

ISSUE 108: DECEMBER 2011

# DIESEL TORQUE

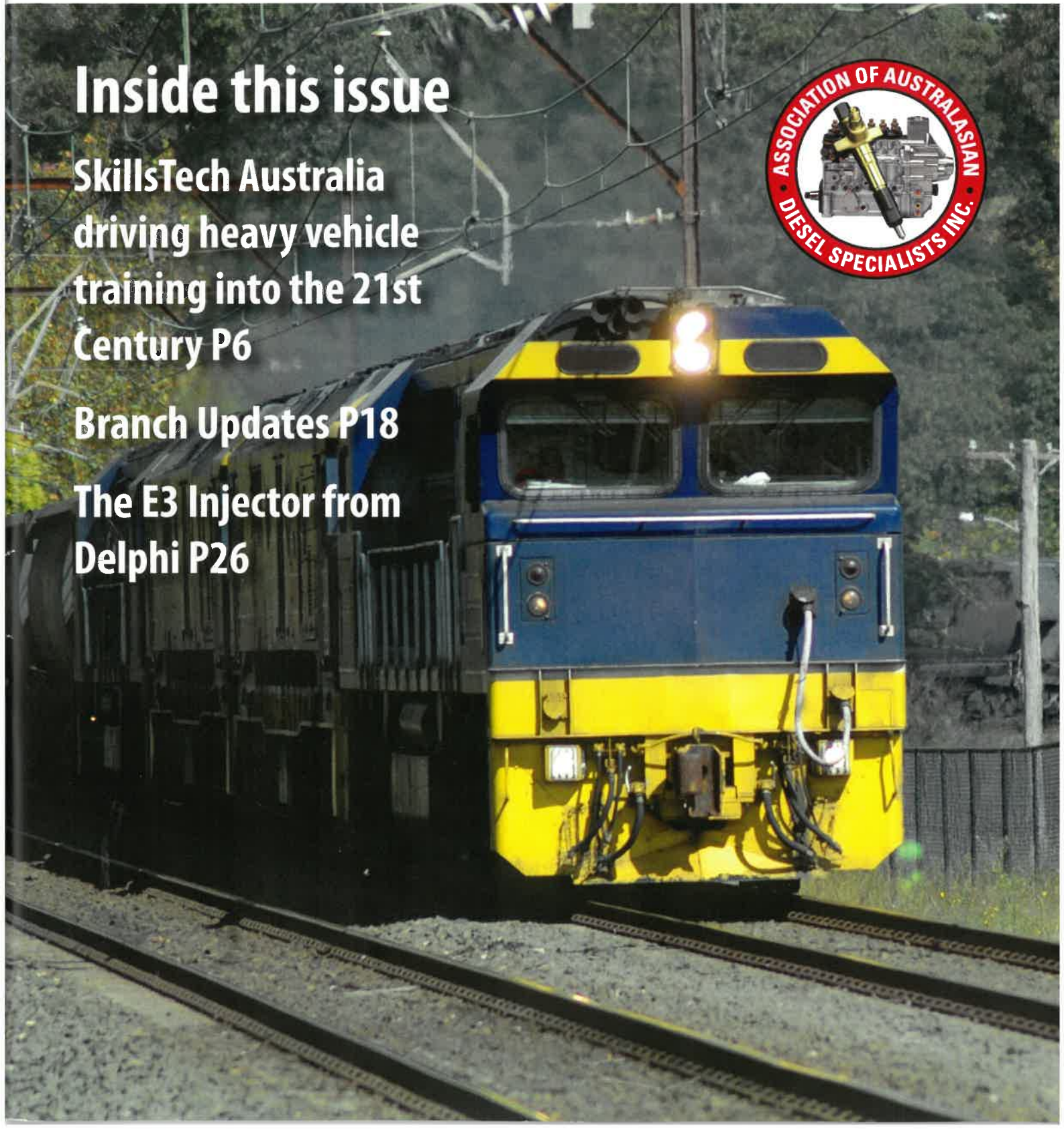
OFFICIAL MAGAZINE OF THE ASSOCIATION OF AUSTRALASIAN DIESEL SPECIALISTS INC. (AADS)

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driving heavy vehicle  
training into the 21st  
Century P6

Branch Updates P18

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## President's Report



The year is drawing to a close and I would say that our Industry is still in good stead, even with what has been happening around the World. The Industry keeps changing and growing in new products every day. We are still seeing that the manufacturers

are making new systems to meet the market, these new systems are still being put in the market with a repair facture built in, not in everyone but in most. So these are our future and long may it last.

You will have all seen that we have recalled the vote on the Constitution. This has come about because we found that the changes that were made back in 2003 had not been registered with the Office of Fair Trading. The Board at the time understood that this had been done, but it appears to have been missed. So we are putting that right then we will be back on the trail of getting this completed.

Fiji is well underway and you would have all seen the first cut at the program. We have some small changes to this and there will be some business presentation over breakfast each morning. This will be so that we can catch up with what is happening in the market around the World. There will also be lots of time to chat with your fellow members around the pool or under the shade of a palm tree.

We are still trying to find out more about the training situation in most States. This has not been an easy to get to the right people. We will keep pushing it along to try and get a good outcome.

I would like to wish all members and their families a safe and happy Christmas and a very prosperous New Year

**Mike Hurley**  
AADS President

COMING SOON TO  
DIESEL TORQUE

BE THE FIRST  
TO PROMOTE  
YOUR  
BUSINESS  
WITH OUR  
NEW  
SEGMENT!



## AADS MEMBER PROFILE

We strongly encourage you to submit an entry for a member profile. It's a good way to advertise your business through this medium.

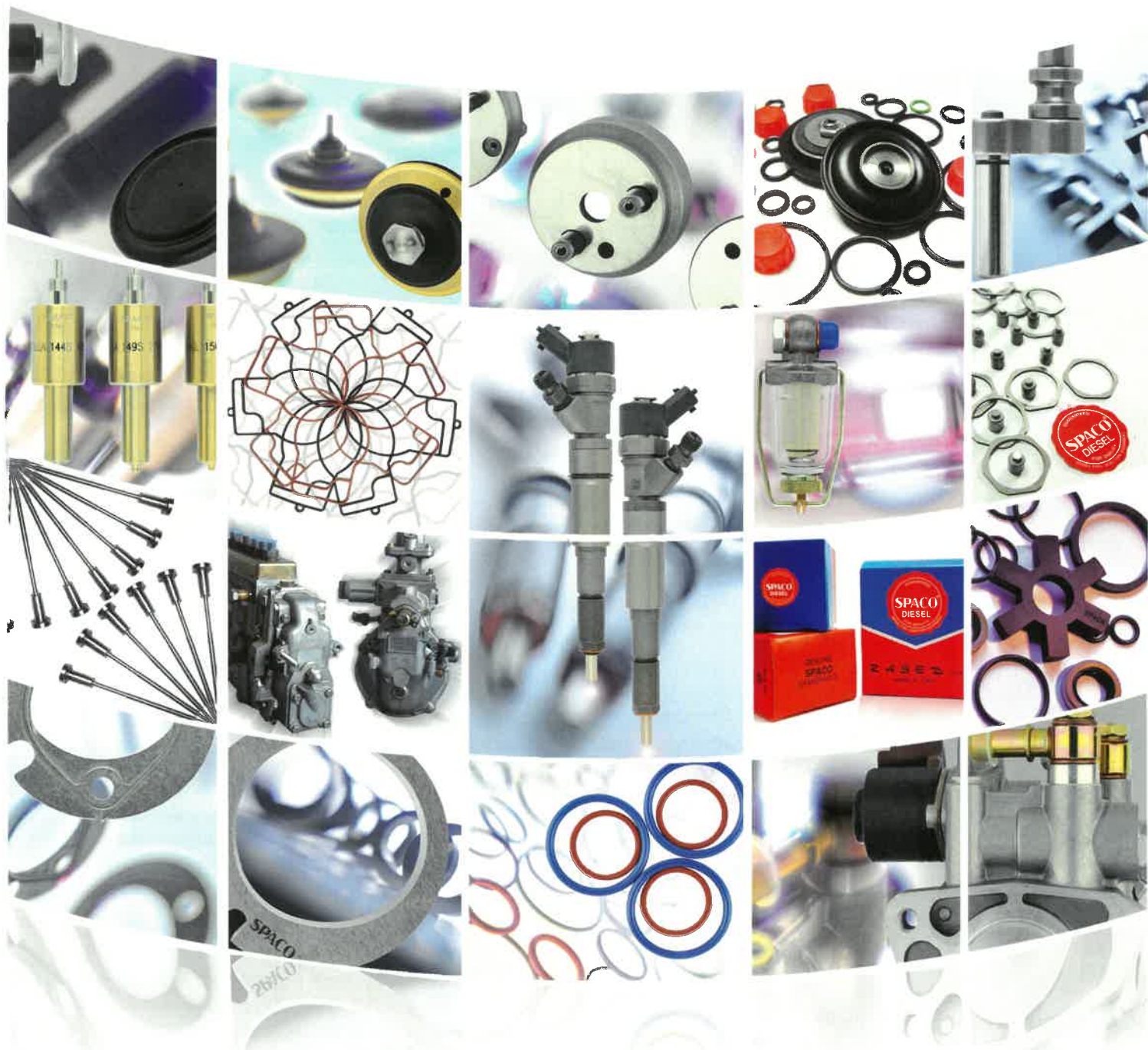
This section will detail items including the following:

- Name of business and Owner/ Manager
- A brief history of the Owner/ Manager – including qualifications, work experience etc
- A photo of the business employees/ workshop
- What does the business specialise in?
- How long has the business been established?
- How many staff does the business have?
- Where are they located?
- Any other interesting facts about the business

Please submit all entries and information to the AADS Secretariat:  
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# SPACO DIESEL

Components For Diesel Fuel Injection Pumps



50<sup>th</sup> ANNIVERSARY  
1961-2011



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# SkillsTech Australia

## driving heavy vehicle training into the 21st Century



Anyone stepping into the foyer of the new Heavy Commercial Vehicle and Diesel Fitting Training Facility at SkillsTech Australia's Acacia Ridge Training Centre is left in no doubt that this is no ordinary, run-of-the-mill training facility.

The expansive foyer draped with company flags and industry logos gives the immediate sense of a large commercial dealership.

Modern décor, welcoming design and extensive use of glass to bring natural lighting inside are immediately evident.

Proceeding along the corridors, students are visibly engaged in training activities within the air-conditioned classrooms. Banks of computers are on display with students engaged in an array of interactive activities.

Glass is everywhere throughout. Clearly, this is a 21st century training facility with all of the benefits and nothing hidden away behind closed doors.

Casting an eye to the outside, the workshops are visible through the same glass-lined corridors. Workshops

sport extensive sky lighting, ventilation fans and epoxy coated floors.

No messy services snaking down from the ceiling. All services have been plumbed through the floors and appear regularly at conveniently placed islands throughout the workshops. Large, six-metre clearance doors at regular intervals give access to any size and shaped heavy equipment needed for training purposes. This is a pleasant working environment.

### New facilities

The Queensland Government created SkillsTech Australia in 2006 to boost Queensland's skilled workforce and build the capacity of the Vocational Education and Training sector.

SkillsTech Australia's Acacia Ridge Training Centre now occupies approximately nine hectares and features five new state-of-the-art buildings. The Heavy Commercial Vehicle and Diesel Fitting Training Facility, also known as R Block, was approved in July 2009 when the Federal and Queensland Government's committed \$13 million to the development of the world-class facility at Acacia Ridge. Despite unseasonal Queensland weather, the facility was completed on time and ready for handover in July 2010.

The new Heavy Commercial Vehicle and Diesel Fitting Training Facility was officially opened in September by Mr Graham Perrett, MP, Federal Member for Moreton, and attended by a range of dignitaries including Mary Campbell, Institute Director SkillsTech Australia; Judy Spence, MP, State Member for Sunnybank; Andrew Dettmer, Secretary Queensland Labor Party; Peter Price, Executive General Manager, Programming and Procurement, Energex; and Brett Wright, CEO, Commercial Vehicle Industry Association of Queensland (CVIAQ).

From the outset, industry was heavily involved in the design and development of the project, particularly the Heavy Commercial Industry Association of Queensland membership.

The Metals and Engineering Skills Council and Australasian Association of Diesel Specialists (AADS) provided valuable input to the initial design concept.

CVIAQ is well known for its convening of the biannual premier Australian transport industry event, the Brisbane Truck Show, which attracts more than 36,000 attendees every two years. In 2011, it was the largest event yet held at the Brisbane Convention and Exhibition Centre.

CVIAQ is also the peak industry body, providing advice to government on a range of training and regulatory policies in relation to the road transport industry. Much of the membership covers the leading truck and trailer sales and manufacturing facilities in Queensland.

The breadth of membership and patronage was particularly evident at the opening ceremony of the training facility, with 14 new trucks from many of the leading brands represented including, Volvo, Mack, Western Star, Kenworth, Mercedes-Benz and Freightliner. The unveiling of the plaque was ceremonially welcomed by the sounding of air horns, trumpeting the future usage of the building.

Practical application of technology and extensive use of practical activities are central themes in the SkillsTech Australia training facilities. This is particularly evident in the comprehensive range of the latest vehicle testing equipment available to students. For example, a chassis dynamometer, designed to test the power of trucks up to 500kw, has been installed. This quickly identifies service issues such as low horsepower, overheating,

emissions compliance and speedometer accuracy.

Further industry-relevant testing equipment is incorporated into the test bays for other critical systems including:

- brake operation and response times
- steering play and wear
- suspension movement and free play.

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*“From the outset, industry was heavily involved in the design and development of the project, particularly the Heavy Commercial Industry Association of Queensland membership.”*

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The latest equipment enables students to record and analyse the results of their adjustments and repairs on a range of critical heavy vehicle systems. As safety is the highest priority today, all tests are controlled from the safety of the viewing room for training purposes. In addition, noise levels are minimal during full load testing with normal conversations and instruction continuing throughout. The new training facility is also fully networked, allowing students the benefit of viewing the live test data in any classroom in the building and exporting beyond the institute boundaries.

SkillsTech Australia has also installed the latest exhaust gas sampling and analysis technology, which

enables a vehicle's exhaust output and emissions to be measured under load to current and future standards – a process that could normally occur only by road-testing the vehicle.

Sustainability is a key factor in the building design, with all internal water usage for non-drinking purposes, supplied from building catchment stored in tanks. To further reduce future water usage and minimise long-term maintenance costs, in place of the traditional water brake dynamometer, SkillsTech Australia has installed all-electric, eddy current dynamometers. These require no water and virtually no maintenance, significantly adding to the environmental sustainability of the operations.

## Industry demonstrations

The new facilities have attracted a range of demonstrations from industry to the benefit of students and customers alike.

In April 2011, in a Queensland first, SkillsTech Australia facilitated the first public performance and function test of the then recently released Caterpillar highway truck.

Automotive teaching staff spoke highly of the facility and paid tribute to the quality of the MAHA vehicle testing equipment installed. The equipment

## HEAVY VEHICLE TRAINING

is equivalent to facilities that are commonly used throughout the eastern coast of Australia for heavy vehicle testing by government authorities, transport companies, bus companies and private enterprises. It is for these reasons along with the opportunity to demonstrate to current students, Mr John Edwards of Hastings Deering, chose SkillsTech Australia facilities to test their world-first Caterpillar highway truck.

Senior staff from the institute including Chris Kroehn, Business Manager Automotive, SkillsTech Australia and Rick Thurgood, Managing Director, MAHA Australia, and Caterpillar staff witnessed the first public test of the recently released highway truck simulating road speeds of up to 100km/h while undergoing full load conditions. Students and staff were very impressed by the performance of the testing facilities.

Mr Thurgood said the facilities were world-class and particularly impressive.

"All the technology utilised in this facility results in not only measuring a vehicle's performance accurately, but also measures the safety of the vehicle, its stopping power and diesel emissions," Mr Thurgood said.

"We would highly recommend SkillsTech Australia for heavy vehicle industry training."

### Moving up

Many of the current diesel fitting and automotive tradespersons in Queensland trained at the Mt Gravatt Training Centre. After more than 31 years of training heavy vehicle apprentices and tradespersons at the Mt Gravatt Training Centre, an era finally came to an end on Friday 3 December 2010.

It was a fitting time to recognise one particular staff member whose career spanned the life of the Mt Gravatt Training Centre. Terry Willis, who taught the first class in 1979, taught the last class at Mt Gravatt, completing the circle of heavy vehicle training at that centre.

SkillsTech Australia Business Manager Automotive Chris Kroehn paid tribute to Mr Willis's achievements.

"It's quite the achievement to think that Terry taught that first class back in 1979," Mr Kroehn said.

"I believe the facilities were brand spanking new back then, and now with the move to the new \$13 million Heavy Commercial Vehicle and Diesel Fitting Training Facility at our Acacia Ridge Training Centre, Terry will enjoy new, world-class facilities once again.

"It certainly is an end of an era for both Terry as he teaches the last class and for our association with heavy auto facilities at Mt Gravatt TAFE.

SkillsTech Australia Leading Vocational Teacher – Heavy Commercial Vehicle Stephen Martin also paid tribute to Terry's input.

"It has been great to work with Terry all these years and quite fitting that he teaches the last class here," Mr Martin said.

### Industry support

With a new training facility also comes new opportunities for industry to become involved in

genuine partnerships to support training for our future tradespersons. National Transport Insurance (NTI) was quick to become involved with SkillsTech Australia once the training facility was up and running. National Transport Insurance is Australia's largest truck insurance specialist providing comprehensive insurance coverage for transport operators in the heavy commercial motor market.

In December 2010, NTI provided a written-off heavy vehicle to SkillsTech Australia to assist in training truck repair apprentices. The handover is part of NTI's long-term commitment to a safer transport industry

by ensuring apprentices are learning their trade on up-to-date vehicles.

NTI CEO Tony Clark, officially handed over the truck on 7 December to SkillsTech Australia's Institute Director Mary Campbell.

The handover signals the commencement of an ongoing relationship between SkillsTech Australia and NTI which involves vehicles being supplied, replaced and returned on a regular basis.

NTI CEO Tony Clark (standing) presents the keys to SkillsTech Australia Institute Director Mary Campbell and SkillsTech Australia Automotive Business Manager Chris Kroehn (in truck).

SkillsTech Australia Business Manager Automotive Chris Kroehn said the initiative from a national transport insurance company is generous and will significantly benefit our trainees and apprentices at all levels of their training.

Mr Kroehn said the vehicle features braking systems, automatic transmission and engine technology utilised in today's current highway vehicles.

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*"All the technology utilised in this facility results in not only measuring a vehicle's performance accurately, but also measures the safety of the vehicle, its stopping power and diesel emissions"*

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## HEAVY VEHICLE TRAINING



"Students will be able to extensively dismantle, reassemble and test all components of these loaned vehicles thus providing invaluable work experience during our training programs," he said.

The initiative is aimed at supporting the next generation of Heavy Road Transport Technicians.

National Transport Insurance is also a foundation sponsor of the Australian Trucking Association and sponsor of the CVIAQ Apprentice of the Year Award.

### The facts

Currently, approximately 900 apprentices each year train in the Heavy Commercial Vehicle and Diesel Fitting Training Facility, with a further 300 students training in a range of part-time and full-time courses. That number is set to rise by around 50% over the next four years if current growth rates continue.

Students train in the following areas:

- Diesel Fuel Injection Specialist
- hydraulics/fluid power
- Diesel Engine Specialist
- Heavy commercial vehicle
- Diesel fitting
- Auto air-conditioning
- Transmission Specialist
- Pneumatics Technician

Students can train at the following levels:

- VET/Trade in Schools
- pre-apprenticeships
- apprenticeships and traineeship
- Certificate IV and Diploma
- post-trade

### Positive student outcomes

There have already been some notable outcomes for students choosing to study at SkillsTech Australia.

In the recent Queensland Gas Training Awards, SkillsTech Australia students were awarded the Automotive Gas Training Award. The CVIAQ Apprentice of the Year and finalists in 2010 were all SkillsTech Australia students who completed their final training at the Acacia Ridge Training Centre. The 2011 Brisbane City Council Apprentice of the Year awards named 14 SkillsTech Australia heavy vehicle students as finalists across a range of categories.

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*"I like to hire high-achievers and people who go the extra mile; it makes for a good tradesperson and it helps build good foundations for the team"*

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The Ford Factory racing team, Ford Performance Racing, has been synonymous with Australia's V8 Supercars and the racing industry for more than a decade now and when they were searching for an apprentice to join their high-achieving team, they looked to SkillsTech Australia.

SkillsTech Australia pre-apprenticeship student Mark Hancock had completed two years of mechanical engineering

at the University of Queensland, when he decided he wanted to do something more practical. He subsequently enrolled in the pre-apprenticeship program with SkillsTech Australia.

Ford Performance Racing team manager Chris O'Toole was looking for an apprentice for their growing Melbourne facility and approached SkillsTech Australia searching for any students that "stood out from the crowd".

"I like to hire high-achievers and people who go the extra mile; it makes for a good tradesperson and it helps build good foundations for the team," he said.

SkillsTech Australia Business Manager Automotive Chris Kroehn said this program, as part of the State Government's fully funded pre-apprenticeship pathway program, was specifically developed with industry to support streaming students back into the workplace and Mark's story is a great example of this.



"I believe our world-class training in combination with Mark being a mature-age pre-apprentice made him a good fit for the Ford Performance Racing team," he said.

"We are very proud to have facilitated this; a great result all round."

## Industry choose SkillsTech Australia

Industry partnerships are key to the future training strategies for SkillsTech Australia and since the move to Acacia Ridge, a number of opportunities have arisen which are positioning SkillsTech Australia as the large training provider of choice for industries deciding to base major operations in Queensland.

In 2010, Komatsu Australia approached SkillsTech Australia to provide a specific, tailored apprentice training program in line with a nationally developed model. The chance to partner with one of the world's largest manufacturers of heavy earthmoving equipment was a significant opportunity for SkillsTech Australia.

The company has developed relationships with TAFE colleges in Queensland, NSW and Western Australia to develop its Apprenticeship

Development System (ADS), which is designed to ease access to the industry trade and business skills.

The alliances include the provision of dedicated Komatsu classrooms, and Komatsu excavators and wheel loaders used exclusively for training.

Komatsu National Workforce Development Manager Paul Richardson said that in terms of apprenticeships and training generally, it is Komatsu's philosophy to work with TAFE organisations, rather than 'going it alone' and trying to develop their own institutes."

"It's very much a two-way process, whereby we can provide equipment and resources, donated or otherwise, made available to TAFE for training of our own apprentices and technical people, as well as TAFE's other apprentices, while for our part, we are partnering with Australia's leading training organisation," Mr Richardson said.

"In Queensland, it is with Queensland TAFE SkillsTech Australia at Acacia Ridge, where we have two new dedicated Komatsu classrooms and workshops, along with a PC200-8 excavator used exclusively for training.

"The systems and components on these machines let us cover about 80% of what our apprentices would come

across with any item of Komatsu mining or construction equipment."

Komatsu have recently unveiled plans to significantly increase apprentice training numbers across the country with Queensland being a key growth area.

## Delivering training for emerging industries

The new Heavy Commercial Vehicle and Diesel Fitting Training Facility will not only cater for current industry needs but is aiming to support the emerging industries of the future. These industries will underpin the future economic development and growth of Queensland.

SkillsTech Australia is moving to ensure the Heavy Commercial Vehicle and Diesel Fitting Training Facility is a vital part of that growth by training skilled workers for the future. In recent months, SkillsTech Australia has demonstrated its strong support for Queensland's expanding Coal Seam Gas (CSG) projects by partnering to train the workforce of Australia's leading gas compression technology suppliers.

In the most recent development in the growing relationship between SkillsTech Australia and the rapidly expanding CSG industry in Queensland, international supplier of goods and services to the oil and gas production industry Enerflex has increased its commitment to the training facilities by refurbishing and supplying a fully operational gas compression package.

SkillsTech Australia Business Manager Automotive Chris Kroehn said the gas compression package, which was sourced from Western Australian, is now installed at the Acacia Ridge Training Centre.

"The sponsorship from Enerflex extended to freighting the unit across Australia and installing it at the facility at Acacia Ridge for use in our Queensland CSG industry training programs," he said.

"Enerflex HR Manager Geoff Gavan said they are keen to support skills development across the industry and see this partnership as a model of investment by industry to support a major training provider in delivering relevant training to the industry for future needs.

"With this degree of support, our institute has the resources to deliver world-class training to the booming CSG industry in Queensland.

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*"The sponsorship from Enerflex extended to freighting the unit across Australia and installing it at the facility at Acacia Ridge for use in our Queensland CSG industry training programs"*

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## HEAVY VEHICLE TRAINING



“We are looking forward to moving forward with our partners in the industry over the coming months and years.”

The partnership is the result of Energy Skills Queensland’s work in bringing suppliers together as part of a Gas Compression Maintenance Training Committee working to address the issues these companies face in training and upskilling their workforce. Industry suppliers, including Enerflex, Exterran and Ariel Corporation are members of this Committee and have contributed equipment to SkillsTech Australia to ensure that workforce training needs are met.

### Government Investment

And the growth continues with further investment at the Acacia Ridge Training Centre with the recent opening of a second automotive training facility adjacent to the Heavy Commercial Vehicle and Diesel Fitting Training Facility.

The new \$11.5 million Light Vehicle Training Facility was officially opened at SkillsTech Australia’s Acacia Ridge Training Centre in Brisbane on Friday 2 September.

The new 4000m<sup>2</sup> facility will support approximately 900 light auto vehicle students and SkillsTech Australia plans to work with industry and the community in the same way it has worked with the heavy vehicle industry

to grow this significantly over the next five years. The new start-of-the-art facility will be home to light automotive trades, including auto mechanical, engine reconditioning and automotive electrical.

There is also a range of sustainability initiatives utilising a diverse range of specialist design knowledge leading to increased savings from the management of carbon emissions, further adding to the extensive capability of SkillsTech Australia.

Pictured from left: Drag racing legends Victor and Ben Bray together with the Hon. Judy Spence MP, Member for Sunnybank at the facility launch

SkillsTech Australia is Queensland’s largest trade and technician training TAFE institute. Institute Director Mary Campbell said it was a significant milestone which marked the completion of the Automotive Precinct for the Acacia Ridge Training Centre.

The Queensland Government has committed more than \$200 million to the development of facilities at SkillsTech Australia to address skills shortages, with more than \$162 million invested to date.

### Further information

For further information about programs and courses available for heavy auto and diesel fitting trade areas, please phone 1800 654 447 or visit: [www.skillstech.tafe.qld.gov.au](http://www.skillstech.tafe.qld.gov.au).



## FUEL INJECTION FOR THE BODY AND SOUL

# Summer Smoothie



How many of us know we should increase our greens but don't?

Here is a delicious way to start the day and includes leafy greens in your diet.

Many people don't know that baby spinach has little or no taste so it is perfect for those that don't like greens.

### INGREDIENTS

- 1 Handful of Baby Spinach
- 8-10 strawberries.
- 1 Tablespoon of Blueberries
- 2 inches of juice of choice in a jug
- 1/2 cup water / can be substituted with milk
- 1 Banana

### METHOD

Pop all ingredients into a blender, blend and drink.

Fruit can obviously be varied for seasonal favorites, e.g. Mangoes, peaches, apricots.

That's it! All the antioxidants, calcium, iron, potassium etc etc etc...Yummm.

## GCG TURBOS

We are pleased to announce the release of the first comprehensive Passenger Vehicle & Light Commercial Turbocharger applications catalogue here in Australia, after months of research and collating the 61 page catalogue is now available for free distribution.

This catalogue references all OE Manufacturers with turbocharged vehicles from A-Z, indicating year, horsepower, engine size and model, and of course the applicable turbocharger found on the OE application. This is a useful guide for every work shop in Australia, and will be seen as the Bible for the industry over the coming years.

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# Diesel Specialists

## LATEST REPAIR TECHNOLOGIES

Diesel fuel injection systems are constantly changing with OEM's releasing new products and updating repair strategies on a regular basis. This can be problematic to fuel injection workshops as it requires constant renewal of equipment and skills. Change can also equal opportunity and one company that has embraced new technologies is Diesel Specialists Pty Ltd.

*"...there is a need to keep up with tooling and training requirements as those who fall behind often fail to catch up"*  
Mike Green



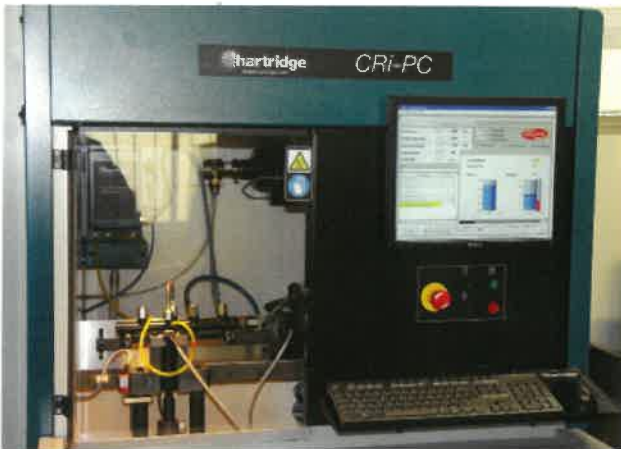
Diesel Specialist has been a mainstay of the local DFI industry since 2000 and its proprietor Mike Green has been within the industry since 1985. The company was formed by the merger of Sandgate Fuel and Brisbane Diesel and was originally situated at Hamilton on Brisbane's north side. In January 2009 Diesel Specialists relocated to their current premises at Virginia and currently employs 5 full time staff.

Mike is positive about the industries future but see's commitment to the latest technologies as key. Be it as a "Full System" repair workshop or as a "Diagnostic/on Vehicle" repair workshop there is a need to keep up with tooling and training requirements as those who fall behind often fail to catch up. With more and more repairs starting with accurate fault diagnosis, industry experience and product knowledge plays an important role. Mike believes the ability to diagnose difficult system faults is a major attraction for his OEM customers. This is particularly relevant for the latest technologies such as common rail.

Common rail is the way of the future and Diesel Specialists has all major OEM products covered. They are a Bosch Diesel Center capable of common rail pump repair and injector repair stages 1, 2 and 3. Diesel Specialists is







*"The semi automatic clamping and automated test program is 'one of the easiest and quickest systems to use'"*

also a Denso Premium Service Dealer. Diesel Specialists have also recently incorporated Delphi's authorised repair solution for DF11 common rail injectors. This is in the form of the YDT440 Common Rail Repair Kit and Hartridge Cri-PC Common Rail Test Stand. Mike saw the need for an ability to accurately diagnose and calibrate Delphi common rail injectors. The Hartridge Cri-PC provides an authorised test solution for Delphi C2i (Euro3) and C3i (Euro IV - V) common rail injectors.

Mike is extremely pleased with the benches operation as 'having the Cri-PC frees up my AVM2 for pump testing' The semi automatic clamping and automated test program is 'one of the easiest and quickest systems to use, improving my turnaround times' The Cri-PC is capable of measuring delivery, back leakage and response time (delay) digitally. Accurate measurement of these parameters is critical for the generation of Delphi C2i and C3i calibration codes and enables the operator to assess injectors as received to Delphi specifications. An added bonus is the Cri-PC's Allmakes Test capability. This has enabled Mike to purchase adaption kits for Continental Piezo injectors and has started development of automated allmakes test plans for the Continental range.

With the number of diesel powered vehicles increasing each year, opportunities exist for well equipped and skilled workshops.

Diesel Specialists offer up to date repair solutions for all major OE brands and look forward to assisting other repairers going forward.



**Diesel**  
SPECIALISTS

# A STEP BY STEP GUIDE TO DIAGNOSING Delphi Common Rail Systems



## The Symptoms

A customer complains of erratic running, low power and poor emissions

## The Fault

Diagnosis should start with an interrogation of the vehicles fault codes and or live data. Our scan Delphi Diamond Scan Tool YDT460 shows the following fault codes: **F2336 F2337 F2338 F2339**

The fault is accompanied by a descriptor 'accelerometer out of range'. This typically means that the tolerance window of 80 microseconds has been exceeded and therefore the system cannot modify the drive to the injector to maintain stability.

If the fault code is accompanied by a rail pressure fault code it is likely that the whole system has been contaminated. This can be confirmed by comparing actual rail pressure to value demanded by the ECU in live data. In all cases a hydraulic diagnostic check, using the Delphi Sealed Rail Kit YDT278, should confirm which components are at fault.

## Resolution

The fault codes should first be cleared and rechecked. If still present the following procedure is recommended:

### STEP 1: Low Pressure Supply Circuit

- **Perform a vacuum test**

The majority of Delphi common rail systems use a single, low pressure supply pump integrated within the high pressure pump. Fuel drawn from the tank is subject to hydraulic loads such as system modifications, fuel filter and conduits. Blockages of any sort can cause a reduction in flow and also pump lubrication. Placing a vacuum gauge in line at various points will identify restrictions and indicate starvation issues.

- **Remove the fuel filter and empty the contents into a clean container**

If the contents are not clear, full of particulates, or has high water content, then the system must be cleaned out from the tank to the filter. A magnet should be used to identify ferrous metal particles within the sample.

If the sample is clear and the amount of particles in the sample covers less than one square centimetre then proceed to the high pressure test. More than one square centimetre suggests heavy contamination. Delphi common rail systems recirculate return fuel via the filter and the presence of metal particles would suggest a system failure.

It is also recommended to check the quality of the fuel. A biodiesel check can be performed by a third party or by using the Delphi Fuel Analyser YDT553 to confirm if the sample meets ISO Fuel Standards.



## STEP 2: High Pressure Circuit

- **Hydraulically pressure test the pump**



Using the Delphi Sealed Rail Diagnostic Kit YDT278 check the pressure and flow generated by the pump at cranking RPM. If the output is lower than specified in the kit instructions then the pump is worn and requires attention.

Use of the Delphi False Actuator Kit YDT410 will help identify problems caused by a low pressure actuator. This is performed by substituting the actuator such as the Inlet Metering Valve (IMV) with a dummy unit.

## STEP 3: Low Pressure Return Circuit

- **Measure injector backleakage**



A fuel systems pressure is determined by its hydraulic integrity and injector backleakage is a key indicator of this. If backleak between the injectors is not uniform or excessive overall the system will fail to meet the demanded rail pressure. Backleakage should be checked using the Delphi Sealed Rail Kit YDT278 and if outside limits mentioned in the kit then the injectors should be serviced in accordance with Delphi standards or replaced.

## STEP 4: Component Repair

Service or replace faulty components that fail the diagnostic procedures using authorised tooling and genuine Delphi replacement parts. Delphi is committed to aftermarket repair and has in place an established repair network to facilitate this. It is important to note that if contamination is present in the high pressure pump the entire system including rail and injectors requires replacement. Failure to do so could result in a higher risk of repeat failure.

Always replace high pressure pipes to ensure correct sealing. High pressure pipes use a single crush sealing surface to maintain system pressure and operator safety. Observe correct procedures are followed in particular system torque settings. This will prevent distortion of high pressure pipes and the injectors. System leaks can cause high pressure injuries or fire.

## STEP 5: Replace the Filter

When replacing the filter ensure a genuine Delphi or OEM part is used as this will have the correct micron and flow ratings. As the majority of common rail systems are fuel lubricated, it is important to prime the filter and system in general prior to starting the vehicle. Fuel aeration resulting from filter servicing can lead to component damage particularly to the high pressure pump.

## STEP 6: Program the ECU

All Delphi common rail injectors new or repaired should have a label displaying a C2i or C3i depending on its Euro rating. This is a unique characterisation for the injector and when fitted into the vehicle this code must be programmed into the vehicles ECU using the Delphi Diamand Scan Tool (YDT460). This coding ensures accurate control of the injector delivery and system pressure

## STEP 7: Final Check

Clear all fault codes, road test the vehicle and recheck for codes

# Branch Updates



## Neil Quick *NSW Chairman*



I have just returned from our Orange meeting/AGM at the weekend which had a good turn-up of 12 shops plus additional staff. The main two subjects that we discussed in some considerable depth were

“where do WE want the AADS to head” as opposed to “Where is the AADS heading” (article in previous Diesel Torque) and the rewriting of the Constitution. This had mainly sprung up from articles in the last couple of Diesel Torque magazines. The view from the members is that a lot of the original goals or visions of the AADS are no longer achievable and/or relevant to the current membership. Times and technology have definitely changed together with our customer base.

One of the questions bantered around was “do we need to be bigger, need more members?” Most agreed that to have the association survive we do need to grow otherwise more shops will disappear. A good example was our attendance book’s last two pages that recorded the number of meetings that a member attended (I think that at that time 1985-2006 members had to attend a numbers of meetings per year) and those pages contained the names of 70+ members – wHere are half of them now? It was thrown around the meeting that because of the change in fuel systems/injectors that MAYBE a third category be added and that of ELECTRICAL in which possibly Mechanics/Auto Electricians joined – with a minimum standard – and we may get benefits of electrical diagnostics when they reciprocate technical knowledge with regards to CR injectors. Probably the most used expression with the members in these discussions is one word in our association name – “SPECIALISTS” and this appears how the NSW members want to stay.

The second subject was the rewriting of the



constitution. Not one of the members proclaims to know or have the knowledge of the legal jargon of the writing of a constitution and to leave that part to the experts but all agreed to change/simplify or whatever and to have it done the correct way –legally.

A couple of other things discussed were our concern once again with examples of parts being available for purchase on the internet by retail customers and the fact it is very hard to compete with. Also the price of our yearly conferences, especially the bi-annual one where there are no exhibitors. The smaller shops and one man shops find it hard to participate cost wise although they truly want to. Another point is that ALL members have a say where these conferences are to be held. This state committee is sending out a short but to the point questionnaire to all its members asking what they want from the Association, why people do not attend state meetings, what they want from a meeting etc. I strongly encourage all other state chairmen/women to do a similar questionnaire so we can analyse the replies on the condition that ALL members answer and return the forms.

After many hours of this sometimes brain draining meeting we then went out to Colin Naveau’s property and enjoyed a helicopter flight over the Orange (although it is very green) countryside and town followed by an enjoyable evening meal at one of the locals.

I wish everyone a Happy and safe Christmas and a prosperous New Year.





## Walter Urbancic QLD Chairman



This is the year all Queenslanders want to forget. Firstly I have not been active in the AADS with good reason. We have had some of the worst floods in Queensland's history and my entire workshop went underwater to a depth of 2.5 meters, this includes my diesel

injection room. Not enough time to get even half of the equipment and parts out. It was 8 weeks until we had power, phones and internet back in normal working condition. Thankyou to the dozens of volunteers and friends for all your help in restoring some normality to our daily routine.

I have not been able to organise a meeting for sometime but will have one in early November. I read with interest Neil Quick's article from the June issue and particularly the lack of interest in the AADS by it's members. I also don't know the answer as to why people won't support their own association. An attitude of what can I get out of it exists and should be more of what do I want from it and how can I help to achieve this. Get into it or lose it. I think that changes have to be made to keep it alive, pass on your ideas and make something of it.

Just lately I have been speaking to the TAFE teachers and had a tour of their new premises; this is where all new diesel apprentices will be going to have the training performed. A very impressive setup with world class facilities. A tour of the premises can be organised next year for those that are interested. Please contact your Qld chairman if you are interested and we should be able to have a tour in conjunction with a meeting. Also a new training manual has been produced by one of the teachers and can be purchased online.

Details as follows: Barry Wellington  
Tel: 0452204173 Email: bwellington@defs.com.au  
www.defs.com.au

Christmas is almost here again and hopefully it will be better than last year. Merry Christmas to you all.

## Graeme Wilkinson VIC Chairman



Here we have another year almost gone, and what a challenging year it has been with many members affected by natural disasters/ weather events across Australia and New Zealand. We can only hope 2012 is less challenging. With regard to our branch things

have been very quiet this year.

We are currently looking at several options for a branch meeting early in the New Year, members will be advised in due course.

To all members have a safe and happy festive season and best wishes for 2012.

*Wiremu, a New Zealander, was on the dole in Australia but about to fly home to watch the Rugby World Cup and was not feeling well, so he decided to see a doctor.*

*"Hey doc, I dun't feel so good, ey" said Wiremu.*

*The doctor gave him a thorough examination and informed Wiremu that he had long existing and advanced prostate problems and that the only cure was testicular removal.*

*"No way doc" replied Wiremu "I'm getting a second opinion ey!"*

*The second Aussie doctor gave Wiremu the same diagnosis and also advised him that testicular removal was the only cure.*

*Not surprisingly, Wiremu refused the treatment.*

*Wiremu was devastated, but with the Rugby World Cup just around the corner he found an expat Kiwi doctor and decided to get one last opinion from someone he could trust.*

*The Kiwi doctor examined him and said: "Wiremu Cuzzy Bro, you huv Prostate suckness ey."*

*"What's the cure thin doc?" asked Wiremu hoping for a different answer.*

*"Wull, Wiremu", said the Kiwi doctor "Wi're gonna huv to cut off your balls."*

*"Phew, thank god for thut!" said Wiremu,*

*"those Aussie bastards wanted to take my test tickets off me!"*

# Branch Updates



## Gavin Jones *WA Chairman*



Recently everyone in the Diesel Fuel Injection Industry in WA was rocked by the sudden death of John Moir from Bunbury Fuel Injection. John was well respected not only in WA but was well known to all throughout Australia and New Zealand AADS members. Our

thoughts are with John's family and friends. All the best of luck to John's son Trent, as he continues to run Bunbury Fuel Injection and we hope to see him at AADS events in the future.

The Western Australian branch will be getting together in the first quarter of 2012 for its first meeting for a while. Just to reiterate to the membership in WA who the contacts are and I encourage you if you have any requests, ideas or input to please contact myself or one of the committee.

### The WA Branch Committee is as follows:

*Chairman* – Gavin Jones, Fremantle Fuel Injection

*Vice Chair* – Rob Edwards, Aussie Fuel Injection

*Secretary* – Ken Ringrose, United Fuel Injection

*Treasurer* – Shirley Pusey

*Committee Member* – Mike Gorey

*Committee Member* – Bryce Littler

The AADS is holding its 2012 Conference in June in Fiji and I would like to see the West Australian membership support it strongly. We have to keep the camaraderie that has been so strong for so many years going. Times do change and with these changes decisions have to be made to keep up with these times and set a constitution for the AADS that will keep the best possible structure for the future. I look forward to seeing you all there.

I wish all the members and their families the best for Christmas and a safe and happy New Year.

## John William Moir 1950–2011

John William Moir was born 24 December 1950 in Bunbury, Western Australia. John grew up in the country town of Allinson in the south west of WA. John was an active young fella who loved his animal



trapping and horse riding from a young age. As he progressed through his school years John was a keen boxer and football player, playing for local Bunbury team Carey Park and eventually moving to the big smoke to play for Perth football club. John began his automotive trade in his late teens and made the decision to branch out on his own and start his own business from the back shed of his home a few years later. John spent many years in Diesel Fuel Injection field and worked hard on his business to grow it into what it is today.

John was heavily involved in the AADS in his home state holding the Chairman's position for many years. Passionate about the industry he was in and his knowledge saw him sit on the training committee of the AADS putting together several training courses.

John was also a keen aviator, he got the bug for flying after receiving a gift voucher for a local flight around Bunbury for his Birthday. He spent many years flying and it was always known that if you couldn't find John anywhere then he was either in the air flying or at the Bunbury Aero Club talking about aviation with other pilots. John flew himself all over Australia stopping in at events such as the Birdsville races and the Avalon Air Show, never missing out on the opportunity to enjoy the hobby he loved so much.

John will be sadly missed by all that knew him.





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**2011-02**



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Turbo Kit (4)10mm-1.25 nuts	3951	(4) 10mm-1.25 nuts
Turbo Kit (4) Bolts	3903	(4) 10mm-1.25x 25mm bolts 6pt
Turbo Kit (4)10mm-1.50 nuts	3952	(4) 10mm-1.50 nuts

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# SkillsTech Australia

The lead TAFE institute in trade and technician training



*"The funded five-week course will offer basic skills to students and will cover safety induction, base-level engineering skills and general industry training."*

## Premier makes announcement of funded training places for mining sector

The Premier Anna Bligh announced today at Queensland's largest trade and technician training TAFE institute, SkillsTech Australia, that there would be 500 funded training places offered statewide to combat skills shortages in the mining sector.

SkillsTech Australia Institute Director Mary Campbell welcomed the Premier at SkillsTech Australia's Heavy Commercial Vehicle and Diesel Fitting Training Facility at Acacia Ridge this morning.

"The \$1.2 million 'Resources101' course aims to give unemployed or under-employed Queenslanders a direct way into the booming mining sector," Mrs Campbell said.

"The funded five-week course will offer basic skills to students and will cover safety induction, base-level engineering skills and general industry training.

"There are a projected 38,000 mining jobs that will be required between now and 2014-2015, and it is initiatives like this that will ensure that Queenslanders are at the forefront of these opportunities.

"Our \$13 million training facility at Acacia Ridge has the latest technologies, the most up-to-date training and

industry standard resources to ensure that we deliver apprentices to fill skills shortages in the mining sector.

"Our industry partnerships and support from the Queensland Government means that our world-class facilities and training can deliver what industry needs.

"The Queensland Government has committed more than \$200 million to the development of facilities at SkillsTech Australia to address skills shortages with more than \$162 million invested so far."



**For further information about SkillsTech Australia and training opportunities, please phone 1800 654 447 or visit: [www.skillstech.tafe.qld.gov.au](http://www.skillstech.tafe.qld.gov.au)**

## First induction of adult apprentices for resource and energy sector

SkillsTech Australia is working with national Group Training Organisations and Registered Training Organisations to recruit, train and employ adult apprentices for the resource and energy sector to combat skills shortages.

SkillsTech Australia is Queensland's largest trade and technician training TAFE institute and the National Coordinator of this program.

SkillsTech Australia Director of Client Services and Industry Engagement Helen Bulle said the first induction of adult apprentices for this program last



week will result in experienced skilled workers delivered to the resource and energy sector; a solution for skills shortages now and for the future.

"The National Apprenticeships Program is a new program developed by East Coast Apprenticeships, in which our institute undertakes Recognition of Prior Learning (RPL) assessments for candidates who have often worked in the industry without qualifications or want to upskill to move into another trade," Ms Bulle said.

"This RPL process ensures that apprenticeships are completed in a shortened timeframe which results in productive qualified workers on-site.

"Apprentices will be training for qualifications in electrical, instrumentation, diesel fitting, engineering and construction which will ensure that Australian standards and best practice are upheld while combating skills shortages in a thriving sector.

"The resource and energy sector continues to be a boom area for Queensland and Australia that will require a skilled workforce.

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*"The National Apprenticeships Program is potentially a practical solution to skills shortages in a sector that is projected to continue to grow in the years ahead."*

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"This program, commencing in Queensland, endeavours to deliver job-ready adult apprentices that can be utilised in major sites across Australia.

"It is intended that this program will then be rolled out to other states and territories.

"The National Apprenticeships Program is potentially a practical solution to skills shortages in a sector that is projected to continue to grow in the years ahead."

**For further information about online RPL assessments, please go to:**  
[www.skillstech.tafe.qld.gov.au/prospective\\_students/skills\\_recognition/self\\_evaluation/index.html](http://www.skillstech.tafe.qld.gov.au/prospective_students/skills_recognition/self_evaluation/index.html)

**For further details about the National Apprenticeship Program, please visit:**  
[nationalapprenticeships.com.au/](http://nationalapprenticeships.com.au/)

## Queensland first for heavy auto energy testing

In a Queensland first, SkillsTech Australia facilitated the first public performance and function test of a highway truck at the \$12.9 million Heavy Commercial Vehicle and Diesel Fitting Training Facility at the Acacia Ridge Training Centre last month.

SkillsTech Australia Business Manager Automotive Chris Kroehn said two internationally renowned heavy vehicle companies chose the institute's facilities to demonstrate the test.

"Our world-class facility is home to a technology that is unique in Queensland and an international benchmark in Europe; the MAHA Roller Dynamometer that measures performance and function for heavy vehicles to test for energy and efficiency," Mr Kroehn said.

"We also feature the MAHA Commercial Vehicle Roller Brake Tester and Suspension Play Detector in our facilities that are commonly used throughout the eastern coast of Australia for heavy vehicle testing by government authorities, transport companies, bus companies and private enterprises.

"It is for these reasons, Caterpillar, chose our facilities to test their world-first highway truck.

"Senior staff from our institute, representatives from MAHA Australia, including an international guest from their Germany office and Caterpillar staff witnessed the first ever public test of the recently released highway truck simulating road speeds of up to 100 kph while undergoing full load conditions.

"Students and staff were very impressed by the performance of our testing facilities."

MAHA Australia Managing Director Rick Thurgood said the facilities are world-class and particularly impressive.

"All the technology utilised in this facility results in not only measuring a vehicle's performance accurately, but also measures the safety of the vehicle, its stopping power and diesel emissions," Mr Thurgood said.

---

*"We would highly recommend SkillsTech Australia for heavy vehicle industry training."*

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Sydney Diesel Centre — Sydney  
United Fuel Injection — Perth  
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West End Diesel — Sydney

#### **Common Rail Pump—DFP3 Australia**

AG Diesel — Melbourne

#### **Common Rail Injector C2i Euro III**

AG Diesel (Nov 2010) — Melbourne  
Diesel Australia — Brisbane  
United Fuel Injection — Perth  
West End Diesel — Sydney

#### **Common Rail Injector—C3i Euro IV**

Diesel Australia (Nov 2010) — Brisbane

#### **Electronic Unit Injector—A and AO Series Australia**

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Highway Diesel — Brisbane  
Lismore Diesel — Lismore  
Sydney Diesel Centre — Sydney  
United Fuel Injection — Perth  
Walz Diesel — Sydney  
West End Diesel — Sydney

#### **Electronic Unit Injector—EI**

Highway Diesel — Brisbane  
Lismore Diesel — Lismore

#### **Common Rail Pump—DFP1 New Zealand**

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Diesel Services — Auckland  
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# The E3 injector from Delphi

Climate change is a big political issue right now and there's a lot of pressure on manufacturers to reduce vehicle emissions drastically. In many countries, owners of efficient fleet vehicles enjoy tax incentives that their gas-guzzling friends don't receive. This demand for "green" vehicles has resulted in equipment manufacturers producing more and more precisely engineered injectors to minimise wastage.

The E3 injector from Delphi targets this niche and offers performance and economy together. Described by Delphi as "one of the world's most advanced production diesel injectors", the E3 is being fitted to more commercial vehicles all the time.

The innovative dual coil arrangement provides some significant advantages over a standard EUI. The first coil controls the spill valve and, therefore, the EUI internal pressure (as in the standard arrangements with previous EUI's such as the A series or E1).

The second coil provides the real innovation by working in a similar way to a Common Rail Injector through operating a Nozzle Control Valve (NCV) which manages the nozzle lift, allowing for multiple injection events per cycle.

This method of control results in significantly lower emissions - indeed, vehicle manufacturers have been using the E3 in production now for about 5 years. However, testing these injectors has not been possible as there has been no solution that provided the ability to control both coils during the testing phase and service for vehicles fitted with these injectors has been via replacement only.

Due to this advanced technology, replacement of multiple E3 injectors can be expensive with many customers questioning replacement costs. This has led to a strong demand for an authorised test solution which has grown steadily since the E3's inception.

---

*"This method of control results in significantly lower emissions – indeed, vehicle manufacturers have been using the E3 in production now for about 5 years."*

---





This was discussed at last year's AADS conference where Hartridge departed from its normal presentation to discuss Research and Development initiatives and the products we predicted would impact the diesel injection market in the near future. Following a great deal of interest Hartridge announced it was developing a test solution for the E3 injectors.

Following this, Hartridge is now pleased to announce that the E3 test kit is now available to order – indeed one of the very first models released is now in Australia for extensive field trials.

The E3 is an add-on for the AVM2-PC, comprising software updates, a modified cambox and a twin solenoid controller and amplifier. This joins the family of add-ons for our flagship product which provides AVM2-PC owners with the widest range of authorised test solutions for a single product.

**If you'd like to expand your workshop capabilities and take advantage of the latest diesel market opportunities, find out more about the AVM2-PC and its ground-breaking E3 test solution by contacting Diesel Distributors at [www.dieseldistributors.com.au](http://www.dieseldistributors.com.au)**

*"The E3 is an add-on for the AVM2-PC, comprising software updates, a modified cambox and a twin solenoid controller and amplifier."*



# DIESEL TORQUE

OFFICIAL MAGAZINE OF THE ASSOCIATION OF AUSTRALASIAN DIESEL SPECIALISTS INC. (AADS)

## Editorials Required

Diesel Torque is your magazine. Currently most articles are submitted by your respective State Chairmen and members of the National Committee.

We would encourage the members to submit any articles of interest that everyone would enjoy reading. It does not necessarily have to be technical, diesel or turbo oriented. We are looking for articles of interest across the board to all who read our magazine. Write an article of interest, find an article that you think would help others and submit it to your State Chairman for publication.

- All submissions can be sent to the following email address [aads@apcaust.com.au](mailto:aads@apcaust.com.au)
  - All pictures should be sent separate from text, preferably in jpg format and all articles written in Word.
- Do not embed images into the word document.**

Help yourselves to your own magazine and think how you can contribute to make it something that is of interest to your fellow members. This is your association, make it a success. We look forward to receiving your contribution for the next publication.

**Help Yourself,  
It's Yours.**



# A New Fit in Filtration

Stanadyne launches FM1 fuel filter/water separator for compact equipment applications



*Stanadyne's FM1 fuel filter/water separator is targeted toward the 10 to 75 hp off-road equipment market with a more compact and economical design using a one-piece plastic injection header.*

With growing space constraints in compact equipment as well as the need to reduce overall engine package costs, Stanadyne has taken a new approach with its latest filtration development. New from the company is the FM1 fuel filter/water separator, a compact and economical model aimed at the 10 to 75 hp off-road equipment market.

"This is a cost-sensitive market when you get into these smaller engines," said Mike Cooper, product manager at Stanadyne, Windsor, Conn. "They have a very tight envelope in the engine compartment.

"You are looking at small gensets, mini excavators, forklifts and turf equipment. This equipment is operating in harsh environments. The equipment gets run pretty hard. It's run for a long time and a lot of the

*"This is a cost-sensitive market when you get into these smaller engines," said Mike Cooper, product manager at Stanadyne, Windsor, Conn. "They have a very tight envelope in the engine compartment."*

time the fuel storage is questionable.

"This type of equipment has a very high level of filtration technology, but wants it in a very small, compact, less expensive package. They don't require all the add-ons, which obviously come at a price."

With the development of the FM1, Stanadyne incorporated the filtration capabilities of its FM10, FM100 and FM1000 filters while modifying the header from cast aluminum to plastic and reducing the number of ports from four to two — one inlet and one outlet.

The company also eliminated costly options such as heaters, water sensors, lift pumps and primers, which the smaller engines didn't require.

"What we were getting from customers was that they were stuck buying a filter that was high priced and well beyond what they required," said Cooper. "It was way



overengineered or way too large. They have the service intervals of 500 or 1000 hours. They didn't need a 6 in. can to meet that just because the fuel flow was so low. "That sort of gave birth to the FM1 concept. The FM1 is set up to have a standard plastic header and utilize all the Stanadyne media technology. You get all the benefits of a Stanadyne filter at a lower cost, in a smaller envelope for these smaller applications."

Taking the design a step further, Standyne married the header design with its range of smaller element cans, allowing the filter to fit more confined space envelopes.

"Some of the requests that we had were that we offer smaller element cans in the FM10 and FM100 lines," said Cooper. "The whole thing we can mount with our 3.6 in. can, which is probably our most popular with the FM1. You're talking only 5.5 in. of space envelope required, which is all that is needed to get this in there."

The FM1 incorporates a one-piece plastic injection header designed with molded fuel line connectors. It has an integrated air bleed valve and self-vent water drain valve. The filter can be equipped with six different element can heights from of 2.8 to 5.1 in., depending on selected media ratios.

*"You get all the benefits of a Stanadyne filter at a lower cost, in a smaller envelope for these smaller applications."*

The filter removes both particulates and water from the fuel system at a maximum fuel flow rate of 25 gpm. Depending on filter media, the FM1 is designed to remove particles from 2 to 150 microns and has a water holding capacity to 0.02 gal. when equipped with the 3.6 in. element.

Stanadyne also offers the FM1 with its composite media, which is B100 capable.

The FM1 can be mounted directly to the engine or to the machine chassis and has a spill-proof element design that can be twisted off for servicing or replacement. Mounting is vertical and installed with two bolts.

Stanadyne offers the FM1 with a see-through water bowl option, which can be fitted to the bottom of the unit. Stanadyne fuel filters as well as its FM1 filter are custom OEM branded for aftermarket sales. "We custom brand all of our filters," said Cooper. "Our Fuel Manager brand goes out to a very limited distribution. About 98% of the filters we sell have an OEM brand on it so they can capture that service aftermarket." Stanadyne also produces a line of fuel systems, injectors, fuel pumps and fuel additives



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## FOR SALE

Due to restructure of our operations, we have surplus equipment for sale. This equipment includes: Bosch Test Benches EPS711, Bosch 515, Hartridge 1100, Corona CR Tester, Various Test Injectors and other Tooling.

**For a full list of equipment please call Bob Sutherland on 07 4957 7759 or 041 887 4002**

## New National OHS Regulations

Effective 1 January 2012 - New National OHS Regulations that relate to changes to the Storage and Handling of Dangerous Goods and Hazardous Substances.

The Commonwealth and each state and territory government have agreed to harmonise their work health and safety laws (including Regulations and Codes of Practice) so that work health and safety laws are similar in each jurisdiction. Each state and territory and the Commonwealth will be required to enact laws that reflect the model work health and safety laws by the end of 2011. It is expected that all laws will commence on 1 January 2012.

The project is coordinated by Safe Work Australia.



Seasons Greetings from the AADS Secretariat and Conference team.  
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# DIESEL TORQUE

## Advertising Rate Card 2012

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			4 ISSUES	1 ISSUE
Size	Dimensions	Category	Cost (inc GST)	Cost (inc GST)
Full page A4	Page size: 297mm (h) x 210mm(w) Type area: 247mm (h) x 170mm (w) Bleed: 303mm (h) x 216mm (w) (allows 3mm bleed all around)	Member	\$3960.00	\$1584.00
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Quarter page	120mm (h) x 82.5mm (w)	Member	\$786.50	\$313.50
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### Artwork Specifications

Format:

All artwork to be supplied as high res pdf file and must be supplied in cmyk format

Completed artwork can be emailed to:

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