June 2022 NEWSLETTER

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From the Secretary General

Hello RCAR members.

For this June 2022 newsletter, we have 14 contributions from 9 RCAR research centres on a wide range of topics.

Please note the Cesvi Mexico article that announces the retirement of Angel Martinez as General Manager of RCAR member Cesvi Mexico. Ángel has led Cesvi Mexico since they joined RCAR 24 years ago and has been a strong supporter of the aims of this organisation. His achievements are listed in this newsletter. We wish him well and welcome the new General Manager of Cesvi Mexico, Augusto Rejón.

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

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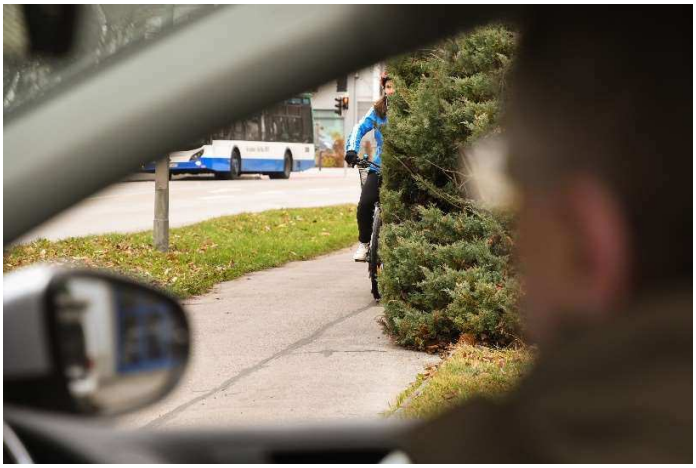
New AZT study on two-wheelers safety

March 2022, AZT released a new study on bicycle-, motorcycle- and e-scooter traffic safety. Neither bicycles' nor motorcycles' accident figures can be satisfactory, when comparing with two-track-vehicles. With WHO, one in three road fatalities wordwide is a two-wheel-vehice driver. With the Global Burden of Disease Project, nearly one in two non fatal road injured is one. AZT went for deeper insight into the problem by running a representative survey on bicyclists' behaviors in Germany and Switzerland (N=1700), by in-depth accident analyses of Allianz claims, involving bicyclists (N=500) and motorcycles (N=500), and by screenig the federal and international statistics.

Figures are, at least, not encouraging: Trends of two-wheelers' fatalities and severly injuries are falling increasingly behind the common trend (for all modes of traffic). The motorcyclists' rate of severely injured per all casualties shows, for Germany, a terryfying progress, as to rising, against all trends (cave: keep in mind an increasingly confusing use of wording, casualty here to understand: all injured plus dead persons). Any motorcyle accident, single crash or crash with second party, is to become more and more worse in terms of injury severity. AZT found that technical must-haves, such as anti-lock-braking-systems, were in just one of three accident-involved motorcycles.

Since all cyclists' single accident rates are over average, active and passive safety measures are urgently to get further promotion. AZT speakes in favor for a mandatory bicycle-helmet law for electro-bicycles and for children up to age 14, using any bicycle. AZT could calculate the head-injury in Germany to be significantly more likely in accident-involved cyclists without helmets – and, by the way, in bicyclists, head injuries are significantly more often the reason for death, as they are in pedestrians. A further interesting result of the report is the statistical proof that bicyclists' distraction by ear-phones/ ear-plugs or by bicycle navigator-displays are related to a higher bicyclists' accident-risk.

The full report in German language is to download from AZT homepage Zweiradsicherheit im Überblick - Themen - Allianz Zentrum für Technik (azt-automotive.com)



Most common traffic conflicts for bicyclists are crossing scenarios with motorvehicles – here, utmost dangerous, the sidewalk is free for use for bicyclists, sometimes in both directions on the same side, additionally, visual obstructions hinder to secure the "leaving-the-parkinglot-exit"-maneuver. Modern ADAS are in progress to address this challenging situations with emergency braking (Image by AZT/ Martin Grimme)

AVEAS – Automated driving project launched successfully

With the first overall workshop in Karlsruhe in April, the AVEAS (*Acquisition, Analysis and Simulation of Traffic Situations for AD Safety Assurance*) project is now officially under way after more than two years of planning and preparation. Until the end of 2024, the project, which is funded by the German Federal Ministry for Economics and Climate Action (BMWK), will collect real data for the virtual testing of automated driving functions in critical situations: Data on human driving behavior via sensor-equipped vehicles, infrastructure sensors and aircrafts; data on challenging sensor conditions; and data on human-machine interaction in VR trial studies, which will serve as the basis for generating models and methods for virtual validation.

Further points of interest are the transition of responsibility for the dynamic driving task (DDT) between human and automated vehicles, i.e. the risks involved in handover and intervention scenarios, as well as the challenges of environment perception and understanding by automated vehicles.

Therefore partners like dSPACE, Continental, PTV Group, Allianz Center for Technology (AZT), Karlsruhe Institute of Technology (KIT), as well as several Fraunhofer institutes are collaborating in the project led by understand.ai. It has a budget of €10 million, including €6.2 million in funding from the BMWK. The project is supported, among others, by the associated partners TÜV SÜD, ADAC and Karlsruhe Police Department, as well as by the project sponsor TÜV Rheinland.

The Allianz Center for Technology contributes to the project by defining critical driving situations and accident scenarios based on existing and new accident databases. Motor insurance claims are analysed to find accident hotspots and thereby identify relevant locations for stationary sensor measurement. In addition AZT is participating in the development of an efficiently searchable real-world database of critical driving situations. Eventually AZT will evaluate the degree of realism of the simulation models according to findings from accident research. Furthermore it will rate the overall solution from the perspective of the insurance industry and from the perspective of accident reconstruction.

For more information on the AVEAS project please visit: https://aveas.open-set.org/index.php/de/

AVEAS Logo

Updating of the Safety Index survey method

The Safety Index (IS) is a study that determines with certainty the level of safety equipment in a vehicle. The procedure consists of evaluating the units in our experimentation laboratory, carrying out an exhaustive survey of the safety equipment in all aspects as a whole and its result in the crash tests carried out by other centers. The evaluation method has to be as permanent and constant as the technological progress is.That is why a renewal, update and implementation of new fields of analysis was carried out.

The new system has 223 items that are considered according to their influence on security, divided into two main groups: Passive and Acticve Safety

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PASSIVE SAFETY

1- Supplementary retention systems

At this point, 34 items are surveyed where the protagonists/centers of attention are the equipment of supplementary restraint systems such as seat belts, airbag systems and related elements.

2- Structural behavior

Structural effectiveness in absorbing impact energy is crucial for the protection of vehicle occupants. Modern construction techniques together with the use of various compound materials have made the passengers compartments very safe structures. The continuous progress in this aspect allows us to measure and compare the structures taking into account certain parameters that we show in the analysis. 37 items of the set of elements that make it up are evaluated.

3- Complementary passive safety systems

Technological progress has made it necessary to incorporate new passive safety systems into the analysis matrix, such as post-collision systems and electrical protections with the progress of hybrid and electrical technology. They have become a strong pillar that adds 10 new items for this part of the analysis.

4- CRASH TEST

Even though the safety index carried out at CESVI ARGENTINA contemplated the crash tests, it was decided to directly highlight the results of these tests carried out by the most prestigious centers in the world. The idea is to encourage terminals to carry out these impact tests and users to take them into account when defining the purchase of a brand new car

ACTIVE SAFETY

1- Dynamic systems

Nowadays, advances in electronics applied to the car have become a common thing. As an Experimentation Center we remain at the forefront to detect and value all those systems that have the capacity to save lives. A total of 48 items are analyzed at this stage of the procedure.

2- Preventive security / ADAS

The new IS analysis process incorporates the survey of 30 items of advanced driver assistance systems that autonomously help make the vehicle safer.

3- Complementary active safety systems

In this section, 38 items are evaluated with elements and systems that do not directly influence driving, but that are a vital complement to others that are important, such as mirrors, fixing systems, safety locks and electric windows

4- Comfort systems

Comfort also influences safe driving and this is shown in this section taking into account 23 items, such as the air conditioning system that provides great assistance to improve driving conditions and consequently to avoid collisions.

The Safety Index developed by CESVI ARGENTINA is used to determine the level of safety of the vehicles sold in the local market and as a result to be able to reward the Safest Cars in each segment every year. The objective is to highlight the car companies that strive to raise the safety standards of vehicles from their most economic versions.

Safety index until 2020

Passive safety: 34%
Active safety: 26%
Structural behaviour: 30%
Assistance to driving: 10%
Total analized items: 168

NEW Safety Index / NEW categories

Passive Safety: 52%	**Active Safety: 48%**
Supplemetary restraint systems	Dynamic systems
Structural behavious	Preventive Safety/ ADAS
Systems of complementary passive safety	System of active complementary safety
Crash test	Comfort systems
Total of items analized: 223	

Replacing high voltage batteries on Ford Escape Hybrid (Ford Kuga)

The high voltage batteries in the hybrid vehicle Ford Escape are elements of high vulnerability due to their location under the floor. These situation has caused damages on the battery pieces like aluminum cover and high-voltage cables by rocks or other elements on the road that could hit the battery. The trouble is that the aluminum cover doesn't sale as spare part, also the importer of the vehicle suggest the replacement of the battery because the repair of this element isn't within warranty terms. This situation has increased the cost in claims to insurance comapanies.

In Colombia, the Ford Escape Hybrid SUV, made in the United States, has represented sales equivalent to 1% (1,929 units) of the total light passenger vehicles sold in 2021 and ranked fifth among the most popular hybrid and electric vehicles sold. Additionally, taking information from five insurance companies in the country, it was found that in 2021 and 2022, in 4.6% of the registered claims of these vehicles, it was necessary to replace the entire high-voltage battery.

An example of this problem, CESVI Colombia inspected a high-voltage battery of the Ford Escape, which was replaced due to damage on the cover aluminium where we found damages on crack and loss of material in the lower cover. When inspecting the interior of the battery and the electrical components such as the battery modules, it was found that:

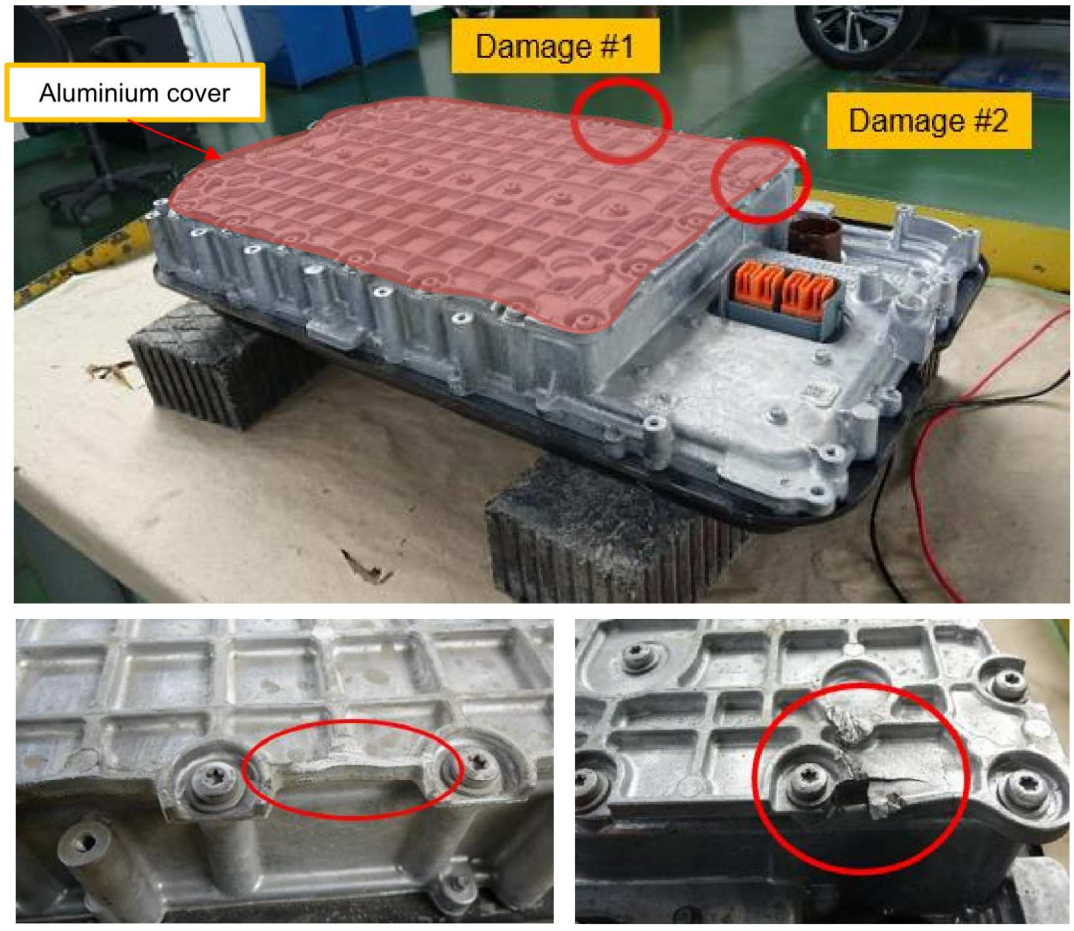


Figure 1. Damage in the battery: external visual inspection

- ✓ The gasket that guarantees the sealing of the element is in optimal condition and there are'nt deformation in the internal part of the housing that protects the battery packs.
- ✓ The area on which the gasket rests was not affected or deformed.
- ✓ Contactors (normally open), fuses and precharge resistance (continuity verified) in perfect functional condition.
- ✓ Battery management unit shows no damage in its housing or cover.
- ✓ Battery voltage measure within optimal range (219.9V total and 109.7V for each battery pack).

Figure 2. Internal visual inspection, gasket in good condition (left) and condition checking of high voltage components (right)

According to the findings, the battery is optimal state and work. However, the replacement was necessary, due to warranty conditions by the importer.

Other aspect of we research was that high voltage battery are too near of the ground and the floor's vehicle is higher than the battery, so the battery is vulnerable to damages to elements on the way.

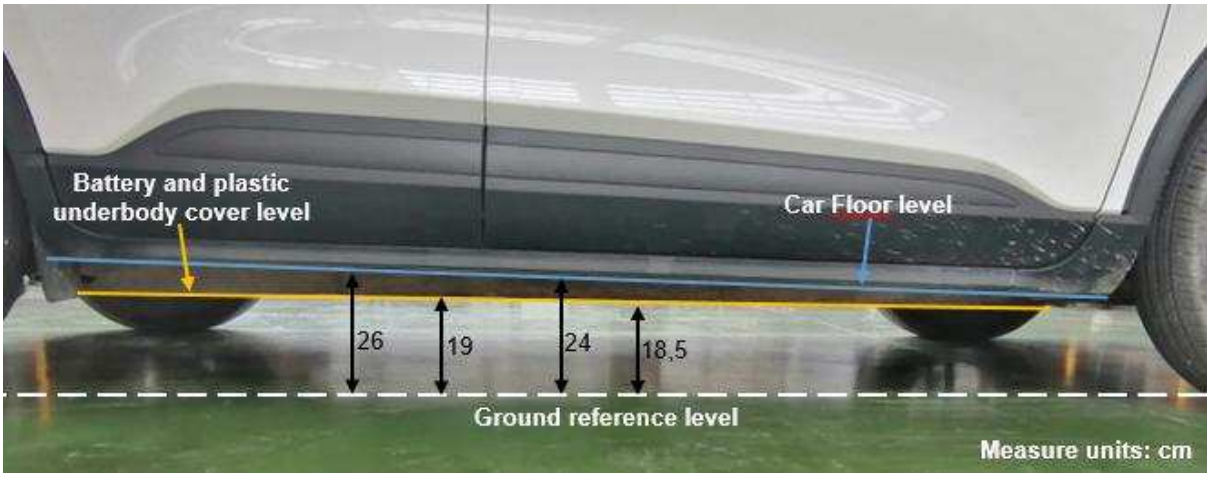


Figure 3. Exposure level of high voltage battery in Ford Escape (Kuga) Hybrid

Finally, in order to reduce this type of incident and due to the vulnerability of the battery as shown in the image, CESVI Colombia, suggesting that components of the aluminum housing and aluminium cover shoud be supplied by the manufacturer like spare part, also we suggest the installation of an underbody metal shield that provides greater protection to the high voltage assembly, especially in markets such as Colombia, where the geographical conditions and the state of the roads increase the probability of damage to high voltage batteries.

We have had meetings with the importer to explain this problem, however they don't give us an answer from the manufacturer, so at the moment bodyshops are replacing the entire high voltage battery as spare part.

CESVIMAP in the spotlight at Global Mobility Call, the 2022 1st Sustainable Mobility Trade Fair in Spain

The first trade fair for sustainable mobility in Spain, Global Mobility Call, took place from 14-16th June. MAPFRE, the only insurance company present at the event, enjoyed resounding success there, thanks to a stand showing the most relevant advances achieved at CESVIMAP.

The insurance company's R+D centre showed off the most recent innovation projects it's carrying out research into. With these projects, it has first-hand knowledge of future mobility lines and can advise MAPFRE about new products and services designed for its clients.

Mobility is at the service of human beings, in the words of MAPFRE's president, Antonio Huertas, in his speech given at the plenary on the last day of the event. These new types of mobility offer numerous opportunities for different businesses, although there are also risks and threats to be borne in mind, and about which CESVIMAP is likewise conducting research, such as cybersecurity.

Current trends, such as electric cars and scooters, come alongside future lines of business; of particular note among these lines are the reuse of electric car batteries, where the car has been written off, and self-driving. When it comes to recycling, CESVIrecambios is the circular economy centre that MAPFRE created in 2004 for the recovery of parts from end-of-life vehicles. One of those parts, of greatest relevance in electric vehicles, is the battery. And CESVIMAP has already developed a project to give a second life to electric batteries, which ensures respect for our planet, and which places us at the top level of recycling for this type of components. As for self-driving, it has spent 4 years developing this research, alongside the University of Carlos III and INSIA, a research center belonging to the Polytechnic University of Madrid. It has already been awarded second prize at the 2019 Dubai World Congress for Self-Driving Competition. Since then, the vehicle has been improved with more and better sensors and with more advanced algorithm programming. In this way it will soon be possible to give a demonstration of self-driving in Avila, where politicians and journalists will be able to have their first trip in a driverless car.

MAPFRE has been innovating for four decades through its R+D centre, CESVIMAP, analysing all the types of mobility available for people and their impact on sustainability

The stand was visited by the third Vice President of the Government, Teresa Ribero, by the Minister for Industry, Reyes Maroto, by the Minister for Transport, Raquel Sánchez, and by the Mayor of Madrid, José Luis Martínez Almeida. The government authorities showed great interest in gaining deeper knowledge of all the projects and developments which place MAPFRE at the forefront of sustainable mobility.

CESVIMAP creates a bumper for electric scooters

Current urban mobility has given rise to the appearance, in a very short time and on a massive scale, of electric scooters, known as personal mobility devices (PMDs). The problems deriving from their use, along with their special features, have led to a speedy reaction from MAPFRE which, through the MAPFRE Foundation and CESVIMAP, is conducting in-depth research into these devices.

The technical analysis of scooters and of the injuries produced in accidents has enabled the design of a registered system, universally applicable to any scooter, with the function of absorbing part of the energy produced in these accidents; this will minimise injuries to the rider or the passenger who has been hit. This innovation in urban micro-mobility has been recognised by the Spanish Patent and Trademark Office (OEPM/SPTO).

CESVIMAP's invention provides scooters with a bumper, manufactured in deformable thermoplastic, which acts both as a passive safety system in the event of an accident or a crash, whether the impact is to the vehicle or to the pedestrian and as a locked bag to keep the helmet when not in use. If there is a collision, the front bumper functions to absorb energy, and thus transmit less impact energy to the rider or the pedestrian who has been hit, reducing injuries.

CESVIMAP's research staff had previously tried out the ESN E-scooter Safety & Security Bumper successfully in computerised simulations using software, as a first stage. Currently, we are improving the first prototypes and using them in crash tests to check that the device reduces injuries to riders and pedestrians in the event of a crash.

CESVIMAP trains the Toyota España dealership network

CESVIMAP has set up a training programme for Toyota España; the purpose is to enable its network of dealerships to specialize in a career development programme designed jointly by the two companies.

To start the programme, CESVIMAP has conducted an evaluation of Toyota's technical competencies as a brand, deriving from its dealership network. Subjects such as the correct identification and repair of plastics, MAG and spot welding and window replacement were the focal points in order to pass level 1 as a *Bodywork Technician.*

But the career scheme means passing three levels, as part of a training programme which relies on the research experience of CESVIMAP in bodywork; know-how obtained shall prove the quality of the brand's technicians, to optimise the repair shops' profitability.

Theoretical and practical training, offered both in person and on-line, will mean that, once completed, the Toyota España dealership network will be specialised in the new materials used in manufacturing and repair, and in new bonding systems; all of this is as a result of the brand's interest in offering the best possible training to its dealership network's technicians.

Once they have completed the career development programme, the dealerships will will be able to display the Technical Masters in Bodywork certificate.

Angel Martínez passes the leadership of Cesvi Mexico

Dear members of RCAR, we inform you that after 26 years in the general management of Cesvi Mexico, Ángel Joaquín Martínez Álvarez, has retired after having successfull directed the Mexican Experimentation Center, to which he imprinted a human and professional stamp.

Under his management, Cesvi established itself as the point of reference in topics of research and development of products and services for automotive repair, claim management, and accident prevention, with the noble objective of saving lives.

During his management, nearly 200 impact tests were carried out, the concepts of repair tabulators were introduced to Mexico; 18 editions of Expo Cesvi were organized; The VINPLUS vehicle identification and value system were developed and adopted by companies and governments. The CMX:2009 Body and Paint Best Practices Standard also stands as one of its legacies for repair shops. He collaborated on the arrival of Audatex in the country, and in terms of technical training, around 50 thousand people received training under his 26-year tutelage, despite the Covid-19 pandemic.

As far as road safety is concerned, during his administration more than 7,000 expert opinions of traffic accidents were performed; more than 12,000 drivers were trained; more than 300 companies with a vehicle fleet were diagnosed; more than 300 consultancies for the reduction of road risks were given. As an organizational milestone, the first certification in the ISO 39001:2012 standard was achieved, and later it was accredited in the ISO 39001:2015 update.

Reconstructions of traffic accidents, road safety consultancies, and certifications for bodyshops in Mexico and Latin America, among other topics, have been marked with the signature of engineer Martínez.

The new director who will head the company has 20 years of experience in the insurance sector, both in Mexico and abroad. Augusto Bagase Rejón has assumed the position of general manager as of Monday, May 16, to respond to current challenges and with the vision of continuing to generate innovation and technology, to promote best practices in the insurance, repair, and transportation sectors. transportation and safe mobility.

Centro Zaragoza joins Renault in a strategic governmental project on the Electric and Connected Vehicle

This is a Strategic Project for Economic Recovery and Transformation (PERTE) which aims to transform Spain into a leader in sustainable mobility.

Renault Spain is leading an innovative project for the creation of an industrial ecosystem focused on the manufacture of electric and connected vehicles, gathering 31 initiatives related to decarbonisation, connectivity and mobility as a service.

For this purpose, half a hundred partners that are members of the group of companies led by Renault have submitted a tractor project to the PERTE call for proposals. These companies cover all areas of the future industrial ecosystem, technology companies, clean energy, circular economy, services, vehicle manufacturing, components and batteries. There are also universities and technology centres, promoting public-private collaboration. Among these, Centro Zaragoza, which participates in various activities related to the sustainable design of electric and connected vehicles.

This project will be led by Renault España S.A., a company with 5 factories, 600 network points and 25,000 employees in Spain, and will mean preparing both the Spanish plants and the entire industrial and knowledge ecosystem for the future. Its start-up will cover the integral transformation of the automobile value chain.

Centro Zaragoza's experience in research projects, as well as in the development of innovative products and services in the automotive sector, will provide value to this large consortium, led by Renault, contributing to making Spain a world leader in sustainable and connected mobility.

Centro Zaragoza celebrates the 30th anniversary of the creation of the Traffic Accidents Research Department

On the 2nd of June, the 30th anniversary of the creation of the Traffic Accident Research Department was celebrated at Centro Zaragoza's facilities, where a monument in honour of the victims of traffic accidents was inaugurated.

The event was attended by the highest representatives of public administrations, institutions and national bodies involved in road safety and road accident victims, such as: Spanish Government Delegation in Aragon, Town Council, State Security Forces and Corps, Justice of Aragon, General Directorate of Traffic, the main Associations helping those affected by road accidents, as well as other organizations committed to safe mobility.

After the different interventions by the representatives of the aforementioned public administrations and organisations, the monument in honour of the victims of traffic accidents was inaugurated. Mr. Carlos Arregui, General Director of Centro Zaragoza, took the floor first, giving way to Ms. Rosa Serrano, delegate of the Spanish Government in Aragon, who was in charge of discover the monument.After that, a manifesto for the victims of road accidents was read out, followed by a minute's silence as a gesture of respect for the victims.

The common message of all participants in this event is to pay a sincere tribute to all road accident victims. The aim is to join forces to reduce the number of road accidents to achieve zero fatalities or serious injuries.

IIHS eyes higher-speed test for automatic emergency braking

The Insurance Institute for Highway Safety (IIHS) has worked for years to encourage manufacturers to equip their vehicles with automatic emergency braking (AEB). Now that nearly every new vehicle comes with the feature, the organization is looking for ways to push for better systems that can prevent more severe front-to-rear crashes.

Through its ratings of front crash prevention systems and an industry commitment it helped facilitate, IIHS sought to make AEB systems virtually universal. This goal has been achieved. Under the voluntary commitment brokered by IIHS and the National Highway Traffic Safety Administration, 12 out of 20 major automobile manufacturers equipped nearly all the light vehicles they produce for the U.S. market with AEB last year — well ahead of the September 2022 target.

The technology is already slashing crash rates by as much as half for vehicles equipped with it. However, the test that IIHS uses to evaluate AEB systems only represents a slim fraction of the rear-end crashes AEB is designed to mitigate, a new IIHS study shows.

“Thankfully, in the real world, AEB systems are preventing crashes at higher speeds than the maximum 25 mph our test program uses,” says IIHS Senior Research Scientist David Kidd, the author of the new paper. “The problem is that our current evaluation doesn’t tell us how well specific systems perform at those speeds.”

IIHS introduced the vehicle-to-vehicle front crash prevention evaluation in 2013. The Institute is dropping the test from the award criteria next year, though vehicle-to-pedestrian tests will still be required. Kidd’s study is the first step in determining whether the vehicle-to-vehicle test should be replaced and, if so, with what.

The soon-to-be-obsolete evaluation simulates front-to-rear crashes in which a vehicle approaches another vehicle stopped in the road. The test is conducted at both 12 and 25 mph. When the test program was being developed, the goal was to promote the adoption of functional front crash prevention systems, and research tests showed that those that performed best at 12 and 25 mph also did best at higher speeds.

In the new study, Kidd found that only 3 percent of police-reported rear-end crashes happen at such low speed limits. Increasing the speed of the IIHS test to 35-45 mph would make it relevant to more than 10 times as many police-reported rear-end crashes, he found. Expanding it to gauge a system’s ability to mitigate crashes with motorcycles and large trucks would also greatly increase the evaluation’s relevance to fatal crashes.

Based on Kidd's findings, IIHS plans to conduct research tests on six vehicles equipped with different front crash prevention systems at speeds up to 45 mph. Tests will also be conducted using different types of passenger vehicles and other vehicles like a motorcycle and various sizes of trucks as the stationary vehicle.

Information on advanced features is less likely to reach used car buyers

Advanced driver assistance features can only make driving safer if drivers trust them enough to use them, and that trust appears likely to wane as vehicles move into the secondhand market.

IIHS commissioned a survey of drivers who owned 2016-19 models equipped with advanced driver assistance features. The respondents included owners who bought their vehicles new and others who bought them used.

"Used car buyers were substantially less likely than new car buyers to know about the advanced driver assistance features present on their vehicles," says IIHS Senior Research Scientist Ian Reagan. "They were also less likely to be able to describe how those features work, and they had less trust in them."

The survey asked about three proven crash avoidance technologies — forward collision warning with AEB, lane departure warning and blind spot warning — and also about adaptive cruise control, a convenience feature that may have some safety benefits.

The survey identified a gap in knowledge between new car buyers and used car buyers. For instance, 84 percent of new car buyers knew their vehicle was equipped with blind spot warning, compared with only 72 percent of used car buyers. Similarly, 77 percent of new car buyers could accurately describe what lane departure warning does, compared with 66 percent of used car buyers.

Whether they bought their vehicle new or used, the more buyers knew about the features the more they trusted them.

Many SUVs struggle in first IIHS seat belt reminder evaluations

New ratings from IIHS aim to push manufacturers to improve their seat belt reminders.

Federal standards require an audible signal that lasts for 4-8 seconds total and a visual alert that lasts at least 60 seconds whenever the driver's seat belt is unbuckled. However, previous IIHS research has shown that more noticeable and persistent alerts could increase belt use among those who do not routinely buckle up by as much as 34 percent, preventing an estimated 1,500 fatalities a year.

To earn a good rating from IIHS, a seat belt reminder system must generate an audible signal and visual alert when the vehicle is moving at least 6 mph and the system detects an unbelted occupant in one of the front-row seating positions or the unfastening of a second-row belt that was previously buckled. The audible alert must be loud enough to be heard over the background noise in the vehicle cabin. If the seat belt of an occupied front-row seat remains unbuckled, the visual and audible reminders must last at least 90 seconds.

If a previously fastened second-row belt is unbuckled, the reminders must last at least 30 seconds. A visual indicator that appears when the driver starts the vehicle is also required for the second row.

A majority of small and midsize SUVs evaluated by IIHS for belt reminders fail to earn a good or acceptable rating. Most of the shortcomings had to do with duration or sound level. Simple software adjustments could help in many cases.

Seat belt reminder ratings for small and midsize SUVs

		2nd row reminder	
	Rating	Available?	Meets IIHS requirements?
2022 Subaru Ascent	G	✓	✓
2021-22 Subaru Forester	G	✓	✓
2022 Hyundai Palisade	A	✓	✗
2022 Hyundai Tucson	A	✗	✗
2021-22 Nissan Murano	A	✗	✗
2022 Nissan Pathfinder	A	✓	✗
2021-22 Nissan Rogue	A	✓	✗
2021-22 Jeep Compass	M	✗	✗
2021-22 Jeep Renegade	M	✗	✗
2022 Jeep Wrangler (hard top)	M	✗	✗
2021-22 Mazda CX-5	M	✓	✗
2021-22 Mazda CX-9	M	✓	✗
2022 Toyota Highlander	M	✓	✗
2021-22 Toyota RAV4	M	✓	✗
2021-22 Audi Q3	P	✗	✗
2021-22 Buick Encore	P	✗	✗
2021-22 Chevrolet Equinox	P	✗	✗
2022 Chevrolet Traverse	P	✗	✗
2021-22 Ford Escape	P	✓	✗
2022 Ford Explorer	P	✓	✗
2021-22 Honda CR-V	P	✗	✗
2021-22 Honda HR-V	P	✗	✗
2022 Honda Pilot	P	✗	✗
2022 Mitsubishi Eclipse Cross	P	✗	✗
2022 Volkswagen Atlas	P	✗	✗
2021-22 Volvo XC40	P	✓	✗

For more information, visit https://www.iihs.org/news.

Further Aftermarket ADAS Calibration Equipment Evaluations

Similar to previous studies carried out by IAG's Research Centre we set out to further our understanding and experience in ADAS calibrations, trialling additional brands and their equipment. These Brands being Autel and Launch.

Separate weeks of testing were conducted for each of the brands at Sydney Motorsport Park. It was planned to use the very same vehicles across both brands of aftermarket equipment, however, due to availability of the vehicles, we were only able to obtain one of the same vehicles for the multiple weeks of testing.

The Vehicles

The models of vehicle that were used for Autel testing are the Mazda CX-30, Mitsubishi Eclipse Cross and the Toyota Corolla Hybrid.

For the Launch testing, the vehicles are the Mazda CX-9, Mitsubishi Eclipse Cross and the Kia Niro.

Types Of Calibration Trialled

Calibrations were conducted on both the forward-facing cameras and forward-facing radar sensors only. These required a variety of calibration methods based on the vehicle manufacturer's requirements and were, static camera calibration, dynamic camera calibration, static radar calibration and dynamic radar calibration.

We are operating under the assumption that if the aforementioned calibrations were conducted without any issues created within the vehicles and that the vehicles are returned to OEM specifications and functionality, that we can be confident in the performance of the calibration equipment for other methods of calibration.

Testing Procedure

Prior to any calibrations a datum test was conducted for Autonomous Emergency Braking (AEB) operation (on track testing) and similarly for Adaptive Cruise Control (ACC), Lane Departure Warning (LDW) and Lane Keep Assist (LKA) (on road testing).

Calibrations were conducted three times per sensor per vehicle and on road / on track tests were carried out following each single calibration.

Findings

There were some difficulties faced with the Mazda CX-30 and the Mazda CX-9 vehicles themselves, these were to do with not cycling the ignition for the Mazda CX-30 causing ADAS systems not to operate post calibration and the CX-9 being stuck in dynamic calibration mode after a technician accidentally cancelled the calibration on the diagnostic tool. Both were intricacies of the vehicle and not at all a problem with the calibration tools.

Overall, for the calibration equipment trialled, all worked well returning all vehicles back to OEM specification and operation. As a result, we are now able to utilise these pieces of equipment in our repair network saving costs in not having to transport vehicles back and forth to OEM dealerships, with the added benefit of having the ability to control the quality of the calibrations.

Image: Autel MaxiSys IA800

(Left Image - Toyota Target) (Right Image - Toyota Radar Target)

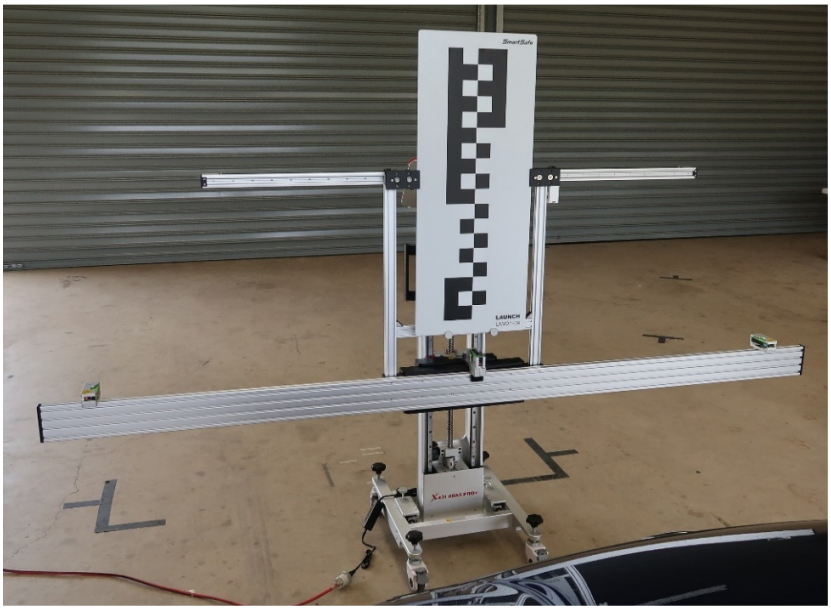


Image: Launch x-431 ADAS PRO+

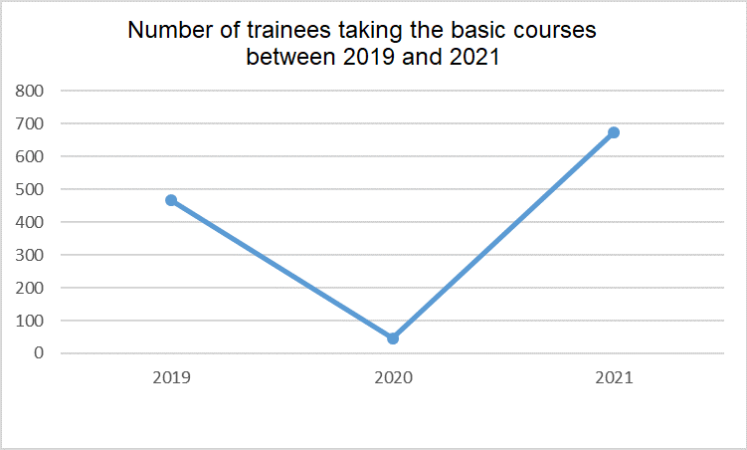
(Left Image - Kia Camera Target) (Right Image - Mazda Radar Target)

JKC Training in Covid-19 Pandemic

In 2020, we were not able to hold most of the training courses due to the Covid-19 pandemic. In the basic courses for newly qualified insurance adjusters, about 430 trainees could not complete their curriculums. In order to make up to the lost time, we had started the online program for the basic training courses from 2021 so that we could provide ample opportunities for the trainees regardless of the pandemic situation. We would like to introduce some of the features of this online program.

The difficulties in the online program we faced were how to show the trainees an actual vehicle to repair and how to conduct a class discussion between instructors and trainees. For the repair method observation class, we made videos which showed the repairing works from various angles so that trainees can watch them as if from the repairer's point of view. And for the discussion class, by using "the breakout room" in Zoom website, trainees could discuss in a small group and ask questions directly to the instructors.
We received many positive responses from the trainees who attended our online programs, such as "I was able to observe the repairing process from the angle that was not easily seen." and "More than just listening to trainer's lecture, I was able to deepen my understanding through effective trainee – instructor communication."

In 2021, by introducing this online training program, we managed to accept an increasing number of trainees including the ones who could not participate in 2020. We would like to expand and use this online method for all our training programs.



Installation of Web Communication Tools in our Crash Test Facility

JKC conducts vehicle's collision tests in order to assess a vehicle's Damageability and Repairability (D&R) and share the results with automakers for improvements. We normally hold test results briefings with their engineers at our crash test facility so that we can address the improvements effectively while observing the actual damaged vehicle. To improve the quality of these briefings, we installed web communication tools in our crash test facility. Here, we would like to introduce some of the features of our new installation.

The devices which we installed were four notebook PCs, three monitors, one video switching unit, one audio mixer, and three high-performance video cameras. The combination of video cameras and the switching unit enable us to enjoy quick video shots from various angles, such as ones capturing the full vehicle, underbody, damaged areas, etc. Moreover, we can show multiple shots on one screen of a specific area taken from different angles. To create good sound in our video, every JKC staff wears a small wireless microphone, so that everyone participating in the video conference can hear clear voices.

The auto engineers attending the video conference gave us positive comments, such as "We could understand clearly as if we were at the testing site listening to JKC's explanation and observing the actual damaged car at the same time" and "We welcome the video conference because more people are able to participate than the on-site meetings and we can save time and travel expenses."

The web communication equipment makes it possible to share the information in detail between remote locations. We would like to continue holding this meeting style as a new way to effectively communicate with automakers.