

Hello RCAR members.

I am very pleased to see that we have contributions from 13 RCAR research centres to the January 2023 newsletter.

As usual, my contact for any feedback or questions is rmcdonald@rcar.org



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Use of digital traces in the AXA claims process

Since 2015, the Accident Research and Prevention department has been working intensively on obtaining and securing digital traces from accident vehicles. In the course of this time, we have been able to gain many insights into the possibilities and challenges of reading out these parameters. Currently, we are using the Bosch Crash Data Retrieval System to retrieve accident-related data. Of course, this detailed data collection can't be carried out for every single damage case, but only for those cases where a detailed damage assessment is necessary.



Example: Total loss case of a BMW M5

Use cases with financial impact

In principle, digital traces such as accident-dynamic 5-second data using Bosch CDR help to better understand the accident. In addition, greater legal certainty can be created in individual cases of damage. These digital traces (data) are also a great help in the detection of so-called speeding offenses. In Switzerland, these offenses are defined as crimes and are punished accordingly. Whoever commits such an offense in Switzerland (e.g. exceeding the speed limit within a city by more than 50 km/h) can be punished with a prison sentence of up to 4 years. In addition, the insurance company can completely refuse to compensate the vehicle involved in the accident.

In order to ensure the highest possible level of legal certainty for the customer and the insurance company in such extreme (speeding) cases, we also require the most accurate and valid data possible from the accident vehicle when processing these claims. By using the Bosch CDR Tool in combination with an in-depth accident analysis, we were able to make very good experiences with a positive financial impact on business.

Pre-Crash Data -5 to 0 sec (Record 2) - Table 1 of 2

Time (sec)	Speed, Vehicle Indicated (MPH [kmh])	Accelerat or Pedal (%)	Engine Throttle Position (Combustion Engine) (%)	Engine RPM (Combustion Engine) (RPM)	Engine RPM (Electric Engine 1) (RPM)	Steering Input (deg)	Turn Signal Switch Status	Service Brake Activation	ABS Activity	Stability Control
-5.0	81 [131]	0	18	4.032	Data Not Available	-14	Off, Neutral	On	No ABS Activity	ESC Deactivated by Driver
-4.5	80 [129]	0	19	4.032	Data Not Available	-20	Off, Neutral	Off	No ABS Activity	ESC Deactivated by Driver
-4.0	78 [125]	0	19	3.904	Data Not Available	-32	Off, Neutral	Off	No ABS Activity	ESC Deactivated by Driver
-3.5	75 [121]	0	18	3.778	Data Not Available	0	Off, Neutral	Off	No ABS Activity	ESC Deactivated by Driver
-3.0	73 [118]	0	18	3.584	Data Not Available	70	Off, Neutral	Off	No ABS Activity	ESC Deactivated by Driver
-2.5	70 [112]	0	18	3.392	Data Not Available	240	Off, Neutral	Off	No ABS Activity	ESC Deactivated by Driver
-2.0	68 [107]	0	17	2.880	Data Not Available	190	Off, Neutral	On	ABS Activity	ESC Deactivated by Driver
-1.5	61 [98]	0	16	2.432	Data Not Available	148	Off, Neutral	On	ABS Activity	ESC Deactivated by Driver
-1.0	49 [79]	0	39	1.088	Data Not Available	142	Both, Hazard Lamp	Off	ABS Activity	Invalid Data
-0.5	Invalid Data	Data Not Available	18	Data Not Available	Data Not Available	Invalid Data	Both, Hazard Lamp	Off	Data Not Available	Invalid Data
0.0	Invalid Data	Data Not Available	18	Data Not Available	Data Not Available	Invalid Data	Both, Hazard Lamp	Off	Data Not Available	Invalid Data

Example: 5 second Data from Bosch CDR



10th Allianz Motor Day: “Sustainability in motor insurance”

If the repair rate in Europe were to be increased by just 2 percentage points, around 30,000 tons of CO₂ emissions could be saved, equivalent to the annual energy consumption of 5,100 households. This is one of the key messages of the 10th Allianz Motor Day at the Allianz Center for Technology which took place last October and focused on various aspects of sustainability and the role of motor insurance in this context.

The Allianz Motor Day was held as a combination of an on-site event at the AZT and an online stream. In the first part, which was mainly addressed to the audience in Germany, first Frank Sommerfeld (CEO Allianz Versicherungs-AG) presented current developments in the field of electric mobility as well as insurance and services of Allianz for electric vehicles. Next, Dr. Lucie Bakker (Chief Claims Officer and Member of the Board of Management of Allianz-Versicherungs-AG) and Dr. Christoph Lauterwasser (Managing Director of AZT) presented approaches for sustainable claims management in motor insurance. The focus was particularly on the topic of "green repair" with the aspects of repair vs. replace and the opportunities of used spare parts in repair. As part of this, AZT presented selected results of a recent study on the carbon footprint of the replacement of certain vehicle parts compared to a suitable repair of these parts.



Selected results of the study “Repair vs. Replace”

*(Source: AZT & Oakdene Hollins / metsims; *These numbers are based on Germany, a conservative example. They differ marginally from country to country depending on the regional energy mix. **Using the compact class VW3 ID.3 as an example.)*

The second part of Allianz Motor Day was an international panel discussion, in which experts from the automotive industry and Allianz discussed various aspects of sustainability in motor insurance, existing solutions and projects, as well as future challenges. The panel discussion was followed by an exhibition in the outdoor area of the AZT, where the guests had the opportunity to inform themselves about topics such as e-mobility and new (sustainable) methods of vehicle repair.



Expert panel on the topic of "Sustainability in motor insurance"

Detailed information on the contents, a recording of the event and all press information can be found on the event page: [Allianz Motor Day 2022 | Allianz Deutschland \(techcast.cloud\)](#)

A short film to AZT's project "repair vs. replace" is available at AZT's Youtube channel: [Repair vs Replace - YouTube](#)

AZT Study on claims experience for high-voltage vehicles

An AZT analysis of market data (source: GDV) found a markedly different distribution of damage types over several years, sorted by drive type: relatively constant over time, the damage types theft and fire, flooding, etc. are clearly underrepresented for battery-electric passenger cars (BEV) compared to conventional vehicles. In contrast, collision costs dominate the claims expenditure for BEV with an MOD share of about 84 % compared to about 73 % for conventional vehicles. However, these data are highly aggregated and do not allow any detailed statements. Nevertheless, the market data show that the greatest levers for improving claims costs lie in collisions.

From the Allianz claims of the year 2021, a random sample of 400 MOD collision claims with BEVs was considered in detail. For comparison, 350 similar cases from a select until 2018 with purely conventional drives were available as a reference group. The reference group, however, represents an older population regards both, average age and year of manufacture. Like the cases examined in an earlier study in 2017, these 350 cases were adjusted for inflation on the basis of the claims cost development determined by the GDV for automotive repairs.

The average collision loss for BEVs is about 18 % higher than for ICEs in the reference group. The median is still 6 % higher, which clearly demonstrates the effects of expensive damage that can be seen in the claims.

The study found similar figures for damaged ultrasonic sensors in BEV and reference group, but more involved radar sensors for BEV and cameras only in the BEV claims. Interestingly BEV claims showed less cross members damaged than in the reference group while bumper fascia are damaged at a comparable level. This shows that accidents that can be addressed by front AEB are either avoided or mitigated, better than in the slightly older reference group.

However, parking and maneuvering is obviously not yet addressed by the OEMs, as claims don't show different characteristics for BEV and reference group. This is one important lever for improvements because parking and manoeuvring damage account for a significantly higher proportion of BEV's damage than in the reference group.

The study also unveils that a high portion of conventional cars was repaired in independent repair shops at lower prices than in branded repair shops. BEVs, however, are mostly repaired in branded repair shops, likely due to their low average age and lack of qualified independent repair shops. Moreover, in average the latter invoiced higher rates for BEV than for conventional cars.

A significant influence on repair costs is driven by the high voltage system. Whether it is about electronic components, charger ports or the battery itself, prices for such spare parts drive costs. The most important finding is that only one HV battery was affected by accident-related deformation of the vehicle's body, while all the rest was impacted from the underside. In 2% of the claims the battery was affected, but due to high replacement costs, this counts for about 7% of the collision losses. This situation is comparable to total theft, where few expensive losses can drive a model's type class and thus insurance premiums to the bad.

Major influences on the higher insurance losses are hence found in repair shop structures and prices, lack of P-AEB ADAS and very expensive damages to the HV system, often from the underside .

An abstract of the study will soon be available on the AZT website: [Topics at AZT - Allianz Zentrum für Technik \(azt-automotive.com\)](https://www.allianz-azt.com/en/topics-at-azt-allianz-zentrum-fur-technik-azt-automotive-com).



Typical example for damage to unprotected high voltage battery



Example for quarantine handling of high voltage vehicle

The Absence of spare parts make obligated to recover spare parts on the body shop

Now days there are a general problems with supply of spare parts by importers and car brands in Colombia, so much so that is common that spare parts of high demand be lacking in the collision to repair the vehicle. Spare parts like: headlights, hoods, bumpers, front and rear chassis legs, front panels and windscreen been lacking in our market. This lack of spare parts not only causes delays in giving the vehicle from body shop to customer, it also has a negative impact on the relationship between clients and insurance companies. This is because the customers not know of he parts supply difficulty, rand complain to government bodies demanding a solution, a soon solution to repair their vehicles, creating mistrust between clients and their insurance companies.

One example of this problem was when we started the repair process of a FORD BRONCO SPORT version BIG BEND 4x4. Tthis vehicle is built in Mexico with a cost of \$ 35.200 USD and this vehicle was biggest seller in our colombian market during 2021 and 2022.



After the crash test, and although the vehicle has crush cans with beam in front and rear, the rear chassis leg and rear panel had structural damage which resulted in the necessary replacement of rear panel. In the same way the right rear chassis leg had a damage after absorption of energy and it was decided it was necessary to also replace this part.

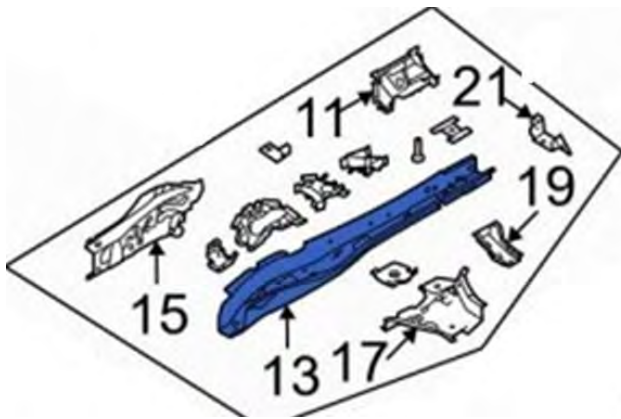


Damages on rear panel

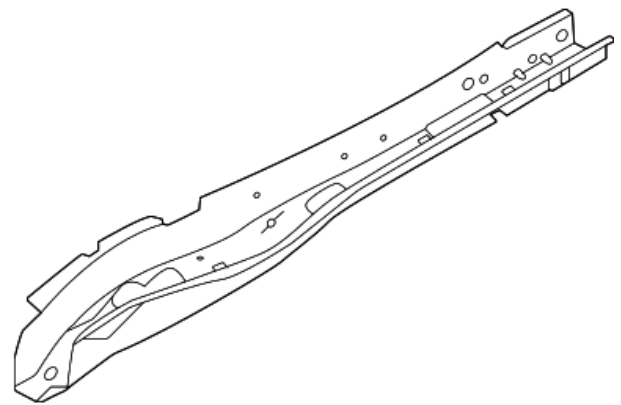


Damages on right rear chassis leg

To obtain the replacement parts we made request to the importer in our country, in this case Ford Motor of Colombia, who told us that right rear chassis leg not available and also would take many months to obtain. Making a timeline, the spare part was request 05/10/2022 however on 24/10/2022 the importer told us that that this piece was not available and also could not give a date. After many months wait ,the importer told us that is possible send the spare part from headquarters on 03/02/2023, with a estimate time of arrival to the country in another 15 days. Making the total time waiting for this part from we request to probable arrival of 95 days.



Attachment and accessories of rear chassis leg



Spare part

Considering the difficulties to obtain the spare part and the possible of this one take more time to arrive in our body shop, we decided to investigate the possibility of making a process to recover the rear chassis leg. Before to starting the repair, we analysed the experience of the technician, the equipments and tools and after that the technician started to make a stretching procedure and reforming the piece and the result was that the piece returned to its original shape and geometry and the chassis was stretched. The next pictures show the repair procedure.



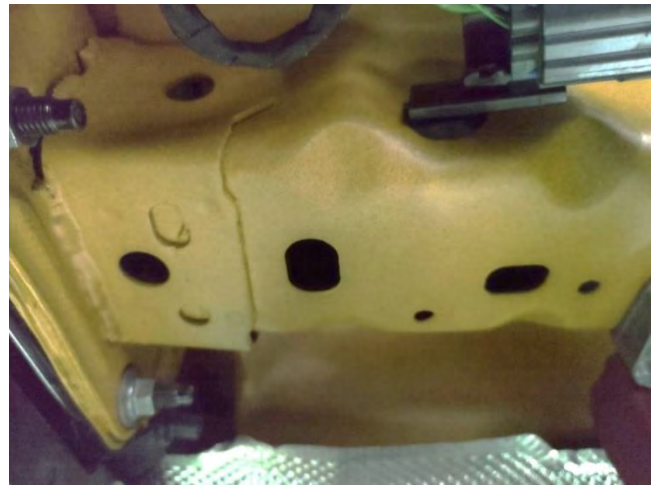
Stretch procedure



Conforming the piece



Recover the piece



Recover the piece

After of the recover the piece, we making a comparison between this process and the possible replace the rear chassis leg, in the next table we describe the differences between both processes, replacement and recover.

Cost to repair rear damage					
Operation	Replacement		Repair		Dif. %
	Hours	USD	Hours	USD	
Body repair	44.15	\$ 386.25	39.85	\$ 348.63	-9.7%
Painter	10.75	\$ 94.05	15.99	\$ 139.89	48.7%
Mechanic	9.94	\$ 86.96	9.94	\$ 86.96	0.0%
Total labour	64.84	\$ 567.26	65.78	\$ 575.48	1.4%
Spare part in body panel	-	\$ 1,514.43	-	\$ 1,204.99	-20.4%
Spare part in mechanic	-	\$ 440.12	-	\$ 440.12	0.0%
Total spare parts	-	\$ 1,954.55	-	\$ 1,645.11	-15.8%
Materials	-	\$ 76.88	-	\$ 80.51	4.7%
Other operations	-	\$ -	-	\$ -	0.0%
Total cost	-	\$ 2,598.69	-	\$ 2,301.10	-11.5%

Conclusions and findings

In the exercise to recover the piece, we find we could reduce the cost of repair and save money in this case around 11.5% (\$ 309.44 USD) and also make the operation profitable to repair the vehicle in time, reducing the stay in the body shop. However, it is necessary to take care with the repair criteria and recovery of parts, we do not wish to risk the safety of people just to try to reduce the cost of repair. There are standards that guarantee the possible repair of metal parts, for example, the parts should not have damage to crumple zones and also that there are no material breakages in the part.

The expertise of of the technician is the most important factor in making this repair procedure, because their skills, knowledge and the good practice with tools and devices to develop process, like stretching and conforming, guarantee to return the original shape of the piece. It is also important for the insurance company to make a proper negotiation with the body shop in order to pay a fair price for the labour of the technician.

The lack of spare parts and the high demand to repair the vehicle after the collision, produces negative points for body shops, insurance companies and heavily impacts the customer. Is not possible that a brand take a long time to send a spare part that is in high demand, in this example the time to receive the spare parts was 95 days and it was not was possible give good service to the client. Another aspect, is that the body shop have to keep an job area with a damaged vehicle without spare parts to repair, which affect their profitability.

Renueva Cesvi México su imagen corporativa

En un mundo en constante movimiento, CESVI MÉXICO (Centro de Experimentación y Seguridad Vial) ofrece una nueva propuesta de identidad visual, basada en la ciencia, la tecnología y el bienestar; con una dirección hacia el mañana, la creatividad y la innovación.



“Tras 26 años de operación, hemos tomado en cuenta los valores y talentos que nos han definido desde nuestra fundación, sabemos de dónde venimos y sabemos a dónde queremos llegar. Tenemos sólidos fundamentos y la vista puesta en el futuro, aspectos que nuestra propuesta ha considerado para refrescar nuestra imagen”, expresó Augusto Bagase Rejón, director general de CESVI MÉXICO.

El Directivo añadió que CESVI se está transformando para adaptarse a una sociedad digitalizada, altamente competitiva, con nuevas formas de comunicación y movilidad; prueba de ello es su nueva identidad visual, así como la remodelación de sus instalaciones centrales en Toluca.

“Conceptos como innovación, reparabilidad, tecnología, gestión y prevención del siniestro; investigación, conectividad, autonomía, procesos de calidad, una nueva oferta educativa, electromovilidad y por primera vez los temas de atención a víctimas, gastos médicos y salud son los temas que estamos integrando a nuestro nuevo ADN corporativo”.

Finalmente, Bagase Rejón dijo estar confiado en que como Centro de Experimentación seguirán generando nuevos negocios y servicios; con un enfoque disruptivo y de creación de soluciones asertivas para la industria automotriz.

CESVI MÉXICO compartirá próximamente su nuevo logotipo.

Cesvi Mexico renews its corporate image

In a world in constant movement, CESVI MÉXICO (Centro de Experimentación y Seguridad Vial) offers a new visual identity proposal, based on science, technology, and well-being, with a direction towards tomorrow, creativity and innovation.



“After 26 years of operation, we have considered the values and talents that have defined us since our foundation, we know where we come from, and we know where we want to go. We have solid foundations and our sights set on the future, aspects that our proposal has considered to refresh our image”, expressed Augusto Bagase Rejón, general director of CESVI MÉXICO.

The Director added that CESVI is being transformed to adapt to a digitalized, highly competitive society, with new forms of communication and mobility; proof of this is its new visual identity, as well as the remodeling of its central facilities in Toluca.

“Concepts such as innovation, repairability, technology, management and loss prevention; research, connectivity, autonomy, quality processes, a new educational offer, electromobility... issues that we are integrating into our new corporate DNA”.

Finally, Bagase Rejón said he was confident that as an Experimentation Center they will continue to generate new businesses and services, with a disruptive approach and creation of assertive solutions for the automotive industry.

Cesvi México analyzed pedicabs that will circulate in an important city

Cesvi México participated in the review process of prototypes of the pedicabs that will circulate in the center of one of the most important cities of the Mexican Republic, carrying out tests related to safety and resistance of materials.

Three Mexican manufacturers submitted their designs to the mobility authorities, which were exhaustively studied in terms of construction, resistance, operability, and occupant protection.

In particular, the specialists from Cesvi México studied the resistance of the joints, the weld seams, as well as the manufacturing elements.

In addition, dynamic tests were carried out to assess their behavior in different driving conditions and road surfaces, traveling with and without passengers.



“We conducted more than 60 test drives, documenting the behavior of each prototype, and sharing our observations with manufacturers to improve their designs. We trust that with our recommendations, the units are ready to offer a sustainable mobility service in the congested downtown area of the capital”, said Osiel Velázquez, Director of Operations of CESVI.

BATRAW and Second Life project: CESVIMAP, committed to sustainability

CESVIMAP takes part, with other 17 partners from 7 countries, in the BATRAW Project. This project, belonging to the Horizon Europe Program and financed with 10 million euros, promotes sustainability through the recycling of electric vehicle batteries.

BATRAW researches the feasibility of repairing electric vehicle batteries through CESVIMAP, who contributes with its experience in the disassembly, assembly and management of batteries. Also, giving support on how to face the total or partial repair of this core element in electric vehicles, promoting methodologies that extend their life.



BATRAW contemplates as well the reuse of batteries for a second life cycle and the recovery of their raw materials, mainly lithium, manganese, nickel, graphite and cobalt, which are scarcely available in the European Union. The objective is to reintegrate them into the manufacturing chain of new batteries to promote the sustainable growth of electric mobility in the coming years, both for pure electric vehicles and for hybrids or plug-in hybrids.

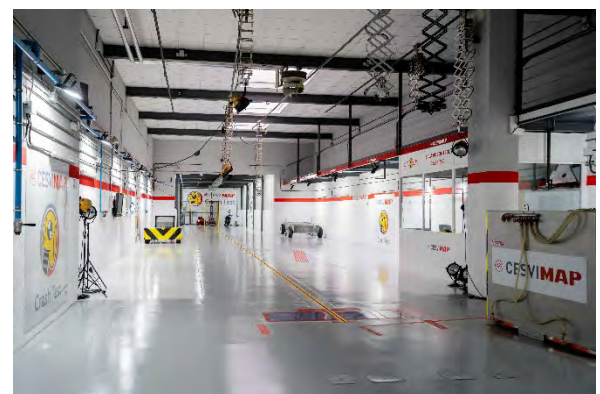
CESVIMAP contributes with the knowledge provided by CESVIrecambios, its Authorized End-of-Use Vehicle Treatment Center (CAT). This CAT collects the batteries from electric cars that are to be scrapped and, depending on their state of health (SOH), recovers them for their use in other vehicles or reuses them for a second life that requires less performance -if they no longer provide power for the traction of a vehicle-. For example, in battery packs that can be installed in an assistance vehicle, to provide a quick recharge for electric cars discharged in the urban center (areas normally defined as low emission zones, with narrow streets...). They can also be used as energy storage systems, in combination with clean renewable energy, solar panels, windmills, etc., in the most efficient way possible.

It is part of the commitment of CESVIMAP, and of the entire MAPFRE group: to reduce the ecological footprint that we can generate given our commitment to sustainability and the circular economy for more than 20 years.

Renovation of the CESVIMAP crash test area

The CESVIMAP crash test area has been completely renovated, updating with the latest technologies, one of the most relevant and representative areas of CESVIMAP's activity and reparability studies for RCAR.

The previous equipment was 30 years old and did not have the electronic controls and precision that current tests require. CESVIMAP has designed its renovation, carried out by the Spanish company Additium. The completely reformed towing system now enables the capacity to carry out tests of up to 45 km/h with the same test area length. To do this, and in order to prevent the cable from slipping during the launch of the vehicle, a dynamic tensioning station has been included.



The new control system has a hundred times greater precision and is much faster, avoiding, thanks to its computerized system, having to carry out various calibration speed tests beforehand. The slide rail has also been modified, having the its open rail been reduced from 22 cm to 2.5 cm; The goal is to test two-wheeled vehicles with the possibility of driving over the rail, without blocking by accident the wheel inside it.

The CESVIMAP crash test area is equipped with a recording system integrated into the ground, which will allow capturing videos and images of the structural deformations that occur during the crash. With them, possible bodywork solutions that improve repair processes will be better understood. This recording pit will provide the possibility of studying the behavior of electric battery packs in the event of an impact.

In short, we have built new capabilities and ease of use in a completely reliable installation that will allow the typology of tests of different types of vehicles to be expanded.

Training through artificial intelligence, AI, applied to the translation of videos for the USA and

Brazil

The “Yo Reparar” initiative is part of the MAPFRE 2022-2024 Sustainability Plan, which aims to promote the repair of plastic parts rather than their replacement. This methodology promotes ways of working that are more respectful with the environment, in line with the circular economy.

Vehicle appraisal and repair professionals in Spain, the United States and Brazil are trained in these techniques through the experience accumulated by CESVIMAP.

Our center has developed the required training in Spanish, and generated the translations into American English and Brazilian Portuguese through artificial intelligence, AI. This cognitive translation tool translates the language of the course and subtitles in English or Portuguese the videos that show the repair processes. This is a development carried out specifically for CESVIMAP by specialized start-ups, whose algorithms are improved by the CESVIMAP team with each translation carried out.

CESVIMAP is currently testing a new version of the AI tool, that goes un step beyond, introducing voice translation to videos, instead of subtitles.

The translation is therefore voice to voice. It uses the technology of neural voices, which imitate the human voice, including intonations and moods, and aspects such as the insertion of the air intake effect that a person does when breathing while reading.

The training for MAPFRE USA is called “*Repair vs Replace Knowledge and Awareness - 'I Repair Program'*”, while for MAPFRE Brazil it is “*Eu Reparar: Reparação de plásticos e anagramas*”.



Market Research on Auto Active Safety Functions in

China

In order to understand the situation of active safety devices in vehicles and promote the application of RCAR Parking AEB test procedure in China. CIRI investigated on the active safety functions in Chinese market. Based on this research, the Parking AEB Test Procedure will be launched at the China Insurance Auto Safety Index (C-IASI) in 2024.

Investigation

From vehicles brands, 39 vehicles brands selected from the top 50 brands in China market, and these 39 brands of market share is 90% from July 2021 to July 2022 .

From vehicles series, each brand randomly selects 1-2 car series, totally 58 car series. Including 9 high price cars (more than 300k RMB), 35 medium price vehicles (100k to 300k RMB), 4 low price vehicles (less than 100k RMB), 10 electric vehicles.

品牌名称	销量	市场份额	序号	选取车系	品牌名称	销量	市场份额	序号	选取车系	品牌名称	销量	市场份额	序号	选取车系
大众	2395412	10.22%	1	迈腾	哈弗	737740	3.15%	20	神兽	领克	206108	0.88%	40	领克03
			2	探岳X				21	H9				41	Aion V plus
			3	新帕萨特				22	X5				42	Z6 iDD
丰田	1862847	7.95%	4	凌尚	宝马	674767	2.88%	23	奔驰GLC	捷达	180809	0.77%	43	VS 7
			5	英仕派				24	奔驰S系				44	VS 5
本田	1608916	6.87%	6	雅阁	奔驰	611978	2.61%	25	A7L	捷途	164324	0.70%	45	X 95
			7	型格				26	A6				46	XC60
比亚迪	1283748	5.48%	8	汉	奥迪	600664	2.56%	27	Q5	沃尔沃	161087	0.69%	47	K 5
五菱汽车	1172457	5%	9	新宝骏RC-6				28	Model 3				48	智跑
吉利	1101436	4.70%	10	星瑞	特斯拉	557077	2.38%	29	Model Y	马自达	147418	0.63%	49	CX-30
			11	新缤越	名爵	489180	2.09%	30	全新MG5				50	P7
长安	1012986	4.32%	12	UNI-V	荣威	396727	1.69%	31	RX5e PLUS	小鹏汽车	147151	0.63%	51	G3i
			13	轩逸 电驱版	广汽传祺	374866	1.60%	32	影豹				52	理想ONE
日产	993904	4.24%	14	第14代轩逸	红旗	306672	1.31%	33	HS7	哪吒汽车	125738	0.54%	53	哪吒U-pro
			15	新一代奇骏	雪佛兰	293439	1.25%	34	H5				54	新宝骏RC-5W
别克	835580	3.57%	16	君越GS	现代	289254	1.23%	35	开拓者	宝骏	112311	0.48%	55	ES8
			17	微蓝	福特	284084	1.21%	36	新一代名图				56	ET7
奇瑞	801427	3.42%	18	瑞虎7PRO	凯迪拉克	218456	0.93%	37	锐界	蔚来	109247	0.47%	57	几何A
			19	瑞虎8PRO	福特	284084	1.21%	38	蒙迪欧				58	C6
										合计	21088079	90.00%		

Vehicle types in chinses market

Overview of vehicle active safety and Parking AEB

In China, the active safety equipment includes millimeter wave radars, ultrasonic radars, and cameras, the number and locations of the sensors are different on vehicles, and the most of radars are distributed at the left, middle and right sides of the bumpers. The cameras distributed at the front windshield 1-3 and rear license plate. Cameras are also distributed on the left and right door pillars of Tesla and under the left and right reversing mirrors of BMW.

In China, Low-speed active safety functions include front collision warning, front AEB, rear collision warning, rear AEB, brake assist, front lateral warning, front lateral active braking, rear lateral warning, rear lateral active braking, blind zone monitoring, low-speed following, automatic parking, parking collision warning, side collision warning, rear vehicle approaching assistance, pedestrian identification, safe exit warning, obstacle sensing speed limit.

- The applicable speed of each function are different, there are lower than 4 km/h, but most of cars need higher than 5 km/h.
- The most of high price and medium price vehicles equipped with forward and backward collision warning, emergency active braking and blind zone monitoring. The most of high price vehicles and a part of medium price vehicles are equipped with front and rear lateral early warning and active braking. Tesla, BYD, Geely and other brands only have forward collision warning and forward active braking,

without backward and lateral.

- Rear vehicle approaching assistance, pedestrian identification, and safe exit warning are only available for some vehicles.

Estimate the proportion of new vehicle sales of various active safety device models in China

- The proportion of vehicles with FCW and AEB at front and rear and side is about 88%;
- Active safety function with speed below 10km/h accounts for about 80%;
- Active safety function with vehicle speed below 5km/h accounts for about 10%;
- About 70% of them have automatic parking function;
- About 90% of them have parking assist function;
- About 10% of them have the function of congestion assist mode (low speed following).



Influence of the age of the car fleet on accidents", a study carried out by Fundación Línea Directa in collaboration with Centro Zaragoza

Fundación Línea Directa has carried out a study, in collaboration with Centro Zaragoza, which reveals that 16.2 million vehicles older than 15 years are already circulating in Spain, 44% of the fleet. According to the study, the Spanish car fleet has become obsolete. Specifically, 16.2 million vehicles (44%) are older than 15 years and 22.9 million (66%) more than a decade old.

In addition, registrations plummeted by 35% in the last 3 years, making the Spanish park one of the oldest in the countries of our environment, since in 2021 it reached an average age of 13.5 years. It is not a minor detail the fact that the age of the Spanish park has a full impact on road safety, since, in the last decade, almost 2,700 people died in accidents with cars older than 15 years. In addition, the percentage of cars over 15 years that were involved in fatal accidents increased 3 times, from 15% to 44%. Taking into account the lethality of vehicles, according to their age, it is estimated that, if the average age of Spanish cars were reduced below 10 years, 260 lives could be saved annually.



On the other hand, Spanish citizens also fail to pass the test on maintenance of their vehicles. Around 50% of the cars that pass the mandatory Technical Inspection had defects in the first inspection and 1 in 5 had serious or very serious deficiencies. The lack of awareness and the effects of the economic crisis are worrisome: in 2021, 40% of all vehicles that should have passed the TI did not. In addition, the average expenditure of families on car maintenance fell by 20% in the last decade. Finally, the study concludes that Extremadura, Castilla-La Mancha and Castilla-León lead the ranking of the oldest vehicles, while on the opposite side are the Community of Madrid, Catalonia and the Balearic Islands.

Download full presentation of the study in Spanish: [presentación del estudio](#)

Centro Zaragoza involved in a project for developing an automatic system of vehicle disinfection and deodorization

This project arises from the need to guarantee the disinfection and deodorization of shared use vehicles before new users access them. It is funded by the Spanish Ministry of Industry, and developed by Centro Zaragoza in cooperation with other important companies related to the automobile and logistics in our region.

The system being developed in this project will be applicable, not only in shared use vehicles, such as car sharing or fleets, but also in goods transport vehicles belonging to fleets, as well as in different means of public transport, such as urban buses, trams, subway, etc., at their end of line, when they have a short period of time (a few minutes) in which there are no passengers on board vehicles.



There are different cleaning systems that could be automated, such as the application of ultraviolet light or ozone inside vehicles, however, these have not proven their effectiveness with scientific evidence. In the case of ultraviolet light because it does not reach numerous 'shadow areas', in rooms with complex shapes, and in the case of ozone because very high concentrations are required to ensure proper disinfection, which are not easily achievable with low-cost equipment and, if reached, constitute a serious danger to people. Disinfection by applying biocidal products authorized by the Ministry of Health, in spray or nebulized in the environment and on the surfaces to be disinfected, has been chosen as the best option, as it is the simplest method and most proven effectiveness.

As for the technology used to create the misting of the disinfectant product, it is an adaptation of technologies applied to firefighting, by pressurized water, in the engine compartment of coaches. It is, therefore, to carry out new experimental developments that would allow to transfer the existing knowledge on automated fire detection and extinguishing systems, using pressure tanks and water misting systems with extinguishing agents, to this new application, for vehicle disinfection purposes.

New crash test spotlights lagging protection for rear passengers

The Insurance Institute for Highway Safety (IIHS) recently updated its longest-running crash test, the moderate overlap front evaluation, to address a growing gap in the protection provided for front and rear occupants.

“Thanks to automakers’ improvements, drivers in most vehicles are nearly 50 percent less likely to be killed in a frontal crash today than they were 25 years ago,” says IIHS President David Harkey. “Our updated test is a challenge to manufacturers to bring those same benefits to the back seat.”



In December, IIHS released the first results. Two out of 15 small SUVs, the Ford Escape and Volvo XC40, earn a good rating. Nine vehicles rate poor.

The Toyota RAV4 earns an acceptable rating, and the Audi Q3, Nissan Rogue and Subaru Forester are rated marginal. Another nine vehicles — the Buick Encore, Chevrolet Equinox, Honda CR-V, Honda HR-V, Hyundai Tucson, Jeep Compass, Jeep Renegade, Mazda CX-5 and Mitsubishi Eclipse Cross — are rated poor.

In the original moderate overlap frontal test, launched in 1995, a vehicle travels at 40 mph toward a barrier with a deformable face made of aluminum honeycomb. A Hybrid III dummy representing an average-size man is in the driver seat. Forty percent of the total width of the vehicle strikes the barrier on the driver side.

The new test incorporates a second Hybrid III dummy representing a small woman or 12-year-old child positioned in the second row behind the driver and utilizes new metrics that focus on the injuries most frequently seen in rear-seat occupants.

Not long ago, passengers seated in the rear were substantially less likely to be killed in a frontal offset crash than the driver or front-seat passenger because the biggest factor in survival was the crumpling of the front of the occupant compartment. Now, though, there is barely any deformation of the occupant compartment in the moderate overlap test. In addition, automakers have added airbags and advanced seat belts in the front seats but not often in the rear.

For more information, visit <https://go.iihs.org/news-new-test>.

HLDI finds driver assistance bundles reduce claims

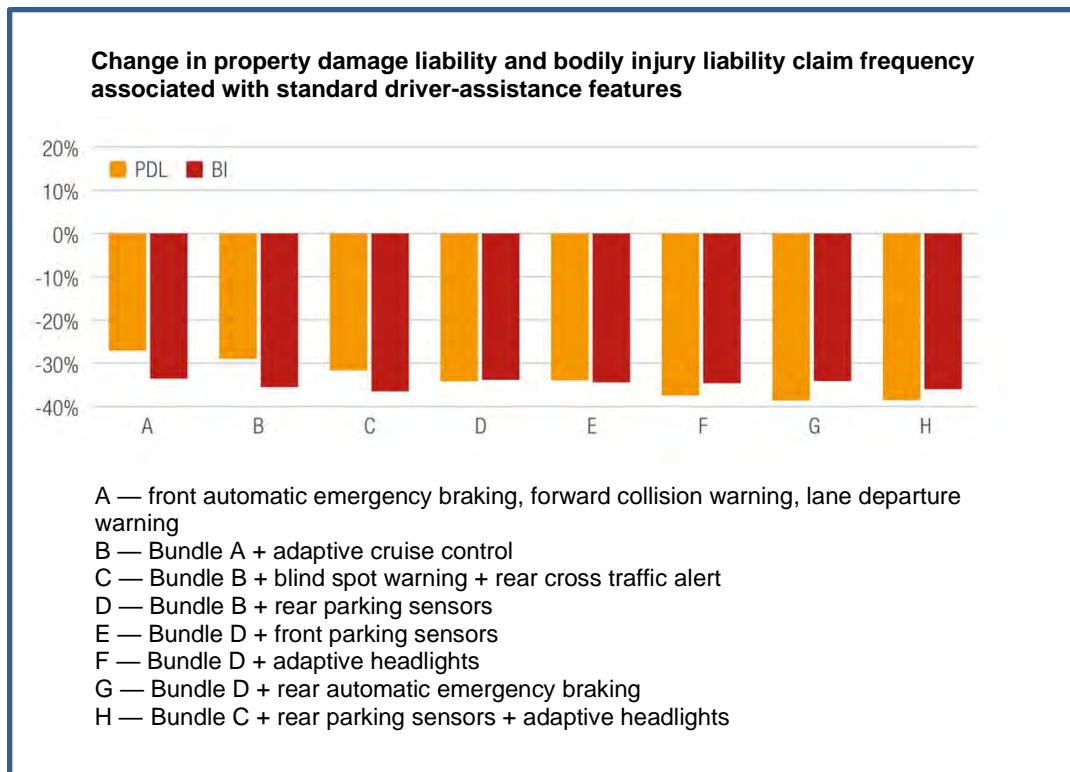
Driver assistance bundles that include automatic emergency braking and other features significantly reduce rates of all types of insurance claims, a new report from the Highway Loss Data Institute (HLDI) shows. Bundles with more features tend to see larger benefits.

HLDI has been evaluating the effect of driver assistance systems on insurance losses since 2009. Most of the studies look at features individually. However, the features are often packaged in bundles and many of them can be

IIHS-HLDI is excited to be your host for the 2023 RCAR Annual Meeting in Washington, D.C., on Sept. 10-14. Keep an eye out for a save-the-date email with more details to help you plan your trip.

relevant to the same crash. The latest study looks at how common combinations of features work in vehicles from model years 2017-22.

The most basic bundle type evaluated in the new study contains front automatic emergency braking, forward collision warning and lane departure warning. The other seven include various combinations of features on top of those three. HLDI looked at how losses compare for vehicles with the bundles compared with the same vehicles without them.



For the study, HLDI relied on engine-level feature data that it has collected since the 2017 model year. While a vehicle model may have many trim levels and packages available, information about equipped features is more certain when gathered for each engine type of a given model and trim.

To request the full HLDI report, “Analysis of driver-assistance-feature bundles using engine-level feature data,” email researchpapers@iihs.org.

Few vehicles excel in new nighttime test of pedestrian autobrake

IIHS has begun conducting tests of pedestrian automatic emergency braking (AEB) systems after dark to address the large numbers of pedestrian fatalities that occur at night. Four of the first 23 midsize cars, midsize SUVs and small pickups tested earn the highest rating of superior, but more than half earn a basic score or no credit.

“As we expected, most of these pedestrian AEB systems don’t work very well in the dark,” Harkey says. “But it’s clear automakers can rise to this new challenge, as Ford, Nissan and Toyota each earn superior ratings for some models.”

The Ford Mustang Mach-E, Nissan Pathfinder, Toyota Camry and Toyota Highlander earn superior ratings. Seven more vehicles — the Honda Accord, Hyundai Palisade, Hyundai Sonata, Nissan Frontier, Nissan Murano, Subaru Ascent and Subaru Outback — earn advanced ratings. Eight others — the Chevrolet Traverse, Ford Explorer, Ford Maverick, Ford Ranger, Mazda CX-9, Volkswagen Atlas, Volkswagen Atlas Cross Sport and Volkswagen Tiguan — earn basic scores. The systems in the



Chevrolet Malibu, Honda Pilot, Nissan Altima and Toyota Tacoma don't perform well enough in the dark to earn any credit.

In the daylight test, 19 of those 23 vehicles earn superior or advanced ratings.

IIHS introduced the daytime vehicle-to-pedestrian evaluation in 2019 and made an advanced or superior rating a requirement for a *TOP SAFETY PICK* or *TOP SAFETY PICK+* award in 2020.

Today, the feature is available on nearly 9 out of 10

new models that IIHS evaluates, and half of the systems tested earn superior ratings in daylight conditions.

Three-quarters of pedestrian fatalities in the U.S. occur at night. A recent IIHS study found that the pedestrian AEB slashed pedestrian crashes by more than a quarter overall for equipped vehicles. However, there was no difference in crash risk for equipped and unequipped vehicles at night on unlit roads.

For more information, visit <https://go.iihs.org/news-night-pedestrian-aeb>.

Generali Jeniot launch “NEXT”: the first insurance black box with tolling system and >30 services available!

Motorway tolling payment liberalization in Italy opened the market, with several new comers trying to enter the market and contend a slice of a 200 mio€ market per year.

Generali Italia and Generali Jeniot, the dedicated IoT service company of Generali Group, decided to compete in this segment by launching an innovative product with unique selling proposition, named “NEXT”, designed in collaboration with Telepass (ie: market leader in motorway tolling payment in Italy), composed by:

- **Motor insurance product** (MTPL, MOD, Assistance, automatic reimbursement of tolling in case of delay in motorway)
- **Telematics black box services** (e/bcall, crash report, driving style monitoring, real time coaching, digital services)
- **Tolling payment in UE, mobility payment** (congestion tax, parking, fuel) **through voice interaction**

Tolling and telematics services are enabled via a an innovative (patented) IoT in-vehicle device, which will be the sole and only in the market to combine both in a unique piece of hardware.

NEXT is a windshield-type black box and requires professional installation. On the front it has multicolor LEDs used for feedback on driving behavior, as well as a microphone and speaker for emergency calls and voice interaction.

the solution integrates state of the art 4G communication, to exchange data and real time crash alerts, GPS and tri-axial accelerometer for location and accident reconstruction, DSRC antenna for automatic toll barriers access.

NEXT was **co-developed at the Innovation and Testing Center** of Generali Jeniot in Pero (Milan), through various test sessions using JADA (Jeniot Accelerometer-based Device Assessor) robotic system and road driving validating reliability of recordings, functionalities and data transmission, and criteria (accelerometric thresholds, event duration, etc.) to define the driving style were properly defined.

The new product is distributed on exclusivity base through Generali Italy agents, the roll out was completed in the first half of 2022,

The initiative positions Generali Italy as a leading innovative player in the market. It also provides customers with best in class value added services (payment, tolling, telematics services) through a bundle proposition with greatest value for money in the market. Next was awarded in 2022 as best innovative product by SMAU (largest exhibition in Italy dedicated to technology and communication) and best open innovation – mobility product by Insurance Connect Award 2022

Demo video: <https://youtu.be/ydOG1EQA7U8>



The black box Next installed on the vehicle's windscreen



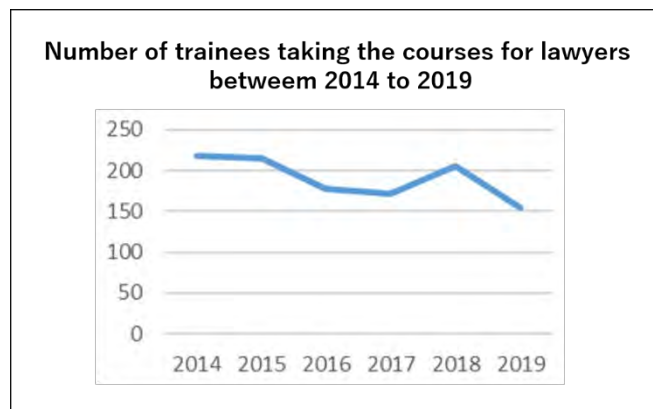
Introduction of training courses for lawyers

JKC has provided a special training course for lawyers working with insurance companies since 1999. The cooperation between the loss adjusters and the lawyers is important for settlement of traffic accident. Therefore, it is necessary for the lawyers to have basic knowledge about automotive engineering.

This training provides the lawyers with knowledge about the structure and functions of automobiles and how to calculate automobile repair costs. Besides the lawyers can have an opportunity to consider causal relationships between accidents and damages by observing vehicle collision tests. They can also learn how to investigate fraudulent auto claims by comparing actual vehicle damages and fake ones.



In ordinary years, we train about 150 to 220 lawyers every year but we had to cancel the special training courses in 2020 and 2021 due to Covid-19. Fortunately, we were able to restart the courses from April 2022.



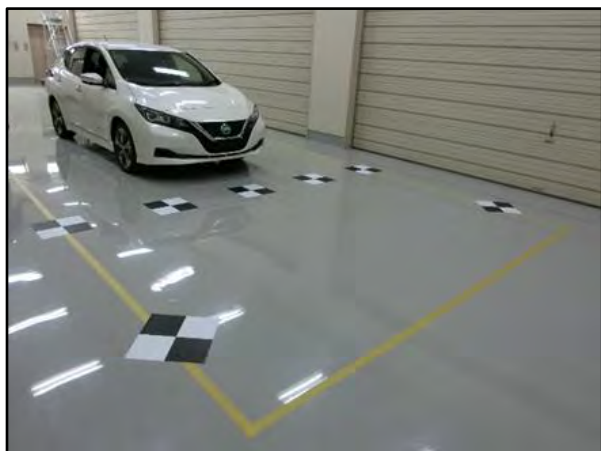
We received many positive responses from the lawyers who attended the courses, such as “I was able to understand the vehicle structure well by observing the actual repairing processes.” and “It should be very helpful for my legal practice.” JKC is planning to open new high-level courses for the lawyers from April 2023. Lawyers can learn advanced knowledge such as analytical skills of more complex fraud cases and methods of estimating the vehicle speed in collision, and so on.

Developing New Standard Repair Times for ADAS Reconfiguration Procedures

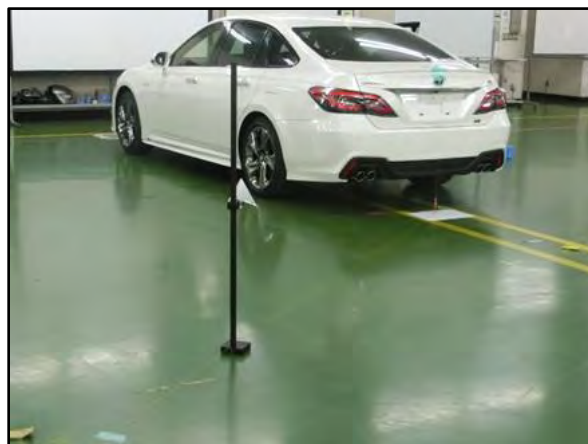
A few years ago in Japan, it became mandatory to install Advanced Driver-Assistance Systems (ADAS) to new car models. Therefore, the opportunities for car repair shops to handle ADAS are increasing. Since 2021, we began developing and publishing the ADAS reconfiguration time to meet the needs of auto insurance companies and repair shops.

In the second half of 2021, we completed making the reconfiguration time for three types of sensors; Ultrasonic Wave Sensor, Front Camera, and Front Radar, which all play an important function of braking systems. (Please refer to the RCAR Newsletter in January 2022. https://www.rcar.org/images/newsletters/RCAR_Newsletter_January_2022.pdf) In the first half of 2022, we then newly added reconfiguration time for two types of sensors; Omnidirectional Camera and Blind Spot Monitor.

Main functions of these two newly added sensors are as below.



Omnidirectional Camera is used for advanced parking assistance.



Blind Spot Monitor provides warnings when another car is in the driver's blind spot.

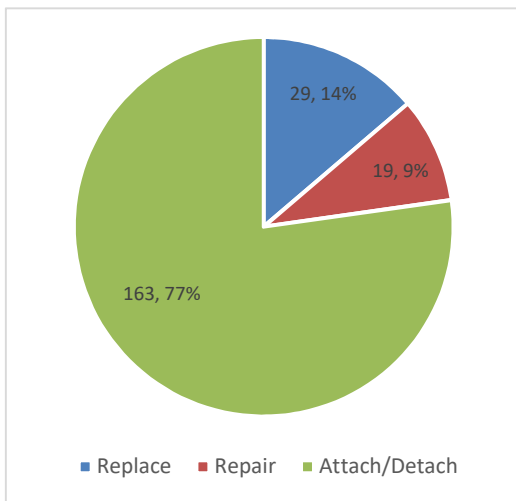
When we were developing these reconfiguration times, we faced difficulties to define the standard processes for ADAS reconfiguration procedures because the ones indicated in the repair manuals were different with each car manufacturer. Therefore, JKC read every repair manual carefully to understand the various ADAS reconfiguration procedures.

By developing these new repair times, we were able to establish ADAS reconfiguration times for all major types of sensors used in the Japanese auto market. We strongly hope that they will become well accepted in the auto insurance & repair market.

JKC will continue to research new automotive technologies and share useful repair time information with all interested parties.

Electric Vehicle Accident type Analysis

In order to find electric vehicle accident types with a high probability of damage to the electric vehicle high-voltage battery, repair cost estimate and photos were analyzed. 211 passenger electric vehicle(Kona, Niro, Ionic4, EV6 etc.) and 48 electric commercial 1-ton truck accidents in which high-voltage batteries were replaced, repaired, or detached/attached were reviewed.















In passenger vehicles, 29(14%) were replacement cases. Most of repair cases were to replace the battery lower cover. General Repair shops seemed to have hard time with repairing the battery itself due to the lack of work technics and equipment although BMS, cells, modules are supplied from some manufacturers. The table below shows the number and rate of cases in which high-voltage batteries were replaced, removed (detached/attached), or repaired. Rear part damaged cases took up the largest portion. Next came frontal damages (55 cases, 26%), and side and floor damages (19 cases, 9%). In the external floor damage accident, replacement cases were the highest (14 cases, 74%) because the battery often tend to be damaged by curbs or objects on the road due to lower minimum road clearance of electric vehicles than it of engine vehicles.

Damaged area	Front	Side	Rear	Floor	Total
Total cases(rate)	54(26%)	19(9%)	119(56%)	19(9%)	211(100%)
Replacement(rate)	6(13%)	1(11%)	8(7%)	14(74%)	29(15%)
Removal or Repair	48	18	111	5	182

In commercial trucks, there were 10(21%) replacement cases. Battery cover replacement due to scratches were 24(50%) cases. The table below shows the number and rate of cases in which high-voltage batteries were replaced, removed (detached/attached), or repaired. Side parts were damaged cases accounted for 48%. Next came frontal damages(13cases, 27%), external floor damages(11cases, 23%), rear damage(1case, 2%). Side crash accidents caused battery damages frequently as the side part of battery is exposed to the outside. Rear-end crash caused the battery damage in a lower probability as the battery was far away from the rear. In floor damage cases, the rate of replacement was highest. There were some cases foreign objects bounced by the front wheel damaged the front part of batteries.

Damaged area	Front	Side	Rear	Floor	Total
Total cases(rate)	13(27%)	23(48%)	1(2%)	11(23%)	48(100%)
Replacement(rate)	1(13%)	3(11%)	-	6(55%)	10(21%)
Removal or Repair	9	2	1	2	14
Cover Replacement	3	18	-	3	24

< Photos by accident type of high voltage battery replacement/removal >

	High-voltage battery replacement		high voltage battery removal (detaching/attaching)
	Vehicle photo	Battery photo	
Front			
Side			
Rear			
Floor			

MRC Malaysia, Malaysia's Best Automotive Training, Analysis & Data Center

MRC Malaysia has been awarded the “Malaysia’s Best Automotive Training, Analysis & Data Centre” in the recent Malaysia Education & TVET (Technical and Vocational Education and Training) Awards 2022 (MET Awards). This prestigious awards ceremony was held on October 20, 2022 at Mandarin Oriental Kuala Lumpur, organised by the Education+TVET Asia.

The awards were meant to be from the industry, by the industry and presented to the industry’s outstanding and deserving institutions and businesses. Total of 60 education institutions and professionals recognised for their outstanding leadership and achievements in the industry.



Directors of MRC Malaysia, Dato' Haji Mohd Fadzli Yusof (far right) and Salmi Nadia Dato' Sri Mohd Hilmey (second from right), HeiTech Padu's Head of Core 2, Ahmad Jefri Abdul Rashid (far left), Chief Executive Officer of MRC Malaysia, Steve Miller (third from right) and Chief Operating Officer of MRC Malaysia, Suzana Mohamad (fourth from right).

Education+TVET Asia, an approved publication by the Ministry of Home Affairs of Malaysia, is a unique publication that features the best in education, training, TVET and service providers to the industry. It covers the industry's personalities, institutions and trends with highly informative content.

The inaugural awards ceremony is organised to honour outstanding SME education institutions, the best TVET institutions and boutique education service providers in Malaysia. The event is envisaged to be an annual affair in the region's education events calendar.



Left: MRC Academy training workshop. Right: MRC Academy training classroom.

The awards criteria included leadership, productivity, innovativeness, sustainability, brand excellence, programme excellence, service excellence, product excellence and new start-up excellence. The panel of judges consisting of education and training professionals plus media professionals chose the winners.

The ceremony was officiated by Hajah Zanariah Haji Ahmad, Director of the Technical and Vocational Education Training (TVET) Division, Ministry of Education. MRC Malaysia was represented by Steve Miller, Chief Executive Officer of MRC Malaysia who received the award from Hajah Zanariah Haji Ahmad. It was also attended by Directors of MRC Malaysia, Dato' Haji Mohd Fadzli Yusof and Salmi Nadia Dato' Sri Mohd Hilmey, HeiTech Padu's Head of Core 2, Ahmad Jefri Abdul Rashid and Chief Operating Officer of MRC Malaysia, Suzana Mohamad.



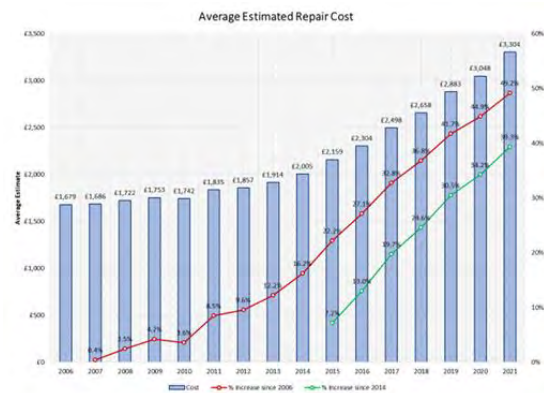
Damage and Repair: A decade of vehicle changes

The vehicle repair market has changed significantly over the last decade, impacted by factors including changing damage and repair cost trends, inflationary impacts, and a skills shortage of repair technicians.

Thatcham Research's Insight & Intelligence Team have explored these via analysis of 30 million vehicle repair estimates, to support our insurer Members as they anticipate challenges in their claims processes, and engage in ongoing pricing decisions. This is a milestone report, not only providing an all-encompassing assessment of the individual estimate elements, but also offering us the first chance to study the influence of BEVs (Battery Electric Vehicles) in repair cost trends.

The principal themes identified are:

1. UK car parc is changing and de-homogenising – increase in vehicle mix of types and powertrains
2. Overall repair costs have maintained an upward trend over the last decade
3. BEVs not a main influencing factor in increasing repair costs (not yet representative or of comparable age to internal combustion engines)
4. Additional vehicle technology and hardware adding to costs
5. Compounded effect of increases in all repair elements (parts, labour and paint)



Average Estimated Repair Cost 2006-2021

Our main findings are as follows:

- Since 2014 repair costs have been outstripping inflation: in 2021, the average repair estimate c. £950 higher than inflation
- This is primarily not due to non-vehicle factors; instead, it is mainly due to rising paint costs (e.g. raw materials and other elements), parts costs (e.g. headlamps), and 'additional costs' (e.g. ADAS calibration etc)
- BEV related costs not consistent across manufacturers
- Total average repair cost has increased by c. £1,000 since 2006

At Thatcham Research we are committed to providing unrivalled insights into the damage and repair sector. The full report is available exclusively to our Members, but if you would like further information, or would like to discuss data sharing, please contact Anca Young, Insight & Intelligence Manager.

Are Modern Day Headlamps Repairable?

Vehicle lighting has improved drastically over the last 20 years. Computer-controlled, fully automated, matrix headlamps can now be standard fitment on many high-end luxury vehicles and are becoming a popular fitment option on most mid-range vehicles. This potentially leads to lower-end, cheaper vehicles fitted with more expensive headlamps, meaning they are found more frequently across the car parc. This poses a new problem for the insurer, repair, and consumer markets.

With the increase in lighting technology, there has followed a steep increase in part cost. It is important to consider headlight repair vs replacement, from both a financial and sustainability perspective.

Replaceable Lenses and Brackets

With repairability and sustainability in mind, it is critical to the automotive ecosystem that parts can be repaired.

Many Vehicle Manufacturers have created headlamp brackets, that are designed to fail in an impact. Our investigation focussed on the top 10 selling manufacturers in the UK in 2021 with their respective selling models. Of the 31 cars studied, 65% had replaceable mounting brackets.

Toyota has gone one step further. The RAV4 and BZ4x are designed with replaceable headlamp lenses. This is a feature not commonly seen in the modern-day automotive industry. Genesis has continued this trend with their 2022 GV60 model.

This is a significant step in the right direction and insurers, repairers, vehicle damage assessors, and consumers should be made aware that their vehicles may have this as an option.



VW Golf headlamp price evolution

Green Parts with an Eye on Sustainability

The quality of second-hand “Green Parts” has notably increased over the years. Consumers and insurers should be given the option to use green parts as an alternative repair solution.

Certified VRA (Vehicle Recyclers Association) suppliers can provide high-quality, suitable part replacements that have the added benefit of reducing waste and carbon emissions.

Insurance and Identifying Repairs

Thatcham Research will be publishing a headlamp repair guide, accessible to the wider audience via eScribe. The guide will provide the process to identify damage, create an appropriate repair plan and consider environmental and safety implications associated with headlamps.

MDaK (Mobile Device as Key)

MDaK or Mobile Device as Key, is the name that Thatcham Research uses to describe the technology where devices such as mobile phones, tablets, and wearables are used to lock, unlock, or start the vehicle. This technology will become more mainstream in the next few years, eventually it is expected the digital key will lead to the phasing out of physical keys.

With a digital key stored on a mobile device the locking and unlocking of the vehicle would be possible by offering the phone to the door handle or pressing the door handle whilst the device is on your person (in a similar way to how keyless entry and start works today) by utilising the Near Field Communication (NFC) chip in the device.

Manufacturers are offering this technology as a convenience function designed to extend the normal functionality of keyless technology into mobile devices, opening new possibilities that weren't feasible for physical keys. One additional functionality of MDaK, is the possibility to share a copy of your key with another device, for example a repair centre fixing your vehicle or digitally sending a key to a friend's phone if they need to borrow your car.

It is important to understand that this is relatively new technology and as well as the benefits to consumers, it may present risks to insurers. Thatcham Research has worked closely with vehicle manufacturers, insurers, and AZT to understand this technology and has added MDaK assessment as a section of our New Vehicle Security Assessment to inform our members of the risks and benefits each system will bring.

Thatcham's requirements include proof of ownership and identification when enrolling onto the MDaK system to ensure a known admin user has full responsibility for shared digital keys, ensuring that any digital keys that are shared can also be rescinded to ensure that third parties no longer have access to or use of the vehicle. In addition, all key sharing and revocation must be tracked and, where requested, made available to the insurer to support a claim.



Mobile phone unlocking a vehicle