

ISSUE 101: MARCH 2010

# DIESEL TORQUE

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



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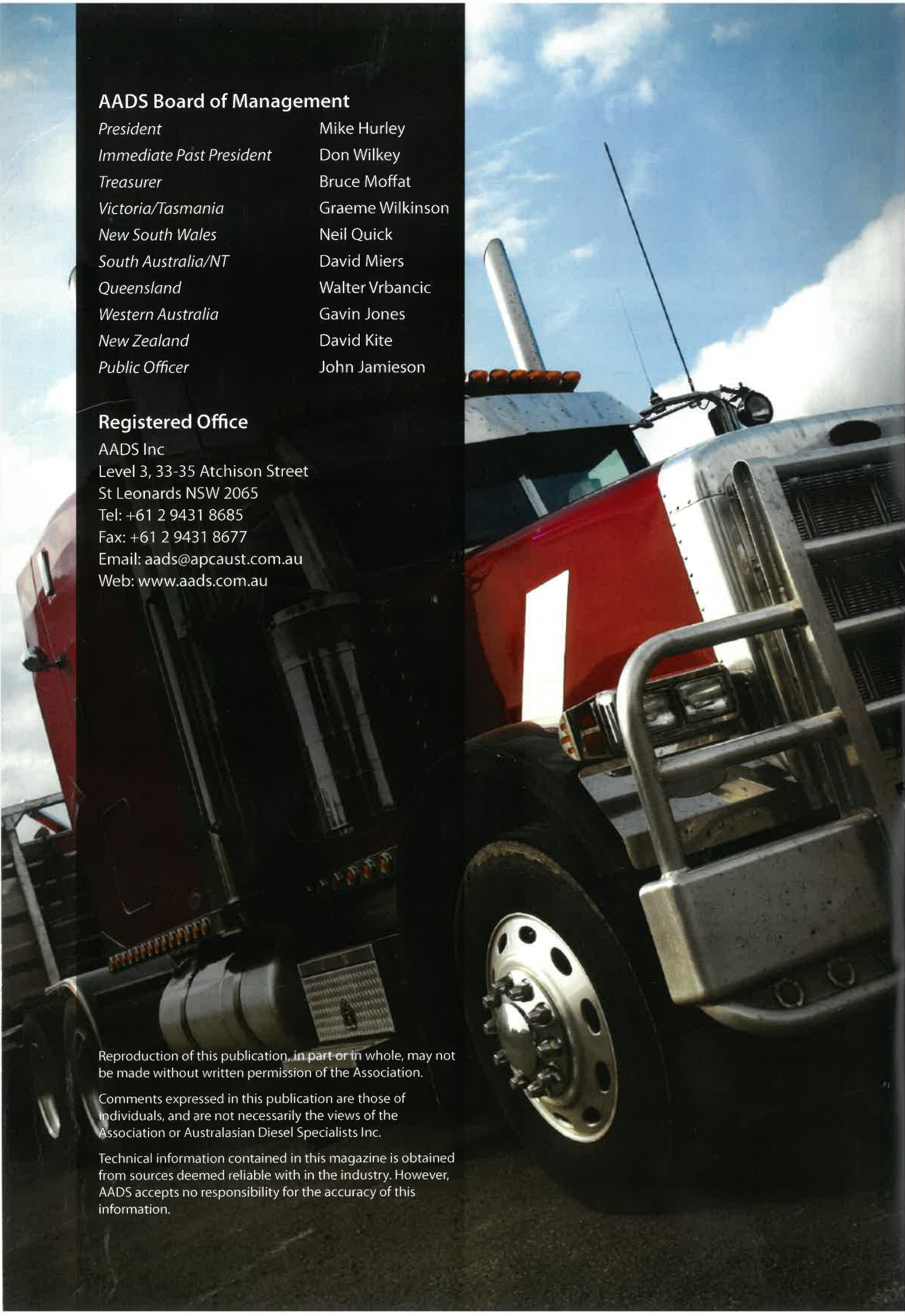
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## President's Report



We are all listening to the media re the recession and to the fact it is over and behind us. I don't want to be negative, but I do feel that we still have some problems to come. We are still seeing

companies having problems paying their bills and receivers are still very busy selling up companies that have gone to the wall. So I guess lets all be careful re credit when you don't know the customer and even when you do, I still say be careful.

We are well underway with the program for the conference in May. We have an exciting program in place and we also are well down the road re the rules and the changes that need to be put in place. We have time put aside at the AGM to discuss these changes. The rules and the proposed changes will all be sent to you well before the meeting so you can have a read up and please come along and have your say at the meeting. This is your Association and these are the rules it will run by in the future.

From what I have been told, all the Branches are moving along with things happening in all areas which is good. Can you please put some thought into the fact that the people running your branch may need a hand with something at some stage, also we are always looking for new people to take office at Branch level to ease the load for others. Once again, this is your Association so if you want something out of it you must be prepared to put something in.

I look forward to seeing as many as possible members in Melbourne in May so please put these dates aside and book you travel. We want to make it a fun filled and successful weekend.

### **Mike Hurley**

President, AADS Inc.

## Treasurer's Report



We are working on the 2009 full year Financial Accounts as this report is being prepared. The Financial Statements are yet to be finalised and audited in preparation for presentation to the AGM to be held as part of our Annual Conference at

the Novotel Hotel, St Kilda, Melbourne from 28 – 30 May 2010. At this early stage, it looks as though we have completed the year with a healthy operating surplus.

I am also pleased to advise that the Report on the 2009 Annual Conference has been finalised after some lengthy delays. The financial result from the Conference was a loss of a touch under \$150,000. Even though last year's Conference ran at a slight loss, this was quite a remarkable achievement in the light of the financial circumstances engulfing the world at that stage!! A very special thank you to all those who managed to attend and support the 2009 Conference, especially our exhibitors and OEMs who had to fight quite severe financial constraints in their own companies at that time to support us – Thank You!! A copy of the financial report for the 2009 Conference is set out on page 4.

Please don't forget to view the AADS web site [www.aads.com.au](http://www.aads.com.au) regularly. All members should have received an email reminding them of their log in details in early January. The more you use it, comment on it and ask for content and changes the better it will become!! Most importantly, please check your membership contact details on the web site to make sure they are correct and always up to date. You have paid for the web site and it is a valuable e-marketing tool for your business – make the most of it!!!

Some comments on attitude:

- *It all depends upon how one adjusts oneself to life.* Morarji Desai
- *Attitudes are more important than facts.* Carl Menninger
- *Your attitude is an expression of your values, beliefs and expectation.* Brian Tracy
- *A positive attitude is perhaps more important at home than anywhere else. As spouses and parents, one of our most vital roles is to help those we love feel good about themselves.* Keith Harrell

Please do not hesitate to contact me if you have any questions about the AADS finances.

### **Bruce Moffat**

National Treasurer, AADS Inc.

# AADS 2009 Conference Final Budget

		BUDGET					ACTUAL		
		Number	Unit Cost	Gross Cost	GST	Net Cost	Gross Cost	GST	Net Cost
<b>Income:</b>									
<b>Registration Fees</b>	Early Fee	80	650.00	\$ 52,000.00	\$ 4,727.27	\$ 47,272.73	\$ 49,475.00	\$ 4,497.73	\$ 44,977.27
	Late Fee	3	750.00	\$ 2,250.00	\$ 204.55	\$ 2,045.45	\$ 2,250.00	\$ 204.55	\$ 2,045.45
	Day Registration	28	150.00	\$ 4,200.00	\$ 381.82	\$ 3,818.18	\$ 4,500.00	\$ 409.09	\$ 4,090.91
	Partner Fee	20	400.00	\$ 8,000.00	\$ 727.27	\$ 7,272.73	\$ 8,000.00	\$ 727.27	\$ 7,272.73
	Child						\$ 100.00	\$ 9.09	\$ 90.91
<b>Fishing</b>		9	60.00	\$ 540.00	\$ 49.09	\$ 490.91	\$ 540.00	\$ 49.09	\$ 490.91
<b>Golf</b>		14	79.00	\$ 1,106.00	\$ 100.55	\$ 1,005.45	\$ 1,106.00	\$ 100.55	\$ 1,005.45
<b>High Tea</b>							\$ 210.00	\$ 19.09	\$ 190.91
<b>Dinner Tickets</b>		25	100.00	\$ 2,500.00	\$ 227.27	\$ 2,272.73	\$ 2,500.00	\$ 227.27	\$ 2,272.73
<b>Sponsorship</b>				\$ 26,000.00	\$ 2,363.64	\$ 23,636.36	\$ 22,348.00	\$ 2,031.64	\$ 20,316.36
<b>Exhibition Stands</b>		10	1,900.00	\$ 19,000.00	\$ 1,727.27	\$ 17,272.73	\$ 19,000.00	\$ 1,727.27	\$ 17,272.73
<b>Total Income</b>				\$ 115,596.00	\$ 10,508.73	\$ 105,087.27	\$ 110,029.00	\$ 10,002.64	\$ 100,026.36
<b>Expenses:</b>									
<b>Promotion -</b>	Early Notice Flyer Design & Print	500	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Early Flyer Mail-Out	500	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Registration Document Design & Print	450	6.00	\$ 2,700.00	\$ 245.45	\$ 2,454.55	\$ 2,693.35	\$ 244.85	\$ 2,448.50
	Registration Mail-Out	450	1.07	\$ 481.50	\$ 43.77	\$ 437.73	\$ -	\$ -	\$ -
	Advertisements			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Sponsorship Package	-	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Speaker Costs -</b>	Entertainers (Social Functions)			\$ 4,300.00	\$ 390.91	\$ 3,909.09	\$ 5,313.00	\$ 483.00	\$ 4,830.00
	Travel			\$ 3,500.00	\$ 318.18	\$ 3,181.82	\$ 3,479.50	\$ 316.32	\$ 3,163.18
	Accommodation			\$ 360.00	\$ 32.73	\$ 327.27	\$ -	\$ -	\$ -
	Gifts			\$ 712.26	\$ 64.75	\$ 647.51	\$ 1,033.78	\$ 93.98	\$ 939.80
<b>Programme Costs</b>	Final Programme / CD Rom	175	13.50	\$ 2,362.50	\$ 214.77	\$ 2,147.73	\$ 2,365.00	\$ 215.00	\$ 2,150.00
	Name Badges / Function Tickets	200	3.75	\$ 750.00	\$ 68.18	\$ 681.82	\$ 30.00	\$ 2.73	\$ 27.27
	Handouts			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Satchels	200	7.40	\$ 1,480.00	\$ 134.55	\$ 1,345.45	\$ 1,340.79	\$ 121.89	\$ 1,218.90
	Signage			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Food &amp; Beverage</b>	Conference Package - Friday	100	49.00	\$ 4,900.00	\$ 445.45	\$ 4,454.55	\$ 7,400.00	\$ 672.73	\$ 6,727.27
	Conference Package - Saturday	120	57.00	\$ 6,840.00	\$ 621.82	\$ 6,218.18	\$ 9,340.00	\$ 849.09	\$ 8,490.91
	Conference Package - Sunday (Half)	120	52.50	\$ 6,300.00	\$ 572.73	\$ 5,727.27	\$ 8,800.00	\$ 800.00	\$ 8,000.00
	Welcome Function	115	77.00	\$ 8,855.00	\$ 805.00	\$ 8,050.00	\$ 8,855.30	\$ 805.03	\$ 8,050.27
	Event Dinner	165	100.00	\$ 16,500.00	\$ 1,500.00	\$ 15,000.00	\$ 16,880.00	\$ 1,534.55	\$ 15,345.45
<b>Venue Hire</b>	Prince Room & Foyer			\$ 10,900.00	\$ 990.91	\$ 9,909.09	\$ -	\$ -	\$ -
<b>Exhibition Costs</b>	Stands	13	330.00	\$ 4,290.00	\$ 390.00	\$ 3,900.00	\$ 4,463.20	\$ 405.75	\$ 4,057.45
	Other			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Audio Visual</b>	Conference Dinner			\$ 8,775.25	\$ 797.75	\$ 7,977.50	\$ 8,811.45	\$ 801.04	\$ 8,010.41
<b>Administration</b>	Postage/Stationery			\$ 77.00	\$ 7.00	\$ 70.00	\$ 582.80	\$ 52.98	\$ 529.82
	Photocopying			\$ 302.00	\$ 27.45	\$ 274.55	\$ 298.76	\$ 27.16	\$ 271.60
	Fax/Tel/Email			\$ 392.00	\$ 35.64	\$ 356.36	\$ 395.42	\$ 35.95	\$ 359.47
	On-site Secretariat			\$ 1,677.00	\$ 152.45	\$ 1,524.55	\$ 1,242.33	\$ 112.94	\$ 1,129.39
	Committee Expenses			\$ 527.20	\$ 47.93	\$ 479.27	\$ 527.21	\$ 47.93	\$ 479.28
	Web Site - On-line Link			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Courier			\$ 67.66	\$ 6.15	\$ 61.51	\$ 67.66	\$ 6.15	\$ 61.51
	Insurance			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Bank Charges & Credit Card Fees			\$ 668.68	\$ 60.79	\$ 607.89	\$ 66.00	\$ 6.00	\$ 60.00
<b>Other</b>	Event Manager Fee - full	83	77.00	\$ 7,030.10	\$ 639.10	\$ 6,391.00	\$ 6,390.99	\$ 581.00	\$ 5,809.99
	Event Manager - day	28	50.00	\$ 1,540.00	\$ 140.00	\$ 1,400.00	\$ 2,700.01	\$ 245.46	\$ 2,454.55
	Event Manager Exhibition			\$ 2,850.00	\$ 259.09	\$ 2,590.91	\$ 3,420.00	\$ 310.91	\$ 3,109.09
<b>Social Events</b>	Golf	13	79.00	\$ 1,129.70	\$ 102.70	\$ 1,027.00	\$ 1,801.00	\$ 163.73	\$ 1,637.27
	Fishing	16	166.56	\$ 2,931.46	\$ 266.50	\$ 2,664.96	\$ 2,665.00	\$ 242.27	\$ 2,422.73
	Versace High Tea	22	108.00	\$ 2,376.00	\$ 215.45	\$ 2,154.55	\$ 2,310.00	\$ 210.00	\$ 2,100.00
	Contingency			\$ 6,920.50	\$ 629.14	\$ 6,291.36	\$ 6,920.51	\$ 629.14	\$ 6,291.37
<b>Total Expenses</b>				\$ 112,489.81	\$ 10,226.35	\$ 102,263.46	\$ 110,193.03	\$ 10,017.55	\$ 100,175.48
<b>Net Profit</b>				\$ 3,106.19	\$ 282.38	\$ 2,823.81	\$ -164.03	\$ -14.91	\$ -149.12



# 2010

## ANNUAL NATIONAL CONFERENCE

FEATURING  
GUEST SPEAKER  
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Fluid Ideas for the Future

28-30 May 2010  
Novotel Hotel, St Kilda  
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This year's annual national conference promises to be another great success as we head down south to the Novotel, St Kilda, Victoria. There will be an interesting, educational and enlightening program full of top-rate speakers. Hosted, informative industry site visits and of course a chance to catch up and unwind with your colleagues over good food and drink at the social events.

For up to date information or to download a conference registration brochure, please visit: [www.aads.com.au/convention](http://www.aads.com.au/convention)



# what are YOUR KPI's?

## Key Performance Indicators

by David Nutter B.Bus CPA MBA(strategy)

Director of Creative Opportunities (turn your OPPORTUNITIES into REALITY)



### What is a Performance Indicator?

A performance indicator is a ratio or measurement which can indicate how a business is performing in the areas related to the indicator.

There are literally thousands of performance indicators (PI) available for businesses to use. Given each industry sector is run from a different perspective for performance, indicators which are important to them will also change as the industry type changes. In other words useful PIs for a baker may not be of the same the importance and nature as those for a mechanic. There will however be some which both parties will want to use.

Not only are there PI's specific to an industry, but there are also PI's specific to departments within a business.

### Common well known Performance Indicators by department:

Department	PI	Measures
Sales	Actual Sales	Measured performance against a budget or even last year's figures. This can be taken a level lower and used for each product category.
Finance	Debtors days	Measures in Sale days the dollar value of your debtor book.
Operations	Inventory days	Measures in sales days using the Cost of sales the value of inventory on hand.
Human Resources	Staff Turnover	Measures the amount of staff who have left the business against total staff numbers.

## Selecting your PIs

Realistically you should only be using a maximum of fifty (50) Performance Indicators within your business at any one time. Remember, although they give direction, they can also be time consuming to calculate and some will only confirm what you already can know. You need to maintain the right balance between information gained and time used to produce them.

So we have now made a selection from the thousands of Performance Indicators available to get to the fifty (50) selected which we believe are the most useful for OUR business. Now within those fifty what are the ones that are of the greatest use to our business? We should be breaking the fifty into three categories:

1. **Those we need to report on weekly**
2. **Those we need to report on monthly**
3. **Those we need to report on quarterly**

Categories 1 and 2 together, should only make up 1/3 to 1/2 of the selected Performance Indicators. If you haven't yet realised it your KEY Performance Indicators (KPIs) are categories 1 and 2.

One final check, Performance Indicators are either lead or lag indicators. What does this mean? You may have heard in the media describing the recessive economy of the stock market as a lead indicator and housing prices, interest rates and employment as lag indicators. That is that the stock market best predicts what is going to happen in the future as traders use future information in setting the prices during trade. Where as Interest rates, house prices, and employment are usually affected after the recession has begun. They are a result of the recession and therefore lag indicators. If the stock market declines consistently over time, you should be able to predict a tightening of the economy. Therefore, our KPI listing needs to be made up with a majority of lead indicators and very little lag indicators. An example is the monthly profit your business generates in the P&L should not be a shock to you; it should be clarification of what the KPI's have already informed you.

Your Performance Indicator categories should represent the following characteristics:

1. **Weekly – all lead indicators**
2. **Monthly – no more than 25% lag indicators**
3. **Quarterly – predominately lag indicators**

If not, then please go back and review your selection as your KPI report will not give you the intended result. Also KPI's should be made up of a cross section of all departments within the business, If not, you may be missing an important indicator, please ensure a cross section exists before finalising your current KPI list.

Your KPI list is a living tool and needs to be reviewed periodically to ensure it fits the current business.

You may have heard of terms such as Balanced Scorecard, Scorecard, Dashboard, etc. These are simply jazzed up terms to represent a KPI report. A KPI report can take many different layouts. Some use numbers and percentages, some use numbers and red, green, and yellow arrows, others can use simply red and green indicators and graphs. They all essentially do the same thing indicate the performance or future performance or problems of a business and where resources may need to be directed.

## What should you strive for?

In 2003 McDonald's still used a balanced scorecard; the one KPI that all managers looked at in order to know how the company was going was "Big Macs sold". Using the same approach the Qantas CFO & CEO would have a bet each month on what profit the airline would post. They both used "No. of hours planes on ground" to predict. With a little effort and over time you will also be able to find that elusive key driver.

If you need help to discover your KPIs please contact David Nutter from Creative Opportunities on 0409 472 549 or email [davidnutter@iprumus.com.au](mailto:davidnutter@iprumus.com.au) and have David assist you with the process.

## Check This Out!

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# Next generation turbo

Exhaust gas turbocharging is a key technology for lowering fuel consumption and emissions in internal combustion engines. Turbocharger specialist BorgWarner Turbo & Emissions Systems therefore works continuously on further improving its technologies. And the company is now presenting its latest generation of turbochargers with variable turbine geometry (VTG) for use in diesel engines.



The latest VTG generation from BorgWarner is characterized by its innovative S-vane design.

BorgWarner has been using variable turbine geometry for many years, in particular to optimize the response of turbocharged diesel units while also reducing fuel consumption and emissions values. VTG turbochargers employ adjustable turbine vanes which are arranged in a circle around the turbine wheel on a vane ring. This system allows the boost pressure to be adjusted flexibly to the engine speed. By varying the angle of the rotating vanes using an adjusting ring, the cross section exposed to exhaust gas flow can be adjusted based on the amount of boost pressure required. At low revs the cross section is smaller, and it then increases at high revs – offering optimum back pressure of the exhaust gas.



VTG units. These vanes are curved at both ends, with each end cambered in the opposite direction to its counterpart. This is what gives the vanes their characteristic S shape. The S shape offers both

improved thermodynamics and controllability. Due to the innovative design, the turbine vanes open independently at a certain angle (specified by the actuator) when needed using the force of the exhaust gas.

The new VTG turbocharger is

designed for use with both pneumatic and electrical actuators, depending on the requirements of the engine manufacturer. The new VTG generation significantly improves the response of the engine and increases efficiency in the low rev band. This allows auto manufacturers to develop engines which offer greater driving pleasure and improved consumption figures and environmental friendliness.

Another new feature compared to the previous generation is the use of wear optimized and heat-resistant materials. BorgWarner thereby guarantees that the turbochargers offer both durability and reliability in the face of ever-increasing power density.

## First series application

The first engine to be mass produced with a 4th generation VTG turbocharger is Renault's 1.5 liter (91.5

## Optimized design, optimized materials

In developing the latest BV generation, the engineers at BorgWarner in Kirchheimbolanden were faced with the task of fulfilling the even stricter requirements of VTG turbochargers for future engines – without sacrificing the well respected key features of the 3rd generation units. This meant finding ways of further improving the thermodynamics, response and controllability while also lowering costs without compromising reliability.

Unlike the previous generation, whose turbine vanes were straight in shape, the engineers employed a patented S-vane design for the new 4th generation



cubic inch) displacement K9K diesel engine. Since what is currently Renault's smallest turbo diesel was launched in 2000 as an EU3 version, BorgWarner Turbo & Emissions Systems has been the sole supplier of all the respective turbo charging systems. Following the EU4 version, which celebrated its premiere in 2008 in the Renault Laguna (see TurboNews 1/08), the engine is now being produced as the K9K EU5 unit.

The improvements in the 1.5 dCi unit in terms of fuel consumption, environmental friendliness and dynamics are thanks to a BorgWarner BV39 turbocharger with 4th generation VTG. The 109 bhp turbodiesel generates its maximum torque of 240 Nm (177 lb-ft) from just 1,750 rpm and consumes a mere 4.6 liters of diesel per 100 km in the Mégane (51 mpg US, 61 mpg UK). At the same time the engine, which is manufactured in the Spanish city of Valladolid, emits only 120g of CO2 per km (0.42 lb per mile) and complies with the Euro5 emissions standard.

Other auto manufacturers are also currently developing engines with the latest generation of VTG turbochargers. Further series applications are set to follow later in the year.

## Leonie's Recipe

### Ginger Chicken Poached in Coconut

#### INGREDIENTS

- 1 Large chicken fillet sliced thinly
- 1 Large bulb ginger shredded (about 2/3 tbsp)
- 1 Teaspoon garlic
- 2 Teaspoons Olive oil
- 1 Teaspoon cornflour
- 1 Cup coconut milk
- Boiled rice

#### PROCEDURE

- Marinate chicken with the above 24 hours prior except for milk.
- Toss into wok or pan that has been preheated.
- Sear.
- Reduce heat, add milk and simmer 25 minutes then serve on boiled rice with shallots to garnish.

*Beaunuuuuutiful!*

# 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 Chairman 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 in 2009.

**Help Yourself,  
Its Yours.**





# Diesel Fuel Injection: The Next Generation

Delphi technologies are helping vehicle manufacturers to meet emissions targets, whilst enhancing performance and increasing fuel economy.

*Delphi DF13 Direct Acting Diesel Injector  
(Product Cut-away)*



The introduction of Common Rail has been instrumental in the continued development of the fuel injection system. Since its launch, increasingly stringent emissions standards, coupled with demands for improved performance, have led to continuous advances in Common Rail technology and in particular the injector.

Until recently injector technology has been categorised as either 'solenoid' or 'piezo'. In both cases, the injector needle is moved via a hydraulic circuit controlled by a valve that is set in motion by an actuator – either a solenoid device or a piezo device. This concept is called servo actuation and can be defined as either balanced or unbalanced according to the pressures applied on either side of the valve.

Delphi offers the Balanced Valve Fast Servo Solenoid Injector, compared with the unbalanced equivalents (both solenoid and piezo) offered by other manufacturers. Capable of system pressures up to 2000 bar, it is based on a unique injector design with balanced servo valve technology. The electrical energy required to move a balanced valve is much lower than that required to move an unbalanced valve. The balanced valve therefore allows for a smaller actuator which sits inside the body of the injector and

very close to the needle tip. This in turns allows for shorter hydraulic circuits and smaller moving masses, providing speed of needle actuation. The result, Delphi's servo-solenoid balanced valve design is equivalent to

unbalanced servo-piezo systems, the later being a much more expensive technology. This means that there are no significant differences in performance between Delphi's balanced valve servo-solenoid and competitors' unbalanced servo-piezo systems, making Delphi's Multec servo solenoid injector the best value solution in the market today.

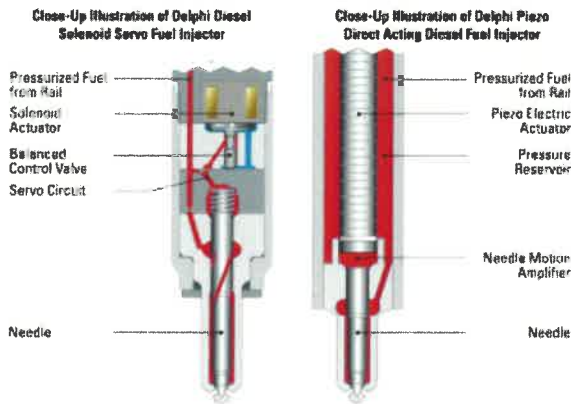
The new Direct Acting Common Rail from Delphi represents a further radical breakthrough in diesel injection technology. The revolutionary new system uses patented

Direct Acting technology. The injector needle is set in motion directly by a piezo ceramic actuator, rather than the servo-hydraulic circuit that other common rail injectors use. This enables the injector to spray fuel into the combustion chamber faster, with greater accuracy, improved efficiencies and at higher pressures.

Delphi's Direct Acting Injector technology uses piezoelectric material to produce motion when excited by an electrical voltage. It takes less than 100 microseconds to open and close the needle valve of the injector and spray the high pressure diesel fuel into the

*The new Direct Acting Common Rail from Delphi represents a further radical breakthrough in diesel injection technology.*





*Delphi Piezo Direct Acting Diesel Fuel Injector and Delphi Diesel Solenoid Servo Fuel Injector*



*Delphi DF13 Direct Acting Diesel Injector has cutaway section to show close-up of nozzle*

engine, allowing seven (or more) injection events per engine cycle. Its hydraulic circuit design makes best use of the characteristics of piezo ceramic actuators: high force and speed with efficient packaging. This provides an advantage equivalent to raising the system pressure by about 200 bar. In other words, the 2000 bar of a Direct Acting Piezo injector has a performance comparable to a 2200 bar servo injector.

The injector's radically new operating principle is also completely leak free, so no high pressure fuel is wasted into a return flow, saving up to one kilowatt of lost energy used by today's servo systems.

The result is a considerable improvement in emissions (approximately 30 percent reduction in nitrogen oxide (NOx) versus current injection systems), improved fuel economy and more torque and power for better drivability (approximately 10 percent) – exactly what today's consumers are looking for.

With the introduction of the Direct Acting Common Rail, Delphi now offers two families of Diesel Common Rail Systems: the Delphi Multec Diesel Common Rail System with the Balanced Valve Fast Servo Solenoid Injector, offering a high performance and cost effective solution, and the Direct Acting Common Rail with the Direct Acting Piezo Injector, for very demanding applications that require high fuel flow with exceptional control.

*The injector's radically new operating principle is also completely leak free...*

Continued advances in Common Rail technology and an ever increasing parc, present a significant and exciting prospect for garages equipped with the right tools and skills. To succeed in today's marketplace, the right partner makes all the difference. With our knowledge, innovation and expertise, Delphi will help to position your business to take advantage of this substantial aftermarket opportunity.



*Delphi Direct Acting Diesel Common Rail Systems Display with DF13 Injectors, Common Rail, DCM4 LD Controller and DFP3 High Pressure Pump*

**For more information on the opportunities that new technology presents for your business, visit [www.delphi.com](http://www.delphi.com). or contact Chris Graham of Diesel Distributors [chrisg@ddal.com.au](mailto:chrisg@ddal.com.au)**

# Branch Updates



## David Kite *NZ Chairman*

Back from that big holiday, all fit and rearing to go batteries recharged and all that.

Ready for all that work to roll in the door. Most people I talk to finished the year off not too bad. Most have started good (Good to hear).

But just as you think things are looking good you hear about another company closing its doors and you get a little reminder to be careful we're not out of the woods yet.

Well the work on the 2010 conference in Dunedin is coming along. The conference for Melbourne sounds good so all that think they might be needing a break by then should look at going over and seeing who's who and what's new in the industry.

It's good to see the Diesel industry getting some TV time just a pity it's not in a good way. If only TV presenters would do some investigating first before they air stories that aren't correct. I think TV 3 got a few emails over that report.

Keep up the good work and I look forward to talking to you when I can.



## Graeme Wilkinson *VIC/TAS Chairman*

At the end of November we held a meeting at the Denso Training Centre. Our guest speaker was Gary Whitfield from BP Australia.

He gave a very informative presentation on Diesel fuels. Where they have come from and where they are going with it. i.e. bio diesel, diesel gas, compressed natural gas etc. He was nice enough to give us a copy of his power point presentation and we passed that on to any of our members who were

interested. If there is anyone from other states that would like a copy I can arrange one for you just send an e-mail to [wgldiese@dcsi.net.au](mailto:wgldiese@dcsi.net.au) or call on 03 56231730. We had about twenty people attend that meeting. Our next meeting is in Launceston at Albert's Diesel on Saturday 27th February. We will be starting with a BBQ lunch at 12:00pm with a cost of \$15 per person and having our meeting follow at about 1:30pm. We will be having a presentation on CNG. I hope everyone had a nice Christmas and have started the New Year with a bang.



## Neil Quick *NSW Chairman*

I cannot believe how fast my first year as State Chairman has gone. The year seems to have just vanished before my aging eyes. It has been a testing year to say the least but have welcomed two shops into the Association which is good to see. Not much has happened since our last meeting in Coffs Harbour and we will have had our February meeting by the time this issue is out.

I have emailed all members of our state for help in information and articles for the Diesel Torque and must say how disappointed I was in the lack of support/replies that I received. Presently there are a small number of people thinking each quarter as to what members would like to read in THEIR magazine. Unfortunately these enthusiastic brains will eventually run out of ideas and I am now requesting from ANY member across the whole association for help with the magazine. If just half of all members came up with one idea each I'm sure that the magazine will be full for a couple of years to come. As Lleyton Hewitt would say – COME ON

One other present problem is the lack of availability of all makes of Test bench fluid. I know a lot of shops in NSW are finding it hard to acquire stocks and I would presume that other states might be in a similar position. If not and someone knows where all the stock is I would appreciate a phone call.





## Melbourne Conference

I am looking forward to this year's conference so I can see the new lay out due to the past couple of year's members having voiced their opinion on costing to themselves and the exhibitors. As there will be no exhibitors I encourage everyone to make an effort to attend and then to comment either constructively or with constructive criticism their ideas so things will be fair to every body in future. Hope to see as many as possible there.

*While sewing a cut on the hand of a 75 year old Aussie farmer, whose hand was caught in the gate while working cattle, the doctor struck up a conversation with the old man. Eventually the topic got around to Kevin Rudd and his role as our Prime Minister. The old farmer said, 'Well, you know, in my opinion, Rudd is a 'Post Turtle'.... Not being familiar with the term, the doctor asked him, what a 'post turtle' was. The old farmer said, 'When you're driving down a country road and you come across a fence post with a turtle balanced on top, that's a 'post turtle'. The old farmer saw the puzzled look on the doctor's face so he continued to explain. 'You know he didn't get up there by himself, he doesn't belong up there, he doesn't know what to do while he's up there, and you just wonder what kind of dumb bugger put him up there to begin with.*



### Walter Vrbancic QLD Chairman

Hi all, hope that you all had a great Christmas. This is the recovery year for all of us as we have been told, the recession is over and we can again start to see work coming in at a steady pace. We have all noticed the differences in the type of work that we are getting at the moment with the influx of common rail and associated electronic systems. It's hard to keep up with all the changes and just when you think that you are getting good at that particular one another variation comes up making it that much more difficult. Transit vans are the first thing to come to mind.

Our last meeting was at Rydges at Caloundra and it has been a good venue for us. We had Bob from ENACT Business Systems as our first speaker. A very interesting topic on time management for your business. He displayed ways on how to start improving your efficiency within the business. We also took part in a business efficiency study of your own business in which the result will be sent to the owner.

Scott from Bosch was there with a range of Bosch scanners and a general overview of their use and also Kate Kimmorley with a brief view of where we are today on the money and investment market.

Our afternoon activity this time was a poker tournament at the hotel. It was heaps of fun and we will be doing that again. The winner was Andrew from Bosch, well done.

### Kate Kimmorley

Principal – Kimmorley Financial Management

Well known across Australia for her time co-hosting the ever popular **Money Matters** talk back radio show and seen by many during the 2008 and 2009 AADS National Conference.

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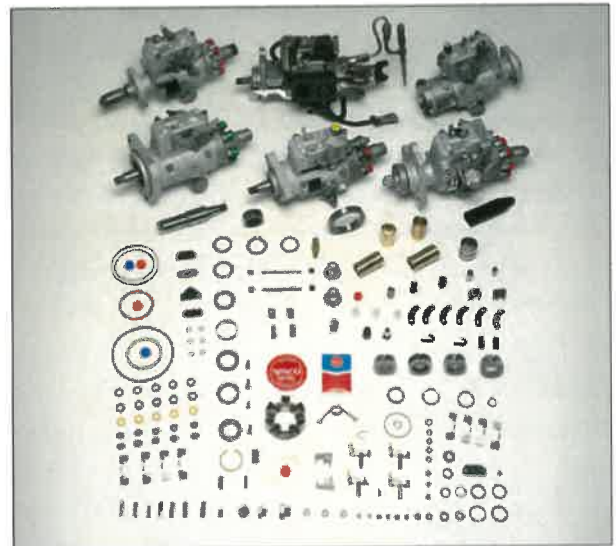
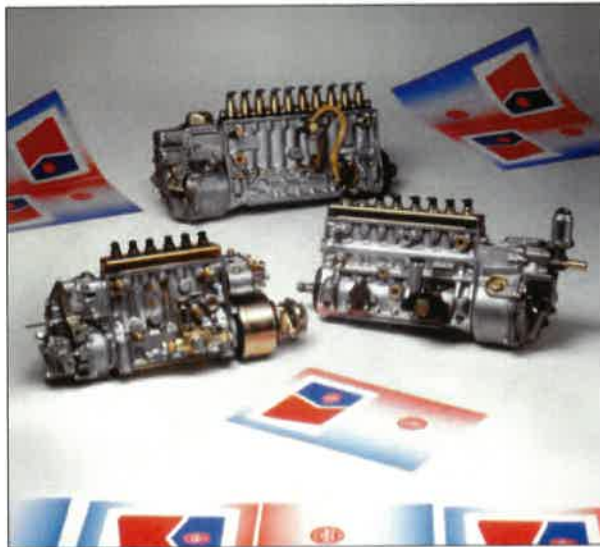
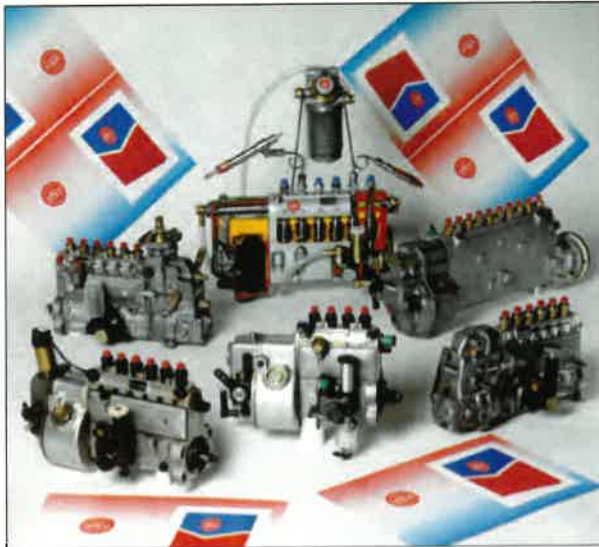


FPA Value of Advice Award 2008 Finalist – Post-Retirement & Planning

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# Hartridge offers a new way to make the most of your test time

**Pump testing and repair can be a profitable part of your business. With more and more passenger car manufacturers switching to common rail systems, there's a valuable new business opportunity available for workshops waiting to take advantage of it. However, operating at maximum efficiency is vital if you want to boost your profits.**

So when you're testing pumps in a workshop time is of the essence – the only problem is that the whole process can be time consuming!

Preparing pumps mean that the machine's sitting idle, and carrying out the testing means an engineer is tied to the test bench monitoring the test cycle.

So it's great to hear that Hartridge have recognised this need to improve workshop efficiency by releasing their Automatic Pressure Control (HB401) upgrade for the AVM2-PC.

The APC can save anything from 20 – 50% of the test time for a Common Rail pump by providing a stable pressure reading in about 5 seconds and allow operators to set up automatic test plans, removing the need for someone to watch the machine throughout the whole test cycle.

The HB401 APC upgrade is very easy to install, consisting of 3 main elements: a high pressure block mounted on the bedplate, an auto pressure control unit mounted on the front of the machine and a software upgrade called magmahplus.

With magmahplus and the new test plan editor, the operator can write fully automatic test plans which greatly reduce the time the operator needs to spend at the bench. Once the pump is installed, the operator can select the plan, watch the first few steps to ensure the set up is correct and that there is no main failures with the pump. The bench can then be left on its own and the operator can be preparing the next pump for testing, carrying out any repairs or doing any one of the hundred tasks that are always waiting in a busy workshop!

*The APC can save anything from 20 – 50% of the test time for a Common Rail pump*

The APC and MagmaPlus upgrade provide an authorised Delphi test solution when used in conjunction with Delphi's IRIS software. The HB401 APC was piloted in Italy in 2009 and has generated a lot of interest, so for more information or to order the APC upgrade, contact Diesel Distributors – official supplier of Hartridge products for Australia & New Zealand.



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## Delicate Delica

This article is a true description of an AECS technical help desk problem and how it was solved.

VEHICLE: **Mitsubishi Delica 1999 2.5 ltr Diesel non turbo WL (Mazda) engine**

PROBLEM PRESENTED TO THE HELP DESK: **The vehicle was bought 6 weeks ago. The engine had a slight knock which developed very quickly in a destroyed no 4 big end bearing, seizing the engine.**

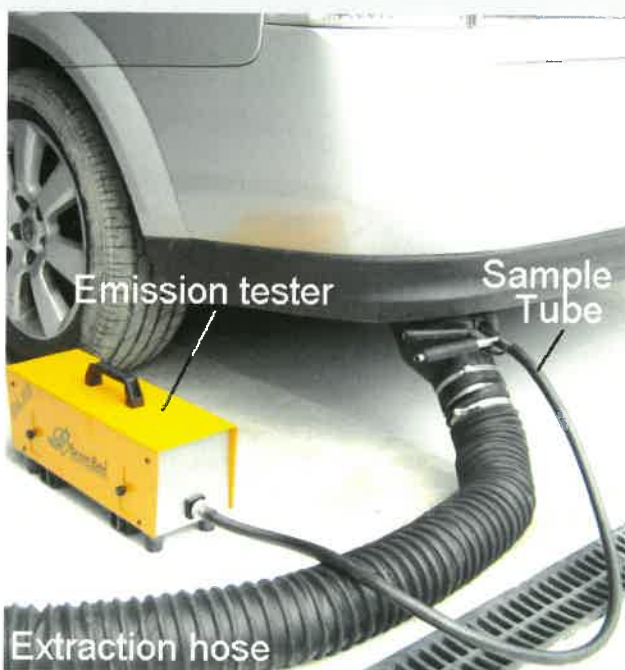
The car was offered for repair to the garage involved in a no-go state. The engine was rebuilt and refitted in the vehicle. The old injectors and Diesel pump were reused to keep the price of the job down.

After start up it was noticed that the engine was a bit smokey. The vehicle was driven for about 100 Km's after which the engine was still rather smokey (black). Also there was an intermittent rattle in the engine. It was decided to get the injectors serviced first of to cure the smoking problem.

The injectors were in an average state, still the nozzles where replaced. This made no difference in the smoking nor in the occasional rattle. Regarding the intermittent rattle, it was decided to check the valve train, cam timing and pump timing, just to be sure. They panned out all okay.

### Measuring

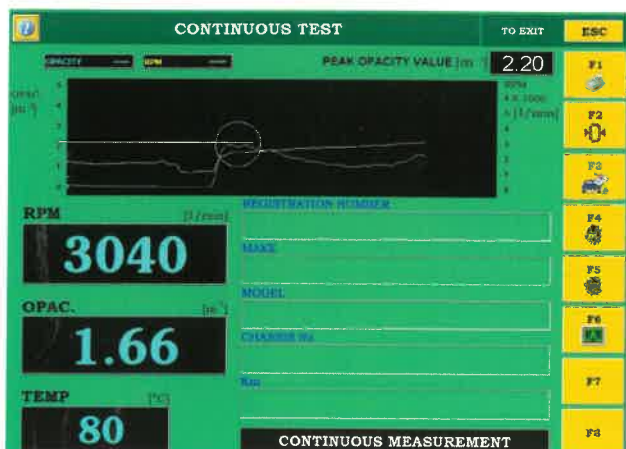
The diagnostic garage involved decided not to risk the new engine and send the customer on its way but get to the bottom of the smoking. It was considered to get the pump rebuilt, but before the pump was removed, a series of mobile emission tests were done and sent to the AECS help desk.



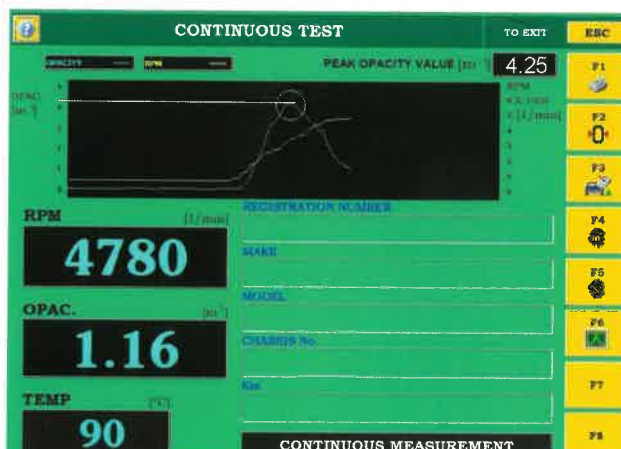
Sample picture of Diesel emission test in progress

The measurements were performed on the road during full acceleration. It is clear to see in the graph that during acceleration the opacity climbs to an opacity of  $K = 2.2 \text{ m}^{-1}$ .

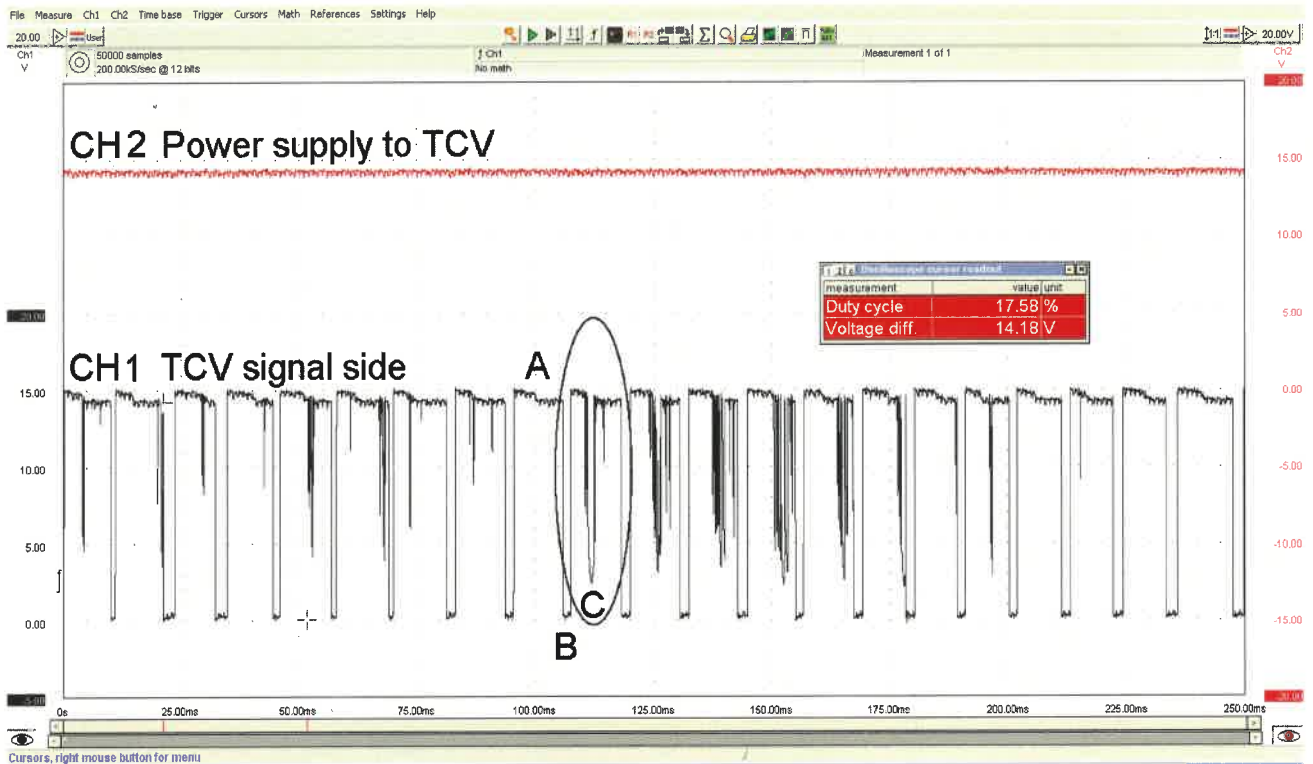
The test was repeated again with the following results:



Laptop printout of Brainbee Opacity Emission test 1



Laptop printout of Brainbee Opacity Emission test 2

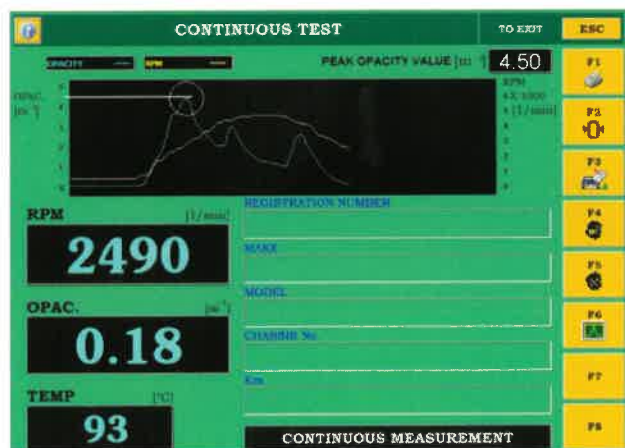


ATS 5000 dual channel TCV recording. A = non actuated, B = actuated, C = bad contact.

This time a peak opacity of  $K = 4.25 \text{ m}^{-1}$  is logged.

The same vehicle under the same circumstances logs a high peak opacity of  $K = 4.5 \text{ m}^{-1}$ .

A further set of tests was done with pretty much the same results, with the highest reading  $K = 5 \text{ m}^{-1}$ .



Laptop printout of Brainbee Opacity Emission test 3

## Logic look at the test results

The first measurement is really the one we at the help desk where worried about.

The low  $K = 2.2 \text{ m}^{-1}$  compared to the mostly high results did not make sense. If a pump or injectors are at fault it seldom happens that the emissions are high one time and low another time while the same test is performed. This to me indicated that there was a pump control problem.

The pump has electronic controlled injection timing and mechanical quantity control, let's have a look at the injection timing control to make sure that the timing was controlled correctly.

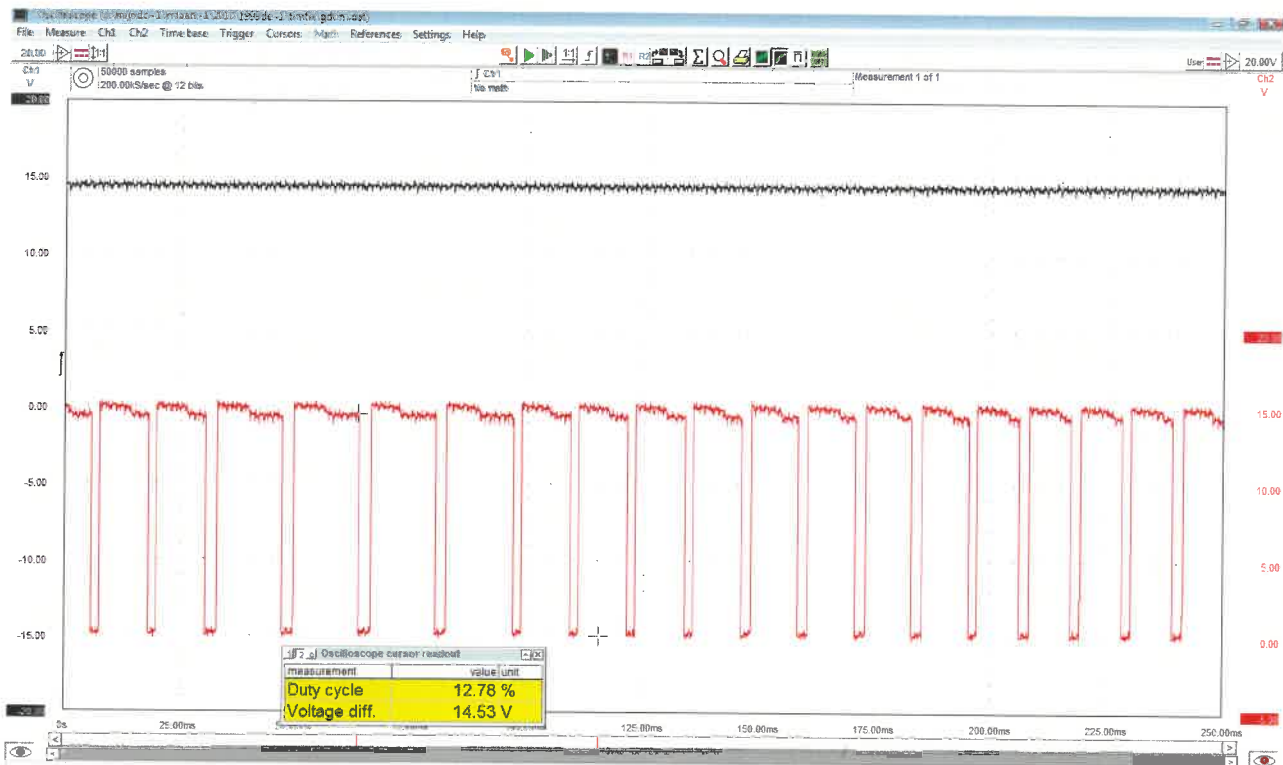
## Electronic check, easy!

The diagnostic shop owns an ATS 5000 recording scope and provided the AECS help desk with a number of recordings. The Timing Control Valve (TCV) signals are printed above.

## Found it!

The signal on CH1 is not correct! The hash in between the actuations indicate that there is a bad connection or a short circuit somewhere, the signal on CH2 indicates that at the same time the power supply to the TCV is fine.





ATS 5000 perfect TCV signal after the repair.

We made the diagnostician first think about if there could be a short circuit or a bad connection in the TCV circuit:

– Consider that a short circuit to earth on the signal side of the TCV will actuate (open) the TCV uncontrolled. Anyone who attended the AECS Diesel training seminars will understand that an open TCV will retard the injection timing. Well the garage mentioned an intermittent rattle in the engine, which indicates overly advanced injection timing. So at this stage forget about a short circuit. Consider a bad connection between the TCV and the power supply wire or between the TCV and the signal wire in for example the connector. A bad connection will reduce the current and therefore the TCV will be less open, advancing the injection timing. This will cause Diesel knock, which ultimately destroys engines: Big end bearing?

The diagnostician inspected the connector on the TCV and found that the two female terminals were stretched wide making intermittent contact. He suspected that the wiring loom hanging on the connector was too much over a period of time and caused the (expensive) damage.

He bent the terminals back and recorded the above pattern. ATS 5000 perfect TCV signal after the repair.

## Fixed it

He replaced the terminals in the connector and the vehicle is going good now!

He was able to charge the engine and diagnostic job out with the comfortable knowledge that the job would not come back to bite him. The emissions are down to a nice and clean  $K = 1.2 \text{ m}^{-1}$ .

## Conclusion

This job had the real potential to blow up, literally. An expensive come back would have been the result. I am confident that the bad connection in the TCV was the cause of the engine failure in the first place.

How do you charge your customer twice for an engine job? Does your insurance perhaps cover damage as a result of work half done? Do it properly first time, that avoids disputes and increases your credibility. This shop was well equipped with a Brainbee emission tester and ATS 5000 oscilloscope, which both come with the technical back up of AECS Ltd. I am not sure how he would have found the real problem without this real diagnostic equipment, certainly in such a short period of time.

For AECS Ltd: HP Leijen (trainer/research)

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# Money tips

by Kate Kimmorley,  
Principal, Kimmorley FM



Despite the negative returns of the past few years, the tax incentives in your retirement fund can be far more attractive than other savings options.

There are many reasons why superannuation may be a more attractive investment option than investing in your own name or another structure. I have outlined a few things for you to consider in the year ahead and when planning for the end of the financial year:

- 1. The income tax rate within superannuation** is capped at 15% and Capital Gains Tax at 10% if the asset has been held for more than 12 months. This is probably lower than your marginal tax rate or your company's tax rate of 30%.
- 2. Assets within super** are usually protected from bankruptcy so can be an effective part of an asset protection strategy. Note that Super is NOT protected from divorce!
- 3. Life Insurance and Income Protection** can be included in your superannuation fund, helping you to manage your personal cash flow. Death benefits payable to a spouse or dependant are tax free.
- 4. Salary Sacrificing** is still tax effective, particularly where your marginal tax rate is greater than 15%. By diverting pre tax salary into super instead of taking it in cash you will pay contributions tax of 15% on the amount contributed as opposed to your marginal tax rate which could be as high as 46.5% (including Medicare Levy).

Given the recent turbulence in financial markets, we have seen super fund balances retract, although fortunately those who retained their investment position should have seen some of these losses return as financial markets once again recover momentum.

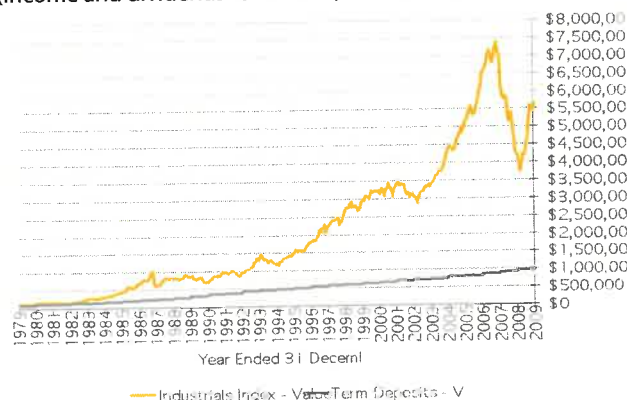
Don't forget that superannuation is not an investment in its own right, but rather a tax structure though which

you can invest in a number of different investments, even cash should you prefer a more cautious approach.

"Investing" is a long term commitment, whether it is a property or share market investment, again both can be investments within your super fund. Compare below the long term benefits of staying committed to a portfolio of shares versus an investment in a cash account. In both instances we are reinvesting the income. The results are staggering and take into account the recent share market decline.

Remember the importance of obtaining individual professional adviser before proceeding with any investment or strategic advice.

Return on Investment of \$100,000. December 1979 – 2009 (Income and dividends reinvested). \* Source: MLC



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Every \$500 spent monthly with MTQ is rewarded with one ticket to go into the draw to WIN. If purchases are made of products displayed on the monthly specials flyer then additional bonus tickets are issued.

The next AADS convention will be held between 28th - 30th May 2010 at the Novotel Hotel in St Kilda, Victoria. The winner will be barrel drawn at the convention and notified by phone and mail. Winning names will be published in the Advertiser (SA), Sydney Morning Herald (NSW) and Herald Sun (VIC) on Tuesday 2nd June 2010.

**Lottery License Numbers: SA - T09/1044, VIC - 09/1778, NSW - LTPS/09/04965.**

Lottery License Numbers: SA - T09/1044, VIC - 09/1778, NSW - LTPS/09/04965.

MTQ would like to thank all customers who have entered the draw and look forward to seeing whose lucky ticket is pulled. You have got to be in it to win it.

# Notice Board

## State Meetings

### May 2010

AADS National Conference in St Kilda VIC  
28 – 30 May 2010

### November 2010

Meeting & AGM in Tamworth  
final date to be announced (this will be a voting year)

### Letters To The Editor

Letters must be short and may be edited. All letters to be considered for publication must have a name, street address and phone number so their authenticity can be checked. An email address is not sufficient. (If you prefer your email address to be the only detail published with the letter, please say so at the end.)

## TIPS N' TRICKS

If you have any Tips or Tricks you think might help other readers of *Diesel Torque*, please email them to Karen Attree [aads@apcaust.com.au](mailto:aads@apcaust.com.au)

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