



RCAR

Research Council for Automobile Repairs

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Research Council for Automobile Repairs

Newsletter

June 2006

New Heads of RCAR Centres

KTI—Germany



Frank Leimbach

Dipl.-Ing Frank Leimbach took over as Managing Director of KTI Germany in January of this year. He is 47 and graduated from the University of Essen as a Mechanical Engineer in 1986.

Frank has wide experience in emission test equipment and has been Technical Manager for Sun electric and a Director of Snapon Tools Inc Europe. He has had recent experience with RWTUV, Essen, and TUV NORD, as well as filling a number of Board appointments. He has also been ASA President (Automobil Service Ausrüster) and Vice President of EGEA (European Garage Equipment Association).

We welcome him to his new appointment.

Special points of interest:

- *News from 10 RCAR Centres*
- *Design for Repair*
- *Intelligent Infrastructure Systems*
- *Forthcoming Events*

KART—Korea

Byung Ho Kim was appointed as the new chief of KART, Korea, in April this year. He has worked at KART in various posts since the centre was established in 1992. He has had experience as a General Manager of the General Affairs and Planning & Research Department. He also oversaw important projects such as the construction of the new KART centre in 1999 and, more recently, the new crash test facility in 2004.

Sang Tai Choi, Byung Ho Kim's predecessor at KART, has been transferred to the Planning & Management Division of KIDI. We wish them both every success in their new appointments.



Byung Ho Kim

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CESVI France



Vincent Claeys

Vincent Claeys, 45, was appointed Director and Head of Centre at CESVI France in January of this year. His initial training was as Company Legal Adviser (Faculty of Law) and subsequently in Marketing and Management Control. He brings a wealth of insurance experience to his centre having served in MAAF Assurances for over 20 years as Claims Administrator, Branch Office Manager and supervisor of Competitive Intelligence for non-life products. For the last ten years Vincent has been Car Branch Manager for MAAF Assurances & Partners. He is a Member of the Motor Business Group of EURAPCO (European Alliance). Vincent is married with three children. We welcome him and wish him success in his new role.

News From The Centres

ICBC—Canada

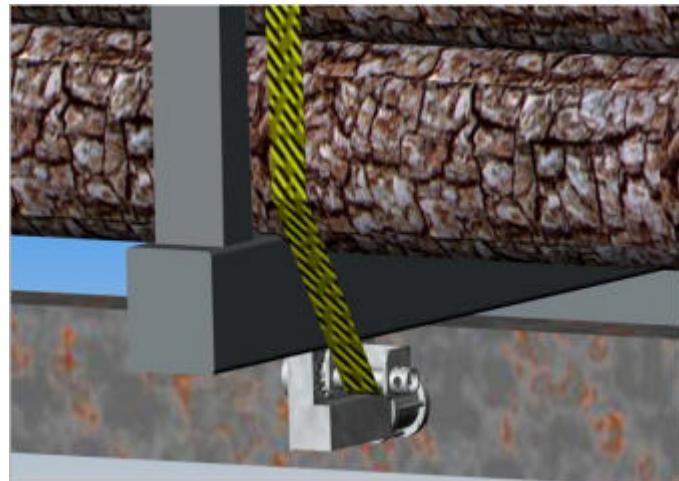
ICBC Sells Truck Safety Development

RCAR members may recall an ICBC presentation at the Milan conference showing the development of a “self-tensioning tie-down system” for securing truck cargo. This system automatically maintains tension on truck tie-down straps to prevent them from loosening as the load settles. Loss of control from load shifting has been one of the largest causes of heavy truck crashes in British Columbia and is especially common on logging trucks. Numerous fatalities have also resulted when logs shift during transit, loosing the tie-down tension, and fall right off the truck.



Development work and testing of this automatic tensioning system was completed in 2006. ICBC has now sold its ownership and rights to this technology to a third party firm which will carry on with the manufacture and world-wide distributing of the system. Through this sale ICBC's goal of reducing load-shift related crashes will be accomplished by private industry outside of ICBC. At the same time revenue from the sale of this technology will be freed up to fund other vehicle safety research.

(ICBC is at www.icbc.com)



Centro Zaragoza—Spain

Centro Zaragoza Signs European Road Safety Charter

Centro Zaragoza has signed the European Road Safety Charter. This Charter is aimed at one of the main European Commission initiatives of reducing by half (approximately 25,000) the number of road casualties by 2010. Road accidents cause 40,000 deaths and 1,700,000 injuries each year in Europe. The huge economic and social cost of this led the European Commission to draw up a plan of action, involving all sectors, to drastically reduce these statistics. The common goal is to reduce injuries caused in road accidents and to improve the efficiency of preventative action. Europe has made road safety a priority. Associations, institutions and companies are carrying out innovative initiatives to reduce the number of accidents on European roads. Despite the fact that there have been some improvements lately, there is still plenty to do. The signing of the European Road Safety Charter is one more example of Centro Zaragoza's desire to help reduce road casualties in Spain. They will work actively in researching and communicating details of road accidents.

News From The Centres

Centro Zaragoza—Spain (continued)

Training the National Police Force and Civil Guard

On 30 March 2006 Mr Fernández, the Spanish Government's delegate in Aragon, closed the course "Techniques of Identification of Vehicle" (TIV). The course was run at Centro Zaragoza for members of the National Police Force and the Civil Guard. During the closing address Mr Fernández referred to the high level of specialization reached in this novel formative action, and after congratulating the 20 students he presented certificates. Also present at the ceremony (see picture below) were the General Manager of Centro Zaragoza, Mr Carcaño, who confirmed the positive development of the course; Mr Pérez, High Commissioner of Security, State of the Interior Department; Mr Lorente, Security State Chief Commissar of the Spanish Home Office; and Mr Fernández, Civil guards' General of Saragossa—Aragón, Spain.



Centro Zaragoza has the most suitable staff and equipment to offer high quality courses to all professionals involved in the automotive field. The courses are mainly practical, supported by theory lessons. They are suitable for technicians and others in the automobile field as well as for municipal and regional police, vehicle manufacturers and technicians of the MOT. In fact Centro Zaragoza runs 37 different courses, as well as other specific courses, for every insurance company. These courses meet the needs of all professionals in the automobile field.

TIV is a specific course designed by Centro Zaragoza for national state security forces. It was held in the centre's facilities (classrooms, workshop and testing laboratory) and lasted four days. The instructors were all from Centro Zaragoza and experts in the fields of illicit trafficking of vehicles and in the identification of stolen and manipulated vehicles.

(Centro Zaragoza is at www.centro-zaragoza.com)

MRC—Malaysia

Khaeruddin Sudharmin, CEO of MRC, gave a presentation at the International Bodyshop Industry Symposium (IBIS) on the IT approach to controlling claims costs and repair authorisation in Malaysia. A brief overview of this year's symposium is outlined on Page 4. The pictures below show Khaeruddin at the Symposium (left) and with Sir Nick Scheele (right).



News From The Centres

IBIS 2006

The sixth annual International Bodyshop Industry Symposium—IBIS 2006—took place in the elegant surroundings of the Montreux Palace Hotel in Montreux, Switzerland from 31 May to 2 June. More than 300 delegates comprising senior executives and industry leaders from every facet of the collision repair industry, representing over 30 countries, listened to a glittering array of IBIS speakers. These included Sir Nick Scheele, the recently retired president of Ford Motor Company, and McKinsey's director of automotive services, Glenn Mercer, as well as William Kimberley, European editor of Automotive Design and Production, and Khaeruddin Sudharmin, Managing Director and CEO of Motordata Research Consortium.

IBIS Chairman, Chris Mann, opened proceedings with a controversial plea for greater co-operation between the industry, governments and their environmental agencies, arguing that much of the legislation currently impacting on the repair industry is ill thought out and ineffective, as well as conflicting in a number of important instances between key markets around the world.

Sir Nick Scheele, one of the most influential figures in the automotive industry over the past 25 years, was informed and forthright in his opening presentation “Breaking Barriers”, stating that vehicle reparability was not currently on the radar of the senior managements of the vehicle manufacturers and that this situation would remain until such time as it became a customer driven issue.

Following Sir Nick, William Kimberley, European editor of Automotive Design & Production, called for the current method by which insurance ratings are set and cost of ownership calculations compiled to be amended to include structural repair. “Vehicle manufacturers have been asked to improve fuel consumption, passenger safety, low-speed urban impact reparability and, now, pedestrian safety. What we need now is for an organization such as EuroNCAP to bring structural reparability to the table. EuroNCAP is focused on safety issues, but I believe that structural reparability is a safety problem, since the more complex the repair the greater the likelihood that structurally damaged vehicles will not be repaired correctly”.

In his keynote presentation opening session, “Future of the Repair Sector—the Battle for Value”, Glenn Mercer looked at some of the key trends in the automotive sector, estimating that the current global value of the collision repair sector was in excess of \$100 billion.

The final session on Day One: “Change Management—Legislation and Technology”, was led by Khaeruddin Sudharmin, Managing Director and Chief Executive Officer of Motordata Research Consortium in Malaysia. Picking up on IBIS Chairman, Chris Mann’s plea for a more structured and joined up approach to legislation affecting the collision repair industry, Sudharmin outlined the model that had been developed for an equally fast changing industry, the IT and telecommunications sector in Malaysia. He outlined a model which had involved all of the various stakeholders and had resulted in the successful development of a structured industry protocol incorporating controls safeguarding all sides of the market. Sudharmin went on to propose that a similar protocol could be developed for and adopted by the global collision repair market.

The full IBIS Report is at www.ibisworldwide.com.

(MRC is at www.e-mrc.com.my)

IIHS—USA

IIHS has issued three Status Reports in recent months. A summary of these is shown below.

The late March issue focuses on major changes brought about by frontal crashworthiness evaluations and a change in procedures to be adopted by the Institute in future. The programme has been a great success over the years and comparisons are made between the crash performance of 1995 models and the results obtained with current models. The improvements are dramatic and resulted from redesign action on the part of the auto manufacturers. A number of examples are provided including the Mitsubishi Galant and the Saab 900/9³. The Institute is now moving on to a testing management system where auto manufacturers’ own test results are passed to the Institute for assessment. This revised system has its own checks and balances, one of which being an audit process. Feedback to date is good and advantages from the new system could include the provision of much earlier crash performance data on a new model.



News From The Centres

IIHS—USA (continued)



April's Status Report addresses the use of statistics in formulating Traffic Safety Programmes. A new report by former Institute President, Brian O'Neill, and statistician, Sergey Kyrychenko, points to multiple examples of how motor vehicle death rates have been misinterpreted. These examples serve as powerful warnings on how not to use data. The report addresses some key issues such as the use of the same data leading to opposite conclusions, how data are misused to justify speeding, misuse of death rates in SUN countries (Sweden, UK and Netherlands) and the misuse of State by State data.

Conversely a report "Trends Over Time in the Risk of Driver Death: What if Vehicle Designs Hadn't Improved?" by C M Farmer and A K Lund, points to improving vehicle designs as reason for recent declines in death rates. This is argued as the good or effective use of data and demonstrates the continual improvement of passenger vehicle design. Without this improvement the death rate would have stopped declining in 1994 and started going up from that date.

June's Status report highlights recent data on two very important safety features, namely Electronic Stability Control (ESC) and Seat Belt Reminders (two issues covered in the March issue of the RCAR Newsletter). ESC technology could prevent nearly one third of all fatal crashes and reduce the risk of rolling over by as much as 80 percent. The benefits are found in crashes involving one vehicle and more than one. A previous Institute study found significant effects of ESC in reducing fatal single-vehicle crash risk. Using more comprehensive data researchers have updated the 2004 results, finding that ESC reduces fatal multiple vehicle crash risk by 32%. Research confirms that ESC reduces the risk of all single vehicle crashes by more than 40% - fatal ones by 56%. It is estimated that if all vehicles had ESC fitted up to 10,000 fatal crashes could be avoided each year. "The findings indicate that ESC should be standard on all vehicles" says Susan Ferguson, Institute Senior Vice President for Research. "Very few safety technologies show this kind of large effect in reducing crash deaths."



As an update to Seat Belt use evidence is accumulating that safety belt reminders are effective. They goad people into buckling up and they are especially effective among motorists who say they do use belts but not all of the time. A new Institute study indicates reminders boosted seat belt use amongst Honda drivers from 84% to 90%. The use rate went up for both men and women and in various kinds of passenger vehicles. Only 6% of the unbuckled drivers, who encountered the reminder system, reported ignoring the annoyance. The report "Effectiveness and Driver Acceptance of the Honda Belt Reminder System" by S Ferguson et al is available from the Institute.

(IIHS is at www.iihs.org)

CESVIMAP—Spain



Ignacio Juárez of CESVIMAP is presented with the Castilla & León Prize by the President of the Confederation of Business Organisations (CECALE), José Luis Martin Aguado

CESVIMAP has been awarded the Castilla & León Prize for Prevention of Accidents in the Workplace. This prize is awarded by the regional government of the autonomous region of Castilla & León. For this prize, what is taken into account is investment per worker in prevention of accidents in the workplace, the training and information campaign offered to prevent risks, the company's organisation of preventative measures and the decrease in the number of accidents occurring in the company.

CESVIMAP, which belongs to the prevention of accidents service grouped under the umbrella of Mapfre, has been designing an integral prevention plan for some years. It became eligible for this prize through a presentation of the activities carried out during the five-year period 2000 to 2005. The participation and training of workers, the development of emergency plans, health monitoring, reduction in numbers of accidents and incidents, along with the information made available: all this has been taken into account when awarding this prize.

News From The Centres

CESVIMAP—Spain (continued)

The Annual Volvo Bodywork Meeting.

More than 60 people met at CESVIMAP to celebrate the traditional national Volvo bodywork meeting. This day-long session, which is held annually, brings together Volvo dealers from all over Spain to set future strategies for the make. A demonstration of quick bodywork repair was also carried out, to the customary high quality standards established by the Swedish make. In the crash test zone at CESVIMAP, those attending the meeting were the first to be able to see the new Cabrio C70, presented at the Frankfurt Car Show; the versatility of this vehicle allows the cabriolet to convert to open top with a special roof-opening system.



3rd Edition of Pocket AutoNotes



As a result of the success of its Pocket AutoNotes, CESVIMAP is publishing their third edition, which is updated and considerably expanded. This practical manual is aimed mainly at claims adjusters and those working in the repair shop. They have been prepared exclusively by the team of technicians and engineers in our centre, following a thorough process of selection of the most frequently requested subjects; they are an efficient aid in helping to solve the numerous doubts arising on a daily basis over technical claims adjustment and repair matters. They cover a wide range of identification, description and evaluation questions, related to damage repair in passenger cars, industrial vehicles and motorcycles: how to identify a vehicle and its features, how to measure repair times, how to extract technical specifications from the various mechanical elements, how to distinguish damage to paintwork from paintwork defects, how to get to know the components of motorcycles and to learn how to find the measuring points on motorcycles, how to find out the characteristics and working times for vehicles, and much, much more.

Cesviteca: Cesvimap's Online Library

CESVIMAP has created a multimedia library on line, designed in web format, responding to the needs of claims adjusters and automobile repairers. This tool provides, in real time, the most useful documentation on a given vehicle: be it a passenger car, a people carrier, an all-terrain vehicle, a van, an industrial vehicle or a motorcycle.

It also gives information on the latest repair techniques. Subscribers have a user code and password, in order to gain access to the contents of the library, in the form of texts, graphics and videos which are easily downloadable. The information is separated into 4 files:-

Vehicle File. The information is ordered by make, model and variation of model as *Descriptive Data* – identification, VIN, plastic elements, replacements authorized by manufacturer, etc, and *Reparability*, with access plans and dismantling plans for the front, central or rear sections or mechanical groups.

Repair Innovations. This contains the latest repair equipment and tools, and the materials and technologies best suited for each process of repair, in .pdf and video format.



Complements. This file adds complementary information of interest, such as the use of CESVIMAP bodywork and paintwork time scales, in such a way that the user can find out about damage classification, the various types of automobiles and the structure of the time scale formulas.

Ongoing Technical Training. This offers technical innovations and a monthly bulletin with the contents which have been added. In the future, this library will grow, with the addition of new content and information and greater interactivity with the user.

(CESVIMAP is at www.cesvimap.com)

News From The Centres

Thatcham—UK

BSI Roadshows

Thatcham is working with the UK Repair Industry to develop a UK repair standard. Four BSI PAS Roadshows have now taken place. These were well attended and gave repairers the opportunity of learning about the new specifi-



Thatcham Wins European Design Rights Tender

Following a successful bid together with Autopolis, an automotive aftermarket consultancy, Thatcham has been commissioned by the European Parliament to provide a study on the legal protection of design of automotive parts. They have 24 weeks to submit the study and this will undoubtedly enhance the Company's reputation in the automotive sector.

BASF Choose Thatcham Training

BASF paint manufacturers have confirmed their commitment to training at Thatcham for the next three years.

Thatcham FOCUS

The annual Thatcham FOCUS event took place at the centre in early June. This event combined seminars, award and launch events for all Thatcham's stakeholders.

Firstly the British Insurer Car Security Awards (BICSA) were announced covering awards for winners in each category from city cars through to luxury cars, and the best manufacturer award went to Audi.

The Apprentice Technician Graduation Ceremony took place and the new UK Design Guide for Repair (see separate article) was launched.

During the two day event an exhibition of repair and security equipment was held in the Research workshop.

(Thatcham is at www.thatcham.org)

TQA Pre-Launch

The TQA (Thatcham Quality Accreditation) communications event took place on 11 April, prior to the full launch which will be in January 2007. This programme will replace the existing Q class and is a more robust scheme which will provide a better service to insurers and consumers.

Belgian Insurers Visit Thatcham

Bert Mons from the Belgian Aftermarket Association brought a selected group of Belgian insurers to Thatcham in order to understand the benefits of their parts accreditation scheme.

Peugeot Commission Thatcham Training

The Training Centre welcomed the first group of bodyshop technicians from Peugeot Accident and estimators to repair techniques. Several further courses are now planned.

Feedback from Peugeot has been very positive and they have expressed how pleased they are to be working with Thatcham.



IT in Malaysia

Thatcham's Stuart Arch and Phil Prior have recently visited MRC (Motordata Research Consortium) in Kuala Lumpur, Malaysia, to train and accredit the MRC's Data Systems Team in the use of the Thatcham Parts System (TPS2).

News From the Centres

IAG—Australia

Following on from the successful opening of IAG's new research centre earlier this year, the following is a montage of photographs taken on the day.



Mike Hawker, CEO IAG, Barbara Perry, Local Member for Auburn, Eric Rozendaal, NSW Minister for Roads, David Issa, CEO NRMA Insurance



**Robert McDonald
Head of IAG Research Centre**



Demonstration of Low Speed Crash Test



Crash Rig



Workshop Layout



Workshop Layout and Crash Rig



Matthew Avery with representatives from NRMA Motoring & Services and Holden

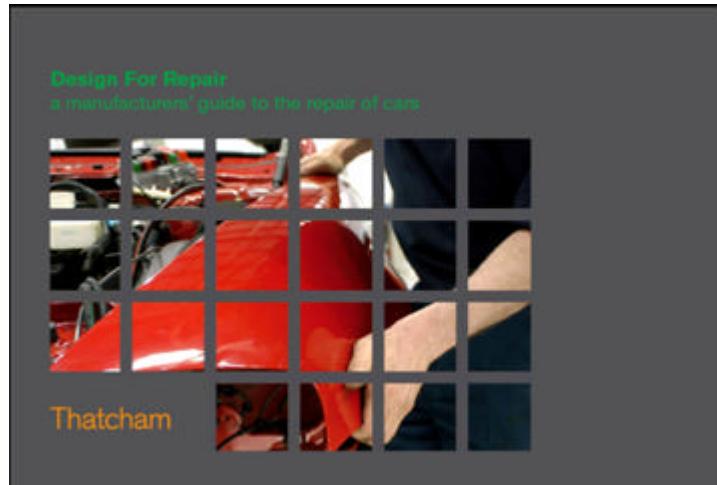


Adrian Lund with Mike Hawker, CEO IAG (right) and Derek Ashby, Subaru, Australia

The RCAR Damageability Working Group and “Design for Repair”

Andrew Miller, Thatcham’s Director of Research, provides some background on “Design for Repair”

The changing technologies used in today’s vehicle bodies are getting more complex. These technologies will have a significant effect on repair times, cost and equipment investment in the repair service sector, especially when issues could have been avoided by designing a vehicle body with repair in mind. This is the reason why Thatcham has developed a design guide to assist designers and manufacturers during the design stages of vehicle bodies. The “Design for Repair” guide shows a range of good and poor examples of vehicle design with a view to vehicle repair.



Cover Page

The content of this guide is based on the knowledge and experience from the Thatcham staff and this has been gathered and collated over the last year to form the base of the Thatcham guide. By discussing every single panel and joint with a team of Thatcham repair specialist staff, particular recurring issues were highlighted and assigned as appropriate to appear in the repair guide. When these particular examples were available at Thatcham, a picture would have been taken or searched for. After discussing all the panels, joints, other best practice guidance and accompanying text, the information was transferred into a desktop publishing program to form the current document. The guide was launched on 8 June 2006 at Thatcham and is available for public access via the Thatcham website under www.thatcham.org/research—look in Technical Papers under Repair Technologies.

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Index with all subjects, directly linked to the chapter for easy browsing

Below are some examples of pages from the Thatcham guide where photographs are accompanied by a brief explanatory text. Please look carefully and you will note that each subject defines potential problem areas—the “effect on repair”, and then offers advice on how to avoid creating problems—“design for repair guidance”.

The RCAR Damageability Working Group and “Design for Repair” (continued)

Examples of front bumper connections to front panel

Vehicle Body Panels

Front Bumper Cover

The front bumper cover has become more and more of an aesthetic part of the vehicle, able to resist small bumps and covering the more structural parts which may absorb the energy of a low speed impact. This plastic part can contain several high cost items like spray units for lights, distance sensors and sensors for pedestrian protection.

1.1 Adjacent panels damaged on low speed impact

Effect on repair: Adjacent panels may be damaged when bumper covers are joined to these panels, increasing repair costs and time (pic 1.1.A, 1.1.B).

Design for repair guidance: Either have bumper covers separate from panels or have sacrificial joints that will separate before any damage occurs to the panel (pic 1.1.C, 1.2.D).

1.2 Sectional bumper cover

Effect on repair: When a single piece bumper cover suffers sufficient damage, a complete replacement is required, incurring excessive costs for repair.

Design for repair guidance: If a bumper cover is made out of sections, when only a piece is damaged, only this single piece needs replacement. During refinishing, it will also reduce the amount of blending required, due to a reduced area of repair.



1.1.A Pic 1.1.A: Bracket is supporting the panel and bumper independently.



1.1.B Pic 1.1.B: Bracket is supporting the panel and bumper independently.



1.1.C Pic 1.1.C: Bracket is supporting the panel and bumper independently. Fastener for the panel is hidden by the bracket.

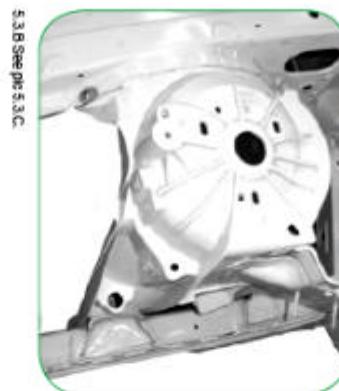


1.1.D Pic 1.1.D: Bracket is supporting the panel and bumper independently. Fastener for the panel is covered by the bracket.

The RCAR Damageability Working Group and “Design for Repair” (continued)

Examples of front strut tower

thirty two



5.3.A Good example: Suspension strut tower separate from the plenum chamber, allowing joints to work for replacement.



5.3.B See pic 5.3.C.



5.3.C Good example: Showing a separate suspension strut tower fitted to the front chassis leg. The front panel reinforcement is only supported by a bracket attached to the tower.

Suspension Strut Tower

This is the upper fixing point for the front suspension and shock absorbers.

5.1 Strut tower part of front inner wing

Effect on repair: If the strut tower is part of a front inner wing, which requires replacing after an accident, it will also be necessary to remove the suspension parts. This will severely increase repair times.

Design for repair guidance: Avoid having strut towers as part of the inner wing.

5.2 Strut tower fitted to plenum chamber

Effect on repair: When the tower is fitted close to the plenum chamber, or is fitted into or as part of it, a repair can be difficult, as removal of the strut tower will also require the removal of the front interior trim inside the passenger cell to avoid damage. This will cause excessive repair costs due to the position of the strut tower.

Design for repair guidance: Ideally, a front suspension tower should be fitted as a panel by itself, but this may be difficult due to the amount of space and the set up of the suspension (pics 5.2.A, 5.2.B).

5.3 Natural joints

Effect on repair: When a front inner wing requires replacement, the panel is normally separated at a natural joint. If the inner wing has no natural joints which can be used, the repairer will create a joint and will also have to remove any evidence of the repair. This will increase repair times.

Design for repair guidance: Introduce natural joints to use in repair (pics 5.3.A, 5.3.B, 5.3.C).

The RCAR Damageability Working Group and “Design for Repair” (continued)

Examples of Front Bumper reinforcement and its position



Index



2.1.A Good example. Good distance between reinforcement and cooling pack. Good reinforcement height and no parts clip onto it.



2.1.B Good example. The clip onto the bumper beam for easy release.



2.1.C Good example. Good reinforcement height. Good distance between bumper beam and cooling pack. Low protection bar. No parts fixed to the bumper beam.



2.2 A Poor example. Not having enough distance between reinforcement and cooling pack - will cause damage to adjacent parts on impact.



2.3 D Poor example. Narrow reinforcement. No protection protection bar. Good distance between reinforcement and cooling pack. No parts clip onto reinforcement.

Front Bumper Reinforcements

The bumper reinforcement is a part of the energy absorbing structure in an impact and normally joins the front ends of the chassis legs through the crash cans. It carries the bumper cover and is either welded or bolted onto the crush can.

2.1 Level and height of bumper reinforcement

Effect on repair: The level and height of the reinforcement determines how much damage is caused around and behind the reinforcement (pic 2.1.D).

Design for repair guidance: Increase the height of the reinforcement to have a sufficient area. Together with an average level, this will avoid excessive damage when override or underride occurs (pics 2.1.A, 2.1.B, 2.1.C).

NOTE: A new standard for bumper reinforcements and levels is in development through RCAR and proposals should be available during 2008.

2.2 Clearance between bumper reinforcement and surrounding parts

Effect on repair: A small gap between the reinforcement and any parts behind it can result in the need to replace additional parts as they may be damaged by the intrusion of the reinforcement in a low speed accident (pic 2.2.A).

Design for repair guidance: Keep an appropriate amount of space between the reinforcement and any parts behind it.

The RCAR Damageability Working Group and “Design for Repair” (continued)

Examples of Mechanical, Electrical and Trim parts

Design for repair guidance: Access to the fuel pump/sender unit for drainage before the removal of the tank is the best option for repair.

C.4 Position of auxiliary units

Effect on repair: The costs of a repair can be greatly increased due to the position of expensive auxiliary units fitted close to vulnerable panels. For example, this can occur where ABS units are fitted behind front lights, HVAC pumps are fitted between wheel arch closures and side panels, and satellite navigation or CD players are fitted inside rear quarter panels (pic C.4.1).

Design for repair guidance: Consideration must be given to the positioning of these units an appropriate distance away from panels prone to damage. This will reduce the amount of labour required, and more importantly, the costs involved in having to replace these parts.

C.5 Lighting clusters

Effect on repair: If light clusters are fitted to front panels, they will normally be damaged in a frontal impact. In the UK, there is a consumer and insurance requirement to remove any evidence of a repair following accident damage. Breakaway brackets will be visible after the repair. This means that light clusters have to be fully replaced when damaged, inflating the cost of repair.

C.6 Rear light cluster position

Effect on repair: The vulnerable position of rear light clusters increases the cost of repair when a rear impact occurs.

Design for repair guidance: Fit rear light clusters higher up the vehicle body, well away from areas prone to damage (pic C.6.1).

C.6.1 Good example: A light cluster fitted in a higher position would damage on impact.



C.5.1 Poor example: Expensive auxiliary units positioned in vulnerable areas.



The RCAR Damageability Working Group and “Design for Repair” (continued)

By mid 2007 the RCAR Damageability Working Group intends to have developed an RCAR Design for Repair Guide which will incorporate international best practice aspects; for instance, body-on-frame best practice, which is not a significant UK factor. This will be based on and for Thatcham and will supersede the UK Design for Repair Guide, incorporating repair subjects based on a global industry instead of the UK and Europe.

As the guide is an open document, it will be regularly updated to reflect new technologies and suggestions from the automotive, insurance and repair industries. For this reason another meeting of the RCAR working group is organized for 10 and 11 July at Thatcham, UK.

As we think that information on this subject is relevant to various parts of industry, we are offering this guide in a digital format instead of a hardcopy. This will make the exchange of information more accessible and easier to exchange, and will mean that the guide is always up-to-date at point of access. This information dissemination method will also be considered by the RCAR Working Group for a future RCAR Design Guide for Repair.

Please do not hesitate to contact us if you have any queries or suggestions via Andrew Walker, Repair Technologies Research Manager, at Thatcham at andyw@thatcham.org.

Intelligent Infrastructure Systems

The Secretary General attended the Unwin Memorial Lecture in April at the Institution of Civil Engineers in London. The lecture, entitled “Transport of Delight”, covered the UK Government’s Foresight Programme on Intelligent Infrastructure Systems. The aim of this programme is to explore how science and technology may be applied over the next 50 years to the design and implementation of systems that are robust, sustainable and safe. The following is a short note on the project based on the London lecture and details contained on the UK Government’s website (www.foresight.gov.uk). Other national governments will no doubt have similar projects set up in their own countries.

Intelligent Infrastructure Futures

The Foresight Project on Intelligent Infrastructure Systems (IIS) set out to examine the challenges and opportunities for the UK in bringing “intelligence” to its infrastructure—the physical networks that deliver such services as transport, telecommunications, water and energy. In particular, the project explored how, over the next 50 years, we can apply science and technology to the design and implementation of intelligent infrastructure for robust, sustainable and safe transport, and its alternatives. The technological opportunities and social factors are such that IIS can develop in many different ways, depending on the direction that society takes.

Intelligent Infrastructure Futures: Scenarios

The workshops of experts narrowed the discussion down to four scenarios that make it possible to investigate the ways in which the 60 key drivers of change might play out over the next 50 years. The future is unlikely to look like any of these individual scenarios and may well contain elements of all four. While the scenarios do not purport to predict the future, they do allow us to see how certain combinations of events, discoveries and social changes might combine to create the future. As such, the scenarios allow us to see what we might need to prepare for and the opportunities that await us if we set the right course.

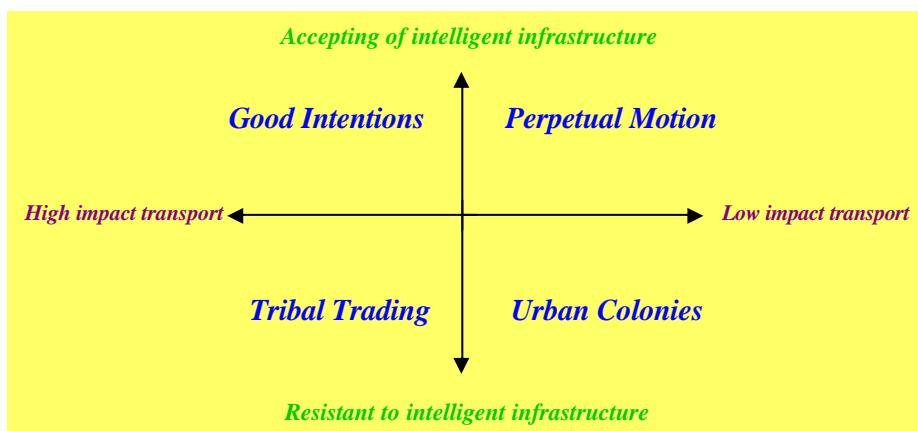


Figure 1: Four scenarios for intelligent infrastructure systems—the quadrants show the alternate states of the two “axes of uncertainty” used in the futures exercise.

Intelligent Infrastructure Systems (continued)

The defining uncertainties used in the futures exercise were: whether or not we will develop transport systems with a low-environmental impact and whether or not people will accept intelligent infrastructure (see Fig.1). The names given to these scenarios are intended as shorthand labels that capture the essential feature of each “possible future”. It is worth restating here that these scenarios are just that, pictures of how the future could develop. We describe them briefly in the next section.

Perpetual Motion

Perpetual Motion describes a society driven by constant information, consumption and competition. In this world, instant communication and continuing globalisation has fuelled growth: demand for travel remains strong. New, cleaner, fuel technologies are increasingly popular. Road use is causing less environmental damage, although the volume and speed of traffic remains high. Aviation still relies on carbon fuels—it remains expensive and is increasingly replaced by “telepresence” for business and rapid trains for travel.

Urban Colonies

In Urban Colonies, investment in technology primarily focuses on minimising environmental impact. In this world, good environmental practice is at the heart of the UK’s economic and social policies: sustainable buildings, distributed power generation and new urban planning policies have created compact, dense cities. Transport is permitted only if green and clean—car use is still energy expensive and is restricted. Real-time information about transport is available in the cities. Public transport—electric and low energy—is efficient and widely used.

Tribal Trading

Tribal Trading describes a world that has been through a sharp and savage energy shock. The world has stabilized, but only after a global recession has left millions unemployed. The global economic system is severely damaged and infrastructure is falling into disrepair. Long distance travel is a luxury that few can afford and for most people, the world has shrunk to their own community. Cities have declined and local food production and services have increased. Canals and sea-going vessels carry freight: the rail network is worthwhile only for high value long-distance cargoes and trips. There are still some cars, but local transport is typically by bike and by horse. There are local conflicts over resources: lawlessness and mistrust are high. The state does what it can—but its power has eroded.

Good Intentions

Good intentions describes a world in which the need to reduce carbon emissions constrains personal mobility. A tough national surveillance system ensures that people travel only if they have sufficient carbon “points”. Intelligent cars monitor and report on the environmental cost of journeys. In-car systems adjust speed to minimize emissions. Traffic volumes have fallen and mass transportation is used more widely. Businesses have adopted energy efficient practices: they use highly sophisticated wireless identification and tracking systems to optimize logistics and distribution. Some rural areas pool community carbon credits for local transport provision but many are struggling. There are concerns that the world has done too little to repair the damage caused by decades of human activity. Airlines continue to exploit loopholes in the carbon enforcement framework. The market has failed to provide a realistic alternative energy source.

Intelligence in Infrastructure Systems

A key concept that the project embraced is that intelligence, in the context of thinking about intelligent infrastructure, can exist in four different ways. These all relate to the primary attribute of an intelligent system, that it uses all resources as effectively as possible to deliver maximum return for minimal investment of effort. The four levels of intelligence are:

- Intelligent design of infrastructure
- Obtaining intelligent information from infrastructure
- Designing intelligence into infrastructure
- Intelligent use of infrastructure.

The scenarios explore how *intelligent design of infrastructure*—for example of urban environments to encourage reduced travel—could improve the performance of the infrastructure and provide the most realistic way to deliver alternatives to movement, while providing individuals with choice. The future work also identified significant benefits from *obtaining intelligent information from infrastructure*, by which we mean collecting and processing information intelligently, so that travellers, operators and owners can make better use of that infrastructure. By *designing intelligence into infrastructure* we mean building intelligent infrastructure that can respond autonomously and intelligently to external stimuli within a set of policy limits which may mean transport can then become an integral connected part of the wider infrastructure system. Finally, there is *intelligent use of infrastructure*, which encompasses the idea that the action of users has a significant effect upon how effective those designs are in practice.

The summary report for the project, *Intelligent Infrastructure Futures: Project Overview*, discusses these four levels of intelligence in greater detail. Full details are at: www.foresight.gov.uk.

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Dates For Your Diary

50th Annual Conference of the Association for the Advancement of Automotive Medicine (AAAM) is to be held in Chicago, Illinois, 15-18 October 2006.

Details: www.carcrash.org

Annual RCAR Conference 2006 is to be held in Tokyo, Japan 22-28 October 2006, and will be hosted by The Jiken Centre.

NACE 2006 is to be held in Las Vegas, Nevada, 2-4 November 2006.

Details: www.naceexpo.com

50th STAPP Car Crash Conference is to be held in Dearborn, Michigan, 6-8 November 2006.

Details: www.stapp.org

SAE 2007 World Congress is to be held in Detroit, Michigan, 16-20 April 2007.

Details: www.sae.org

Crash Test Expo Europe 2007 is to be held in Stuttgart, Germany, 8-10 May 2007.

Details: www.crashtest.expo.com

20th International Technical Conference on the Enhanced Safety of Vehicles (ESV) is to be held in Lyons, France, 18-21 June 2007.

Details: E-mail: esv2007@inrets.fr

The RCAR Network

Of the 26 RCAR Centres in 19 countries, all have web sites. Addresses are to be found on www.rcar.org. For convenience, web sites are also listed below.

AZT Germany www.allianz-azt.de
Centro Zaragoza Spain www.centro-zaragoza.com
Cesvimap Spain www.cesvimap.com
Cesvi Argentina www.cesvi.com.ar
Cesvi Brasil www.cesvibrasil.com.br
Cesvi Colombia www.cesvicolombia.com
Cesvi France www.cesvifrance.fr
Cesvi Mexico www.cesvimexico.com.mx
CESTAR Italy www.cestar.it
VAT Finland www.liikennevakuutuskeskus.fi
Folksam Auto Sweden www.folksamauto.com
ICBC Canada www.icbc.com
IIHS USA www.highwaysafety.org

From the Secretary General

This June edition of the RCAR Newsletter brings news from 10 of our 26 Centres. There is a good mix of research, training and collaborative work and Thatcham provide a view of this work with other centres in developing the RCAR Damageability and Reparability Guide.

Indeed it has been a busy few months in a number of RCAR areas. Protocols have been developed to test the dimensional accuracy of the SAE "H" Point Machine (for use in measuring backset and height of head restraints in conjunction with the ICBC head measuring device). Valuable work has been undertaken by some centres in the area of ESC and the development of form of acceptance criteria. The RCAR Low Speed Crash Test WG have put together a proposed Standard to test bumpers. This all points to a comprehensive and lively annual conference in Tokyo in October when these areas will be debated and ratified.

In the case of work with ESC, I attended a two day seminar at Thatcham where the Tier 1 suppliers of ESC presented their systems to an informed gathering which included IIHS, Thatcham, EuroNCAP, UK and Spanish Government representatives, FIA and other French, German and Spanish research centres. IIHS have devoted their June Status report (see Page 5 of this newsletter) to outlining the benefits of ESC based on evidence of recent research.

I have visited other centres, namely KTI in Germany, where there is a new head of centre, and JKC in Tokyo in preparation for the forthcoming annual conference. JKC are well into their planning and I am sure the conference in October will be interesting, worthwhile and enjoyable. I also attended a lecture in London on the future of transportation and include a note of this at Pages 14-15.

I offer a very warm welcome to three new heads of centre who are joining our RCAR community. These are Frank Leimbach of KTI Germany, Byung Ho Kim of KART Korea, and Vincent Claeys of CESVI France. They have pride of place on the front page.

I look forward to seeing you all later in the year at our meeting in Tokyo.

With best wishes,

Michael Smith

KTI Germany www.k-t-i.de
Lansforsakringar Sweden www.lansforsakringar.se
MPI Canada www.mpi.mb.ca
JKC Japan www.jikencenter.co.jp
KART Korea www.kidi.co.kr
MRC Malaysia www.e-mrc.com.my
FNH Norway www.fnh.no
IAG Australia www.nrma.com.au
State Farm USA www.statefarm.com
Tech-Cor USA www.tech-cor.com
Thatcham UK www.thatcham.org
VIC/IBC Canada www.vicc.com
Winterthur Switzerland www.winterthur.com