPO sales were up 15.0% month-over-month, although they were down 0.3% year-over-year from last March's all-time record levels, according to figures from Autodata.

[1] *The analysis is based on over seven million annual sales transactions from over 150 of the largest U.S. wholesale auto auctions, including those of ADESA as well as other auction companies. ADESA Analytical Services segregates these transactions to study trends by vehicle model class, sale type, model year, etc.*

Appraisal Values

The initial average appraisal value, calculated by combining data from all first and third-party repairable vehicle appraisals uploaded through Mitchell systems in Q1 2017, was $3,018, $4 less than this same period last year. However, continued development suggests a final Q1 2017 average appraisal value of $3,047, which represents an increase of the same quarter last year.

Average Appraisal Values, ACVs and Age | All APD Line Coverages*



** Values provided from Guidebook benchmark averages, furnished through Ultramate.*

MITCHELL SOLUTION:

Mitchell Estimating™

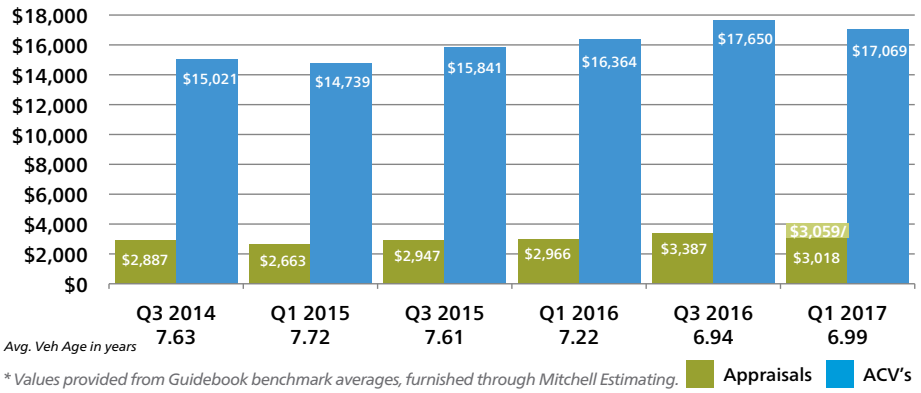
Mitchell **Estimating** is an advanced estimating system, combining database accuracy, automated calculations, and repair procedure pages to produce estimates that are comprehensive, verifiable, and accepted throughout the collision industry. Mitchell Estimating is an integral part of Mitchell's appraisal workflow solutions.

Visit Mitchell's website at
www.mitchell.com

Comprehensive Losses

In Q1 2017, the average initial gross appraisal value for comprehensive coverage estimates processed through our servers was $3,018, compared to $2,966 in Q1 2016. Factoring for development produces an increase in the adjusted value to $3,059.

Average Appraisal Values, ACVs and Age Comprehensive Losses*

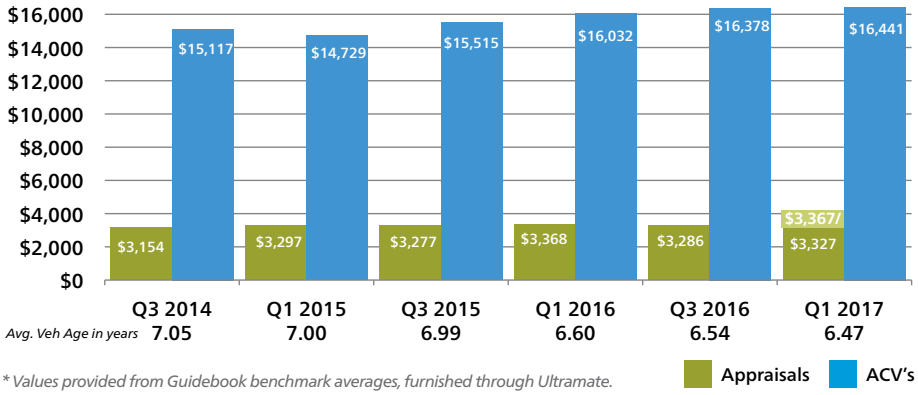


** Values provided from Guidebook benchmark averages, furnished through Mitchell Estimating.*

Collision Losses

Mitchell's Q1 2017 data reflects an initial average gross collision appraisal value of $3,327, $41 less than this same period last year. Continued development suggests a final Q1 2017 average gross collision appraisal value of $ 3,367, nearly equivalent to the same quarter last year.

Average Appraisal Values, ACVs and Age Collision Coverage*

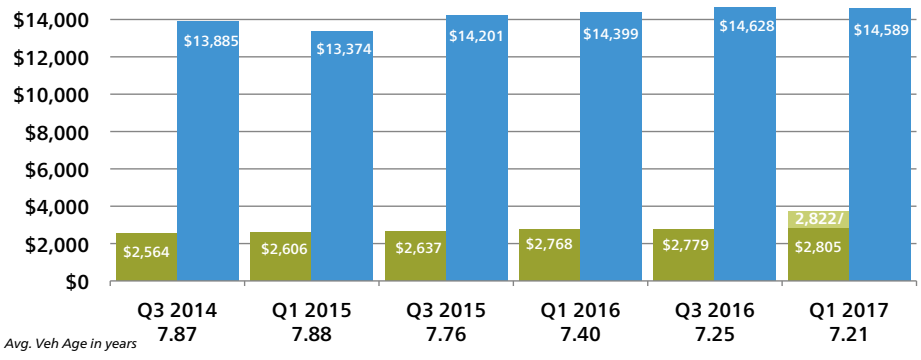


** Values provided from Guidebook benchmark averages, furnished through Ultramate.*

Third-Party Property Damage

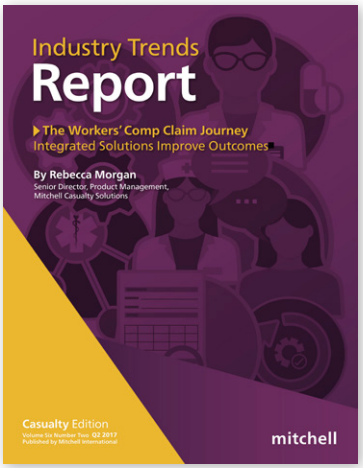
In Q1 2017, our initial average gross third-party property damage appraisal was $2,805 compared to $2,768 in Q1 2016, reflecting a $37 initial increase between these respective periods. Factoring for development yields an anticipated Q1 2017 adjusted appraisal value of $ 2,822, a $54 increase in average severity over Q1 2016.

Average Appraisal Values, ACVs and Age Auto Physical Damage*



** Values provided from Guidebook benchmark averages, furnished through Mitchell Estimating.*

View the
Casualty Edition



Supplements

EDITOR'S NOTE

As it generally takes at least three months following the original date of appraisal to accumulate most supplements against an original estimate of repair, we report (and recommend viewing supplement information) three months' after-the-fact, to obtain the most accurate view of this data.

In Q1 2017, 40.66% of all original estimates prepared by Mitchell-equipped estimators were supplemented one or more times. In this same period, the pure supplement frequency (supplements to estimates) was 65.41%, reflecting a 3.24 point increase from that same period in 2016. The average combined supplement variance for this quarter was $869.58, $2.01 lower than in Q1 2016.

Average Supplement Frequency and Severity

Date	Q3/14	Q1/15	Q3/15	Q1/16	Q3/16	Q1/17	Pt. Change	% Change
% Est. Supplement	34.04	36.78	34.71	40.63	39.88	40.66	0.03	0%
% Supplement	48.74	52.93	50.11	62.17	58.01	65.41	3.24	5%
Avg. Combined Supp. Variance $	792.64	817.79	873.18	871.59	888.88	869.58	-2.01	0%
% Supplement $	27.92	28.24	29.73	28.84	29.29	28.81	-0.03	0%

Average Appraisal Make-Up

This chart compares the average appraisal make-up as a percentage of dollars, constructed by Mitchell-equipped estimators. These data points reflect a 'trade off'; in comparing Q1 2017 to the same period last year, there was only minimal shifting (less than 1%) between categories.

% Average Appraisal Dollars by Type

Date	Q3/14	Q1/15	Q3/15	Q1/16	Q3/16	Q1/17	Pt. Change	% Change
% Average Part $	42.93	45.76	43.72	45.49	43.73	45.58	0.09	0.20%
% Average Labor $	45.69	42.77	44.99	43.17	45.01	43.1	-0.07	-0.16%
% Paint Material $	10.59	10.45	10.5	10.24	10.12	10.16	-0.08	-0.78%

Parts Analysis

Parts Type Definitions

Original Equipment Manufacturer (OEM)

Parts produced directly by the vehicle manufacturer or their authorized supplier, and delivered through the manufacturer's designated and approved supply channels. This category covers all automotive parts, including sheet metal and mechanical parts.

Aftermarket

Parts produced and/or supplied by firms other than the Original Equipment Manufacturer's designated supply channel. This may also include those parts originally manufactured by endorsed OEM suppliers, which have later followed alternative distribution and sales processes. While this part category is often only associated with crash replacement parts, the automotive aftermarket also includes a large variety of mechanical and custom parts.

Non-New/Remanufactured

Parts removed from an existing vehicle that are cleaned, inspected, repaired and/or rebuilt, usually back to the original equipment manufacturer's specifications, and re-marketed through either the OEM or alternative supply chains. While commonly associated with mechanical hard parts such as alternators, starters and engines, remanufactured parts may also include select crash parts such as urethane and TPO bumpers, radiators and wheels.

Recycled

Parts removed from a salvaged vehicle and re-marketed through private or consolidated auto parts recyclers. This category commonly includes all types of parts and assemblies, especially body, interior and mechanical parts.

EDITOR'S NOTE

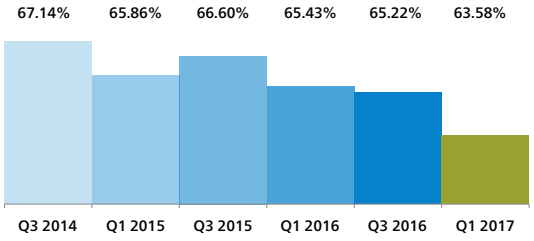
While there isn't a perfect correlation between the types of parts specified by estimators and those actually used during the course of repairs, we feel that the following observations are directionally accurate for both the insurance and auto body repair industries. This section illustrates the percentage of dollars allocated to each unique part-type.

As a general observation, recent data show that parts make up 46% of the average value per repairable vehicle appraisal, which represents over $1,400 in average spend per estimate.

Original Equipment Manufacturer (OEM) Parts Use in Dollars

In Q1 2017, OEM parts represented 63.58% of all parts dollars specified by Mitchell-equipped estimators. This represents a 1.85% relative decrease from Q1 2016.

Parts-New



MITCHELL SOLUTION:

Mitchell QRP™

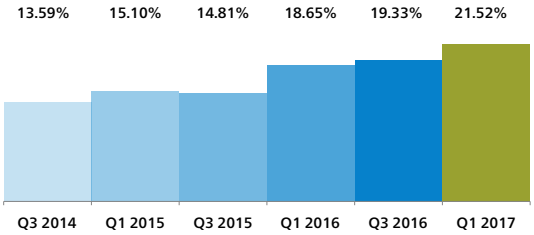
Mitchell's Quality Recycled Parts (QRP) program is the most comprehensive source for finding recycled parts, providing online access to a parts database compiled from a growing network of more than 800 of the highest quality recyclers in North America and Canada. QRP is fully integrated with UltraMate / UltraMate Premier Suite for total ease-of-use.

For more information on QRP, visit Mitchell's website at www.mitchell.com

Aftermarket Parts Use in Dollars

In Q1 2017, 21.52% of all parts dollars recorded on Mitchell appraisals were attributed to Aftermarket sources, up 2.87 points from Q1 2016.

Parts-Aftermarket



MITCHELL SOLUTION:

Mitchell MAPP™

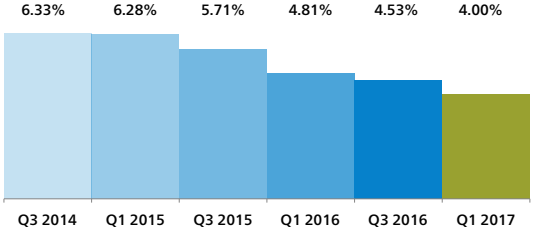
Mitchell Alternate Parts Program (MAPP) offers automated access to nearly 100 Remanufactured and Aftermarket part types from over 700 suppliers ensuring shops get the parts they need from their preferred vendors. MAPP is fully integrated with UltraMate / UltraMate Premier Suite for total ease-of-use.

For more information on MAPP, visit Mitchell's website at www.mitchell.com

Remanufactured Parts Use in Dollars

Listed as "Non-New" parts in our estimating platform and reporting products, Remanufactured parts represent 4% of the average gross parts dollars used in Mitchell appraisals during Q1 2017. This reflects a 0.81% relative decrease over this same period in 2016.

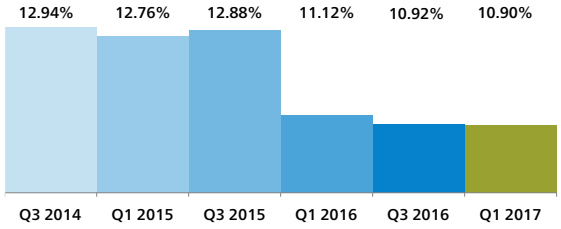
Parts-Remanufactured



Recycled Parts Use in Dollars

Recycled parts constituted 10.9% of the average parts dollars used per appraisal during Q1 2017, reflecting a 0.22% decrease from Q1 2016.

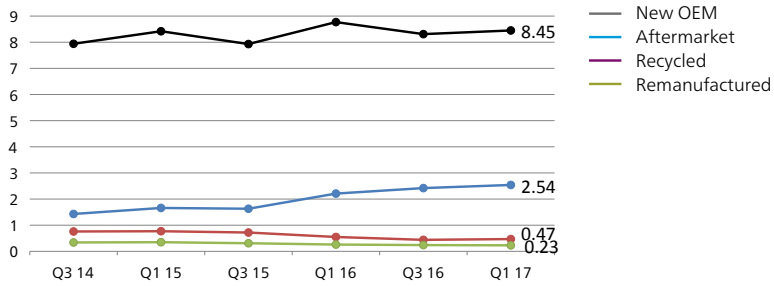
Parts-Recycled



The Number of Parts by Part Type

In order to capture another aspect of parts use, we calculate the number of parts used by part type on a repairable estimate. In comparing Q1 2017 to the same quarter in 2016, aftermarket parts usage increased to an average 2.54 parts per estimate. At the same time, new OEM, Remanufactured, and Recycled parts usage experienced decreases.

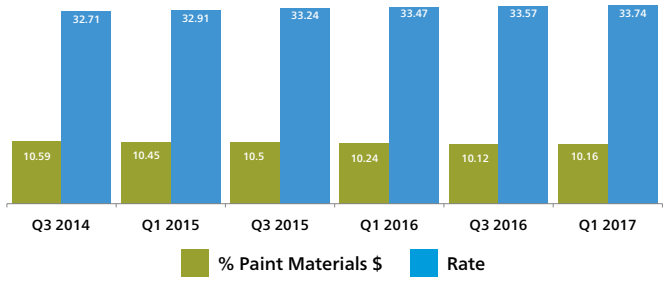
Number of Parts by Part Type



Paint and Materials

During Q1 2017, Paint and Materials made up 10.16% of our average appraisal value, representing a 0.08% relative decrease from Q1 2016. Represented differently, the average paint and materials rate—achieved by dividing the average paint and materials allowance per estimate by the average estimate refinish hours—yielded a rate of $33.74 per refinish hour in this period, compared to $33.47 in Q1 2016.

Paint And Materials, By Quarter



EDITOR'S NOTE

It is commonly understood within the collision repair and insurance industries that a very large number of RECYCLED "parts" are actually "parts-assemblies" (such as doors, which in fact include numerous attached parts and pieces). Thus, attempting to make discrete comparisons between the average number of RECYCLED and any other parts types used per estimate may be difficult and inaccurate.

MITCHELL SOLUTION:

Mitchell RMC™

Mitchell's Refinishing Materials Calculator (RMC) provides accurate calculations for refinishing materials costs by incorporating a database of more than 8,500 paint codes from eight paint manufacturers. It provides job-specific materials costing according to color and type of paint, plus access to the only automated, accurate, field-tested, and industry-accepted break-down of actual costs of primers, colors, clear coats, additives and other materials needed to restore vehicles to pre-accident condition. For more information on RMC, visit Mitchell's website at www.mitchell.com

Adjustments

In Q1 2017, the percentage of adjustments made to estimates was down compared to the same period last year. The frequency of betterment taken decreased by 10%, while the average dollar amount of the betterment taken dropped by 4% to $127.42. Appearance allowance frequency increased by 4%, while the dollar amount of that appearance allowance decreased to $212.06.

Adjustment $ and %s

Date	Q3/14	Q1/15	Q3/15	Q1/16	Q3/16	Q1/17	Pt/$ Change	% Change
% Adjustments Est	2.93	2.95	2.96	3.03	2.99	2.8	-0.23	-8%
% Betterment Est	2.34	2.4	2.39	2.37	2.26	2.13	-0.24	-10%
% Appear Allow Est	0.44	0.43	0.44	0.52	0.53	0.54	0.02	4%
% Prior Damage Est	2.99	2.87	2.87	2.51	2.36	2.2	-0.31	-12%
Avg. Betterment $	131.63	124.21	128.96	132.18	143.34	127.42	-4.76	-4%
Avg. Appear Allow $	215.58	210.71	213.81	221.46	225.7	212.06	-9.4	-4%

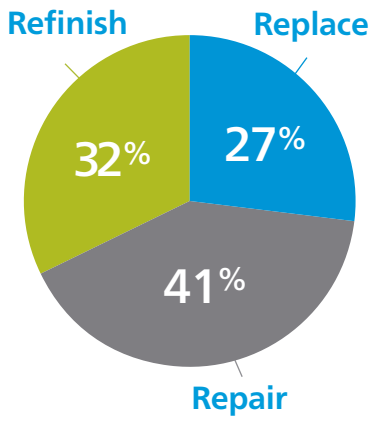
Labor Analysis

For 2017 year-to-date, average body labor rates rose in all but one of the survey states compared to 2016.

Average Body Labor Rates and Change by State

	2016	2017 YTD	$ Change	% Change
Arizona	51.09	51.36	$ 0.27	1%
California	55.49	56.49	$ 1.00	2%
Florida	42.94	43	$ 0.06	0%
Hawaii	50.24	51.47	$ 1.23	2%
Illinois	51.98	52.08	$ 0.10	0%
Michigan	46.27	46.43	$ 0.16	0%
New Jersey	47.84	47.95	$ 0.11	0%
New York	49.07	49.24	$ 0.17	0%
Ohio	46	47.63	$ 1.63	4%
Rhode Island	45.96	46.76	$ 0.80	2%
Texas	45.74	45.49	$ (0.25)	-1%

Percent of average labor hours by type



Total Loss

The chart below illustrates the total loss data for both vehicle age and actual cash value of total loss vehicles processed through Mitchell servers.

Average Vehicle Age in Years

Vehicles	Q3/14	Q1/15	Q3/15	Q1/16	Q3/16	Q1/17
	Average Vehicle Age in Years					
Convertible	12.62	12.71	13.01	12.7	13.05	12.95
Coupe	12.14	12.02	12.37	12.1	12.35	12.21
Hatchback	8.56	8.26	8.18	8	8.06	8.26
Sedan	10.49	10.37	10.43	10.19	10.29	10.42
Wagon	9.98	10.1	10.42	10.65	10.82	10.94
Other Passenger	13.06	12.02	12.82	10.99	7.14	3.87
Pickup	12.46	12.41	12.96	12.92	13.09	13.5
Van	11.31	11.37	11.57	11.55	11.74	11.84
SUV	10.31	10.42	10.42	10.36	10.37	10.66

Average Vehicle Total Loss Actual Cash Value

Vehicles	Q3/14	Q1/15	Q3/15	Q1/16	Q3/16	Q1/17
	Average Actual Cash Value					
Convertible	10,146.85	9,507.76	10,292.54	9,931.11	10,088.09	9,584.36
Coupe	7,533.04	7,497.37	7,974.89	8,032.50	8,080.73	7,731.16
Hatchback	8,458.86	8,208.48	8,740.67	8,534.83	8,311.45	7,619.72
Sedan	7,721.12	7,426.76	7,931.41	7,691.77	7,646.78	7,230.52
Wagon	7,046.74	6,623.72	6,833.21	6,699.17	6,571.12	6,350.74
Other Passenger	13,722.77	16,196.74	15,170.59	19,673.40	18,408.88	19,061.28
Pickup	10,428.99	10,868.37	11,124.16	11,662.25	11,969.94	11,419.48
Van	6,123.50	5,994.83	6,448.19	6,450.06	6,763.43	6,448.53
SUV	9,544.26	9,301.24	10,086.55	10,076.09	10,244.19	9,681.80

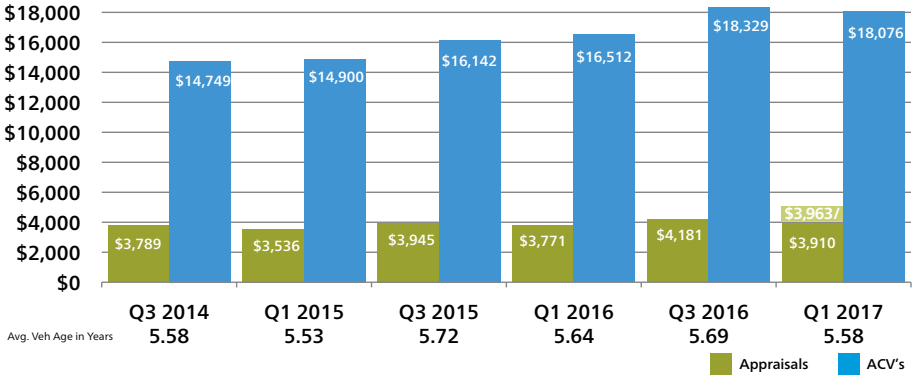
EDITOR'S NOTE

At the request of our customers and friends in Canada, we are pleased to provide the following Canada-specific statistics, observations, and trends. **All dollar-figures appearing in this section are in CDN$.** This data is the product of upload activity from body shops, independent appraisers, and insurance personnel, more accurately depicting insurance-paid loss activity, rather than consumer direct or retail market pricing.

Canadian Appraisal Severity

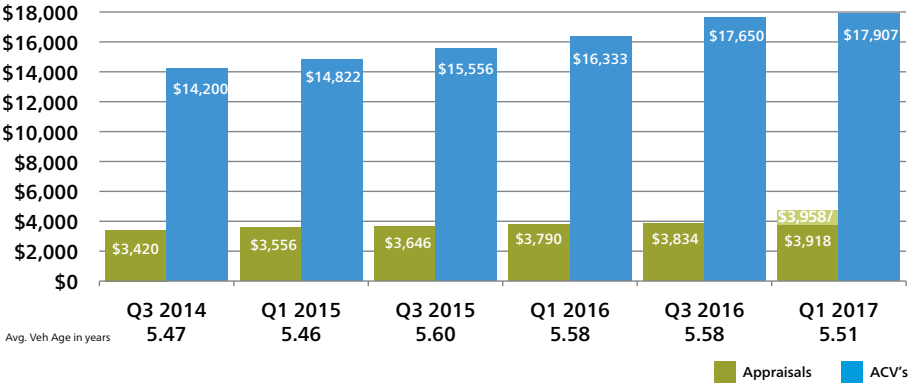
Average Appraisal Values Severity Overall

The average gross initial appraisal value, calculated by combining data from all first and third party repairable vehicle appraisals uploaded through Mitchell Canadian systems in Q1 2017, was $3,910—a $139 increase from Q1 2016. Factoring for development yields an anticipated increase to $3,963.



Collision Losses

The average initial gross collision appraisal value uploaded through Mitchell Canadian systems in Q1 2017 was $3,918, a $128 increase from Q1 2016. Factoring for development yields an anticipated increase to $3,958, which represents a $168 increase from Q1 2016.



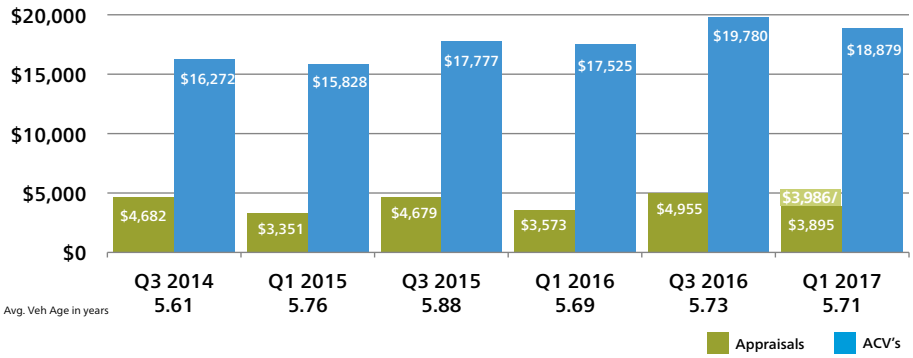
Canadian Average Appraisal Make-Up

This chart compares the average appraisal make up as a percentage of dollars. These data points reflect an increase in parts, with slight decreases in labour and paint.

Date	Q3/14	Q1/15	Q3/15	Q1/16	Q3/16	Q1/17	Pt/$ Change	% Change
% Average Part $	38.23	46.18	39.16	46.27	38.22	47.74	1.47	3%
% Average Labour $	50.63	42.36	49.42	42.24	50.58	40.9	-1.34	-3%
% Paint Material $	8.16	8.42	8.07	8.31	7.88	8.16	-0.15	-2%

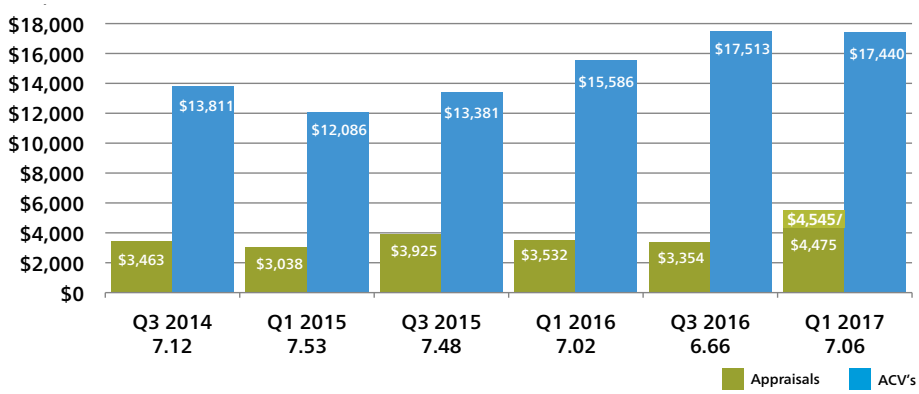
Comprehensive Losses

In Q1 2017, the average initial gross Canadian appraisal value for comprehensive coverage estimates processed through our servers was $3,895, which represents an increase of $322 compared to Q1 2016. Factoring for development, the anticipated final average appraisal value will be $3,986.



Third-Party Property Damage

In Q1 2017, our Canadian industry initial average gross third-party property damage appraisal was $4,475, which represents an increase of $943 from Q1 2016. Factoring for development, we anticipate a final value of $4,545.



About Mitchell in Canada…

For more than 20 years, Mitchell's dedicated Canadian operations have focused specifically and entirely on the unique needs of collision repairers and insurers operating in the Canadian marketplace. Our Canadian team is known for making itself readily available, for being flexible in its approach to improving claims and repair processes, and for its 'second to none' commitment to customer support. Headquartered in Toronto, with offices across Canada, Mitchell Canada delivers state-of-the-art, multi-lingual collision estimating and claims workflow solutions (including hardware, networks, training, and more), world-class service, and localized support.

Canadian Supplements

In Q1 2017, 49.23% of all original estimates prepared by Mitchell-equipped Canadian estimators were supplemented one or more times. In this same period, the pure supplement frequency (supplements to estimates) was 79.12%. The average combined supplement variance for this quarter was $921.33, $100.01 higher than in Q1 2016.

Date	Q3/14	Q1/15	Q3/15	Q1/16	Q3/16	Q1/17	Pt/$ Change	% Change
% Est Supplements	46.32	52.17	49.26	55.04	45.42	49.23	-5.81	-11%
% Supplements	61.77	75.51	67.37	88.75	60.92	79.12	-9.63	-11%
Avg Combined Supp Variance	917.21	777.75	819.49	821.32	1006.07	921.33	100.01	12%
% Supplement $	24.21	22	20.77	21.78	24.06	23.56	1.78	8%

Canadian Adjustments

In Q1 2017, the average frequency of betterment taken on estimates decreased by 12%, while the dollar amount of that betterment increased by 20%. Appearance allowances were also down, although the dollar amount of those allowances increased by 17% when compared to Q1 2016.

Date	Q3/14	Q1/15	Q3/15	Q1/16	Q3/16	Q1/17	Pt/$ Change	% Change
% Adjustments Est	2.38	1.56	2.52	1.72	2.53	1.46	-0.26	-15%
% Betterment Est	2.06	1.34	2.17	1.43	2.15	1.26	-0.17	-12%
% Appear Allow Est	0.31	0.21	0.34	0.26	0.39	0.2	-0.06	-23%
% Prior Damage Est	0.09	0.15	0.22	0.24	0.23	0.22	-0.02	-8%
Avg. Betterment $	270.01	235.15	289.84	335.19	344.86	402.5	67.31	20%
Avg. Appear Allow $	268.37	231.37	284.4	274.04	392.26	320.64	46.6	17%

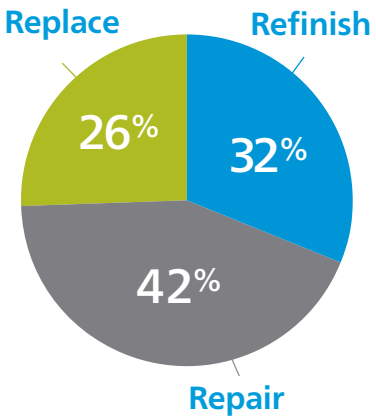
Canadian Labour Analysis

This data reflects the percentage of labour dollars utilized in the creation of Mitchell appraisals by Canadian estimators.

Average Body Labour Rates and Change by Province

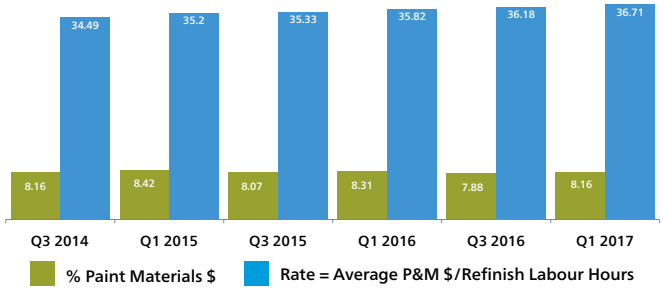
	2016	YTD 2017	$ Change	% Change
Alberta	76.17	74.83	$(1.34)	-2%
Newfoundland & Labrador	63.23	64.06	$0.83	1%
Northwest Territories	93.48	92.82	$(0.66)	-1%
Nova Scotia	59.51	59.67	$0.16	0%
Ontario	57.59	57.67	$0.08	0%
Quebec	52.7	53.34	$0.64	1%
Yukon Territory	95.58	95.23	$(0.35)	0%

Labour Operations

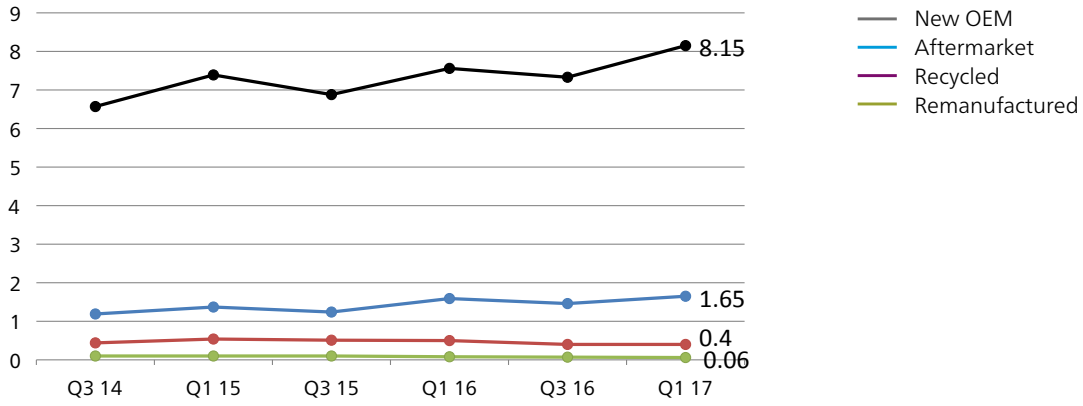


Canadian Paint and Materials

For Q1 2017, Paint and Materials made up 8.16% of our average appraisal value. Represented differently, the average paint and materials hourly rate rose to $36.71 per hour.



Canadian Number of Parts by Part Type



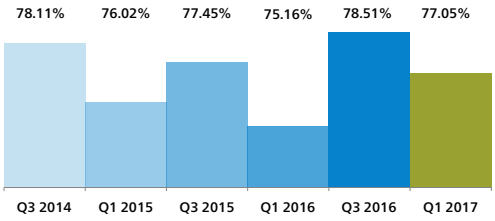
Canadian Parts Utilization

All data reflects the percentage of part-type dollars utilized in the construction of Mitchell appraisals by Canadian estimators.

Original Equipment Manufacturer (OEM) Parts Use in Dollars

In Q1 2017, OEM parts use increased compared to Q1 2016.

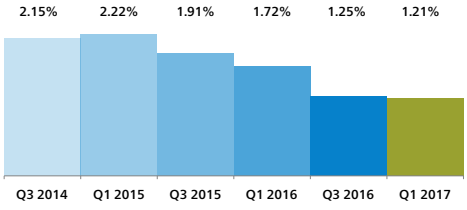
Parts-New



Remanufactured Parts Use in Dollars

Remanufactured parts use in Canada dropped to 1.21% for Q1 2017, which represents the lowest percentage of part dollars in the charted quarters.

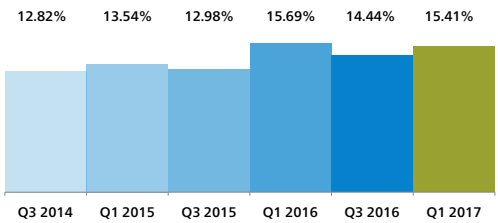
Parts-Non-New



Aftermarket Parts Use in Dollars

Aftermarket parts use in Q1 2017 decreased slightly compared to the same period last year, coming in at 15.41%.

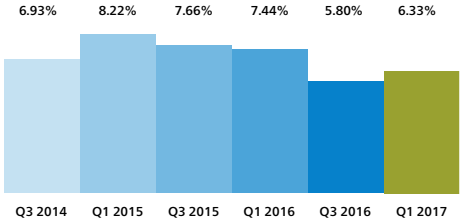
Parts-Aftermarket



Recycled Parts Use in Dollars

In Q1 2017, recycled parts use in Canada decreased compared to Q1 2016 results.

Parts-Recycled



Mitchell San Diego Headquarters

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Mitchell empowers clients to achieve measurably better outcomes. Providing unparalleled breadth of technology, connectivity and information solutions to the Property & Casualty claims and Collision Repair industries, Mitchell is uniquely able to simplify and accelerate the claims management and collision repair processes.

As a leading provider of Property & Casualty claims technology solutions, Mitchell processes over 50 million transactions annually for over 300 insurance companies/claims payers and over 30,000 collision repair facilities throughout North America. Founded in 1946, Mitchell is headquartered in San Diego, California, and has approximately 2,000 employees. The company is privately owned primarily by KKR, a leading global investment firm.

For more information on Mitchell, visit **www.mitchell.com.**

Mitchell in the News

Executive Vision: Debbie Day and Jack Rozint of Mitchell on Industry Trends and Mitchell Parts

Collision Repair magazine interviewed Debbie Day and Jack Rozint during SEMA about Mitchell Parts and the trends impacting the industry today and in the future.

Read More at Collision Repair Magazine

Mitchell Wraps Up 2016 Roadshow, Announces 2017 Schedule

Mitchell concludes four regions Canadian and three regions U.S. road-shows and announces schedule for 2017.

Read More at Autosphere.ca

CIC Panel Tackles Scanning Challenges

FenderBender covered Jack Rozint's moderation of a panel of shop, insurance, scan tool, and OE representatives discussing pre- and post-repair scanning challenges at the January Collision Industry Conference meeting in Palm Springs.

Read More at Fender Bender

Mitchell International Donated Over $700,000 in Software Subscriptions in 2016 through CREF

Auto Body Repair Network mentioned Mitchell's software donation to the Collision Repair Education Foundation as well safety kits to collision students.

Read More at Auto Body Repair Network

Mitchell International Becomes Newest SCRS Corporate Member

FenderBender included an announcement about Mitchell's Society of Collision Repair Specialists (SCRS) corporate membership.

Read More at Fender Bender

For More Mitchell News:

Press Releases Mitchell International Mitchell_Intl MitchellPBM MitchellRepair MitchellClaims

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Industry Trends Report

The Industry Trends Report is a quarterly snapshot of the auto physical damage collision and casualty industries. Just inside—the economy, industry highlights, plus illuminating statistics and measures, and more. Stay informed on ongoing and emerging trends impacting the industry, and you, with th Industry Trends Report!

Questions or comments about the Industry Trends Report may be directed to:

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Kontos Kommentary is produced monthly by Tom Kontos, Executive Vice-President, ADESA Analytical Services. ADESA is a leading provider of wholesale used vehicle auctions and ancillary remarketing services. As part of the KAR Auction Services family, ADESA works in collaboration with its sister company, Insurance Auto Auctions, a leading salvage auto auction company, to provide insights, trends and highlights of the entire automotive auction industry.

For more information about Enterprise Rent-A-Car Average Length of Rental and to access your market and shop numbers please contact daniel.friedman@ehi.com.