>AUTOENGINEER

ISSUE 42 JULY 2011

> 2011 SAE-A Automotive Engineering Excellence Awards
> Australian Automotive Week conference reports
> Diesel Territory delivers more sustainable drive

Published by SAE AUSTRALASIA *>Autoengineer* is also the official journal of AutoCRC Smarter Safer Cleaner

SAE-A Publications Order Service

Bosch Automotive Handbook
New release available

Published by Robert Bosch, June 2011 Soft cover, ISBN: 978-0-7680-4851-3
Order No: BOSCH8 > List $80.00 > SAE-A member $72.00 > SAE Joint member $64.00.

The latest edition of this best selling, indispensable reference book has been completely updated with more than 580 pages of new content, including new or greatly revised sections on:

■ Internal combustion gasoline and diesel engines ■ Spark ignition engine management: fuel supply, LPG operation ■ Diesel engine management: common-rail injection system ■ Turbochargers and superchargers ■ Hybrid drives ■ Fuel cells for the vehicle drive ■ Chassis systems: suspension, shock absorbers, steering ■ Chassis control and active safety: driving dynamics control system ■ Automotive electrics: vehicle electrical systems, electrical machines ■ Automotive electronics: automotive software engineering, networking, buses

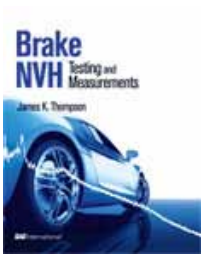
Detailed enough to address complex technical issues, yet portable enough to take everywhere, the 8th edition Handbook contains more than 1,000 illustrations, diagrams, and tables.

Vehicle Accident Analysis and Reconstruction Methods Second Edition by Matthew Brach, Raymond M. Brach

Published April 2011, 442 Pages, Hardbound ISBN Number: 978-0-7680-3437-0
Order No: R-397 > List $177.00 > SAE-A Member $159.30 > SAE Joint Member $141.60

Designed for experienced practitioners, this new book aims to help reconstruction specialists with problems they may encounter in everyday analysis. The authors demonstrate how to take the physics behind accidents out of the idealised world and into practical situations. Real world examples illustrate the methods, clarify concepts, and provide practical applications to those working in the field.

Thoroughly revised, this new edition builds on the original exploration of accident analysis, reconstruction, and vehicle design. Enhanced with new material and improved chapters on key topics, an expanded glossary of automotive terms, and a bibliography at the end of the book providing further reading suggestions make this an essential resource for engineers involved in litigation, forensic investigation, automotive safety, and crash reconstruction. Police officers, attorneys, and insurance professionals will also find the book to be a definitive resource in reconstructing accident scenes.



Brake NVH: Testing and Measurements by James K Thompson

Published by SAE International, March 2011, 156 pages, Hardbound
Order No: R-399 > List $117.00 > SAE-A member $105.30 > SAE Joint member $93.60

As other vehicle systems have become more refined, more attention must be placed on brake NVH issues because they can cause a negative customer experience. From the laboratory to the road, the use of technology, as well as further study by engineers, is helping to lessen noise, judder, and vibration in cars.

This book provides a fundamental understanding of current practices for measuring and testing brake NVH. From basic definitions and concepts to in-depth analysis of on-road test procedures, it will serve as a comprehensive reference guide for brake test technicians, test engineers, lab managers, and others who work on making brakes quieter, smoother, more refined, and more reliable. Topics covered include:

■ Common brake noise and vibration issues ■ Instrumentation, transducers, and other technical details ■ Measurement practice for laboratory and on-road testing ■ Brake pad damping and natural frequencies ■ Current trends in brake noise and vibration measurements

> Prices include GST > Add $16.50 postage to order. > A credit card fee on total order amount of 2% for MasterCard/Visa and 3% for Amex will apply. > Enquiries to Rose De Amicis on Tue/Wed/Fri
> E: rose@sae-a.com.au F: 03 9696 5865 T: 03 9696 5190 > P: Level 2, 70 Dorcas St, Southbank Vic 3006 Australia

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Contents

On the cover: Polypropylene plastic prior to applying nano-engineered film coating to create a mirror surface for the Integrated Plastic Mirror - winner of the Silver Automotive Engineering Excellence Award (see article page 10).

Nissan Leaf first 5-star rating for an electric car

The Australasian New Car Assessment Program (ANCAP) has announced the first 5-star safety rating for an electric vehicle - the Nissan Leaf. The new Leaf includes a safety suite of air bags, anti-lock brakes, electronic brake distribution, electronic stability control and intelligent seat belt reminders.

ANCAP Chair Lauchlan McIntosh said the 5-star rating based on EuroNCAP tests again confirmed that "green"' can also be "safe"'.

The Leaf performed very well in crash testing, with the passenger compartment holding its shape and thus offering superior protection for the occupants.

The Australian Motor Industry Federation launched

A new national automotive body - the Australian Motor Industry Federation (AMIF) - has been launched to represent businesses in the vehicle retail, service and repair (RS&R) sectors. The AMIF brings together the Motor Trades Associations of Queensland, New South Wales, South Australia and Western Australia; VACC, the Tasmania Automobile Chamber of Commerce and ACT and Northern Territory.

AMIF Chief Executive Officer Richard Dudley said the RS&R industry is the nation's largest small business industry sector representing 100,000 businesses, 310,000 employees and an aggregated turnover of $160 billion a year.

2011 Events Calendar

This events calendar, which is correct at the time of publishing, is provided as a service to help you plan your diary, and includes:

- SAE-A events for members and non-members. For information T: 03 9696 5190 or visit www.sae-a.com.au
- FAPM events for members. For information T: 03 9863 2401 or visit www.fapm.com.au
- AutoCRC events. For information T: 03 9948 0458 or visit www.autocrc.com
- ITS Australia events. For information see below or visit www.its-australia.com.au

August		
16	FAPM	Central Region Annual General Meeting
23	FAPM	Northern Region Annual General Meeting
24	FAPM	Southern Region Meeting
25	SAE-A	Innovation Management Conference "Leveraging Innovation"
September		
20 - 22	ITS Australia	National ITS Summit, Gold Coast, T: 03 3255 1002 www.itssummit.com
20	Deakin University	International Clean Vehicle Conference E: frank.will@deakin.edu.au
21	FAPM	Executive Council Meeting
October		
16	ITS Australia	18th ITS World Congress, Orlando, USA, T: 039646 6466
November		
4	FAPM	Southern Region Annual Dinner
15	FAPM	Central Region Meeting (Christmas Drinks)
16	FAPM	Northern Region Meeting
30	FAPM	Executive Council Meeting Annual General Meeting
30	FAPM	Southern Region End of Year Dinner
December		
15 -18	SAE-A	Formula SAE-A

Carbon tax will hit Australian automotive manufacturers

Leading industry bodies have issued warnings about the impact of the Federal Government's proposed $23 a tonne carbon tax on Australia's automotive industry.

Federation of Automotive Products Manufacturers Chief Executive Richard Reilly said the Gillard Government's proposed carbon price would adversely affect the automotive component sector's international competitiveness.

"A carbon price will ultimately make the sector less competitive against imports from manufacturers in lower cost competing nations - component makers that won't be subject to an additional taxation impost," said Richard Reilly.

Australian component manufacturers export their products worldwide. These components contribute to some of the most efficient vehicles in the world, including electric vehicles yet to arrive in Australia. Local component manufacturers are already facing high energy costs and an unprecedented level of the Australian dollar.

"Cost increases will likely have to be borne by the local component manufacturers as there is little, if any, scope for these increases to be passed to vehicle manufacturers in Australia or overseas. This negative impact on local competitiveness for the sector would impact on investment and employment decisions of the Australian supplier community. FAPM wants the Government to be mindful of the impact of the carbon price on the trade exposed automotive sector and as a minimum, fully offset the increased cost impact of a carbon price for this sector," Richard Reilly said.

Andrew McKellar, who was Chief Executive of the Federal Chamber of Automotive Industries when the tax was announced, also expressed disappointment that the Government failed to ensure trade exposed industries, like automotive manufacturing, are adequately compensated for increased costs.

"Our analysis indicates that the initial carbon price of $23 a tonne will result in increased costs to local automotive manufacturers of more than $30 million a year. A cost increase of this magnitude will further undermine the competitive position of local manufacturing making it harder to secure future investment," he said.

"If Australia wants to maintain a diverse economy with a high tech automotive industry, we need to secure ongoing investment in future automotive design, engineering and production programs. Australia needs to take an internationally competitive approach to policy that supports industry and government co-investment, and not penalise companies that invest in automotive capability in this country," said Andrew McKellar.

Australian Industry Group Chief Executive Heather Ridout said that large parts of industry will be deeply concerned that their competitiveness will be damaged. "This is especially so in these very uncertain economic times when manufacturing in particular is experiencing extremely stressful economic conditions," she said.

Heather Ridout said while the Government has gone some way to addressing industry issues, the climate change package falls short in a number of critical areas:

- The measures providing transitional support to trade exposed businesses need to be strengthened.
- The initial price of $23 is excessive and should be reduced.
- There is no plan for cleaning out the existing array of inefficient and costly greenhouse gas abatement measures.

"The announcement leaves many exporting and import competing businesses exposed to a sharp erosion of competitiveness. For some businesses these extra costs could equate to almost 2.5% of revenue and imply a significant reduction in their margins," said Heather Ridout.

"Further, the design of the support programs for manufacturing has an emphasis on grants for investment in innovation and leaves businesses exposed to extra costs in the meantime. Moreover, the design of the grants program itself raises issues, including accessibility and flexibility to meet the varied needs of business. The Government needs to consult closely with business on this.

"The initial price of $23 a tonne, which the Greens took to the last election, will present a major shock to industry and there is a significant risk that in 2012-13, the carbon price in Australia will be above global prices. This price is hard to accept when it is added to the impact of the numerous existing, mostly wasteful, carbon reduction measures imposed by federal and state governments. The fact that the package does not do anything to clean out these measures leaves industry with a much greater effective price on carbon," she said.

Component suppliers win GCIF grants

Federal Government Green Car Innovation Fund (GCIF) grants totalling $6.2 million have been allocated to four component supplier projects. The GCIF, which was part of the New Car Plan, was closed to new applications in January 2011.

South Australian based Toyoda Gosei, won funding of $2.3 million to develop technologies for manufacturing lighter body seals and safety products, such as air bag modules and plastic interior trim. Hirotec, another South Australian supplier, received $1.6 million to produce lighter automotive components, including aluminium bonnet and boot lids.

Victorian company CFusion was awarded $1.4 million to commercialise the world's first one piece carbon fibre steering wheel, which cuts the weight by half. A second Victorian supplier, CME, is using funding of $797,399 to develop a high strength, lightweight sandwich panel to be used in the load floor of vehicles.

Innovation Minister Kim Carr said the projects would bring new technologies, skills and job creation to Australian manufacturing. "We expect these projects will reduce emissions by around 133,000 tonnes and significantly reduce fuel consumption," he said.

Toyoda Gosei will use a Green Car Innovation Fund grant of $2.3 million to develop lighter components, such as air bag modules.

In May, Minister Carr announced a $40 million grant to GM Holden for light weighting the Commodore and he advised that a further $500 million in GCIF allocations had been made prior to the close of applications. He has also called for comment on the administration arrangements for a new Federal Government R&D Tax Credit scheme to assist small and medium businesses in adapting to the "low carbon economy".

For more information on the R&D Tax Credit visit www.innovation.gov.au/rdtaxcredit

Driving Victorian auto industry growth in India

In April, a Victorian Government delegation of 10 Victorian automotive companies and research organisations visited key Indian car makers and automotive companies in Pune, New Delhi, Mumbai, Bangalore and Chennai. The automotive mission included meetings and site tours with major Indian motor companies, including Reva Electric Car Company, Mahindra and Tata Motors, as well as international companies operating in India, such as Renault, Nissan and Volkswagen.

F1 in Schools leads student to F1 Red Bull Racing

Red Bull Racing Chief Technical Officer, Adrian Newey, (left) is a Patron of F1 in Schools and said: "Matt Cruickshank has proven the value of participating in F1 in Schools and I hope this programme continues to bring more students into professional motorsport."

Matt Cruickshank, a 20 year old second year engineering student from Sydney is living his dream. He is doing a work experience year at the F1 Red Bull Racing headquarters at Milton Keynes, in the UK. Matt's journey began at Barker College in Sydney when he was part of a student team using sophisticated engineering software and manufacturing equipment to design, make and race a miniature F1 car as part of the F1 in Schools programme.

Matt's team represented Australia at the 2008 F1 in Schools World Finals in Malaysia. They finished third outright, among schools from 20 nations, and won the Best Engineered Car Award.

At Red Bull Racing Matt started in an aerodynamic development team using wind tunnels and is now using computational fluid dynamics to analyse the aerodynamics of the cars in a virtual environment. " My work is challenging but very rewarding - I have learned an amazing amount. No day is the same," he said. Visit www.rea.org.au .

Adapting to our new world

By Max Chanter, SAE-A Executive Director

The financial year has commenced with the world in turmoil as a result of natural disasters and financial and environmental issues. Academic institutions, companies and Not for Profit Organisations all face complex issues on all fronts. This impacts our members. SAE-A must be prepared to embrace change.

Corporate changes and closures, large redundancies, government initiatives and the impact of globalisation on the automotive industry have affected the Society's ability to continue operating "the way we have in the past". We must quickly adapt to the new world to enable the Society to recover and to again become a vibrant contributor.

The Board of Directors is putting initiatives in place to take us into 2012 as a leaner more structured organisation. For example, National Office has streamlined operations. We have two full time staff – myself and Development Manager Michela Bartels, two part-time staff – Administration Officer Rose De Amicis (three days per week) and Bookkeeper Jacqui Sterck (six hours per week), and consultant Barry Oosthuizen, who is our Editor and Communication Advisor.

Membership Services Manager Felicity Wright resigned in April after 8 years with SAE-A and we wish her "all the best" in her future endeavours. Michela Bartels commenced late May in a role combining membership and events, including Formula SAE-A, and sponsorship. This is a big job and we have no doubt that Michela is capable of carrying it out very successfully.

Another indication of the Society's renewal is the large number of industry activities that we are now participating in. We have worked hard to increase our network of collaborative relationships. Our roles in the recent Victorian Government promoted *Australian Automotive Week* prove the point. We worked with an industry wide committee to showcase the industry, with particular emphasis on attracting international automotive businesses and researchers to come to Australia to "show what we can do".

Expanding industry network

We have forged alliances with a range of organisations, such as AutoCRC, Australian Automotive Aftermarket Association, Automotive Skills Australia, Federated Automotive Products Manufacturers, Intelligent Transport Systems Australia, Manufacturing Skills Australia, Society of Plastics Engineers, and a number of Australian Universities. There are other groups with whom we have commenced developing an association, and we look forward to sharing with them the big task of moving our industry forward.

Our *Australian Automotive Week* highlight events were the annual *Change by Design* International Conference based on the theme Electric and Green for 2011 (see article page 23). This full day conference attracted international visitors, speakers from the Czech Republic, Germany, United States and Australia and a diverse national audience.

Following the conference, we hosted the SAE-A Automotive Engineering Excellence Awards, with special guest Victorian Manufacturing Minister Richard Dalla-Riva (see article page 10). We thank the Victorian Government and Minister Dalla-Riva for their support and encouragement with these initiatives.

The *Australian International Motor Show* was part of *Automotive Week* and if you are wondering what the future of the automotive industry looks like, you only had to visit this show to see that we will be driving vehicles with an extraordinary array of power sources. Most forms were represented - petrol, diesel, LPG, bio-fuels, hybrid, battery, etc.

For me, a highlight of the Show was the *Designing the Car of the Future*, a VACC project for high school design students, who are asked to interpret in essays, drawings and models the designs for cars that they envisage we will drive in the year 2030.

SAE-A has just completed a very successful three day *Road Transport Engine Emissions Course* in conjunction with Melbourne University and will now concentrate on projects in the pipeline for the remainder of 2011 - a national innovation management seminar with Monash University titled Leveraging Innovation and our great engineer educational experience *Formula SAE-A*.

With the mention of Formula SAE-A, we think of the young people that will lead our industry in the future. The Society congratulates all those students in NSW training colleges who recently won awards for their apprenticeship endeavours, which were presented by SAE-A Director Ray Beekman. And we again recognise the SAE-A Young Engineer Award winner Stephanie Radion and runner up Christopher Ebejer.

"Business as usual" no longer

By Patrick Ross, SAE-A President

While the Australian automotive industry is stable and healthy with the sale of 1 million vehicles, the design and engineering inputs to the local automotive manufacturing sector are in decline. The on-going reduction of local content is undeniable. We bear regular witness to this when plant reductions and closures are announced.

This reality is now impacting all aspects of Australian automotive manufacture, including industry bodies such as our Society. For example, in the past eight months or so, the SAE-A Directors, Events Committee and National Office staff have been perplexed by low bookings for our events, in some cases resulting in cancellations.

We are a not-for-profit organisation, so we are not chasing huge dollars, but we must cover costs in our efforts to serve you - the members. After due consideration, the SAE-A Board of Directors (BoD) believes this is evidence of significant cultural change in the business sector. We suggest the result is a fundamental change in the SAE-A membership' needs.

These changes must be faced. SAE-A cannot continue to operate on a business as usual basis, with the hope that the external environment will revert to "the good old days". Nor can we justify the status quo on the basis that it served us well over many years. Like most membership-based organisations in this industry, we need to change the way we serve our members.

In my address to the Annual General Meeting, which was attended by a disappointingly small audience of members and Directors, I acknowledged the challenges facing the Society as a result of the significantly altered automotive environment. Indeed one task highlighted those challenges. I had to announce the resignation of two Directors, who both cited the difficulties in balancing their current careers with their desire to support the Society. They concluded that they were not able to do justice to both.

We deeply appreciate and respect their decision.
We acknowledge that these volunteers had the interests of SAE-A at heart and thank them sincerely for the time and energy they invested in SAE-A:

- Max Gillard, who was Immediate Past President, resigned after a distinguished contribution to SAE-A over many years.
- Professor Aleksandar Subic resigned as a Director, after contributing enthusiastically to SAE-A.

The AGM also welcomed new Directors to the Board:

- Professor Xu Wang, a recently elected SAE-A Fellow.
- Ray Beekman returns as a co-opted Director, who will bring representation of the NSW voice back to the Board.

The first meeting of this new Board focused on the need to consider change in:

- What SAE-A stands for.
- What SAE-A members want and need.
- How change will impact the:
  - Direction of the Society.
  - National Office.
  - Role of the Board of Directors.

Thus, we devoted most of that first BoD meeting to a Strategic Review. The issues we debated reflect some areas of opportunity and change. Here I share a brief summary of the main points.

The Society needs your contribution

While SAE-A has in the past fulfilled its activities at National and Divisional levels with a significant input of volunteer resources, this is becoming increasingly difficult to sustain. The undeniable reality of today's business environment is that time is one of the most precious resources.

Today organisations and businesses run lean. For small businesses this means owners are multi-tasking and open for business longer hours. For corporate executives it involves frequent travel, late night teleconferences and multiple functional responsibilities.

To our BoD, this means that the load must be shared more equitably. At present, some directors contribute by leading committees, working hands-on at events and introducing initiatives, while fulfilling their normal duties as directors. The Society requires more people to make a contribution to its future.

Unless we have more support from the membership - to contribute to events and to attend activities - we will not have a sustainable society. In my last few messages in *Autoengineer,* I have urged members interested in joining the Board to formally express their interest.

I must now ask you to consider this as a matter of utmost urgency. Our survival as an independent Society can only be assured if we have more active participation from our broader membership.

SAE-A has a National Office led by an Executive Director. But, declining membership and reducing sponsorship streams mean this structure becomes increasingly difficult to sustain. Therefore, as in the corporate world, SAE-A must judiciously consider opportunities for outsourcing certain functions and activities, to ensure that our members get the best service.

Define a new business model

So, while it is a given that the Society must continue its core role of representing our members, we need to review our business model to deliver this representation in an environment where membership may not grow substantially, and the competition for patronage and sponsorship is intense. Indeed, we anticipate that the availability of such funding will continue to reduce.

SAE-A will therefore consider the options of collaboration business models, as these may present a viable basis to meet the expectation of our members. As the BoD has recognised, you may have noted that many other societies in the industry are facing the same challenges. Rather than compete in a battle for independence to the death, there is great potential to explore synergies and to share resources.

SAE-A reaches its members through its events as well as the *Autoengineer* journal. Having moved *Autoengineer* into the digital age, and having initiated collaboration with content partners such as AutoCRC and FAPM, we must also review our events strategies.

The new digital age business environment has changed the way knowledge is acquired, information is shared and contacts are made. Today's reality consists of Blogs, Chat Rooms, Facebook, Twitter, Knowledge Clubs, Webinars, etc. In a time-poor environment, the fixed-time concept of interested people making time to come to together for traditional conference, seminars or workshops is difficult to sustain.

For example, SAE-A and AutoCRC recently joined forces to present the "Manufacturing –The Engine Room for Victoria" seminar held in tandem with the Automotive Aftermarket Expo. This was an excellent opportunity to have access to presentations of Australian research. The content was excellent, the cost of attendance nominal ($25), yet the event was only attended by less than 30 people.

The Society invests in information sharing events as a service to you - the members. The volunteer Directors and Committees and the National Office staff invest time and cash in conferences and seminars and our major events, such as the Automotive Engineering Excellence Awards and the Formula SAE-A engineering education competition.

Events are a vital source of income, because the Society cannot survive on membership subscriptions alone. We must recoup the costs of events and earn a margin. And we cannot endure losses when events are not supported.

Help define the new SAE-A

To help our Events Committee and National Office staff better understand your needs and interests, we need your input. We want suggestions about the topics you want to know about. We want your ideas on how best to deliver that information - be it a traditional Conference or an online Webinar.

The time for you to come forward is now. The Society does not have the luxury to wait in hope for "others" to step forward with ideas and action. I therefore look forward to your thoughts - and expressions of interest in contributing on a committee, or the BoD.
Contact me at president@sae-a.com.au Thank you.

SAE-A National Office restructure

Recent staff departures at SAE-A National Office initiated a review of tasks and roles to meet members' needs in the changing Australian automotive engineering landscape. One outcome of the review was the definition of a new position, which encompasses the traditional membership and events roles, and adds responsibilities to develop sponsorship opportunities.

The title of the new position is Development Manager and following a search attracting a large number of qualified applicants, we are pleased to welcome Michela Bartels to the role. Michela has more than 10 years experience in business development, sales and event management, with her most recent role having global responsibility.

Long serving SAE-A employee Rose De Amicis has also made some adjustments to her Administration Officer role as part of the restructure, as has Editor and Communication Consultant Barry Oosthuizen. New Bookkeeper Jacqui Sterck has settled into her role well and is working with Treasurer Ernest Sanchez and Executive Director Max Chanter on the accounts.

The SAE-A National Office team (from left) Executive Director Max Chanter, Administration Officer Rose De Amicis and Development Manager Michela Bartels.

The National Office staff now includes Michela Bartels and Max Chanter in full time positions, with support from Rose De Amicis and Jacqui Sterck part time, and Barry Oosthuizen on a consulting basis.

2011-12 Board of Directors

Pictured at the close of the 2011 Annual General Meeting were some of the new Directors appointed to the SAE-A Board for the 2011-12 terms. From left were seated Treasurer Ernest Sanchez, President Patrick Ross, Executive Director Max Chanter, Senior Vice President Prof Harry Watson, and from left standing were Directors Gerald Kent, Bill Malkoutzis and Ray Beekman.

Introducing your Board of Directors

In this issue we welcome Xu Wang . . .

Qualifications > I was recently elected a Fellow of the SAE-A and earned a PhD in Mechanical Engineering from Monash University.

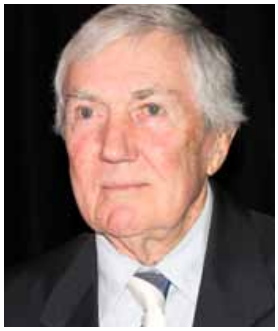
Describe the work you do > I am a Senior Lecturer at RMIT University teaching undergraduate courses about Sustainable Vehicle Design and Automotive Noise and Vibration and a post graduate course titled Automotive Project II. Earlier, I worked as Automotive Specialist Engineer for General Motor Holden Ltd and Continental AG, Germany.

What do you enjoy most about the automotive industry? > The opportunity to achieve engineering excellence through innovation and teamwork, shape our life styles and cultures, minimise the environmental impact of our automotive products, and satisfy our customers and our society.

What do you hope to bring to SAE-A as a member of the BoD? > As one of the BoD members, I would like to promote Australian automotive education to the highest quality, enhance SAE-A member benefits and the quality of its events, and to add value to the community by influencing government regulation and policy making for sustainable mobility and emission control.

What are your leisure time interests? > Listening to music and writing music blogs.

Five minutes with > Don Dunoon



Describe the work you do > My engineering consultancy business broadly covers the design and use of motor vehicles. It is the total product development system from initial design concept through to the engineering, testing and development aspects, including all facilities plus in-service usage, such as vehicle evaluations, expert witness statements, and associated road safety issues.

What do you enjoy the most about the automotive industry? > The industry is truly global. Job assignments are always many and varied and, besides Australia, have included projects in the UK, USA, Germany, Japan, Korea, Taiwan and New Zealand. There is great satisfaction in maintaining an ongoing involvement in where the industry is heading.

What has been the most rewarding aspect of your career? > In earlier times there was real fun, freedom and excitement in developing products like the original Ford Falcon GT. Then, later, there was the opportunity to bring the R32 Nissan Skyline GT-R to the Australian market. Rewarding aspects are really in creating a well engineered product to suit the chosen market - and have the customer agree!

What has your association with SAE-A given you? > A great opportunity to interact with the local motor vehicle industry, but also the unrivalled opportunity to participate in international technical conferences around the world including presenting papers at, and chairing sessions of, FISITA.

What are your leisure time interests? > It was once competing in motor sport events until family and work responsibilities took over. Now it is sailing a frisky Hobie 14 Catamaran in summer months and the odd game of golf all year round.

Vale Alan Robert Wilson - 1931-2011

By Robert Wilson, on behalf of his extended family.

Born in Ballarat, Victoria, Alan died after a short illness connected to melanoma on the brain. His education included Diploma and Post Diploma in Mechanical Engineering, management programs at BOC, Boston Consulting, International Standards, Institute of Welding and he was awarded Professional Charter Engineer status in 1957.

His work assignments ranged from Melbourne University, LB Stockdale, McPhersons and he enjoyed a 35 year career with CIG, retiring from the Gas Equipment Development Manager. Over this period his major contributions included product development of Comet 3 welding/cutting outfits, Mini Colt, a low cost Comet for Asia, Handicolt, CIG 2000 Gas Cutting Machine, metric conversion of equipment and more, including the CIG Domestic Natural Gas Regulator, which won the Prince Phillip Award for Engineering Excellence.

Alan developed a passion for automotive developments, which led to him becoming Editor of the then IAAE Journal in March 1961 and continuing for some10 years. He subsequently became Joint Editor in later years. This long term involvement earned him life membership of SAE-Australasia.

He will be remembered for his generous sharing of his vast technical knowledge, throughout the international regions he visited many times and his compassion and generosity.

Membership Update

New Members

First Name	*Last Name*	*State*	*Member Grade*
Thomas	George	NSW	Student
Kyle	Gibson	WA	Student
Piotr	Gluchowski	ACT	Student
Timothy	Hammond	VIC	Student
Benjamin	Heil	VIC	Student
Matt	Hill	VIC	Student
Alex	Hodge	New Zealand	Student
Kush	Jalota	WA	Student
Luke	Kane	VIC	Student
Shigeaki	Kinoshita	VIC	Student
Jacob	Knowles	QLD	Student
Robyn	Lee	VIC	Student
Rebecca	Lowrie	NSW	Student
Timothy	Mills	WA	Student
Matthew	Mysell	QLD	Student
Dat	Nguyen	VIC	Student
Kacie	Osora	NSW	Student
Sergey	Ovechkin	WA	Member
Melissa	Rebecchi	VIC	Student
Clare	Robinson	VIC	Student
Amir	Shamdani	VIC	Student
Timothy	Stockton	WA	Student
Edward	Styles	SA	Student
Michael	Symes	WA	Student
Samuel	Thomas	VIC	Student
Benjamin	Ting	NSW	Student
Dimitrios	Tsiolkas	NSW	Student
John	Venier	NSW	Associate Member
James	Wall	QLD	Student
Tony	Woodward	NSW	Student
Graham	Young	NSW	Associate Member

New Corporate Member

Company Name	*State*
Baxter Institute	VIC

Upgrades

First Name	*Last Name*	*State*	*Past Grade*	*New Grade*
Benjamin	Carey	VIC	Student	Associate Member
Travis	Collins	VIC	Student	Associate Member
Andrew	George	VIC	Student	Associate Member
David	Stevenson	QLD	Student	Associate Member
Peter	Verde	VIC	Student	Associate Member

2011 Automotive Engineering Excellence Awards

By SAE-A Editor Barry Oosthuizen

Innovations to reduce engine emissions and fuel consumption and to increase manufacturing efficiency were among the winners of the 2011 Automotive Engineering Excellence Awards presented in Melbourne last week (5 July, 2011) by the Society of Automotive Engineers - Australasia (SAE-A) as part of Australian Automotive Week.

The number and quality of entries increased this year as the shadow of the GFC has passed over local vehicle engineering and new projects are again moving forward. In addition to entries received from component suppliers and vehicle manufacturers, welcome entries were also received from the recreational and safety equipment sectors.

SAE-A Judging Panel Chair Bill Malkoutzis said the innovation and passion that was evident in the 2011 Awards entries was reassuring. "We know the face of the vehicle industry is changing with local manufacturing shrinking and imports increasing to over 80% of Australia's one million vehicle sales a year. Even imports of components have now increased to 44% of all parts used in Australian made vehicles." said Bill Malkoutzis.

"Growth in demand for more environmentally friendly vehicles presents opportunities and challenges for Australian automotive engineers. The correlation between the consumers' demands and the engineering projects entered in the Awards this year was clear to see.

"Equally important, we welcomed entries based on projects designed to increase the flexibility and productivity of Australian manufacturing processes. This reflects Australian engineers' ability to adapt to the increasingly competitive global vehicle manufacturing landscape.

"Australians should be proud to be one of the few nations capable of building new vehicles from concept right through component manufacturing to vehicle production. Through these Awards, the SAE-A recognises the skill and experience of our component and vehicle manufacturing industry, which contributes about $7 billion a year to the economy and employs more than 50,000 people," he said.

Australia's world class capabilities

A large crowd of industry leaders and guest speaker Victorian Minister for Manufacturing Richard Dalla-Riva cheered the SAE-A Awards winners. Addressing the Awards audience, Minister Dalla-Riva said: "These Awards encourage excellence in automotive engineering and manufacturing, and send important messages to the national and international automotive community that we are serious about excellence in design, engineering and manufacturing.

In his role as Judging Panel Chair, SAE-A Director Bill Malkoutzis presented the Panel's comments at the Awards presentation.

Victorian Manufacturing Minister Richard Dalla-Riva said the SAE-A Automotive Engineering Excellence Awards send important messages to the national and international automotive communities.

"The Victorian Government is backing the automotive sector. We are determined to remain at the forefront of innovation and competitiveness. That's why we are a strong supporter of Australian Automotive Week and key industry events including the SAE-A Change by Design Conference and Excellence Awards, which promote our industry's world-class capabilities," said Minister Dalla-Riva.

Industry guest speaker at the Awards dinner, Richard Marshall, Director of Energy, Environment and Technology at GM Holden, emphasised the need to ensure that Australian automotive manufacturing continues to gain the support of governments, particularly in terms of maintaining a level playing field compared to other nations. (See Richard Marshall's Industry Comments article page 24)

Awards Judging Panel

An independent panel of judges from the automotive industry and engineering academia judged the entries. The 2011 Judging Panel included Chair Bill Malkoutzis, an engineering consultant; retired Ford Motor Company international executive engineer David Ford; DVExperts Director Dr Shane Richardson; RMIT University Prof Simon Watkins; and Melbourne University Prof Harry Watson.

SAE-A Automotive Engineering Excellence Awards entries are invited from all organisations and individuals, who directly or indirectly provide products, processes or services to the vehicle and related industries.

Gold Award

Frank Will, Senior Lecturer, Deakin University, for the OVER7™ – Engine Waste Heat Recovery System.

The OVER7™ technology reduces the frictional losses of engines by redirecting exhaust heat and by increasing heat transfer into the engine oil.

This modification of the lubrication system includes simple piping, a valve and a new heat exchanger, and will pay back the investment in less than one month if installed in the factory. To reduce the engine warm up time, the system redirects exhaust heat to the oil in the engine lubrication areas, instead of heating all oil in the engine sump.

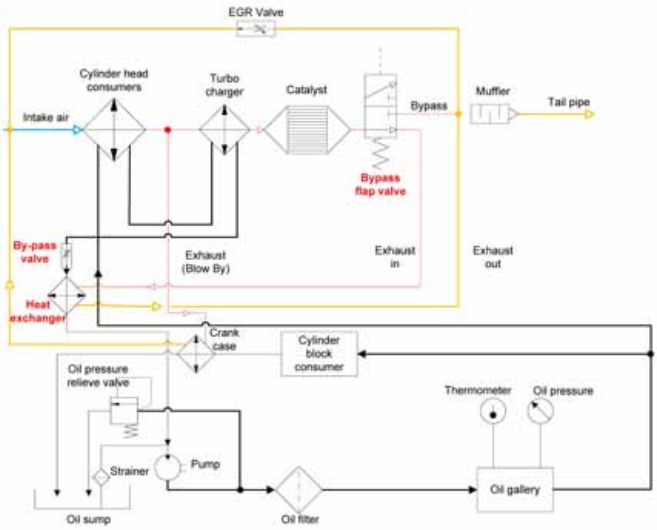
Tests conducted in a certified laboratory using the legal drive cycle confirmed fuel consumption reduction of over 7% and emission reductions of up to 30%. If the system is implemented in only 1% of the Australian passenger car fleet, 15 million litres of fuel will be saved every year and CO2 emissions will be reduced by over 36,000 tons per year.

This system works even better as power trains become more efficient, for example with hybrids, diesel engines, down sized turbocharged direct injection engines, etc. This technology is scalable and can be applied outside also on motorcycles, scooters, mobile power equipment and marine engines.

Because this system greatly reduces engine warm up time, it reduces engine wear by more than 96%. Two patent applications have been filed for OVER7™, it has been adopted by one car manufacturer for its next generation of engines, and it is being reviewed by other leading global vehicle manufacturers.

Victorian Manufacturing Minister Richard Dalla-Riva (left) presented the Gold SAE-A Award to a delighted Frank Will, from Deakin University, for the OVER7™ – Engine Waste Heat Recovery System.

The critical heat exchanger unit designed for the SAE-A Gold Award winning OVER7™ Waste Heat Recovery System.



Overview of the OVER7™ - Engine Waste Heat Recovery System.

Silver Award

SMR Automotive Australia and the University of South Australia, for a lightweight integrated plastic rear vision mirror.

SMR Automotive's Scott Edwards (left) and Peter Murphy from the University of South Australia celebrated their Silver SAE-A Award for the lightweight integrated plastic rear vision mirror.

This innovative market ready lightweight rear vision mirror is expansion-compression moulded polycarbonate with a multi-layer nano-engineered thin film coating system creating the reflective mirror surface.

The four layer thin film coating design is the subject of a PCT Application Patent after significant research was invested into achieving a robust, durable coating in harsh exposure conditions varying from -40°C to +85°C. The technology maintains the adhesion between adjacent coating layers by varying the residual stress in each material during the vacuum splutter deposition process.

Elimination of the glass reduces mirror reflector weight by 50% and results in a reduction in green house gases emissions of up to 400,000 tonnes of CO2 over five years, and reduces overall mass of the mirror assembly by 15%.

Developed through a partnership between SMR Automotive, the University of South Australia and the AutoCRC, this product is a result of funding from the now cancelled Federal Government Green Car Innovation Fund.

This technology reduces the number of components in the mirror assembly and simplifies the mirror manufacturing process, while enabling greater freedom of mirror design. It improves safety in a crash situation, because the polycarbonate does not shatter like glass.

This integrated plastic mirror is now approved by a North American customer for launch in 2012 and is being marketed to SMR customers in Asia-Pacific, Europe and the USA with hopes of gaining 8% of the international market. SMR Australia is the local branch of India based Samvardhana Motherson Reflect Group.

Nano technology is used to layer thin coatings over the polycarbonate base to create the reflective surface of the plastic mirror face.

The recently completed SMR integrated plastic rear vision mirror production facility at Lonsdale, South Australia.

Bronze Award

Gregory Linke, Virtual Manufacturing Engineering Manager, GM Holden, for his Bottleneck Indicator Tool (BIT) software system for manufacturing optimisation.

GM Holden Virtual Manufacturing Engineering Manager Gregory Linke (left) collected the Bronze SAE-A Award for his Bottleneck Indicator Tool (BIT) software system for manufacturing optimisation from Society President Patrick Ross.

This innovative manufacturing tool builds on the known "Theory of Constraints" concept to identify bottlenecks in complex manufacturing processes. The BIT algorithm and processing methodology is based on real time computer analysis of the work flow through the system's work station buffer areas (where one process is completed and another begins).

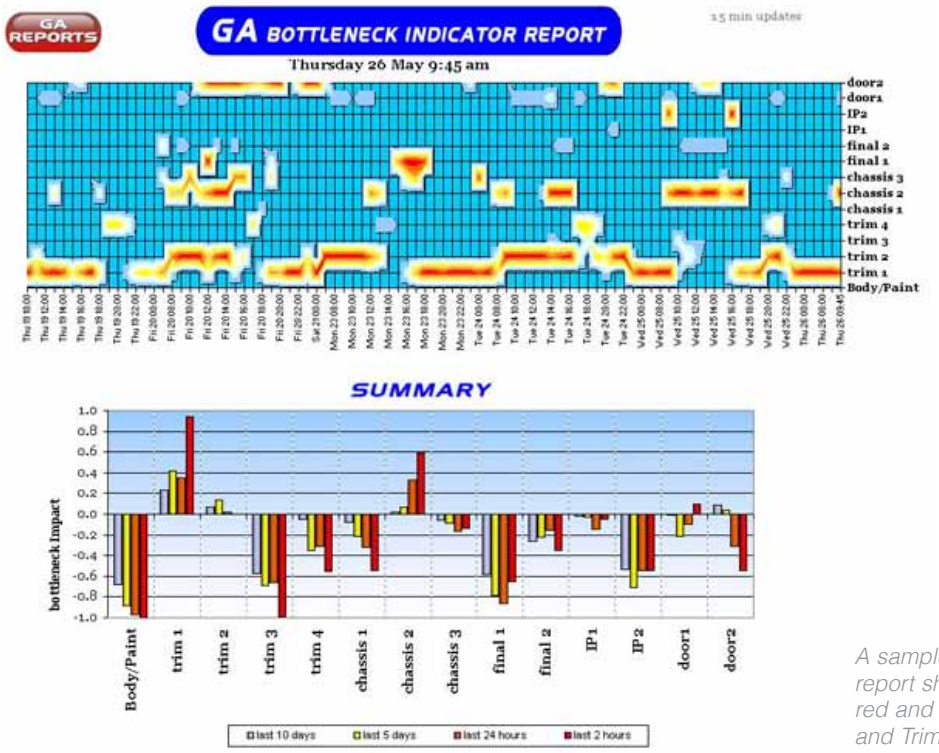
The BIT requires only easily validated buffer contents data, which makes data acquisition and calibration readily achievable. The benefits of BIT are far reaching, including accuracy, ease of calibration, low deployment cost and negligible ongoing maintenance. The BIT package identifies "hidden" bottlenecks missed by other systems and includes a tool box of reports that deliver high levels of detail in a user friendly web browser visual format.

During the initial three month deployment at Holden's Elizabeth, South Australia Vehicle Assembly Plant, volume increased by 60 units a day. The BIT software has been identified as Best GM Practice and is being considered for global deployment.

Existing methodologies were proven unsuitable to the challenge due to technical, financial, time and resource constraints that commonly exist in a manufacturing environment.

The system operates on the simple principle that if the buffer zone before a work zone is generally full and the buffer zones after a work zone is generally empty, that work zone represents a bottleneck.

The BIT software employs Analytical Buffer Methodology developed by Gregory Linke to calculate in real time a "bottleneck indicator value" for each work zone. The value ranges from 1 (= full bottleneck), to 0 (= transient), to -1 (= full over capacity). This information is then published on a live web page that can be viewed on any computer in the facility.



A sample web based Bottleneck Indicator Tool report showing a Bottleneck indicator of 1 as red and 0 as blue, which highlights the Trim 1 and Trim 2 work zones as hot spots over time.

<return to contents>

Certificate of Commendation

Vaughan Bolwell, MDesign, for the Bolwell Edge Caravan.

The Bolwell Edge is a fully moulded fibreglass caravan combining light weight, strength, and aerodynamics with the interior and outer shells bonded to create a rigid, frameless semi-monocoque unit. Advanced composites are used, including carbon fibre to add rigidity is some sections, and synthetic fibre to increase impact resistance in others.

The exterior design enhances aerodynamic stability and reduces drag and the tapered plan and profile shape directs the slipstream to enhance yaw stability and reduce drag inducing turbulence at the rear.

Because of the thin section panels achieved in fibreglass, the van has perceptively more interior room than the straight sided vans using relatively thick framing and cabinetry. The sleek, high gloss interior gel coat finish inside includes flush fitting drawers and hatches, free of sharp edges or corners.

The use of marine grade carpets and electrical equipment, allow hose-out cleaning of the interior when soft furnishing are removed.

Bolwell drew on its sports car experience to design the suspension system. By using long, broadly based trailing arms with a single spring and Koni damper on each side, and a car-style anti sway bar, it achieves off road toughness and on road stability with low weight.

Vaughan Bolwell was lead designer on the Australian Institute of Sport - RMIT SupaRoo track bicycle, which won gold at the 1994 Commonwealth Games.

Designer Vaughan Bolwell (left) received the Certificate of Commendation from SAE-A President Patrick Ross for the Bolwell Edge Caravan.

State-of-the-art fibreglass moulding technique delivers a strong, light weight and aerodynamic semi-monocoque unit for the Bolwell Edge Caravan.

The Bolwell Edge interior fittings are moulded into the inner fibreglass skin of the caravan.

Young Engineer Award

Stephanie Radion, Senior Engineer, Seating, GM Holden.

Stephanie Radion was Lead Seating Engineer on the GM Holden Chevrolet Police Vehicle Export program and demonstrated excellent performance in both the engineering and program management aspect of the role, well above that expected of an engineer with only four years experience.

Her extensive research on the performance of existing seats and the customer needs fuelled the design, including the application of heavy duty seat fabric used in the defence industry. The project was completed in half the usual time for a seat project, including late program requests.

Stephanie Radion demonstrated strong commitment to continual learning for both herself and her team. Her work to ensure information was shared with other GM regions was recognised by GM seating experts in Germany and the USA.

2011 Young Engineer Award winner Stephanie Radion from GM Holden received her trophy from RACV Chief Engineer Michael Case. RACV has been an SAE-A Awards sponsor since their inception 14 years ago.

Young Engineer Award Runner Up

The 2011 Young Engineer was very competitive and the Judging Panel awarded a Runner Up trophy to Christopher Ebejer, Team Leader Reliability Testing, Automotive and Body Electronics Division, Robert Bosch Australia.

Christopher Ebejer was responsible for the design, development and validation of a unique testing methodology and associated equipment for the electrostatic discharge testing of electrical automotive based components.

He applied a six-axis robotic arm fitted with a purpose built electrostatic discharge head system allowing complete automation of the discharge testing.

This improved the test procedure by shortening the test cycle, increasing the accuracy and repeatability of the results, and was achieved within his designated delivery time.

A very close second place in the Young Engineer Award was recognised with a Runner Up trophy presented to Christopher Ebejer, from Robert Bosch Australia (left), by Michael Case, representing sponsor RACV.

Enter the 2012 Awards Entries

Entries to the 2012 SAE-A Automotive Engineering Excellence Awards and Young Engineer Award are accepted from all vehicle engineering organisations meeting the criteria. Do your organisation, team and project meet those criteria? Find out now and plan your Award winning entry.

For information and entry forms, contact SAE-A Development Manager Michela Bartels T: 03 9696 5190 E: mbartels@sae-a.com.au .

Building capability and competing in a global environment

By Richard Marshall, Director of Energy, Environment and Technology, GM Holden

This is a summary of key points made in Richard Marshall's speech at the SAE-A Awards dinner.

Automotive manufacturing in Australia is a big deal. We're lucky to have a car industry in Australia – many countries that once had a thriving car industry no longer have one. Just look at the United Kingdom.

Australia is one of the most open and competitive markets in the world with nearly 50 brands operating here. Auto tariffs are down from 30% 20 years ago to 5% in 2010. When preferential free trade agreements are taken into account, the effective tariff rate for imported cars is conservatively less than 3%.

This is one the lowest applied tariff rates of any vehicle producing nation. In the current exchange rate environment vehicle importers have a strong advantage. In fact, 86% of cars sold in Australia are imported. While local makers were able to offset the decline in sales of locally-built cars with exports, things were okay.

In July 2008, we forecast a return to profit and had a balanced business between production for the local market and export. We were famous for being a global "niche" producer and exporter. But, Holden wasn't immune to economic fallout from the GFC and we've had to make tough decisions and significant changes to ensure survival. In June 2009, GM went through Chapter 11 in the USA emerging as the new GM. Holden was part of the new GM.

Locally, we were caught by a wildly fluctuating Australian dollar, dramatic fuel price rises, which hit large car demand, GMAC and GE exited Australian vehicle financing and GM cancelled the Pontiac brand, which was a loss of around 85% of our export program.

So, what did we do to turn our situation around? We had to self-fund our own rescue package. Pre-chapter 11, we had already initiated pay cuts for executives and salary freezes.

At Holden vehicle operations (HVO), with the support of employees and unions, we moved to a two-crew, one-shift labour agreement. We negotiated hardship packages for voluntary HVO redundancies, which was critical to protect jobs and required sacrifice from both sides. In Engine Operations, we accelerated the closure of the four cylinder plant in Melbourne.

Co-investment helps create a level playing field

In December 2008, we announced a critical program – now known as Cruze. These were dark days for the industry and we needed co-investment and received vital support through the Green Car Innovation Fund, which contributed $149 million dollars – the largest in the GCIF. The South Australian government also contributed $30 million. But let's not forget Holden's own investment – for every government dollar, Holden has invested $3.

Earlier this year Federal Manufacturing Minister Kim Carr announced $39.8 million of co-investment funding to help Holden bring new fuel saving and carbon reduction technologies to the next generation Commodore – such as aluminium body panels to reduce weight and improved aerodynamic performance.

All of this requires long term commitment. Programs like Cruze and next Commodore require a level of public private partnership in Australia - just as it does in every other market around the world. If we can't be an attractive place to invest, we risk losing high-tech manufacturing and product development.

Government assistance through the New Car Plan has been critical to enable the industry to transform. Industry assistance provided under a co-investment model is also critical for local car makers to compete globally and to protect and create local jobs.

And, if you're still not convinced of the value of government funding, consider this: it's a little known fact that every dollar we made in profit last year has been re-invested right here at Holden.

Let's not take the local automotive industry for granted. If we lose it, it'll be virtually impossible to get back.

AutoCRC pioneering innovation

By Dr Matthew Cuthbertson, Chief Executive Officer, AutoCRC

As many readers of these pages are aware, AutoCRC is Australia's own automotive industry research organisation. It delivers quality research, excellent project management, and has developed a resource for the entire Australian automotive supply chain.

AutoCRC is now entering its seventh year of funding under the Commonwealth Government's Cooperative Research Centre (CRC) innovation program, which aims to build critical mass in research ventures between end-users and researchers. In this last year of AutoCRC's initial grant, an expanded group of partners is now preparing a case for industry-led research in a new automotive CRC designed to establish the industry on the global marketplace. An extension of AutoCRC, it will focus on key emerging technology needs for Electric Vehicles, gaseous fuels and Clean 21 manufacturing.

It is therefore an appropriate time to recap some of the AutoCRC's achievements from the last six years. AutoCRC has focused on its goal of securing Australia's position in the global auto industry during what turned out to be enormously challenging conditions for the global automotive industry and Australian manufacturing generally. These difficult conditions highlighted a need for an external focus and to take advantage of global opportunities, which AutoCRC has been quick to acknowledge and act upon – more on this later.

Mindful of the need for collaboration and focus on what the automotive industry needs to do to remain competitive, AutoCRC was pleased to manage the first comprehensive assessment of present and future capability for the Federal and State governments. *The Automotive Australia 2020 Roadmap project* brought together participants from a wide number of organisations to ensure representation of the views of as broad a spectrum of stakeholders as possible. The industry-endorsed results are an excellent starting point for a new and exciting series of future research projects.

Product development

Although AutoCRC is constantly reviewing future opportunities, such as those identified in the *Automotive Australia 2020 Roadmap,* this article focuses on past achievements. A good place to start is manufacturing. AutoCRC has always had a strong manufacturing project portfolio emphasising sustainability and a number of these activities have produced tangible results.

For example, AutoCRC researchers at the University of South Australia, with support from the South Australian Government and working with SMR Automotive, developed light weighting technology rear vision mirrors. The new mirrors save weight, reduce fuel consumption and take less energy and resources to manufacture, helping maintain SMR Automotive's position as Australia's premier automotive mirror manufacturer and exporter.

AutoCRC has also enjoyed significant breakthroughs partnered with CSIRO and GM Holden, including the development of an exciting next generation riveting process called Friction Stir Blind Riveting (FSBR). Promising to do away with drilling and cleanup, the FSBR process uses the rivet itself to create the hole and clean up the plug. A robotic riveting unit was designed to demonstrate this amazing process and the unit is now being tested by manufacturing scientists at GM in the United States.

A collaboration of the AutoCRC, University of South Australia, the South Australian Government and SMR Automotive produced state-of-the-art rear vision mirror technology. *(See Excellence Awards story page 12).*

Another project yielding noteworthy results is advanced MIG welding. AutoCRC researchers at CSIRO working with GM Holden came up with a model, which allows manufacturing/joining engineers to optimise weld parameters to achieve a perfect weld thus eliminating a significant amount of rework due to quality issues. In line with AutoCRC's strategy of optimising research outcomes from projects, the research team maintains active links with overseas researchers to collaborate on further improving the model's performance.

A strong collaborative industry partnership has existed since the beginning of the CRC with Futuris Automotive Interiors. With their involvement, AutoCRC competed for and won funding for two projects in the Victorian Science Agenda Investment Fund in 2009, to take the lightweight interior systems and advanced electric actuator technology to market.

With the help of CSIRO, Futuris engineers have created a new way to make car seats and other interior parts. The new materials and processes used to manufacture them reduce vehicle weight and fuel consumption, and give Futuris a competitive edge as a supplier to the emerging Electric Vehicle (EV) market. Futuris interiors make extensive use of electric actuators and working with researchers at RMIT University, they now have patented designs under development for supply to carmakers. These lightweight and low power advanced actuators are also ideal for use in EVs.

Educational outreach

Futuris, as well as GM Holden, has also been quick to capitalise on the opportunities offered by the AutoCRC education program. Both companies have been active in mentoring final year undergraduate students keen to engage with industry. This program has been supporting up to 50 undergraduate projects a year with students coming from a number of the major Australian universities and across a variety of disciplines from mechanical and electronic engineering to industrial design. The program showcases up and coming talent and challenges students to think outside-the-box with many going on to find employment in the automotive space, often on graduate programs or internships.

The education program has also supported about 70 PhD students working on stand alone projects, or as part of a team embedded in larger AutoCRC industry and research projects. The PhD program allows students to connect with other researchers, work with industry partners and dedicate time to areas of research that might otherwise not receive attention. Already, 15 students have completed their studies through this program and the majority are due to finish in the coming year.

Pioneering voice recognition technology was developed by AutoCRC researchers working at QUT and La Trobe Universities.

Commercialisation success

On a different note, AutoCRC is always aiming to find and progress commercialisation opportunities, and has been successful in licensing a number of its technologies. AutoCRC began research into voice recognition in response to increased demand for accurate voice recognition in cars. In 2008, AutoCRC researchers at QUT and La Trobe Universities invented breakthrough signal processing tools that significantly reduced the computer errors when under voice command.

The Australian speech database, generated during the project to train the computer to understand Australian speech, has been sold to one of the world's largest makers of voice recognition systems, and negotiations are under way to license the signal processing tool to a software company.

The AutoCRC was responsible for one of the first successful conversions of a modern diesel truck to dedicated LPG. This retrofit system is now available for a number of truck models and offers a more fuel efficient engine, lower engine wear and an increase in power.

When the need was recognised for a superior project management system in the R&D space, the AutoCRC team also realised that with advanced software development capability at its fingertips, it was possible to develop this web-based tool within the AutoCRC.

Called VicTorii, this management system was developed in partnership with the Victorian Partnership for Advanced Computing (VPAC) and is now employed by a large number of users as a key tool for managing tasks for complex R&D projects. It boasts a number of invaluable features, including the ability to monitor versions, budget and forecast validation, tracking and approvals of milestones, and notifications to keep all stakeholders up-to-date in real time.

Automotive Supplier Excellence Australia

The AutoCRC continually seeks out options for engaging with and supporting small to medium enterprises (SMEs) in the manufacturing sector, to enhance their global competitiveness. To do this, AutoCRC and the industry created Automotive Supplier Excellence Australia (ASEA) as a national initiative.

ASEA successfully completed a three stage supplier benchmarking and improvement program. This work included a pilot run of supplier improvement programs with substantial productivity improvements reported. The ASEA program was seen by strategists as a model for assisting the Australian automotive supply base in achieving international competitiveness and sustainability called "element 1" of Australian Supply Chain Development Program (ASCDP) in the Commonwealth Government's New Car Plan. The ASEA improvement plan team continues to deliver strong results in ASCDP, receiving funding from the Federal government to take it through to 2013.

Extending the reach of the CRC beyond our shores, a focus on international relationships and collaboration has seen key members of the AutoCRC management team spending significant amounts of time in Asia bringing positive results, including the "Green Auto Technology Lab" initiative with Chery Automotive and the signing of Memorandums of Understanding with Tongji University and Heifei University of Technology in China, the Malaysian Automotive Institute, Chery Automotive and, in a ceremony at the *AutoCRC Technical Conference* in Melbourne during *Automotive Week*, with Kookmin University in Korea.

On the subject of the *Technical Conference,* we are pleased that Professor Julia King CBE (Aston University, UK), Chetan Maini (Mahindra Reva Electric Vehicles, India), Richard Tamba (NTC Powertrain, Australia), Linsey Siede (ASEA) and Professor Yong Seok Cho (Kookmin University, Korea) accepted invitations to deliver plenary addresses. There was a strong international presence and also five concurrent streams of specialist topics that provided a day of interest for all, ranging from manufacturing and materials to ergonomics and EVs and more.

This article provides only a small glimpse of the work that AutoCRC has been doing over the last six years. We recognise the dedication, creativity and passion for the industry of the many people and organisations participating in AutoCRC, in a large range of diverse and exciting projects and initiatives.

For more information on AutoCRC and our work, please visit our website at www.autocrc.com or contact our team leaders directly:

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Ian Christensen, General Manager
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The technology enabling conversion of a diesel engine to LPG was licensed to Advanced Vehicle Technologies.

Green seating solution

By Dr Gary White, Research Manager Executive Officer, AutoCRC

We may soon ride in comfortable seats padded with greener, lightweight recyclable cushions, as part of the drive for lower emissions vehicles.

Research by AutoCRC, CSIRO and Futuris Automotive Interiors Seat shows that vehicle seat cushions can be made with modified polyester fibre, as a cleaner, greener alternative to today's polyurethane-based foam padding.

CSIRO scientists have created a blend of recyclable fibre materials that perform like conventional foam, but are lighter, cost less and are recyclable. The new foams have potential for widespread use as padding or protection. Seat makers would be the likely first adopters of the technology.

Drivers appreciate the comfort of modern automotive seats. They are sophisticated and feature multiple adjustments, heating and memory settings. Today's seat designs use moulded polyurethane (PU) foam cushions to provide comfort, safety, styling attributes, shock absorbing performance, resistance to sagging and durability. The foam makes up a significant percentage of the seat's cost (typically in the order of 10 – 20%) and total weight.

However, the padding beneath the seat covering has not changed significantly since foam padding replaced natural fibres, such as horsehair and hemp, in the 1960s.

Robotic seat testing.

While early natural fibres were biodegradable or recyclable, the desirable durability of PU has become an environmental problem. It is not biodegradable, or recyclable, and needs significant landfill volume for disposal. PU foam also uses hazardous chemicals in its manufacture and generates toxic gases if incinerated. These issues are driving governments and manufacturers to search for a greener solution for foam padding.

Many alternatives have been proposed. Teijin's "ELK" polyester fibre has been deployed in train seats, but there has been little application in cars. These foams generally tend to sag and need substantial support, while PU foams provide much of the seat's structural shape.

Magnified structure of materials (from left to right) Teiijin ELK, PET and PU foam.

Innovative Melbourne based Futuris teamed with AutoCRC and CSIRO to seek seat alternatives that deliver a lower cost, lighter weight and environmentally friendly alternative to PU foam products. The project aimed to develop a new technology platform for future seat designs, building on existing fibre materials and non-woven manufacturing processes.

This involved exploring a huge range of materials in many combinations, then testing their performance relative to PU foam. The CSIRO research team, led by Dr Stuart Lucas, searched through fibres and lining agents (baked into the fibres for increased stability), and identified high potential combinations. They manufactured a range of these fibre materials in varying blends and densities. The foam substitutes were all constructed using commercial manufacturing methods.

A polyester fibre Ricardo Benelli seat cushion.

The new materials are porous and have a lower density than PU Foam, while having comparable stiffness characteristics. This combination offers significant savings in materials, manufacturing cost and weight. Their air permeability also provides design opportunities for greater user comfort, including active seat cooling.

The new material came tantalisingly close to meeting PU foam specifications. It maintained strength, or resilience, under cyclic loading without weakening or breaking. However, the results also suggested that to evaluate non-woven fibre materials the conventional test procedures for foam, particularly the preparation stage, may need to be revised. With updated procedures the new materials could possibly exceed the performance of PU foam for seats.

This alternative foam technology promises both lower manufacturing costs and substantial environmental benefits associated with reduced use of polyurethane foam. Visit: autocrc.com/research.htm.

The Carbon price proposal - another confronting challenge

By Richard Reilly, Chief Executive Officer,
Federation of Automotive Products Manufacturers

It seems the automotive industry is forever confronting new challenges. I suppose that is the nature of working in a global industry such as ours. In the last issue of Autoengineer, I discussed the great shock felt in the automotive industry following the Prime Minister's January announcement that the Green Car Innovation Fund (GCIF), a key plank in the Government's A New Car Plan for a Greener Future, would be abolished.

FAPM wrote to the Prime Minister expressing our great disappointment with her Government's decision to abolish the GCIF. I know many organisations, companies and individuals did the same. Our firm view has not changed. The decision was short sighted and one that we believe will have a real negative impact on the automotive industry in general, and the components sector in particular.

We continue to worry that the loss of this program will mean that company investment decisions pursuing new technologies to improve the "greenness" of a component, and ultimately a vehicle, will be materially affected. The Australian industry anticipates that multi-national automotive companies will be very concerned about the effect the announcement will have on future investment decisions.

Price on Carbon

My last *Autoengineer* article flagged a piece of work that was about to commence in relation to the proposed price on carbon. FAPM and the Federal Chamber of Automotive Industries worked with Price Waterhouse Coopers to prepare a high level report on the potential impact of a carbon price on Australia's vehicle and component manufacturing industries.

Titled Potential Impact of a Carbon Price on the Australian Automotive Industry, this analysis and report were produced to ensure that the voice of the industry was heard in the policy debate, and that the interests of the automotive industry were represented. The document has now been finalised and I can report some of the key conclusions.

In setting the framework of the industry, the paper outlines some of its key challenges:

- The Australian industry operates in a highly competitive international market.
- The additional cost burden would reduce competitiveness for the domestic automotive industry.
- A reduced ability to compete with overseas manufacturers is likely to encourage local vehicle manufacturers to source components from overseas suppliers to avoid additional impact on their cost competitiveness.
- The ability of local manufacturers to invest in innovation could also be impacted.

It is considered unlikely that motor vehicle manufacturing would satisfy the definition of an "activity" as defined under the emissions intensive trade exposed (EITE) principles stated. In addition, it is considered unlikely that vehicle manufacturing would have met the required thresholds of emissions intensity under either a revenue, or value-added approach to calculating emissions intensity.

It is clear that the manufacturing sector is a large section of industry that is not classified as an EITE industry or sector. Households will be recompensed, as will the top 1,000 high emitters. The new challenges facing the automotive industry then become:

- Q - What happens to manufacturers who use a lot of electricity, whose costs increase, but who cannot pass on their costs to their customers?
- A - Their competitiveness decreases as they are trade exposed and competing on the global stage.

Based on the research and analysis completed, the report concluded that the potential impacts of a carbon price on the Australian automotive industry include:

- An additional cost burden for the domestic automotive industry in the order of $30m to $84m, depending on a range of factors, including the extent of government assistance for sub-sectors within the supply chain.
- The Australian automotive industry is likely to have little or no ability to pass on any additional cost burden, because it operates in a highly competitive international market.
- Local vehicle manufacturers are likely to increasingly source components from international suppliers to avoid incurring the Australian carbon price.

- The Australian automotive industry is now manufacturing and investing in the development of new generation, more environmentally friendly vehicles to capitalise on the growth potential in this market.
- However, the local industry remains vulnerable and additional cost burdens threaten the success of plans for industry growth.
- The automotive industry is a highly value adding industry and a reduction in its competitiveness in the global automotive market could ultimately result in a loss of these value adding activities offshore.

In summary, we believe that the Australian automotive sector will face significant additional costs as a result of the proposed introduction of a carbon price. A proportion of those costs will be borne by vehicle manufacturers with the remainder incurred by component producers.

Given the trade exposed nature of the automotive industry, there is little or no scope for vehicles and component producers to pass these additional costs on through the supply chain. The competitiveness of the Australian automotive industry is affected either way.

Introducing a carbon price in Australia, in advance of other major automotive producing economies, without effective and properly funded measures to offset increased costs, will adversely impact the ability of the Australian automotive industry to attract future international investment and to sustain domestic employment levels.

Dolphin Products supplies interior, exterior and safety products to the automotive industry.

Precision Plating has a state-of-the-art plastics plating facility that supplies car and commercial vehicle parts.

Mission to boost activity with India

Former FAPM President Barry Comben led an automotive component mission to India in the second week of April under the Victorian Government India Victorian Automotive Cluster (IVAC) program.

The mission to India is part of a broader Victorian Government activity, and was led by Victorian Minister for Innovation, Services and Small Business Louise Asher.

FAPM continued to build on our industry's international profile by signing a memorandum of understanding (MOU) with its Indian counterpart, the Automotive Components Manufacturers Association of India. The MOU assists our members by allowing and encouraging increased communication, trade and technological cooperation between members of both organisations, and fostering technical and commercial contacts for delegations between countries.

Opportunities really do abound for those component companies that have the vision, technologies, products and ambition to enter global supply chains. It's not easy, but many companies have done it and continue to win work from international OEMs.

Jim Griffin is Acting President of FAPM

Jim Griffin has been appointed Acting President of FAPM, following the resignation of Zoran Angelkovski, who also has resigned as CEO of Continental. Jim Griffin, who is President of Diver Consolidated Industries, has agreed to act in the role of FAPM president until the November FAPM annual general meeting.

In this issue, Industry Comments reports on key conferences presented in Melbourne during the recent *Australian Automotive Week.*

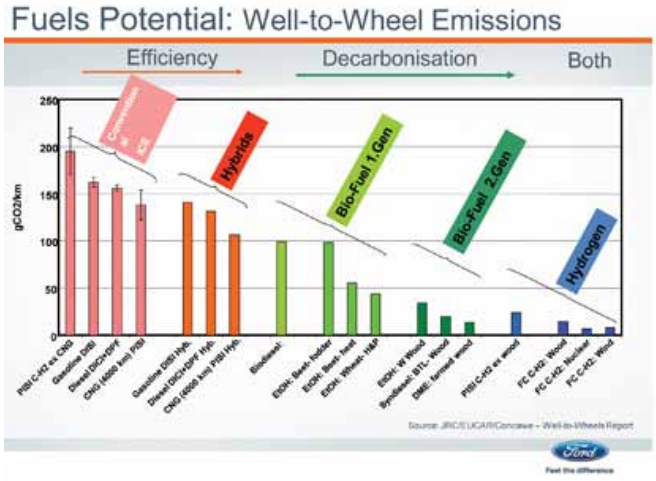
SAE-A Change by Design Conference

By SAE-A Editor Barry Oosthuizen

***Electric & Green* was the theme of the ninth annual *Change by Design Conference* featuring international automotive industry thought leaders and engineering experts. Hosted by SAE-A as part of *Australian Automotive Week* and supported by the Victorian Government, this conference addressed the key issues of advanced environmental design and sustainable manufacturing with guest speakers from Australia, Czech Republic, Germany and USA. Here is a brief summary of some of the papers presented.**

Dr Heinz Hass, Manager, Sustainability and Environment, Ford Research and Advanced Engineering, Europe.

In the foreseeable future, conventional and electrified propulsion systems will exist side by side. We expect micro-hybrids will become the main stream technology and in the next five years, Ford will introduce five new Hybrid and Battery Electric Vehicles (BEV). The challenges of BEVs include battery cost, capacity, lifetime, recharge time and infrastructure, and recyclability. New business models are needed to address the demand for new raw materials, the required production facilities, the sustainable electricity supply and the required charging infrastructure.



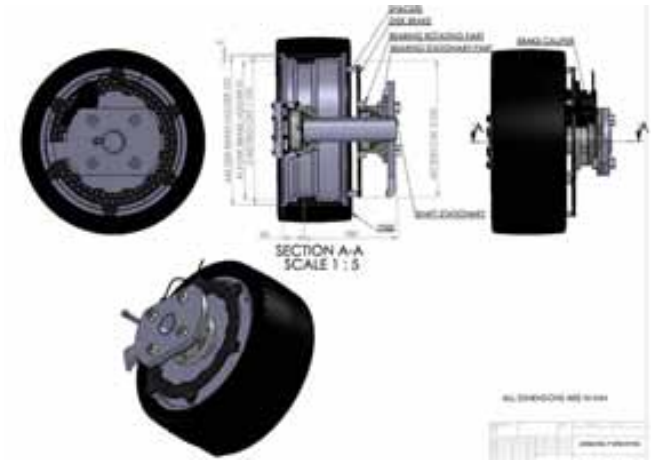
Dr Ludek Hyncik, New Technologies Research Centre, University of West Bohemia, Czech Republic.

An innovative project to create a virtual crash dummy that measures accurate human flesh and bone responses to crash simulations is reaching fruition. The Robby model is based on a 39 year old, 180 cm tall 90 kg human body, the model encompasses the two dimensional aspects, as well as the third dimensional volumes, which are formulated with visco-elastic properties and stress limiting values, to enable the analysis of crash impacts on all parts of the body, including internal organs. The team is now completing the model and adding a scaling algorithm and looks forward to research partnerships to prove the model and benefit vehicle design, including EVs.

Dr Ludek Hyncik at work with a crash dummy, which is posing as the virtual human model (which only exists in some very sophisticated software).

Dr Mehran Motamed Ektesabi, Senior Lecturer, Robotics and Mechatronics and Research Higher Degree Coordinator.

Swinburne University has established an electric vehicle team focusing on research in a range of fields to build Australian expertise and product development for the coming EV age. Of special interest was the EV architecture work on the Holden Spark and the in-wheel electric motor and brake package.



An assembly drawing of an in-wheel electric motor and brake package.

AutoCRC Technical Conference

By Jacqueline King, Knowledge Manager, AutoCRC

The AutoCRC Technical Conference presented as part of *Australian Automotive Week* brought over 150 industry, research and government delegates to RMIT University's Story Hall to learn about the latest technological research and advancements and some AutoCRC supported research projects.

AutoCRC was pleased to welcome a number of overseas expert speakers to the conference particularly from India, the UK and Korea to complement some talented Australian presenters and the full day conference included poster displays. Keynote speakers covered a wide range of areas, including lowering carbon emissions in transport, automotive supplier excellence, road mapping the automotive industry in Australia and overseas, innovation in an automotive SME, and Electric Vehicle technology.

Feature speakers at the Conference included:

- Prof Julia King CBE, Aston University, UK and Leader of the "King Review" on reducing carbon emissions in road transport.
- Richard Tamba - Founder and former CEO of NTC Power train on SMEs doing business overseas.
- Chetan Maini - Founder and Chief Strategist at Mahindra Reva, India on Electric Vehicle challenges and opportunities.
- Linsey Siede Director, Automotive Supplier Excellence Australia.
- Breakout sessions included materials performance, automotive manufacturing, complex software and modelling, Electric Vehicles, Human Machine Interface and alternative fuels.

The conference also provided an opportunity to expand international ties with the signing of a Memorandum of Understanding with Kookmin University in South Korea. Prof Yong Seok Cho of Kookmin University, AutoCRC's Dr Matthew Cuthbertson and Geoff Susans, representing the Victorian Government, spoke of the opportunities this collaboration can bring in the key research areas of vehicle electrification, gaseous fuels such as LPG and CNG, and sustainable manufacturing.

Founder and former CEO of NTC Power train presented a case study on small and medium size enterprises doing business overseas.

AutoCRC Awards

A number of AutoCRC researchers were recognised for their work with awards presented at the conference:

Research Excellence Award > Research Fellow Colin Hall of the University of South Australia received the award on behalf of the university and SMR Automotive for their innovative work in producing a low cost, lightweight, durable plastic mirror, which replaces the traditional components of glass and backing plate. SMR recently opened a facility in South Australia for manufacture of the mirrors and subsequent global exportation (see SAE-A Awards article page 12).

Research Collaboration Award > Engineering Team Leader Thomas Dittmar of the Victorian Partnership for Advanced Computing and Innovation Manager Gary Carroll of GM Holden received this award on behalf of the project team for their “Virtual Paint Process” project. The team is developing two virtual key manufacturing capabilities in oven bake simulations and fluid access and drainage simulations. They were commended particularly for their track record in working closely together in a global context.

2011 Technical Conference Best Poster Award > RMIT students Brendan Visser, Vipil Varghese, Vignesh Rajan and Sam Brok were recognised for their poster on Acoustic Modelling of Interiors for EV Applications. This team is part of the AutoCRC undergraduate program, which gives students exposure to industry. In this case the company is Futuris Automotive Interiors.

AutoCRC thanks all who attended and made it such a lively learning day with ample opportunities for networking. Special thanks go to Conference sponsors – the Victorian Government, The Federation of Automotive Products Manufacturers and Phillips Ormonde Fitzpatrick patent attorneys.

Visit www.autocrc.com to see conference video, presentations and photos, or contact Jacqueline King at E: Jacqueline.king@autocrc.com or T: 03 9948 0458.

Sustaining the Australian automotive supply chain

By SAE-A Editor Barry Oosthuizen

Another busy conference day during *Australian Automotive Week* attracted 120 delegates to the annual Federation of Automotive Products Manufacturers Conference in Melbourne. Addressing the theme *Sustainability in a Global Market* were some challenging presentations. Here are short summaries of key points made by some of the speakers.

Prof Ian Harper, Partner Deloitte Access Economics.

Delivering a prediction of modest growth across most developed economies, Ian Harper noted that some will face large adjustments to taxes and spending, while the emerging China and India markets lead the way.
He described the global financial crisis as a crisis of private capitalism, in contrast to the current international crisis as one of public finance.

He said GFC Mark 2 is a possibility, but Greece reneging is not the real issue, the flow on is the concern. "We keep kicking the debt can further down the road for future generations to fix," he said. "Countries printed money rapidly and cut taxes to grow out of the GFC. That debt behind the return to growth is the worry".

Ian Harper anticipates 3% growth for Australia. "With a multi-speed economy, we must boost productivity. The problem is we are getting richer because of things outside Australia. When the tide goes out, you can see who is swimming naked."

He labelled the Australian automotive industry clever: "We must improve productivity, specialise in R&D and design - raise the value of what we do. Build in value to meet expectations of the Chinese and Indian middle classes as they demand goods up the value chain."

He also compared these growth markets. The Chinese, with an average age of 50 years, appreciate elegance and fine, fit for purpose design. This contrasts with the 25 years average age for India, and our shared British heritage in language, legal system and parliamentary democracy.

Robert Graziano, President and CEO, Ford Motor Company Australia

Robert Graziano recommended that suppliers adopt strategies similar to the "One Ford" policy to ensure survival in the global market. He suggested there are no longer Australian, Thailand, or North American industries. It is all one industry, which must be market driven and customer focused.

He said we should cherish Australia's ability to design and build cars from scratch. "Ford relies on its supplier base. Working proactively with them is part of Ford DNA. We must all embrace technical change and communicate well. The true measures of our supplier / manufacturer relationships are technical innovation, discovery and globalisation."

Robert Graziano notes climate change as our biggest challenge. "It will impact the way we use energy in the factory, how we use materials, the way customers use their vehicles, and the cost of most things in the supply chain," he said.

"Climate change is a now issue. Prepare your response now. There are programs available from manufacturers and governments to help you meet the challenge," he said.

Dr Stefan Hajkowicz, Director, Human Services Delivery Research Alliance, CSIRO

This presentation introduced a new way of thinking about change to many. Stefan Hajkowicz encouraged us to anticipate the "mega shocks" and new technologies, and to prepare for them by using scenario and contingency planning. He identified major mega trends:

- Getting more from less - our world of limited resources is facing an efficiency crunch. We must apply a "triage" approach by deciding what we save and what we let go.
- Personal touch - personalisation of services through iPhone apps and other devices will rise sharply. This is leading to information overload, as experienced with email (30% is irrelevant). Studies show 42% of people use wrong information to make decisions. We need new information management systems and improved data security.
- Divergent demographics - in 2005, 5% of the Indian population was middle class. In 2015 it will be 20% impacting everything, even tastes in food, which will catch supplying nations out. China will need to build 3 Sydney size cities to accommodate people shifting from rural areas.
- Disruptive technologies - automated systems replacing human activity (eg: automated mining), algorithms processing language (eg: identifying trends in mass media), artificial intelligence (eg: photo recognition berry pickers).
- Expansion of the iWorld - The Dutch mobile browser Layar allows users to source material using augmented reality technologies based on computer generated sensory input (sound, graphics, GPS, etc).

SPE Seminar goes (light) green

By Hamed Ghajarnia, SPE:A-NZ Program Chair and Lex Edmond, SPE:A-NZ Section President

As a part of *Australian Automotive Week,* the Society of Plastic Engineers: Australia-New Zealand Section held its annual Automotive plastics seminar at the Melbourne Exhibition Centre on July 6. With more than 80 attendees listening to three international and two local speakers, the seminar proved a valuable source of information and networking opportunities.

Addressing the theme Light-Weighting & Sustainability in the Auto Industry, some highlights of the seminar included:

Adam Watson, Global Product Manager, Milliken Chemicals, USA.

Regional automotive manufacturing centres are changing, and by 2020 China and India would be the largest car making countries by number. China in 2020 was expected to make 30 million vehicles, compared to about 23 million in the USA, while India would grow from 3 million today to 10 million. Fuel economy will improve using lighter weight materials, smaller turbocharged engines, plastics replacing metals (light-weighting), alternative energy systems, optimised aerodynamics, and minimised rolling resistance Watson said. This would help the automotive industry become greener and more sustainable.

Dr Heinz Hass, Manager, Sustainability & Environment, Ford Motor Company, Germany.

On the topic of CO2 reduction, Heinz Hass said Europe and USA had targets of up to 30% reductions in car emissions by 2020 (from a 2006 base). He informed the audience that Ford was involved with technologies for CO2 reduction that included energy source selection, power-train improvement, light-weighting, electrification and other vehicle improvements. He emphasised that studies had shown that a 10% reduction in vehicle weight led to a 5-7% improvement in fuel economy.

Mark Bennick, Manager, RTP Technology, Asia.

Mark Bennick said one of the good options for metal replacement and cost reduction was in the use of injection moulded long fibre composites. These materials offered high modulus and impact strength, were extremely durable in demanding conditions, had dimensional stability and warp resistance, excellent creep resistance, and lighter weight than metals. Metal replacement reduced cost by eliminating finishing, welding or machining operations, and offered more design freedom, part consolidation, corrosion and chemical resistance, and excellent recyclability.

The well attended annual Society of Plastics Engineers conference was convened in Melbourne as part of Australian Automotive Week from 1 to 8 July 2011.

Dr Kevin Thomson, Ai Group, Enterprise Connect and SPE:A-NZ Management Committee member.

Kevin Thomson spoke on bio-composites that use natural fibers in a plastics matrix. More than 200 plants are suitable for providing natural fibres, for example: cotton, sisal, hemp, wood (even in the form of recycle paper or MDF), flax, kenaf, and sugar cane. He said there is complexity and variation in natural fibre properties related to factors such as their growth, weather, and moisture levels. Natural fibres are currently used in wood plastics composites (WPC) for window profiles and decking, and in compression moldings used in the automotive industry.

Dr Gary White, Research Program Manager, AutoCRC.

The new FUTURIS composite car seat technology was the topic reviewed by Gary White. This one-piece structural seat is made using a three step manufacturing process (knit, inflate and infuse, cure) in a method that reduces labor and energy consumption, and only needs low capital investment. This patented seat design could save up to 10 kg compared to current seat structures (see AutoCRC Technical Report page 20).

Formal proceedings concluded with Lex Edmond and SPE Program Chair Craig Benson presenting Certificates of Appreciation to speakers and expressing thanks to the sponsors/supporters: The Victorian Government, Milliken Chemicals and the RTP Company. SPE: A-NZ's Gold sponsors Qenos, Autodesk and Realize online were also acknowledged.

During the networking session that followed, there was agreement that the presentations had been thought provoking and informative. There was a sense of optimism that the industry had the technical capacity to meet the current and future demands of both customers and governments - all within a budget!

Diesel Territory delivers more sustainable drive

The Ford Territory launched in April 2004 immediately proved popular with Australian families. It won a Car of the Year Award, and the SAE-A Silver Automotive Engineering Excellence Award among others that year. In an era of increasing attention on fuel economy and emissions reduction, the new Territory SZ model has received a timely update with the addition of an optional turbo-diesel. This article introduces the new power plant and drive train elements.

By David Mitchell, Power train Development Manager, Ford Asia Pacific and Africa

Top of the range SZ Territory - the Titanium model fitted with 2.7 litre Turbo charged, Diesel, Common-rail injection V6 engine and all wheel drive.

Several important engineering goals were set - and achieved - when enhancing the drive trains for the recently released SZ model Territory. These objectives had to be achieved while retaining Territory's attributes, such as its performance and drivability. Critical targets in the programme were improvements in fuel economy, refinement, and meeting Euro4 emission standards.

These goals were achieved in both Territory's 4 litre petrol I6 and 2.7 litre V6 TDCi engines. A cornerstone of this success was the benchmarking process Ford used when developing the new Territory. Not only were internal targets set at a high level, but Ford Australia naturally benchmarked the Territory against its main segment competitors, such as Holden Captiva and Toyota Prado diesel. To go even further, Ford set challenging refinement targets for its engineers and sought to exceed benchmarks set by a number of luxury SUV models, such as the Land Rover Discovery and BMW X5. The drive train combinations available for the SZ Territory TX, TS and Titanium models include:

Drive train	RWD	AWD
Petrol I6 (standard)	YES	NO
Turbo-diesel V6 (optional)	YES	YES

Headlining the 2011 Territory story is the Duratorq TDCi V6 engine, which can be ordered as an option. This engine was designed by Ford and developed at its Diesel Technology Centre in Dagenham, UK. Having powered a number of European luxury SUVs and passenger cars (eg: Land Rover and Jaguar), this is the first time this engine has been fitted to a Ford badged vehicle.

This diesel engine has a CGI (Compacted Graphite Iron) cylinder block, which is vital for strength and has excellent NVH properties. It employs alloy cylinder heads in a Double Over-Head Camshaft (DOHC) design, with four valves per cylinder. Total engine weight is 210.5 kg.

To maximise power, torque, efficiency and fuel economy, it employs forced induction in the form of a single VGT (Variable Geometry Turbocharger) with intercooler. Fuel delivery is via high pressure common rail diesel injection

using electronically controlled piezo injectors that deliver multiple injections of precisely metered fuel to each cylinder during every combustion cycle. Exhaust emissions are managed using a dual EGR (Exhaust Gas Recirculation) system.

The Duratorq TDCi V6 uses smart glow plug technology to improve combustion efficiency and fuel economy during engine warm-up. The high pressure fuel system has a run dry protection system in the event a driver operates the vehicle until it entirely runs out of fuel.

Power delivery

This engine produces its maximum power of 140 kW at 4000 RPM and 440 Nm of torque at 1900 RPM. A flat torque curve sees this maximum torque maintained until 2500 RPM, making it very fuel efficient and great for towing.

The new Territory's maximum towing capacity for all-wheel-drive (AWD) models is 2700 kg (braked trailer) with a maximum downward tow ball capacity of 270 kg*. For rear-wheel-drive (RWD) models, the maximum towing capacity is 2300 kg (braked trailer) with a maximum downward tow ball weight of 230 kg*.

The UK sourced V6 diesel engine for the SZ Territory produces 140 kW at 4000 RPM and 440 Nm of torque at 1900 RPM.

Fuel economy

The new Territory's improved fuel economy will attract the attention of SUV buyers. The TDCi engine returns a low 8.2 l/100 km in RWD configuration (combined cycle, according to ADR 81/02). TDCi powered TX and TS AWD models consume 8.8 l/100 km and the range leading Titanium 9.0 l/100 km (combined cycle, according to ADR 81/02).

In the extra-urban cycle (according to ADR 81/02), the RWD TDCi models achieve a low 6.5 l/100 km giving customers extensive range from its 75 litre fuel tank and excellent fuelling costs.

Combined with a fuel tank capacity of 75 litres, all TDCi powered models have a potential driving range of more than 1000km from one tank of diesel fuel in the extra-urban driving cycle. Achieving these fuel economy results was paramount. The results of this work are impressive, especially with regard to driving performance and real-world fuel efficiency.

Combined-cycle fuel consumption and CO2 emissions (tested to ADR81/02) for the V6 turbo-diesel are:

Combined	RWD	AWD	AWD Titanium
Fuel Cons.	8.2 l/100 km	8.8 l/100 km	9.0 l/100 km
CO2 Output	217 g/km	232 g/km	236 g/km

Urban-cycle fuel consumption (tested to ADR 81/02) for the V6 turbo-diesel is:

Urban	RWD	AWD	AWD Titanium
Fuel Cons.	11.3 l/100 km	11.6 l/100 km	11.9 l/100 km

Extra-urban-cycle fuel consumption (tested to ADR 81/02) for the V6 turbo-diesel is:

Extra-urban	RWD	AWD	AWD Titanium
Fuel Cons.	6.5 l/100 km	7.2 l/100 km	7.3 l/100 km

Six speed automatic transmission

All models in the SZ Territory range have a six speed automatic transmission as standard equipment. The optional TDCi V6 is fitted with the ZF based 6R80 six speed automatic transmission in both RWD and AWD configurations. The I6 petrol engine RWD models have ZF 6HP26 six speed automatic transmissions. Both units use a conventional torque convertor to transmit drive.

The TDCi V6 engine is fitted with a ZF 6R80 six speed automatic transmission.

The TDCi AWD drive train for the SZ Territory.

The six-speed automatic transmission allows the driver to fully exploit the excellent attributes of the torque-rich TDCi V6 engine. The transmission's shift schedule has been optimised for fuel economy and performance feel. This has contributed to Territory's improved fuel economy, while meeting customers' preferences for a performance feel when driving. Ford engineers also optimised accelerator pedal progression to provide drivers with a more progressive and controllable vehicle launch and under-foot response.

Active transfer case

The AWD SZ Territory models use a permanent four wheel drive system. Ford engineers made two important changes to the optional AWD power train:

- Re-engineering the front differential to be mounted on the engine's oil sump, removing it from its previous chassis mounting position. This front differential employs a clutch mechanism to de-couple drive to the front wheels when the vehicle is stationary to optimise Territory's Noise Vibration and Harshness (NVH) performance at stand still.
- Introducing an active transfer case with a clutch operated control for the front driveline for AWD models. When the driver is stationary in DRIVE gear and has their foot on the brake while the engine is idling, a clutch mechanism in the active transfer case decouples any driving forces applied to the front drive shafts.

The TDCi V6 engine uses a new front subframe that is 14 kilograms lighter compared to that used in the previous model. This new structural element necessitated a new front crash structure resulting in a completely new crash development programme for the new Territory.

Noise Harshness and Vibration reduction

With the diesel engine, significant engineering effort was dedicated to the vehicle's sound package. A lot of the improvement was made to carefully manage the interaction of the TDCi engine with the body shell and work was done to eliminate any annoying sound paths.

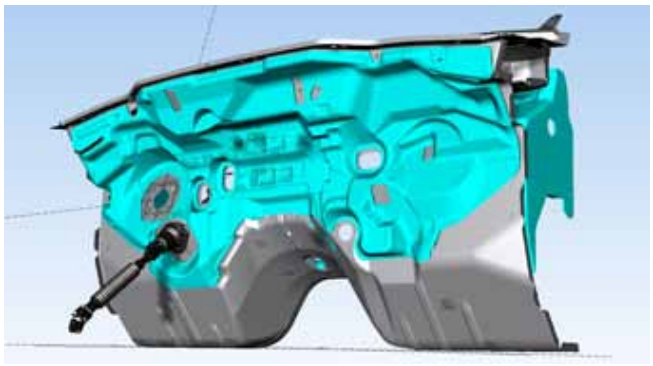
As a result there are new engine mounts, an acoustically modified exhaust system, an optimised engine bulkhead, a revised transmission mount, an isolated cross-member at the back of the six speed automatic transmission on the AWD models, and engine encapsulation, or the sealing of sound in the new Territory's engine bay.

One of the clever solutions in Territory's overall refinement package is its dash outer absorber, which is fitted in front of the steel firewall in the engine bay. This bulkhead absorber now features a special polyamide film / screen inserted between the scrim and lofting of the part to limit the transfer of engine noise through the firewall. It acts as a barrier to the noise from the engine and works in conjunction with the sound absorbing properties of the polyester lofting within the part to help limit the sound penetrating into the new Territory's interior.

This innovative design is a world first on this type of part, and results in a significant improvement in the abatement of high frequencies that contribute to interior sound levels and sound quality. The Articulation Index used to characterise speech intelligibility (the ability to converse freely without raising one's voice) measured a five to ten percent improvement with the new part, equating to approximately a one point improvement on a subjective rating scale of ten.

The new dash outer absorber, in combination with the vehicle's steel firewall acts like the double bulkhead designs typically found in high end European vehicles, but without the cost or engineering complexity. To complement the effectiveness of the upgraded sound package, Ford engineers also paid specific attention to the "pass-throughs" of the firewall.

For example, the rubber sealing boot that shrouds the steering column as it passes through the vehicle's front bulkhead was known to be an airborne path for in cabin sound transmission. The new Territory has a double rubber boot seal featuring two layers of rubber with an air gap in between, providing greater noise attenuation. The effect is similar to household double glazing.



The "double bulkhead" design and double layer rubber boot seal for the steering column help minimise in-cabin noise.

Improved pass through dash air-conditioning and heater grommet seals also improve the sound attenuation and contribute to in-cabin refinement. To further attenuate under bonnet engine sounds, NVH engineers added upgraded dashboard and floor inner insulators. This additional barrier material thickness improves noise attenuation by one to two decibels.

Cutting the "cackle"

In addition to these sound package improvements designed to attenuate interior noise, significant effort was spent developing appropriate engine encapsulation features to control vehicle exterior noise. Extensive work was carried out to reduce the diesel "cackle" at idle from echoing into the cabin from around the car.

One aim was to reduce noise in the "'drive-through test", such as when a driver is idling at a toll booth or take away restaurant window, usually next to a wall. In such cases, the sounds from the engine often reverberate against the road and wall and enter the car when the driver's window is down.

A new comprehensive engine under tray with side covers was developed and fitted under the engine of the new Territory. This provides a strong barrier and absorbs engine noise to reduce sound levels not only entering the passenger compartment, but also radiating away from the vehicle.

At the top of the engine, a new full size bonnet absorber covers much of the engine bay and works in unison with the engine's acoustic cosmetic cover to absorb the high frequency noise typical of diesel combustion.

A new transmission tunnel absorber complements the engine encapsulation package by capturing engine and transmission noise and reducing the sound levels both entering the passenger compartment and radiating away from the vehicle.

The results are reduced interior and exterior noise, improved refinement and a three to four percent improvement in the Articulation Index. In the simulated drive through testing devised to measure NVH performance, the new Territory is quieter than the Land Rover Discovery by eight Articulation Index percentage points.

The development path

Ford Australia's experience in building and designing vehicles that deliver innovation and customer benefits

The SZ Territory features Electric Power Assisted Steering.

in performance, safety and economy has been further enhanced with the development of the new Territory. It is a vehicle that has strong appeal to the SUV customer heartland of Australia.

Other important changes to enhance Territory included:

- Introduction of EPAS (Electric Power Assisted Steering). The new EPAS was engineered in conjunction with a new chassis structure, the lighter and stronger new front sub-frame.
- New generation safety systems, such as advanced Bosch developed Generation 9 Dynamic Stability Control system with Roll Over Mitigation, Traction Control System, Anti-lock Braking System, new front crash structure, and a new driver side knee airbag.

The new Territory's road to Ford showrooms has been long and gruelling. It involved about 800,000 km of harsh testing in some of the world's toughest locations - from the NSW Snowy Mountains region, to the Victorian high country and various Australian capital cities.

High-altitude testing up to 2500 m was conducted in the USA, as was extreme hot weather testing in California's 50°C+ Death Valley, Arizona's deserts and, naturally, the harsh Australian outback. Other development locations included New Zealand, Sweden, and Alaska.

It is designed and engineered in Australia for local customers and conditions. The amount of work done by Ford's skilled designers and engineers has been vast and includes changes to engines and transmissions, safety, suspension, refinement, and technology.

At a glance: SZ Territory Duratorq 2.7-litre Turbo-charged Diesel Common-rail injection V6 engine.

Engine	
Name / Model Code	Lion
Number of cylinders	6
Configuration	V 60 degree angle, longitudinally mounted
Displacement	2720 cc
Bore	81.0 0mm
Stroke	88.00 m
Number of valves	24
Fuel type	Diesel
Compression ratio	17.3:1
Induction	High pressure diesel fuel injection with common-rail technology and piezo injectors, single VGT turbocharger; intercooler, electronic power train control module
Recommended fuel	Diesel
Maximum power	140 kW @ 4000 RPM
Maximum torque	440 Nm @ 1900 - 2500 RPM
Fuel cons. & CO2 output (combined) RWD	8.2 l/100 km & 217 g/km
Fuel cons. & CO2 output (combined) AWD	8.8 l/100 km & 232 g/km
(Titanium: 9.0 l/100 km & 236 g/km)	
Fuel cons. (urban) RWD	11.3 l/100 km
Fuel cons. (urban) AWD	11.6 l/100 km
(Titanium: 11.9 l/100 km)	
Fuel cons. (extra-urban) RWD	6.5 l/100 km
Fuel cons. (extra-urban) AWD	7.2 l/100 km
(Titanium: 11.3 l/100 km)	

* Maximum towing capacity using a Genuine Ford heavy-duty tow pack with load levelling kit. To achieve maximum capacity, occupants and/or luggage may need to be restricted. For further details regarding passenger and luggage requirements please consult an authorised Ford dealer and/or refer to the Territory's owner's manual under "Trailer Towing" for further guidance. Subject to state and territory regulations.

AAT hands down ACIS decision on Australian based and off-shore R&D

By Evan Stents,
Lead Partner
Automotive Industry
Group, HWL
Ebsworth Lawyers

The Administrative Appeal Tribunal recently handed down a decision in favour of AusIndustry regarding what constitutes Australian based and off-shore R&D, within the meaning of the ACIS Legislation and Regulations.

The findings in this case equally apply to R&D claims under the new ATS Scheme. The decision was handed down following an appeal to the AAT by Robert Bosch Australia Pty Ltd.

The principal issue in this review concerned the interpretation of Regulations 13G (5)(a) and 13G (5)(c) of the ACIS Administration Regulations 2000. In particular, the point was whether the activities undertaken overseas by the applicant's parent company (and its contractors) could, in the context of the Act and Regulations, be said to be "conducted by" the applicant (Bosch).

On behalf of the applicant, it was submitted that regs 13G(a) and (c) concern who undertakes (referring to the definition of "Australian based research and development" in reg 3) or conducts the R&D, not where the R&D occurs.

The Applicant's points

The applicant submitted that the overseas R&D carried out in the relevant period did qualify as it was "conducted by" the applicant, which entitled the applicant to receive the duty credits pursuant to reg 13G(5)(c). The applicant submitted that the construction of "conducted" should focus on who did the directing or managing of the R&D, rather than actually who did the activity of R&D.

It was submitted by the applicant that, since the R&D carried out overseas was being directed from Australia, it was R&D conducted by the applicant within the terms of reg 13G(5)(c). Alternatively, the applicant submitted that the R&D is "Australian based" pursuant to reg 13G (5)(a): the R&D was controlled by the applicant and undertaken on its behalf pursuant to a contract with "another person".

The applicant submitted that a liberal interpretation of the Act should be adopted. The applicant, maintained that the phrase "conducted by" should be given a broad interpretation. That is, that the Australian Component Producer (ACP) "has directed, managed or controlled the relevant activities rather than having personally performed the activities itself.

The applicant maintained that:

- The Act has a beneficial purpose and it, and the Regulations, should be construed broadly so as to ensure that the purpose is achieved.
- In calculating the amount payable for offshore R&D, reg 13H (6)(c) recognises an amount paid to a person contracted by the participant for an activity. It was submitted that any such amount must arise in the context of the participant "controlling, directing or managing" such a contractor. If this is so, then "conducted" must have a broader meaning than that suggested by the respondent.
- Regulation 3 defines Australian based R&D by reference to R&D "undertaken" in Australia, whereas reg 13G (5)(a) and (5)(c) refer to R&D "conducted by" another person or the participant, respectively. It was submitted that the difference in wording indicates that Parliament intended to distinguish between physical performance (that is, undertaking) from the broader meaning attaching to "conducted". Similarly, the use of the term "carried out" in reg 13H (6)(c) denotes a distinction between activities constituting performance and those involved in conducting R&D.
- The purpose of the Scheme is to promote competitive investment and innovation, and it is inconsistent with that purpose to provide a concession based on a particular business structure (that is, employing staff directly, rather than engaging under contract). The object of the Act is to encourage investment, it is not about encouraging the employment of Australians.
- "To require the direct employment of all researchers and engineers engaged in eligible R&D and only allow participants to take advantage of … [their] work … is needlessly at odds with common business practice and … [be] at odds with contemporary norms of efficient management".

The Respondent's points

The respondent submitted that, with respect to reg 13G (5)(c), the overseas R&D was "conducted by" the applicant's parent company, or overseas contractors appointed by the applicant's parent company. Additionally, the respondent submitted that the alternative reliance on reg 13G (5)(a) is unsustainable, because the claimed R&D was carried out by the applicant's parent company, or its overseas contractors, and therefore, cannot be categorised as "Australian based" R&D.

The respondent submitted that the word "conducted" as used in reg 13G (5) (a) and (c) should be read in context as meaning "to do". In ascribing that meaning, it was submitted that any element of direction or management of offshore activities by the applicant did not arise.

The respondent agreed that the legislation is beneficial in nature, but it submitted that whilst there are a number of meanings attributable to the word "conducted", the most appropriate in this context is "to do"; and such an interpretation would result in an interpretation consistent with the wording used to define Australian-based R&D in reg 3.

The findings

The AAT found in favour of the Secretary. In doing so, the AAT concluded:

- "Conducted" is a word of broad ambit in ordinary usage. The meaning provided in the Oxford Dictionary Online is "the action or manner of conducting, directing, managing, or carrying on (any business, performance, process, course, etc.); direction, management".
- Similarly, in the Macquarie Dictionary (Revised Third Edition), this word is defined as, "to direct, in action or course; manage; carry on .. to direct as leader". The question, however, is whether this word is to be given its ordinary meaning, or a texturally constrained meaning when used in relation to reg 13G (5)?
- The intention of the Act is not to reward R&D conducted by non Australian corporations, whether acting in their own right, or under contract with Australian corporations.
- Thus, this phrase is to be interpreted as involving the twin elements of direction and activity. Based on this interpretation and its findings of fact, the AAT found that the applicant did not conduct the offshore R&D as required by reg 13G (5)(c).

The case is now the subject of appeal to the Federal Court. Component producers that have an element of off-shore R&D as part of their business need to have careful regard to this decision and the outcome of the appeal when making R&D ATS claims.

Dassault Systèmes Partners with Simuserv

Global 3D and Product Lifecycle Management software supplier Dassault Systèmes has appointed Australian based service and solution provider Simuserv Pty Ltd as a Value Added Reseller partner in Australia. Simuserv will market and provide services for SIMULIA solutions, the Dassault Systèmes brand for realistic simulation.

"SIMULIA is the market leader in Australia for unified finite element analysis (FEA) solutions and our partnership with the experienced team of Simuserv will help us further expand our market coverage and support to customers," said Gilles Cruanes, general manager, Dassault Systèmes Australia.

Established in 2002 and headquartered in Melbourne, Simuserv provides engineering simulation services and solutions to aerospace, automotive, defence, energy, packaging and advanced manufacturing industries. "The combination of providing world leading software solutions from Dassault Systèmes and the simulation engineering capability of Simuserv will help our customers reduce costs, improve quality and minimise time-to-market in their product development process," said Simuserv director Gerd Diegelmann. Visit www.simulia.com

FPGA-enabled NI FlexRIO range expanded

National Instruments has expanded its NI FlexRIO product line with six new adapter modules featuring FPGA-based reconfigurable I/O to deliver enhanced functionality for general-purpose automated test and high-speed digital communication.

The new group of adapter modules includes four general-purpose digitizers, a module for high-speed digital I/O and the industry's fastest 16-bit analog-to-digital converter (ADC) from Analog Devices, Inc. (ADI), which is optimized for modulated communications.

The NI FlexRIO family is the industry's first commercial off-the-shelf solution to provide engineers the flexibility of NI LabVIEW FPGA technology with high-speed, user-configurable I/O on the PXI platform.

Orbital lights the way for green engine development in China

Orbital's FlexDI program received partial support from the Australian Government through the recently concluded Green Car Innovation Fund.

Perth based Orbital Corporation is delivering China's second largest passenger car manufacturer positive results on the critical second phase of Chongqing Changan's advanced engine development program. The application of Orbital's patented FlexDI direct injection fuel system, combined with other advanced technologies, has cut fuel consumption of Changan's new Intelligent Compound Combustion System (ICCS) engine by over 40% at idle and by over 27% at a typical part load driving point (2000rpm), while increasing engine torque by 10%.

Orbital's Changan project manager Nick Coplin said FlexDI differs significantly from convention gasoline direct injection systems. "Conventional direct-injection systems inject fuel at extremely high pressure to achieve the small fuel droplet size needed to improve efficiency and reduce particulate emissions," he said. "Orbital's FlexDI overcomes these issues by injecting the fuel at comparatively low pressure and utilising air pressure to atomise the mixture as it is delivered to the combustion chamber."

The ICCS engine concept incorporates advanced technologies, including the latest low friction components, variable valve timing, variable valve lift, and exhaust gas recirculation, as well as Orbital's FlexDI direct injection.

Orbital's Perth engineering teams began work with Changan on the project early in 2009. Orbital Autogas Systems is the original equipment LPG engine system supplier to HSV and Ford's new ECOLPi range due for release later this year.

2011 ITS Summit to plan transport safety and productivity improvement

By Dr Norm Pidgeon, President, Intelligent Transport Systems Australia

The applications of intelligent transport systems (ITS), ranging from freight management to in-vehicle navigation and road tolling technologies in Australia, have evolved from technical mysteries to productive networks contributing to the safety, security and productivity of the nation's transport infrastructure.

These technologies are not just talking maps stuck on the car's dashboard. Intelligent transport systems are now used to keep public transport on schedule, track freight deliveries and manage peak time traffic flow.

As ITS technologies quietly perform a wide range of tasks on our transport infrastructure, they make dramatic improvements to the safety and security of pedestrians, passengers and vehicle drivers. They also make significant improvements to transport productivity. People and goods get to their destinations faster and more economically thanks to Australian developed ITS solutions.

All of this has been achieved in the past 10 to 15 years. ITS industry thought leaders believe it is now appropriate to examine progress and they have called the second Australian Intelligent Transport Systems Summit, to be held 20 to 22 September, 2011 at the Gold Coast, to progress industry input to a strategy for national ITS development.

Like the inaugural Summit in 2009, the ITS 2011 Summit will be a roll-up the sleeves working session with the theme Strategy into Action. It will bring together all ITS stakeholders - the entrepreneurs, the manufacturers and the users, including vehicle and component manufacturers, transport businesses and government bodies responsible for transport infrastructure.

National ITS strategy objective

As we continue to align technology standards among ITS producers, and apply identical technical regulations across Australia's state and territory borders, we will bring even greater safety, security and productivity benefits to the nation's transport infrastructure.

With significant input from the internationally renowned ITS pioneers speaking at the ITS 2011 Summit, this meeting will share experiences about the development and implementation of major projects. This will benefit future applications by enabling synergies across projects to be identified and capitalised upon, and will reveal potential overlaps to be avoided.

Keynote speakers from Australia, Belgium, Greece, Italy, Korea, Norway, South Africa, United Kingdom, and United States of America will inspire debate over two days, including a full day workshop leading to the Summit objective of capturing industry input to a strategy for national ITS development.

That strategy will cover transport operations, vehicle and freight technologies, traveller information, a national ITS architecture, and the roles of academia, industry and government. ITS Australia is committed to working with Austroads and other stakeholders to deliver an integrated national strategy.

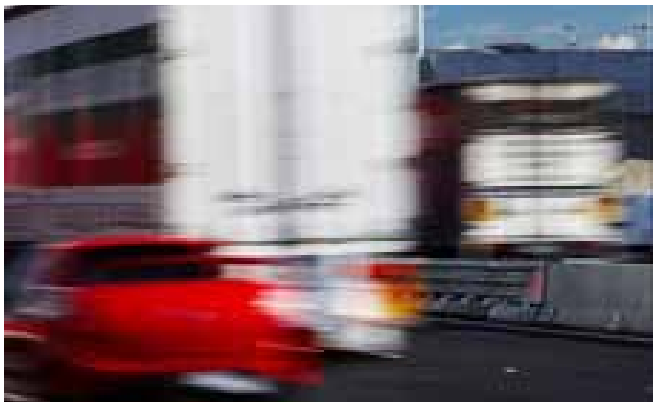
Maximum stakeholder participation wanted

Australia is an internationally recognised intelligent transport systems innovator. We export sophisticated electronic technology, including navigation and electronic enforcement systems. As a nation, we can do better in applying our skills and experience to improving our own transport infrastructure.

The ITS 2011 Summit is our most ambitious project. The Summit outcomes will help set the national agenda for the development of technologies to further improve the safety, security and economic performance of Australia's transport infrastructure for the coming decade.

We welcome the participation of representatives from all Australian ITS stakeholder groups at this Summit. We thank the Queensland Government for hosting this important national meeting.

In addition to contributing to an integrated national ITS strategy, this event will provide excellent networking opportunities with government and industry ITS leaders. The ITS 2011 Summit program and registration form are at www.itssummit.com . Organisations interested in sponsorship and exhibition opportunities should telephone +61 3 9320 8675 or email sponsorship@itssummit.com .



People and goods get to their destinations faster and more economically thanks to Australian developed ITS solutions.

ACA strengthens market position

Engine management solutions and fuel pump specialist Automotive Components & Accessories Pty Ltd (ACA), has expanded its Sydney warehouse, to provide additional space for bulk components and raw material and to improve efficiencies, and has expanded its range of fuel pumps, with 19 new part numbers added.

Another recent ACA release was the C431M Ignition Coil Service Kit, consisting of 6 on-plug coils for the Holden Commodore with the value-added, time-saving benefit of the plenum-manifold gaskets supplied standard with the kit.

The addition of the ACA Screen Tab on customers' desktop screens has been outstandingly successful, giving instant access to part numbers, application listings and technical information at the click of a mouse. Screen Tab also sends the latest information on new products and provides a valuable visual guide to products for ease of identification, allowing an image to be forwarded via email to the trade,

Automotive Components and Accessories has added 19 part numbers to its fuel pump range.

thus avoiding possible errors in supply of the wrong part. Visit sales@aca-auto.com.au

Winning innovation

Brown & Watson International scooped the prize pool with four wins at the recent Australian Auto Aftermarket Expo Awards. From left is Marketing Manager George Davies with Best New Packaging Award for Narva Ultima 225 Driving Lamp Pack, General Manager Tim Miller with Best New Aftermarket Product - Parts Award for Narva 7" LED Headlamp Replacement, Managing Director Steve Waterham with the Best New Aftermarket Product - 4WD Award for Narva Ultima 225 HID Driving Light and Narva Extreme HID Driving Light, and Aftermarket National Sales Manager Paul Griffiths with the Best New Product - Electrical Award for Projecta Pro-Charge Battery Charger. Visit www.narva.com.au

Practical multi-purpose storage system

A practical portable storage case for workshop bits and pieces has been released by Kincrome. The innovative Multi-Storage Case houses 18 removable, transparent lidded tubs, ideal for storing small items such as nuts, bolts, washers, screws, nails, seals and o-rings, drill bits, electrical fittings, spare parts, and more. The tubs include a divider to increase storage options, and they can be mounted on your belt to keep things at hand.

The tubs lock into the folding carry case, which includes two clip locks to prevent accidental opening and a carry handle. The Multi-Storage Case is made from heavy duty Polypropylene plastic. The removable tubs are also sold

The Kincrome multipurpose storage system provides options for a carry-all, belt fitted tubs and wall mounted units.

separately either individually, in a 6 pack set or as a 4 pack option with aluminium rail to mount on the wall so you can mix-and-match to suit your storage needs. Visit www.kincrome.com.au

Australian Auto Aftermarket Expo exceeds expectations

> *The Australian Auto Aftermarket Expo and Collision Repair Expo* held at the Melbourne Exhibition Centre from 12 to 14 May exceeded expectations by attracting 12,625 trade visitors to the largest aftermarket trade show held in the Victorian capital.

The Expos are organised by separate committees - one representing the aftermarket accessories, equipment and parts sector, and the other representing the collision repair industry. Both Expos are coordinated for the industry by the Australian Automotive Aftermarket Association (AAAA).

AAAA Executive Director Stuart Charity said the organising committees praised both industry sectors for their extraordinary support of the trade shows. “The 2011 Expos set attendance records - 20% up on the Melbourne Expos in 2007 and 50% up on the Sydney Expos in 2009. The 12,625 attendance figure for the 2011 Expos is remarkable when you realise that there are only an estimated 15,000 aftermarket mechanical and collision repair workshops in the whole of Australia,” he said.

“We were also delighted with the significant increase in interstate and international visitor numbers this year. Since our first AAAA trade show in 2003, these events have grown in stature to become an Australasian destination. Exhibitors welcomed visitors from Western Australia and the Northern Territory, a delegation of 750 New Zealand trade visitors and high level buying missions from China, India, Taiwan and the USA,” said Stuart Charity.

Exhibitors are star attractions

The shows were busy from start to finish and offered visitors a huge array of live demonstrations of products and technologies. The Dyno Dynamics and Mainline Dynalog Dyno Demonstration Display and the heavily subscribed Choice of Repairer Seminars were features of the *Auto Aftermarket Expo.*

The two Lowbake demonstration spray booths - one featuring the new Broadband Gas Infrared technology - and the heavily subscribed International Seminar Series were highlights of the *Collision Repair Expo*.

"We thank the 450 exhibitors for the tremendous efforts - and considerable investments - they made in presenting displays of international standard. They were the stars of the show," said Stuart Charity.

Visitor follow up is critical

"Most importantly, countless exhibitors told me they were delighted with the number and quality of the visitors, because there were few 'tyre kickers'. Our visitor research shows that workshop owners and managers visit the biennial Expos to learn about and shop for the latest technologies and products,” he said.

The busy Australian Auto Aftermarket Expo and co-located Collision Repair Expo smashed the previous attendance record with 12,625 trade visitors attending over three days. This is a remarkable result given that there are only an estimated 15,000 aftermarket mechanical and collision repair workshops in the whole of Australia.

“A common comment from exhibitors was that it would take years to get out and personally speak to the same number of workshops that visit their stand during the three day show. Now those exhibitors face the big task of doing the follow up on the sales leads they generated from Expo visitors.

“Selling off the Expo floor is a bonus and some exhibitors were delighted by the sales achieved, with many happy in the knowledge that their sales had repaid their Expo investment many times over,” he said.

“On behalf of the organising committee, the AAAA thanks all exhibitors and visitors for making the 2011 Expos the biggest and most successful to date. Planning begins in June for the 2013 Expos scheduled for Sydney. Already we have expressions of interest from enthusiastic exhibitors,” said Stuart Charity.

Major corporate sponsor of the Australian Auto Aftermarket Expo Monroe enjoyed an excellent show with Super Sedan Series driver Ron Pyne and V8 Supercar driver Mark Winterbottom attracting fans to the stand.

its2011
strategy into action

www.itssummit.com

AUSTRALIAN INTELLIGENT TRANSPORT SYSTEMS SUMMIT

20 - 22 September
Gold Coast Convention Centre
Gold Coast, Australia

On behalf of ITS Australia, I am pleased to welcome you to this preview of the second Australian ITS Summit. The inaugural Summit was held in Melbourne in November 2009 and was a productive hands-on event that established the basis for a proposed National ITS Strategy. The outcomes of that Summit have been progressively developed into a framework for the development of ITS in Australia. This is now in the process of being aligned with other definitive programs, such as those guided by Austroads, aiming for a coordinated program of priority initiatives.

The 2011 Summit will again be a roll-up the sleeves working session. This time the focus will be on the translation of the strategy into well-defined action programs. It will be an opportunity to share experiences in the development of leading ITS development and implementation projects across the nation. We will also draw on the most relevant international experience. It will allow synergies in initiatives to be identified as well as potential overlaps. With your active participation, the end-result will be the effective translation of our collective priorities into a suite of practical project initiatives, with a clear picture of the champions and key players in each arena.

I invite you to be part of this further definitive step for ITS in Australia.

Norm Pidgeon
Nous Group and ITS Australia President

<return to contents>