



RCAR

Research Council for Automobile Repairs

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Newsletter

www.rcar.org

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RCAR People

Dr.-Ing. Dieter Anselm Appointed Honorary Professor



Prof. Dr Hans Peter Lenz and Dr.-Ing. Dieter Anselm

Dr.-Ing. Dieter Anselm, Chief Operating Officer of Allianz Center for Technology, Division of Automotive Engineering, Ismaning near Munich, has been conferred the title of Honorary Professor by the Technical University of Vienna on 31 January 2002. He has taught vehicle safety and construction of repair-friendly passenger cars at the Technical University of Vienna for many years.

Special points of interest:

- News from 11 RCAR Centres.
- RCAR People
- Euro NCAP results.
- News Sources and Forthcoming Events.
- New 3D Graphics.

Prof. Dr. Hans Peter Lenz, Director of The Institute for Internal Combustion Engines and Automotive Engineering at the Technical University of Vienna, particularly appreciated in his eulogy Dieter Anselm's achievements in the scientific exploration of accident repairs and vehicle safety. He further pointed out that his name is inseparably connected with the globally acknowledged Crash Repair-Test (RCAR-Test) and with the implementation of electronic immobilisers for passenger cars.

The work of the Allianz Centre for Technology's Automotive Engineering Division, managed by Dieter Anselm, contributes towards preventing car thefts and reducing damages in car accidents as well as optimising accident repairs. This works to the advantage of consumers by cost saving on insurance premiums.

Mr Jae Yong Lim—The new Chairman and President of KIDI

Mr Jae Yong Lim was appointed Chairman and President of The Korean Insurance Development Institute (KIDI) in January 2002 when Mr Sung Wook Park reached the end of his term as President of KIDI.

Formerly Mr Lim was with the Financial Supervisory Board for 27 years (since 1974). He joined KIDI as Senior Managing Director in May 2001.

While he was on the Financial Supervisory Board, Mr Lim was in charge of the Insurance Examination Department and the Insurance Supervision Department. He majored in Political Science at University and in Business Administration at Post Graduate School. He is a 55 years old.



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News From The Centres

ICBC—Canada

CALLING FOR AIR BAG IMPROVEMENTS

ICBC is asking the Canadian Government for changes in the regulations which cover air bag performance in the 48 km/hr front barrier crash test. Canada is currently updating these regulations in response to similar changes in US regulations. Canada also is proposing some unique requirements that are different from the US regulations. Canada will adopt a 48 km/hr offset frontal crash into a deformable barrier (similar to IIHS crashes), as well as the conventional rigid barrier test. Unlike the US, Canada will only test vehicles with belted dummies - a reflection of Canada's high belt use rate. ICBC supports these changes.



ICBC is also proposing that the Government adopt different deployment responses for passenger air bags when there is either a child passenger, or no passenger in the car. 84% of passenger air bags deployments occur when there is no passenger in the car - an unnecessary expense. Present proposals would allow for a "low risk deployment" or no deployment when there is a child passenger. ICBC is calling for no deployment as the only option when there is a child passenger or no passenger. In a brief presented to Transport Canada by John Gane on January 23, ICBC stated that passenger air bag deployments occurring where there is no passenger added \$6.2 million to repair costs last year in BC. Elimination of such events would save about \$60 million per year in collision repair costs Canada-wide.

(ICBC is at www.icbc.com)

CESVIMAP – Spain

A number of Descriptive Repair Manuals have been issued recently. These include: Mitsubishi L200; Nissan Almera; Skoda Fabia; Yamaha YP250 Majesty; Seat Córdoba 1999; Jeep Cherokee; Suzuki XF 650 Freewind. The Descriptive Repair Manuals are available on CD-ROM. The following Technical Data Sheets have been issued recently:

Opel Astra G	Du Pont Cromas
Colour Matching Motorcycle Paint	Data on Aprilia Pegaso 650
Wheel Balancing	Car-O-Liner, Car-O-Tronic
Cab Repairs Nissan Cabstar E	Air Bags & Inflatable Curtains
Data on Alfa 147	Vehicle Air Conditioning
Vehicle Lifting Stringo Model 360	Chief TT31 Ez Liner
Painting Schemes for Vehicles	Cebora Sound Mig 1660/M
Data on Citroën C5	Quick Paint Methods
Piaggio Motor HiPer 450cc	Keyless Vehicles
Fiat Dobló	Maintaining pneumatic safety equipment
Paint Defects	Washing Spray Guns-Elite Water 179
Opel Corsa C	Washing Spray Guns-Elite Water 179
Vehicle Diagnostics Sun Sac 4000	Aluminium Substitution Repair
Truck Chassis Measurement	

The CESVIMAP Magazine has been distributed within RCAR. It contains interesting articles on the repair of plastics using adhesives, control of paint consumption costs, Seat León reviewing body, mechanical and safety aspects, use of tyres in the winter months, spare part management in the workshop.

Many congratulations to CESVIMAP for obtaining certification to ISO 9001. The Magazine is at www.revistacesvimap.com in English and Spanish.

(CESVIMAP is at www.cesvimap.com)

News From The Centres

Thatcham—UK

Over the last few months Thatcham have issued a number of Methods Manuals. These have included: Renault Kangoo LCV 1998; Landrover Defender 1999; Vauxhall Zafira 1999 5-Door Estate; Ford Transit LCV (SWB) 2000; Volkswagen LT35 1996 Panel Van; Honda HR-V 1999 3-Door 4x4; Ford Mondeo 2001 5-Door Hatchback. A further 12 newsletters and training publications have also been distributed.

Thatcham have also been active with two major training initiatives. The first is the extension of an existing scheme to issue Training Passports which offer 20 days training at Thatcham's Training Centre or at an affiliated regional training centre, and in some cases can provide training for repairer staff at their own workshops. The second training initiative is directed at General Managers of repair workshops who have no formal business training. Thatcham have teamed up with Nottingham University Centre for Automotive Industries Management to run a course providing key management skills and strategies. Peter Roberts, Thatcham's CEO, says: "By developing focused business programmes to support those at the coal face of the vehicle repair industry, Thatcham is contributing to the future well being and profitability of all involved repairers, insurers, manufacturers and the motoring public".

During 2001 Thatcham have been working with a Mexican company, ExpertSys, to develop the world's first 3D graphics crash parts database of all leading European cars. The 3D graphics package will illustrate vehicle construction and crash vulnerable parts in high quality detail to the benefit of all involved in vehicle repairs. The 3D graphics are linked to Thatcham Times System (TTS) and Thatcham Parts System (TPS). As part of the collaboration ExpertSys has six technicians currently working at Thatcham. Natalia Galaragga, Thatcham's Director of IT, says: "Collaboration with leading 3D specialists, ExpertSys, will bring virtual identification solutions to the crash repair industry, giving insurers, repairers and estimating software providers real long term advantages". See also Technical Article on Page 10.

Thatcham's interactive New Car Security Rating (NCSR) web site (www.ncsr.co.uk) was launched on 18 Feb 2002.

(Thatcham is at www.thatcham.org)

MPI—Canada

In the past year Manitoba Public Insurance's research group has worked on a variety of projects. One research project investigated applications for weld-bonding in structural repairs. A video copy and report of our research findings have been sent to each RCAR member. In the past year's tests we found that adhesives, combined with strategic welds, could provide efficiencies and improvements in structural panel replacements. This year we are joining with 3M, a major manufacturer of aftermarket and factory adhesives, to test this same structural adhesive in sectioning applications. This research into labour savings and process improvements provided by weld-bonding will be completed in time for this year's meeting in Stockholm.

In addition we have two other research projects on the go. One project investigates the use of heat in fixed glass removals. The application of heat in the removal process promises to cut replacement times as well as reducing the risk of damage to fixed glass and moldings in remove and install operations. To date we have tested the process in over 20 removals and plan to present the results at the September RCAR meeting.

Our research group is also working with Odexxa Technologies Corporation, a Winnipeg firm, specializing in the scientific aspect of comprehensive claims. This joint research looks at how the automobile industry deals with restoring inner cabin damage that could pose significant health risks to workers and to vehicle occupants. The accompanying photograph depicts the burn damage to the interior of a late model General Motors van that formed part of the research.



At this point we have identified the risks to humans in residues from vehicle fires. This has allowed us to develop methods and materials that safely eliminate these risks. Work is ongoing into identifying health issues from flood losses as well as identifying methods of removing health risks from vehicles contaminated by blood borne pathogens and by rodent infestations. We plan to complete this work in early summer and we will share our findings with RCAR members at the upcoming meeting.

News From The Centres

IIHS—USA

The Institute's October 2001 Status Report was devoted to Head and Neck Injury. Improvements in Head Restraint Geometry were reported between model years 1995 and 2001 and the rating for 2001 models were listed. Broadly speaking 30% of vehicles have head restraint rated Good and another 24% are rated Acceptable. Reference is made to the RCAR Standard (see www.rcar.org/papers/rcar.pdf).

Moving on from static testing the importance of dynamic testing is stressed and the Institute provides details of its new Hyper-G Sled, the design and build phase of which will be completed in April 2002. For more detail see also RCAR Newsletter July 2001 (www.rcar.org/what's_new?).

The November 2001 issue provides perspectives on truck safety. The level of improvement in safety is challenged. By using a range of US trends a more measured comparison indicates that there has been no improvement in large truck occupant fatalities between 1975 and 1999. The Institute strongly opposes the lowering of the minimum age for large truck drivers and questions the use by Truckload Couriers Association (TCA) of so called safety "improvements" to champion age reduction. The Institute reports on the seat belt campaign designated "Click It or Ticket". After success in North Carolina the scheme is being extended to seven more south-eastern states. In a concluding note on women drivers, the Institute stated that they "are not riskier; they're in more fatal crashes these days because they're driving more". For a copy of "Trends in Fatal Crashes Involving Female Drivers 1975-1998" by D Mayhew et al, write to: Publications, Insurance Institute for Highway Safety, 1005 North Glebe Road, Arlington, VA22201.

In January 2002 the Institute focused on Motorcycling and in particular on the recent rising trend in fatalities. "Increasingly the motorcycle riders who are getting killed are in their 40s, 50s and 60s, and fewer are in their teens and 20s" says Susan Ferguson, the Institute's Senior Vice President for Research. Part of the reasoning is the changing demographics of bike buyers. Older, more affluent members of the professional, managerial and technical sectors are buying the bikes and having the accidents. The point is made that the US lags behind Europe and Australia in the use of helmets. In the US at present only 20 states and the District of Colombia have mandatory helmet use laws covering all riders. A comparison between states shows that when laws are weakened, as in Texas in 1997, the fall off in helmet use leads to more motorcycle rider deaths. Finally the consequences of brain injury following the lack of use of a helmet are all too painfully depicted in a real life situation.

The use of seat belts received an airing in the February 2002 Status Report. It was interesting to note that when drivers are reminded, as in the case of Ford Motor Company vehicles, the usage increases. The Institute also reported on its research into culture differences in aspects of driver behaviour and fatality rates. Two research papers contribute in this area: "Race, Hispanic origin and socio-economic status in relation to motor occupant death rates and risk factors among adults" by E R Braver, and "Seat belt use among African Americans, Hispanics and Whites" by J K Wells et al. Copies of both publications are available from the Institute (see above for address).



(IIHS is at www.highwaysafety.org)

Centro Zaragoza – Spain

Two editions of Centro Zaragoza's quarterly magazine have been issued since the last newsletter. Topics for the September 2001 edition included: welding of body panels; the preparation of surfaces for painting; management of dangerous residual toxic material in bodywork and painting; inspection and testing for certification – anti-corrosion protection; electronic diesel injection; vehicle identification (VIN); school buses; accident reconstruction; technical videos and product analysis.

Topics in the December 2001 edition covered: types of motorcycles; most common flaws and damage in painting; inspection and testing for certification; the testing of bonnets (hoods); vehicle identification; traction control; electronic differential block; technical videos; Mariano Bistuer interviews José Villalba Ripal, the President APCAS and the International Federation of Automobile Experts; the airbag; automotive lighting – an important part of active safety and product analysis. (Zaragoza Centre is at www.centrozaragoza.com)

News From The Centres

Folksam—Sweden

Anders Ydenius has provided details of research carried out by Folksam and published in 2001. His co-authors were Anders Kullgren and Claes Tingvall. An abstract from the paper, titled: “Development of a crashworthy system: interaction between car structural integrity, restraint systems and guardrails”, is below.



“In the development of a crashworthy road transport system, guardrails could play an important role in preventing frontal collisions on roads without separated lanes and in avoiding collisions with road-side objects. Crash pulses in crashes into guard rails may differ from eg car-to-car collisions, concerning the duration and mean acceleration. If the characteristics of crash pulses into guardrails differ from those used in the design of vehicle interior restraint systems, it may influence the performance of these systems. Collisions with soft guardrails, such as wire ropes, may often have pulse duration of 200 ms or more. The performance of eg airbag systems in collisions with such duration is rarely studied.

This study presents the results of six crash tests, carried out with identical vehicles running into three types of guardrails at two different test speeds, 80 and 110 km/h, and at two different impact angles, 45° and 20° respectively. The three tested guardrails were: a flexible barrier – a wire rope, a semi-rigid barrier – a W-beam guardrail and a rigid type – the concrete barrier. The characteristics of these types of guardrails were found to vary a lot concerning the transferred crash severity and physical behavior. The airbags did

not deploy in either of the two wire rope tests, whereas they deployed in the tests with concrete barriers and W-beam barriers at 45°, 80 km/h test with the concrete barrier, while no interior deformation occurred in the wire rope and W-beam tests. The tests demonstrated the wide range of crash behavior with different barriers and guardrails. Furthermore they demonstrated the importance of choosing the right barrier for a particular need in road construction.

(Folksam is at www.folksamauto.com)

State Farm – USA

There has been progress on State Farm’s activities in the area of Vehicle and Occupant Safety. Two major projects are reported below.

“Dangerous Intersections” is reported on the State Farm web site at www.statefarm.com/media/danger.htm. The point is made that one-third of all crashes in the USA occur at intersections and that many of these crashes can be avoided. Programmes in Australia, Canada and, more recently, in Michigan, have shown intersection improvements. Some of them, low-cost, can lead to crash reduction. State Farm’s “Dangerous Intersection” project was initiated to raise public awareness of the inherent dangers of intersections and offer some ways to make them safer. The web site covers:

- Where are the 10 most dangerous intersections in the USA?
- Where are the most dangerous intersections in your State/Province?
- How can I avoid an intersection accident?
- What State Farm’s project is all about.
- What improvements could reduce intersection crashes.

The latest progress on the Partners for Child Passenger Safety (PCPS) project was reported in December 2001 on PR Newswire and can be found at www.prnewswire.com/micro/chop in a press release from The Children’s Hospital of Philadelphia following the publication of “Trends in Booster Seat Use Among Young Children in Crashes” published in the December 2001 issue of “Paediatrics”. Key findings show that booster seat use for children between the ages of 4 and 8 increased by 74% per year during the two-year study. When the study began only 4.6% of children enrolled were restrained in booster seats at the time of the crash. At the end of the period this had risen to 13%. Despite the increase the vast majority of children in the United States are not optimally restrained. The two-year study has lessons for State legislators and Federal policy makers. This specific study, in which The Children’s Hospital of Philadelphia, State Farm Automobile Insurance Company and the University of Pennsylvania all collaborated, ran from December 1998 to November 2000. The sample was 53,834 children between the ages of 2 and 8 of whom 11.5% were restrained in a booster seat at the time of the crash. The overall project is ongoing.

State Farm is at www.statefarm.com)

News From The Centres

CESVI Mexico

Since 1998 CESVI Mexico has worked to improve the standard of repair for crash vehicles through the qualification of the integrated bodyshops. The programme is designated “Bodyshops Plan of CESVI Mexico”. For this CESVI Mexico, at their Toluca facilities and in different parts of Mexico, provide courses on repair of crash vehicles covering body, painting and management mechanics of collision, as well as courses for the bodyshops that are integrated in the plan. The main objective of the project is that the bodyshops will view CESVI Mexico as the “National Center for Bodyshop’s Training”.



The strategy being carried out at present consists of extending the qualification in cities with major demand in subjects of repair of crash vehicles. In 2001, 232 workshops became qualified, including 23 General Motors dealerships and 56 for the Volkswagen. In addition there were 64 courses on car bodywork with the participation of 702 panel beaters, 60 courses on paintwork involving 584 painters, and 93 bodyshop managers were also trained.

Also, in the “Bodyshops Plan of CESVI Mexico”, the training for Nissan is designated N-SBAPP (Nissan Service Body and Paint Program). In this 55 Nissan dealerships received bodyshop courses with 343 panel beaters participating, 20 painting courses with 286 painters participating, as well as training 34 bodyshop managers.

The cities in which this training programme was delivered, in addition to CESVI Mexico in Toluca, were Guadalajara, Mérida, Puebla, Monterrey and Villahermosa. For the present year, 2002, the budget has been increased significantly to take account of the following training programmes which are planned:

Body Shop CESVI Mexico – 165 Agencies: total attending 2,544 on 212 courses (102 body/1,224 panel beaters; 96 painting/1,152 painters; 14 management/168 managers).

Nissan N-SBAPP – 100 Agencies: total attending 732 on 61 courses (30 body/360 panel beaters; 24 painting/288 painters; 7 management/84 managers).

VW – 110 Agencies: total attending 684 on 57 courses (50 body/600 panel beaters; 7 management/84 managers).

General Motors – 45 Agencies: total attending 324 on 27 courses (14 body/168 panel beaters; 13 painting/156 painters).

Overall total – 420 Agencies and Body Shops: 357 courses with 4,284 attendees.



(CESVI Mexico is at www.cesvimexico.com.mx)

News From The Centres

Allianz Zentrum für Technik—Germany

In recent months AZT have issued a number of technical bulletins covering Damler Chrysler W203 rear cross member, Damler Chrysler Smart chassis number, Audi A8, Standox Special Paint, VW theft security, Nissan Antenna and MCC Smart painting.

For 2002 technical bulletins have been issued electronically in .pdf format. Five have been issued to date and they cover a comparison of costs involved in the repair of three vehicles using OEM and generic parts, headlight repair for Audi VW and Seat models and Nissan Almera, SMART and rear panel of Golf III variant.

AZT launched a marketing initiative in late 2001 aimed at AZT's global network of potential customers of AZT services. This comprised AZT – News covering New Research Results and a separate publication providing details of the range of services provided by the Division of Automotive Engineering at AZT. The publication covered History, Repair Research, Repairs in Practice, Safety Research, Training and Public Relations, International, and How to Find Us.

See Front Page on Dr.-Ing. Dieter Anselm's appointment as Honorary Professor of the Technical University of Vienna.

(Allianz is at www.allianz-azt.de)

JKC & KART Joint Conference – 6/7 December 2001

In December 2001 JKC and KART held a joint conference in Ichon, Korea, where KART's facilities are located. The Joint Conference has been held annually in turn by the two centres since 1999. In 2001 it was KART's turn to host the meeting.

Eight representatives from JKC, including Mr Shigeyuki Yamaoka, Director, attended the conference and six presentations were given by JKC and four by KART. The official language for the meeting was English.

JKC Presentations

- "The Comparison of Damageability and Reparability Between Today's Safety Bodies and Conventional Bodies" by Mr Mitsuharu Ohkawa.

Today's safety bodies have become much better at damageability but the repair costs of those aren't always lower than conventional ones. Therefore we will ask the car manufacturers to consider the cutting method for the repair of front side members, and will also give them information about our results of the low speed (8 km/h) crash tests.

- "Our Activity of Making Proposals to the Car Manufacturers for Improvement of Reparability" by Mr Toru Ogma

We are gathering ideas for the improvement of reparability at the time of producing our repair times and giving those to the car manufacturers. Some examples of those that gave great effect to the reduction of repair costs were reported.

- "A Study on the Repair Method for Headlamp Brackets" by Mr Masaaki Matsushita.

The repair method for headlamp brackets that was developed at JKC was reported, and the JKC activity for the car manufacturers to set separate headlamp brackets into their service parts was also reported.

- "A Study on the Changes of Wheel Alignment after RCAR Crash Tests" by Mr Koji Demachi.

We have measured the wheel alignment of 50 cars after RCAR crash tests and based on those data we have studied necessity of measurement using four-wheel alignment testers. We could find that the necessity of using four-wheel alignment testers is very low if there aren't any damages at the body portions where suspensions are mounted.

- "A Study on the Reusability of Electronic Components (Inspection and Repair Methods)" by Mr Kazuhiko Koiwa.

Electronic components are usually very expensive but they tend to be exchanged easily when cars meet accidents. We are studying the inspection methods for discharged headlamps after car accidents and we will ask the car manufacturers to reconsider their service instructions for repair.

News From The Centres

- “Outlines of the Systems of Repair Time in Europe and the USA” by Mr Hisashi Kusano.

Typical repair time systems used in UK, Sweden and USA had been studied at JKC and the essence of those was reported. We pointed out the possibility of using those repair times for imported cars after further research.



KART Presentations

- “Comparative Study on Damageability and Reparability of Vehicles with a Common Platform” by Mr Seung Kyu Yu.
- “A study on the Effect of the Mid Coat in Refinishing” by Mr Dae Hun Kim.
- “KART’s Training Programme and Its Future Direction” by Mr Sun Yong Moon.
- “The Characteristics and Long Term Plan of ARECCOM System” by Mr Jun Sung Whang.

After the Technical Programme delegates took part in a tour and visited a traditional Korean repair shop and a car manufacturer’s repair shop. In addition JKC members and staff from KART had dinner together in order to further their understanding of each other’s organisations and to build up friendship between the two centres. In 2002 the conference will be held in Japan in November. (Secretary General’s Note: I wish to thank Mr Shigeyuki Yamaoka of JKC and Mr Sang Don Lee of KART for providing notes of this conference.)

(KART is at www.kidi.co.kr) (JKC is at www.jikcenter.co.jp)

Euro NCAP

The latest test results were published on 27 November 2001 at the conclusion of Phase 9B of the testing programme.

Large Family Cars	Rating	Tested In
Renault Laguna 11	5*	Mar 2001
Audi A4	4*	Feb 2001
BMW 3 Series	4*	Nov 2001
Citroën C5	4*	Nov 2001
Ford Mondeo	4*	Nov 2001
Honda Accord	4*	2000
Mercedes C Class	4*	June 2001
Rover 75	4*	June 2001
Saab 9-3	4*	2000
Skoda Octavia	4*	Nov 2001
Volkswagen Passat	4*	June 2001
Volvo S40	4*	1997
Volvo S60	4*	Nov 2001
Hyundai Elantra	3*	Nov 2001



Euro NCAP (continued)

Large Family Cars (continued)

Mitsubishi Carisma	3*	June 2001
Nissan Primera	3*	1997
Opel Vectra	3*	Nov 2001
Peugeot 406	3*	Nov 2001
Toyota Avensis	3*	1997

Small MPVs

Honda Stream	4*
Peugeot 307	4*
Alfa 147	3*
Super Minis	
Rover 25	3*

Max Mosley, Euro NCAP Chairman and President of the FIA, said:

“In 1997 when Euro NCAP first tested family cars, only one of the 13 models achieved four star status. Today, in contrast, of the 19 family cars tested one has achieved five stars and 12 have achieved four stars. This is clear evidence that Euro NCAP’s goal of creating a market for safety is being achieved.

“Despite the significant overall safety improvements, some cars have performed poorly in our latest tests. The Hyundai Elantra and the Alfa Romero 147 both did particularly badly in the frontal occupant test, with the 147 only achieving a 20% score, one of the worst recorded in Euro NCAP.

“Apart from the achievements of Honda, pedestrian protection performance continues to be very poor; the BMW 3 series only achieved a single star rating in the pedestrian test which is very disappointing for a recent vehicle design.

“The Renault Laguna remains the only 5 star Euro NCAP car but I am confident that those who take the safety of their customers seriously will rise to the Euro NCAP five star challenge in the future.”

Full details at www.euroncap.com

Related sites:	Australia	www.nrma.com.au
	Japan	www.osa.go.jp
	USA	www.nhtsa.gov/cars/testing/ncap
		www.highwaysafety.org

International Bodyshop Industry Symposium – IBIS

IBIS was held in UK on 25/26 September 2001. Sponsored by Eurotax Glass’s, R-M Automotive Paints and Thatcham, and organised by UK’s Bodyshop Magazine, the symposium attracted 100 delegates from around the world. With 29 sessions involving 27 speakers from 14 different countries, key issues were dealt with and delegates gained a major international perspective. Presentations were given by speakers from Australia, Canada, France, Germany, Italy, Japan, The Netherlands, Poland, South Africa, Spain, Thailand, UK and USA.

Two RCAR members gave presentations: Ken Roberts for Thatcham and Mariano Bistuer for Centro Zaragoza, who are pictured below (courtesy of Bodyshop Magazine) talking to Tom Stryker of Motor Information Systems International.



Enclosed with this newsletter is a copy of the 2001 Symposium Digest. Papers are available at UK£395 and there is an order form with the Symposium Digest.

This year’s IBIS is to be held in the Montreux Palace Hotel, Geneva, 18-20 September 2002 (immediately prior to the RCAR Conference in Stockholm, Sweden).

ExpertSys: “Real Time Interactive 3D Engine”

by Anthony Poidevan in Europe and Jesus Peña del Bosque in Mexico

1. The Experience of ExpertSys in 3D Technology

The automobile industry is becoming more and more complex and the information more and more rich. Vehicle spare parts can now be found on data bases which have two dimensional graphic interfaces. ExpertSys is fully aware of the insufficiencies of the two dimensional graphics found in these data bases and is, thanks to its expertise in computer software, meeting the needs of the users who require ever more precision. Today, ExpertSys is enabling research centres to benefit from leading edge technology by creating their three dimensional data base for most European cars.

2. The Different Uses of Three Dimension Graphics.

ExpertSys is the only company which makes it possible to integrate 3D technology into the following solutions.

- 3D interfaces
- 3D valuating system
- 3D repair method manual
- 3D parts catalogues
- 3D real-time interactive
- Training for repairers and assessors 3D
- Technical publications
- Video
- Animation and Multimedia
- 3D Internet Solution.

Not only does 3D graphics enable the user to benefit from the highest degree of precision in the automobile industry, but it also leads to considerable savings in both time and money. It is not unusual to see a developer adapt 2D graphics (by blowing up the drawing or redrawing the part so as to see it from another angle) so as to integrate them into the valuating system, repair method manual, parts catalogues or other types of technical publication. Today, 3D offers draughtsmen the possibility to pick out the part (available in the database) in 3D, choose an angle of view, adapt the dimensions and integrate it into the application. The manipulation of 3D is so simple that it could facilitate the development of new activities in your company without incurring any additional costs and improve the quality of the services you provide to your partners: Equipment manufacturers, Motor manufacturers, Insurers, Software houses and Suppliers.

3. Advantages of Real Time Interactive 3D Engine

a. Identification at first glance:

We feel that initially the use of graphics, whether in two or three dimensions, will enable the user to both organize and simplify the management of the database. This will lead to saved time and an improvement in the quality of service provided to partners. Today, the ability to identify parts through 3D graphics underlines the advantages of the organization of a database. Whoever the user, from the data base programmer to the final user, he will benefit from a tool which is faster, more precise and much more flexible, all of which result in optimal performances. The programmer will have a flexible database which can be adapted to any of the applications the company may require and the user will benefit from a more convivial work environment and will find his tasks simpler.

b. Economies of scale and flexibility:

The integration of 3D into your activities will result in time savings and substantial savings through economies of scale. Three Dimensional graphics can be used in every department and no longer requires any manual intervention to make corrections or adaptations to the dimensions used in the final application. On top of giving your company a high-tech reputation, 3D will bring long-term advantages to insurance companies, to vehicle repairers and to calculation systems. Your company will become a leader in its field.

c. Examples of advantages for a possible application:

The valuating system:

Expertsys development tools constitute the ideal solution to integrate 3D technology into your application fast and efficiently, giving to your system real-time interaction with technology.

ExpertSys: “Real Time Interactive 3D Engine” (continued)

- Life-like visualization of the vehicle.
- 3D visualization of each part, separately and as a whole.
- Appreciation of the exact location of each part is in the real vehicle
- Visual and by-data verification of the internal structure of the vehicle.
- Rotation of the vehicle
- Zoom of a selected part
- Selection of the damaged area
- Selection of a specific part.
- Reduction in the amount of information that the user has to input into the system for its operation.
- More accurate calculation of the damaged area.
- Intuitive interaction with the system

4. Description of the 3D digitizing process

a. The process

- The process of 3d modeling begins with the car itself.
- The car is then taped according to the resolution required for each part. This process requires knowledge and artistic sense.
- Once the internal and external parts have been taped, every single vertex (the crossing of two lines) has to be “taken” with the tip of a 3D arm digitizer.
- Every time a point is taken, the arm generates an spatial point (x,y,z coordinates) which is stored as data in a computer file.
- This file (Which is a collection of points) goes to our Silicon Graphics modeling stations, where our modelers finish the model by:
 - Mirroring symmetric parts.
 - Welding seams.
 - Removing or moving incorrect vertex.
 - Grouping polygons to form different parts (Doors, etc).

Once the geometry is ready, the model has to be processed by our programmers where, through an automated process, every model is compacted and a Java-xml program is generated. The use of java-xml programming is very important as it is the standard language for the web, and has a simple plug-in installation Netscape and Internet Explorer are able to interact with it. Your database will be able to be accessed locally or via Internet 3 days after the process begins, any car will be ready to interact with your own database in a real, and friendly 3D environment

b. Explanatory description of the digitizing method:



1. Real Model



2. Taped Model



3. XYCoordinates



4. Wireframe DXF



5. Virtual Model



6. 3D Parts

ExpertSys: “Real Time Interactive 3D Engine” (continued)

c. Advantages of the process:

- How accurate?

Accuracy of the graphics “virtual identification of the parts”

We adapt the precision of the vehicle part graphics to suit your needs. With more than 70.000 polygons per vehicle, the image is very close to reality. However, a lesser degree of precision may be sufficient depending on the applications the 3D graphics will be used for.

It must be pointed out that, in terms of precision, the main difference between a 2D image and a 3D image lies in the volume generated by 3D. A 2D image remains static whereas in 3D the image, if it can still be called an image, can be viewed from any angle. One simply has to choose the angle best suited to the situation .

- How Fast ?

Our experience, as well as the technology that we have at our disposal, enables us to digitalize a vehicle in only three days and in this way we are able to update your database extremely quickly. As a result, your partners as well as your clients will benefit from the most precise and most up-to-date database.

- How powerful ?

Today, companies are working towards making their data bases available on line to facilitate user access. The use of java-xml programming is very important because it is the standard language for the web, and it has a simple plug-in installation, Netscape and Internet Explorer are able to interact with it. It is obvious that not only do we offer 3D images, but we also offer a support for your future Internet project.

- How easy is it to integrate?

Training and Consulting:

In order to ensure successful integration of our 3D graphics into your systems, as well as the benefits expected, detailed training courses and consulting services are offered, and these can be adapted to your particular requirements.

5. New 3D Graphics for MIRRC Thatcham.

For Thatcham, as well as for ExpertSys the month of December will go down in history. The two companies formed a joint venture to develop the world’s first 3D graphics crash parts data base for all leading European cars. The 3D graphics will illustrate vehicle construction and crash vulnerable parts in high quality detail to the benefit of all involved with vehicle repair.

With the introduction of 3D modeling, Thatcham believes the considerable advantages of graphics combined with the descriptive identification of parts, will greatly enhance both Thatcham Times System (TTS) and Thatcham Parts Systems (TPS), products used by all major software houses who provide estimating systems to UK Motor Insurers.

Clearly defined vehicle graphics will become available to estimators and repair technicians, and this will result in faster, more accurate estimates and repairs.

Natalia Galarraga, director of Information Technology at Thatcham, said: “Collaboration with leading 3D specialists, ExpertSys, will bring virtual identification solutions to the crash repair industry, giving insurers, repairers and estimating software providers real long term advantages.” ExpertSys currently has seven technicians based at Thatcham.

Antonio Peña del Bosque, President of ExpertSys, said: “Our alliance with Thatcham is of great importance to ExpertSys. Thatcham’s name and reputation is the gateway to Europe and Asia for our Company.”

This investment in 3D graphics is a worldwide first for Thatcham and will provide enhancement of existing electronic products and support moves to Internet solutions. Mapping the Automotive world in such detail pushes Thatcham’s electronic data services to the forefront of digital display technology.

ExpertSys: “Real Time Interactive 3D Engine” (continued)

6. Expertsys Data Laboratories

Expertsys, a Mexican company founded in 1995, is the technological leader in three-dimensional imaging and is continuing to develop its expertise in CAD/CAM manufacture applications and reverse engineering.

As processors became faster, Expertsys saw the great opportunity for using this technology to create 3D interfaces in applications where 2D representation was insufficient for the detailed analyses required by users.

Expertsys employs 100 people in Monterrey and will hire 30 expert 3D modellers to complete the 3D modelling for Thatcham's project.

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From The Secretary General

Welcome to the March 2002 Newsletter. I very much hope that you will find something of interest here. The format follows that normally adopted in that there is news from the centres, technical items, news sources, conference reports and what's new. I have also included “RCAR People” with news from AZT, Germany, and KIDI, Korea.

News From The Centres

There is news from 11 of our 24 centres and a review of these quickly demonstrates the variety of activity in the RCAR community. Most are material damage based, but there is plenty of activity in the fields of training and vehicle and occupant safety. Our colleagues in Japan and Korea also report on their third annual regional meeting which this year was held in Korea.

RCAR Crash Test

RCAR Members will recall the setting up of a working group to review the RCAR 15 km/h crash test. The group has already met and will do so again in May. I was very pleased to hear from Stéphane Couturier that a number of crash tests (13 in all) are to be conducted at CESVI France to provide data for the forthcoming meeting. I believe we shall have the opportunity for an informed discussion at our RCAR meeting in Sweden in September.

Conferences

I have included on Page 14 a note of the forthcoming meeting, “Testing Expo 2002”, to be held in Stuttgart, Germany, 15-16 May 2002. This is organised by Testing Technology International who produce a regular magazine directed at automotive testing. Their audience is OEM in the main but there is a great deal of interest research centres involved in crash testing and other forms of testing, eg alternative parts and electronic security.

Also, on Page 9, I spotlight the International Bodyshop Industry Symposium (IBIS) which has been created by UK's Bodyshop Magazine. This seems to be a unique forum for examining some of the international issues from a mainly repair sector perspective. I have included details of this year's meeting which will be held in the week prior to our September RCAR meeting in Stockholm.

I shall be on holiday in South Africa during March but will produce our annual Project Catalogue in April on my return.

With very best wishes from an extremely wet and windy UK.

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The RCAR Network

Of the 24 RCAR Centres in 17 countries, 19 have web sites. Addresses are to be found on www.rcar.org. However, for convenience, web sites are also listed below.

AZT	www.allianz-azt.de
Centro Zaragoza	www.centro-zaragoza.com
Cesvimap	www.cesvimap.com
Cesvi Argentina	www.cesvi.com.ar
Cesvi Brasil	www.cesvibrasil.br
Cesvi Colombia	www.cesvicolombia.com
Cesvi Mexico	www.cesvimexico.com.mx
Folksam Auto	www.folksamauto.com
ICBC	www.icbc.com
IIHS	www.highwaysafety.org
JKC	www.jikcenter.co.jp
KART	www.kidi.co.kr
KTI	www.k-t-i.de
Lansforsakringar	www.lansforsakringar.se
NRMA	www.nrma.com.au
State Farm	www.statefarm.com
Tech-Cor	www.tech-cor.com
Thatcham	www.thatcham.org
VICC	www.vicc.com

Dates For Your Diary

Testing Expo 2002 is to be held in Stuttgart, Germany, 14-16 May 2002.
Details: www.testing-expo.com.

International Bodyshop Industry Symposium (IBIS) is to be held at the Montreux Palace Hotel, Geneva, 18-20 September 2002.

Annual RCAR Conference 2002 is to be held in Stockholm, Sweden. 22-27 September 2002, and will be hosted by Folksam Auto.

46th Annual Conference of the Association for the Advancement of Automotive Medicine (AAAM)
Tempe, Arizona, 29 September to 2 October 2002
Details: <http://www.carcrash.org>

46th STAPP Car Crash Conference is to be held at Sawgrass Marriot Resort, Ponte Vedra, Florida. 11-13 November 2002.
Details: <http://www.stapp.org>.

NACE 2002 is to be held in Dallas, Texas, 5-8 December 2002.
Details: <http://www.naceexpo.com>

Testing Expo 2002 Conference

Speakers at the conference, to be held 14-16 May 2002, will cover a range of automotive issues including various types of testing, standards, certification and legislation, materials, occupant safety, quality management, emissions measurement, simulation software, sensors and transducers, EMC testing, alternatives to physical testing, etc.



Highlighting the importance of automotive crash test and analysis, the organisers of Testing Expo bring you "Crash Test Expo". As an integral part of Testing Expo 2002, Crash Test Expo will incorporate the world's leading technology vendors from the area of crash test analysis and simulation. Around 30 leading organisations will present their very latest technologies covering this vital area of car manufacture and design. Crash Test Expo will incorporate a technical presentation studio, where visitors can hear state of the art technical papers from the world's leading crash test analysts.

Presented in association with MIRA, TRL, IDIADA and Prototipo, Crash Test Expo will offer an environment where visitors and exhibitors can meet and discuss the latest advancements and procedures in automotive crash testing.

News, News...

It is not the intention to provide the latest automotive or insurance industry news in this Newsletter. However there are some excellent sources available on the Web and members may find the following sites useful.

Automotive Online.	http://www.automotive-online.com
Automotive.com	http://www.automotive.com
AM-online	http://www.am-online.com
Associated Press.	http://www.ap.org
AutomotiveNewsWire.	http://www.brgtownsend.com
Bloomberg.	http://www.bloomberg.com
CeBIT	http://www.cebit.de
Cisco Systems	http://www.cisco.com
CMGI	http://www.cmgi.com
CNN.	http://cnn.com
Far East Newsletter.	http://www.feer.com
Financial Times.	http://www.ft.com
Fleet NewsNet.	http://www.automotive.co.uk
JUST-AUTO	http://just-auto.com
MSN.	http://www.msn.com
New York Times.	http://www.nytimes.com
Newspage.	http://www.newspage.com
ODETTE	http://www.odette.org
PRNewswire	http://www.prnewswire.com
REUTERS.	http://www.reuters.com
Roadtransport.	http://www.roadtransport.net
Silicon.	http://www.silicon.com
Slate.	http://www.slate.com
Wired.	http://www.wired.com
Wall Street Journal.	http://www.interactive.wsj.com
Yahoo!	http://uk.yahoo.com
ZD.	http://cgi.zdnet.com