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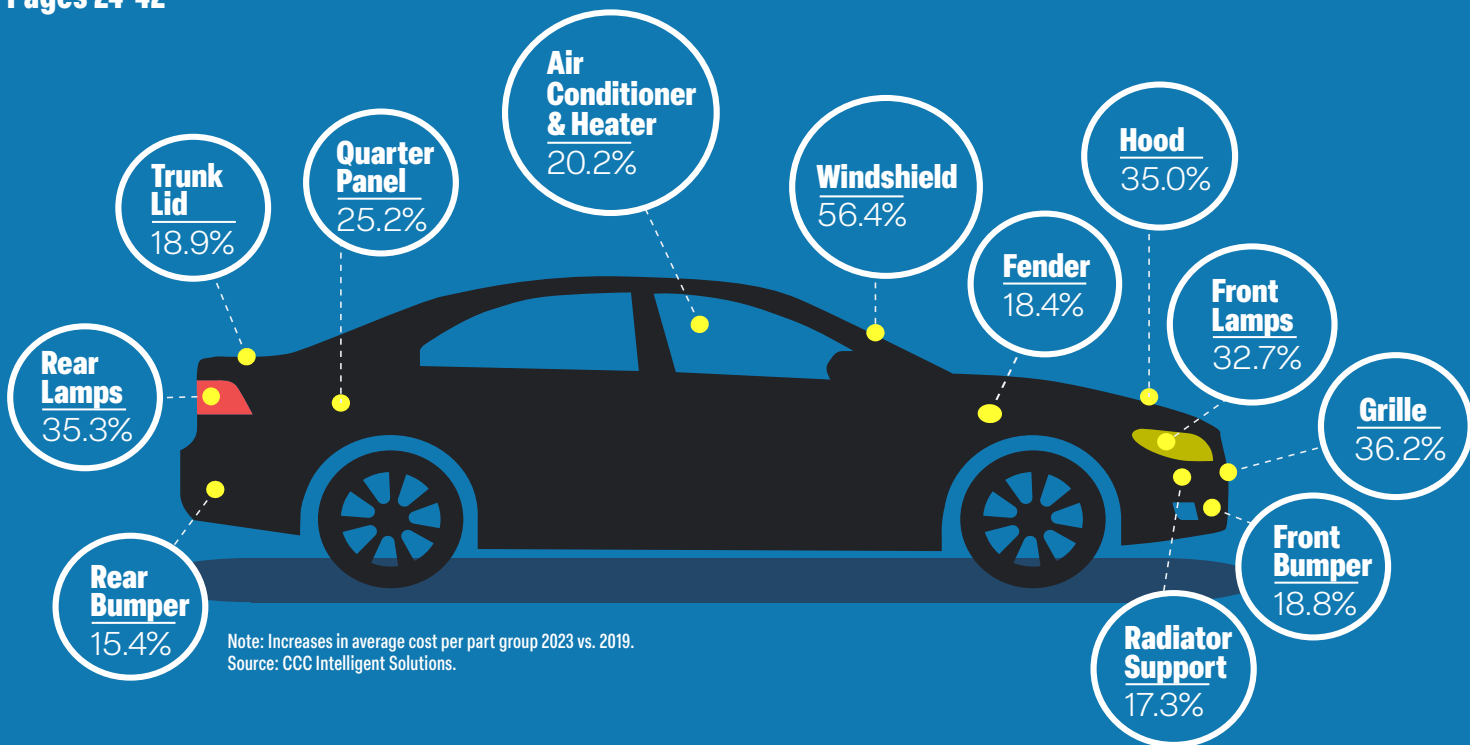
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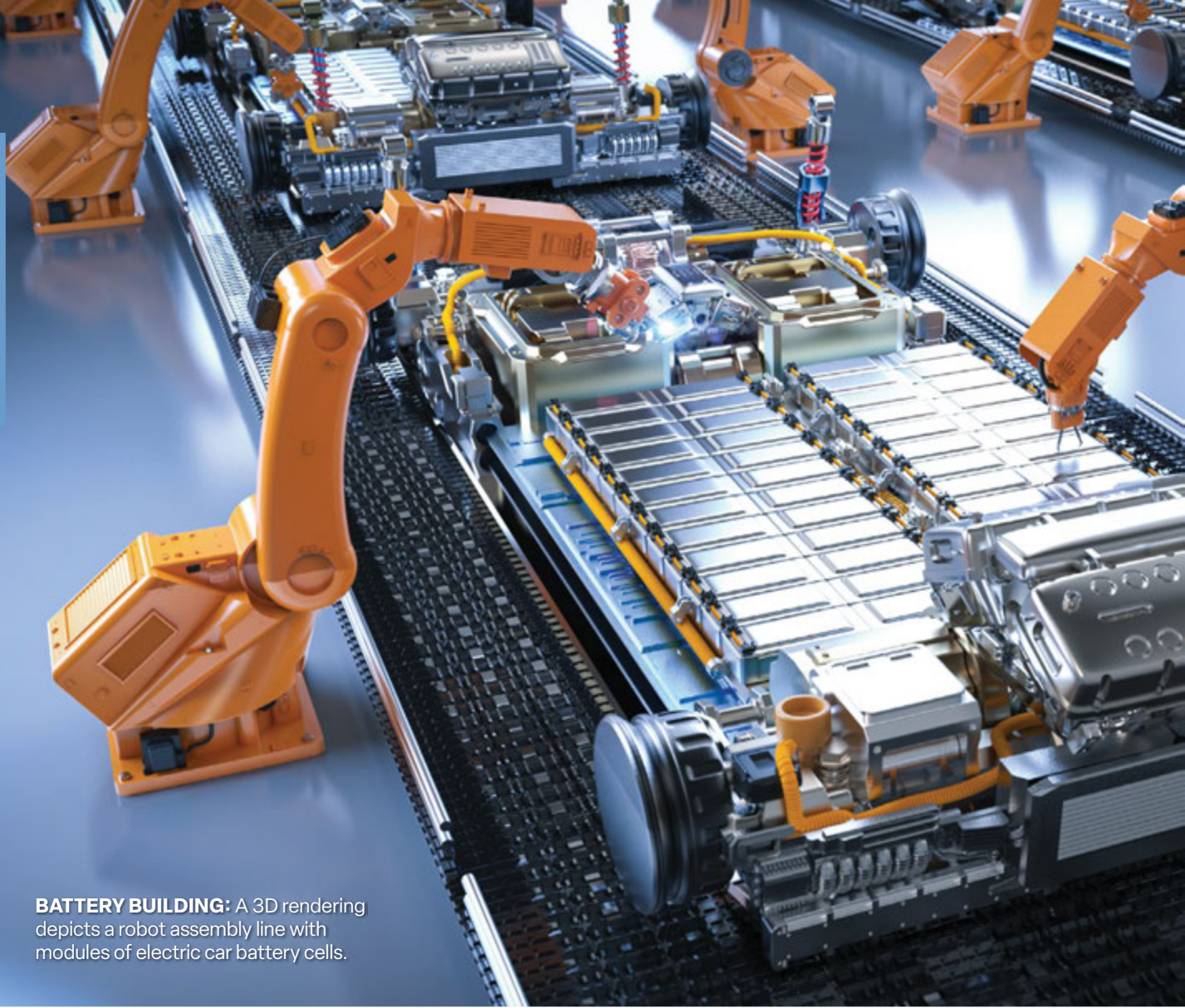
What's Driving the Rise in Auto Costs

The U.S. private passenger auto sector had an underwriting loss of more than \$30 billion in 2022, according to AM Best. One culprit: growing repair costs.

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BATTERY BUILDING: A 3D rendering depicts a robot assembly line with modules of electric car battery cells.

When It Comes to Insuring Electric Vehicles, It's All About the Battery

The overall cost of repair is another factor, with electric vehicles costing, on average, 52% more to fix in 2022 than those with internal combustion engines; claims frequency, however, was much less for EVs than ICE cars, according to a report by CCC Intelligent Solutions.

by Anthony Bellano

The difference between the average repair for an electric-powered vehicle and one with a combustion engine can be staggering, experts say. And with the growing popularity of electric vehicles, it's one issue the private passenger auto

insurance industry is grappling with as it evaluates how it will provide coverage in the years to come.

Robert Passmore, department vice president, personal lines, for the American Property Casualty Insurance Association, recalls a Hyundai EV that bottomed out, damaging its battery's protective skid plate and blowing out a tire.

"Unfortunately, the only way to replace a skid

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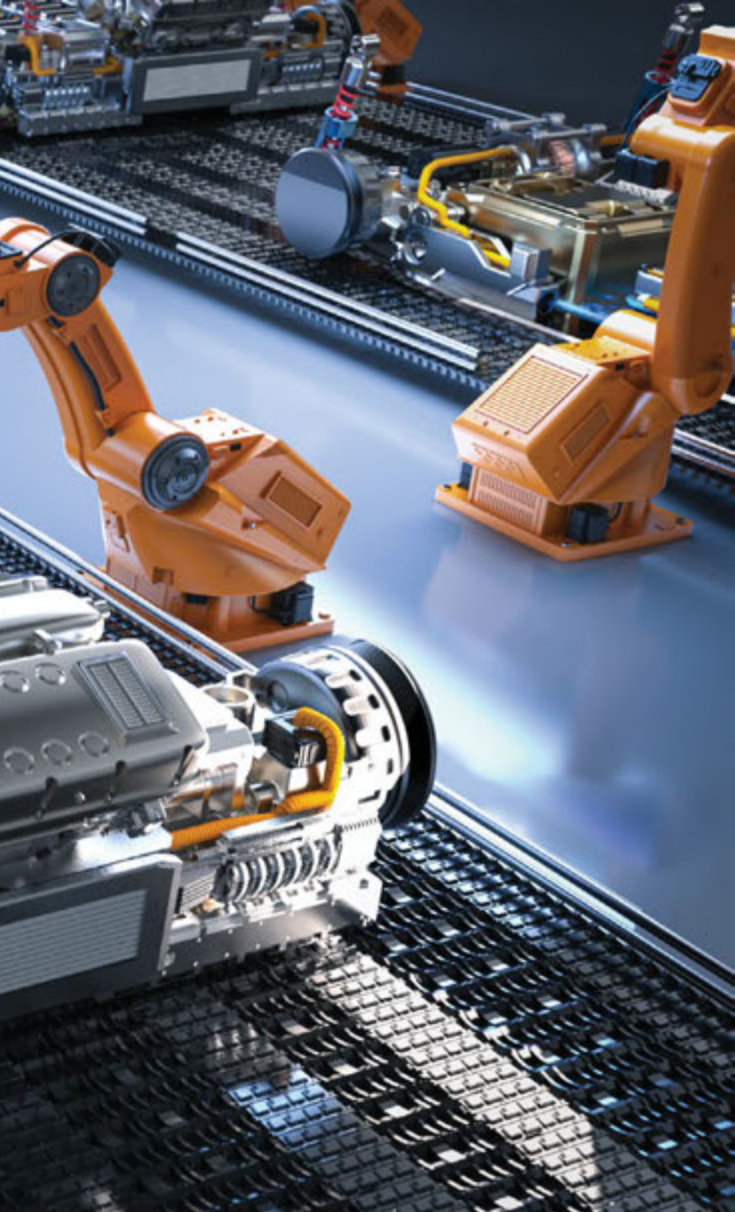


plate is to buy a new battery for \$37,000,” Passmore said. “It was a fiberglass skid plate, and you shouldn’t have to total a car because of a blown tire and a damaged skid plate. Otherwise, the vehicle was undamaged. That’s an example of some of the hard decisions insurers have to make about whether to total a car.”

The price of a battery fluctuates depending on the make and model of an electric vehicle, said Kyle Krumlauf, director of industry analytics for CCC Intelligent Solutions, an automotive company that provides insight and analysis of connected car data to inform consumers about the automotive and insurance industries. “Most batteries appear to fall into a range of \$10,500 to \$22,500, yet we need to be conscious of the fact that outside a few makes/models, many manufacturers are very early in their EV journey, which can affect scarcity and costs of replacement parts,” Krumlauf said.

The cost of the battery drives the price of the

whole car, CCCIS said in its 2023 *Crash Course* report—which noted that raw materials such as lithium used in the batteries increased the average cost of a vehicle to nearly \$66,000 last year.

“When you think of parts that could potentially lead to higher total losses, it’s really the battery,” said Frank Amendola, SVP, underwriting, AmTrust Financial Group’s warranty & specialty risk division. “There is an abundance of sensor technology on EVs, but I think that’s been prevalent in the auto space since about 2014. I think there’s been more availability to sensor technology, sensor parts since then, so the cost of those repairs has come down. I think batteries haven’t yet caught up, but I think they will.”

Krumlauf said vehicle complexity expands beyond EVs; it also encompasses cars with new technology. That complexity is already impacting consumers and the collision repair and claims industry. “The average vehicle is equipped with 1,400 semiconductors, dozens, if not hundreds, of sensors and cameras—even basic vehicles are computers on wheels today.”

“One of the biggest challenges is valuing used electric vehicles. You need to understand the quality of that battery,” Mark Schirmer, director of corporate communications at Cox Automotive, said. “If you look at an internal combustion engine, two cars with 100,000 miles have similar wear and tear in the engine. If you look at two electric vehicles with 100,000 miles on them, the battery quality might be extremely different in those vehicles. Depending on where that vehicle lived and how that vehicle was charged, the battery health would differ.”

This is one of the challenges insurers may consider when exploring new ways of underwriting electric vehicles. Others include increased claims frequency, severity and cost. The higher manufacturer’s suggested retail prices translate to higher claims costs, as well, according to the *Crash Course* report. The average MSRP of all electric vehicles with a claim last year was greater than \$55,000, according to the report.

In 2022, the average total cost to repair an electric vehicle was \$6,587, compared to \$4,215 for cars with an internal combustion engine, according to a recent CCCIS EV trends report.

Claims frequency for electric vehicles, however, is a fraction of that for ICE vehicles. In 2022, EVs represented 1.2% of all repairable estimates



“The cost of labor is especially difficult because a more skilled technician is performing EV repairs in a dealership, though that will lower with time, as well, with more EVs on the road and Right to Repair rules allowing independent shops to repair vehicles in the future.”

Frank Amendola
AmTrust Financial Group

processed through CCCIS, according to the trends study. The rest were non-EVs, but the EV number represented a 96% increase from the previous year. The number of EVs on the road is up, and with that increase comes a rise in the number of drivers who are unfamiliar with the vehicles.

“Drivers switching from an ICE vehicle to EV are often unaware of how quickly an EV accelerates,” CCCIS said in its *Crash Course* report. “The high, instant torque of electric motors is leading to circumstances in which EV drivers stab the throttle, then lift off, sometimes leading to loss of control and a crash.”

Passmore said there’s also a fear that drivers of both electric vehicles and combustion vehicles will become too reliant on the enhanced safety features designed to prevent crashes.

“You’ve seen some situations where people overestimate what the systems can do,” Passmore said. “[The Insurance Institute for Highway Safety] has been studying that. A lot of safety groups have raised those kinds of questions.”

Since 2016, the National Highway Traffic Safety Administration has opened more than 40 investigations into crashes involving electric vehicles and the technology they use, according to data provided by the NHTSA.

All this inexperience will have to be accounted for in future underwriting, Adam Pichon, senior vice president & general manager, U.S. auto insurance and claims, LexisNexis Risk Solutions, said during a recent AM Best webinar, *A Hard Collision With Profitability: The Impact of Current U.S. Auto Insurance Trends*.

“Every insurance company for auto out there is rating on the age of the driver and, in some states, on the years of driving experience,” Pichon

said. “I think we’re going to see the introduction of the amount of experience you have driving an electric vehicle.”

He said he expects that household composition will matter, including how much experience residents have driving electric vehicles, as well as the growing complexity of advanced driver assistance systems as they become better and more commonplace. “I think we’ll see more interest by insurance companies in using ADAS-type features on the specific car that they’re insuring as opposed to just the average Honda Civic in rate and underwriting.”

“Rates are based on the type of vehicle you are driving,” AM Best Senior Director Richard Attanasio said. “If there’s a higher cost to repair electric vehicles, that’s going to be captured in terms of their rating plan with the symbols and model years and all the things that go along with that.”

When an accident occurs, severity is actually higher for the passengers in the other cars, according to CCCIS. Electric vehicles and hybrids weigh more because of how they are built. This means their passengers are less likely to be injured in a crash, as the added force is transferred to the lighter cars and the passengers in them.

In 2019, AmTrust began offering vehicle extended warranties on EVs that qualify, covering mechanical breakdowns and battery failures. The company said its data shows the average severity of claims on a vehicle service contract is around \$1,000, slightly higher than a gas or hybrid vehicle.

“When you think of parts that could potentially lead to higher total losses, it’s primarily the battery that could represent up to 50% of an EV’s price tag,” Amendola said. “The cost of battery repairs or replacements are still very high today, but we expect

those costs should come down over time as EVs and related parts become more available. Additionally, there is an abundance of sensor technology on EVs, which has been prevalent in the auto space since about 2014. While there has been more availability to sensor-related parts since then, newer technology and proprietary software seems to be continual in EV manufacturing, leading to higher cost related to parts replacement and repair labor. The cost of labor is especially difficult because a more skilled technician is performing EV repairs in a dealership, though that will lower with time, as well, with more EVs on the road and Right to Repair rules allowing independent shops to repair vehicles in the future.”

“Repairing a Tesla can be really expensive because of the way it’s built,” Schirmer noted. Tesla uses a Giga Press to create a car using just a few massive body pieces. Its Model Y, for example, replaces more than 70 rear pieces with one giant piece.

The issues will be exacerbated by the increased number of electric vehicles on the road. According to Cox Automotive, nearly 300,000 new electric vehicles were sold in the United States in the second quarter of 2023, with Tesla leading the way with 175,000.

This followed a year in which overall auto sales fell 8% in 2022, but the sales of electric vehicles increased 6%, led again by Tesla, with 65% of those sales, according to CCCIS.

California represents 40% of all U.S. EV sales since 2011, with San Francisco becoming the first U.S. region to hit a 50% EV adoption rate, CCCIS said. Outside of California, EV sales have been greatest in Florida, Texas, Washington, New York and New Jersey.

In its report *What is the future of electric cars?*, Progressive estimates that by 2030, 40% of all new auto sales could consist of electric vehicles, with that number reaching nearly 100% by 2050.

Sales are being fueled in part by up to \$7,500 in federal tax credits being offered to those who purchase new electric vehicles as part of the Inflation Reduction Act. The federal government also has set a target of 50% electric vehicle sales share by 2030.

Most analysts expect costs to come down as technology advances, CCCIS said. An increased focus on mass market solid-state batteries, broader use of lithium ferrophosphate batteries and significant improvement in battery recycling also should help, according to the CCCIS *Crash Course* report.



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Richard Attanasio
AM Best

Additionally, Tesla’s foray into the insurance world is leading to reduced costs around repairs, Tesla Chief Executive Officer Elon Musk said during the company’s fourth-quarter 2022 earnings call.

Most accidents are small, “like a broken fender or scratched side of the car,” Musk said, and the company didn’t realize this was an issue because it wasn’t footing the bill before launching its own insurance segment. The company ventured into the insurance realm because insurers didn’t understand how to do it, Musk said, and they were charging too much.

“It’s extremely expensive,” Musk said. “And of course, you’re missing the car that you love and the one you actually want to drive. So, this has actually a very significant effect on total cost of ownership and customer happiness.”

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Visit bestsreview.ambest.com to watch the AM Best webinar, *A Hard Collision With Profitability: The Impact of Current U.S. Auto Insurance Trends*.

Surge of Catalytic Converter Thefts Tied to Soaring Prices of Precious Metals

Best's Underwriting & Loss Control Resources offers insights into coverages and exposures for automobile and truck dismantlers.

A seemingly benign car part that helps reduce air pollution has become one of the hottest targets of thieves, thanks to a little-known component that has surged in value since 2018.

The popular commodities are catalytic converters, which neutralize harmful gases in engine exhaust that contribute to air pollution and smog and are bolted to the underside of cars or trucks as part of their exhaust system. They contain the precious metals rhodium, platinum and palladium, the most valuable of which is rhodium, whose value averaged \$2,052 an ounce in 2018 and by 2021 had shot to \$18,074 an ounce, the National Insurance Crime Bureau said in a presentation at the spring meeting of the National Council of Insurance Regulators. In 2022, according to the NICB, the price of rhodium dropped to \$14,310 an ounce.

Allstate Corp. said in May that catalytic converter replacements by policyholders jumped 1,155% nationally between 2019 and 2022 and by 6,400% or more in Oregon, Washington, Pennsylvania and Connecticut.

In 2022, there were more than 64,000 catalytic converter thefts nationally, according to the NICB. Insurance claims as a result of these thefts jumped to 64,701 last year, from 16,660 in 2020. Replacing stolen catalytic converters can cost between \$1,000 and \$3,500 or more, depending on the type of vehicle, the NICB said.

Right now, the impact on the insurance industry is small, but it can definitely be felt, said Robert Passmore, department vice president, personal lines for the American Property Casualty Insurance Association.

"Theft losses are a smaller number of overall comprehensive losses," Passmore said. "There are a lot more hail claims and glass claims and trees falling on cars than catalytic converter thefts, but [catalytic converter losses] tend to be pretty severe because it's not an inexpensive part, and usually there's some damage to the rest of the exhaust system that has to be replaced and repaired. Something that took a matter of minutes [to remove] can cost thousands of dollars to repair. Particularly on an older vehicle, you could end up totaling



a vehicle because of something like that."

State legislatures in 2019 began introducing bills aimed at combating thefts, many of which focused on regulating the sale of catalytic converters. The NICB's proposed legislation includes recordkeeping requirements. Pat Martin, NICB's general counsel, senior vice president and Board of Governors corporate secretary, told a subcommittee at the National Council of Insurance Legislators summer meeting that buyers should require validation documentation from potential sellers, including valid identification, proof of licensure and proof of where the catalytic converter came from.

Other aspects of the NICB's proposed legislation call for limiting who can buy and sell catalytic converters, establishing holding periods for sales and prohibiting cash transactions. Stamping of vehicle identification numbers also is suggested as part of the proposal.

In its report on automobile and truck dismantlers, Best's Underwriting & Loss Control Resources notes that salvage yards obtain vehicles for dismantling from vehicle auctions, insurance companies, public agencies (such as police and highway departments that pick up abandoned vehicles), towing services, charities that conduct vehicle donation programs, and the general public.

"It is important that the automobile and truck dismantler screen incoming vehicles and parts and maintain complete records (especially vehicle titles) to avoid being implicated in theft charges," according to the report.

Best's *Underwriting Reports* has identified several lines of coverage that involve underwriting for automobile and truck dismantlers: Automobile Liability; Automobile Physical Damage; General Liability: Premises and Operations; General Liability: Products - Completed Operations; Environmental Impairment Liability; Workers' Compensation; Crime; Property; Business Interruption; and Inland Marine.