

ISSUE 121: SEPTEMBER 2016

# DIESEL TORQUE

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



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## **WA**

*Ken Ringrose, Contact*

## **Registered Office**

AADS Inc

Level 3, 33-35 Atchison Street

St Leonards NSW 2065

Tel: +61 2 9431 8685

Fax: +61 2 9431 8677

Email: [aads@aads.com.au](mailto:aads@aads.com.au)

Web: [www.aads.com.au](http://www.aads.com.au)



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# President's Report

## by Craig Mills, President



Now that everyone has had a chance to regroup after what was another great AADS Conference, its time to catch up with what is going on in our industry with another edition of Diesel Torque.

Windy Wellington truly lived up to its reputation over the conference with a few delegates being treated to a deviation to Christchurch after an aborted landing due to wind gusts of 200km/h. Not to mention the planes fuel levels dictating a top up should more than one more attempt be required. It makes you remember you're alive doesn't it? Once the excitement of some adventurous travel was calmed with a quiet beverage or two in the hotel's bar everyone quickly got into the spirit of the conference and everyone was mingling, catching up with old friends and making new ones.

All the conference attendees were treated to an exceptional list of presenters and exhibitors this year with representatives from all corners of the industry sharing their news and upcoming products and technology. A big thank you must go to all those that contributed in any way to this year's event, without your support and assistance this event would simply not be possible. This year the conference registered 110 seated for dinner on Saturday night when the conference was wrapped up with a charity auction- raising some \$3500 for Diabetes Youth New Zealand, some excellent food and great company.

It takes an outrageous amount of money to run these conferences and I am thrilled to say that this year the conference was financially in the black for the first time in several years. While we are a not for profit organisation and we don't set out to make thousands of dollar from these events, it is important that we do our best to break even for the sustainability of the association. When these events cost the association money to run, it is money that isn't available for assisting with training or other member benefits.

Next year we are heading to Melbourne for the annual AADS Conference and AGM. The venue is not yet decided

and we are meeting there in September as the committee to finalise details and to conduct our other committee business for the association. We hope to have 2017 Conference information and dates out to you shortly after this meeting.

2017 is an Election year for the committee and I personally, couldn't be happier with the current committee and how

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they have stepped up to the plate when things needed to be done. Unfortunately, we lost Matthew Fletcher from the industry not long into the last membership year and as a result we were one member less for the AADS committee. Now is a good time to start thinking about how you might be able to assist the association by putting your name forward for the committee. If you have any questions about what is involved or how you might be able to contribute, please contact myself or any of the current committee members. As I mentioned in Wellington I won't be standing for President

going into the next term, but I may still consider being on the committee should I be nominated. I have found the role of President very rewarding and I have made some great new friends along the way. The committee positions are not hard, but it does take a little time (an hour or so) each week to keep the wheels turning. If you have ever thought you might like to try it, bite the bullet and do it. You won't regret it, I promise you!

Lastly, I would like to acknowledge and congratulate all the award winners within the AADS. You will read more in this edition about Denco Diesel and Turbo's fantastic achievement this year. Also congratulations to Josh Johnson from Diesel Service NZ Ltd for completing his apprentice earlier this year. If any of you have anything newsworthy please feel free to get in touch with the information and we will make sure its shared with the members on the newly refreshed website and through Diesel Torque.

Until next time, take care out there!

# Another AADS conference done and dusted, here are just a few snapshots of this successful event!

Thanks to our major sponsors and supporters, but most importantly to our members for their continued support of the AADS. We could not have achieved any of it without you



AADS Partners Tour to LOTR film sets and Weta Caves



Congratulations to the Simms Diesel team for taking out the 'Best Conference Booth'



# Denco Diesel and Turbo take out Bosch Excellence award two years running!



The team at Denco Diesel & Turbo have won the Bosch 2015 Excellence Award for New South Wales.

The award was presented at the Bosch Service Network Gala awards night by Sam Alexander, Bosch Workshop Concepts Manager

This is the second year running Denco Diesel and Turbo have won the Bosch NSW Excellence award having already taken out the excellence award for NSW and for Oceania in 2014.

“Congratulations to Scott Wood and the team from Denco Diesel (Wagga) Pty Ltd on their recent award from Bosch. The “2015 NSW Bosch Diesel Excellence Award” recognises Denco Diesel’s commitment to the Bosch diesel program and successfully achieving

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*The “2015 NSW Bosch Diesel Excellence Award” recognises Denco Diesel’s commitment to the Bosch diesel program and successfully achieving the highest level of engagement of any Diesel workshop in their NSW region,*

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the highest level of engagement of any Diesel workshop in their NSW region,” said Sam Alexander, Bosch Workshop Concepts Manager Oceania.

“We are thrilled to have been able to achieve recognition for our behind the scenes commitment to the Bosch Service Dealer Network, our technicians value the training offered by Bosch which ensures that they have the expertise required to meet our customers expectations,” said Scott

Wood Service Manager, Denco Diesel and Turbo. “We valued the affiliations Denco Diesel and Turbo have with quality organisations such as Bosch as it ensures that we are in the forefront when it comes to diesel technology.”

# Election of Committee Member 2017 NOMINATION FORM



Please complete a separate form for each person being nominated.

If a person is being nominated for more than one position, please complete a separate form for each position that the person is being nominated for.

Name of person being nominated:

Being nominated for the position of:

- President
- Vice-President
- Treasurer
- Secretary
- Committee Member

*(At least 5 committee members are to be appointed.  
There are to be a maximum of 10 on the Committee,  
including the officer bearers)*

Name of first nominator:

Signature:

Name of second nominator:

Signature:

I confirm that I am a voting\* member of the Association of Australasian Diesel Specialists and agree to this nomination to the National AADS Committee.

Signed:

Date:

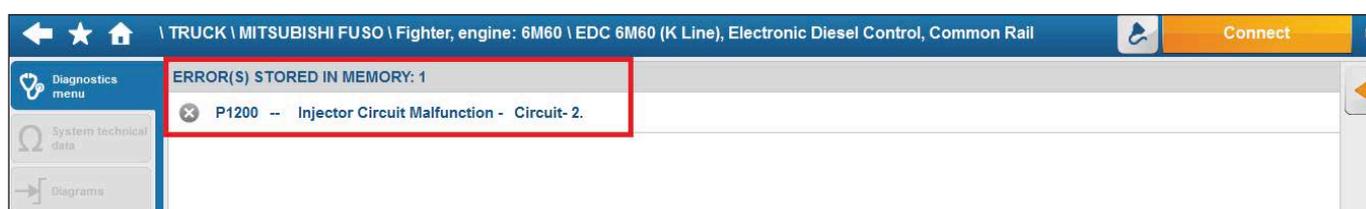
**Please return completed form to the Secretariat by 15 February 2017**

*\*voting members as per the AADS Constitution: Service, Manufacturing, and Honorary Life Members*

# Failing Fuso

## Vehicle 2011 Mitsubishi Fuso Fighter 6M60

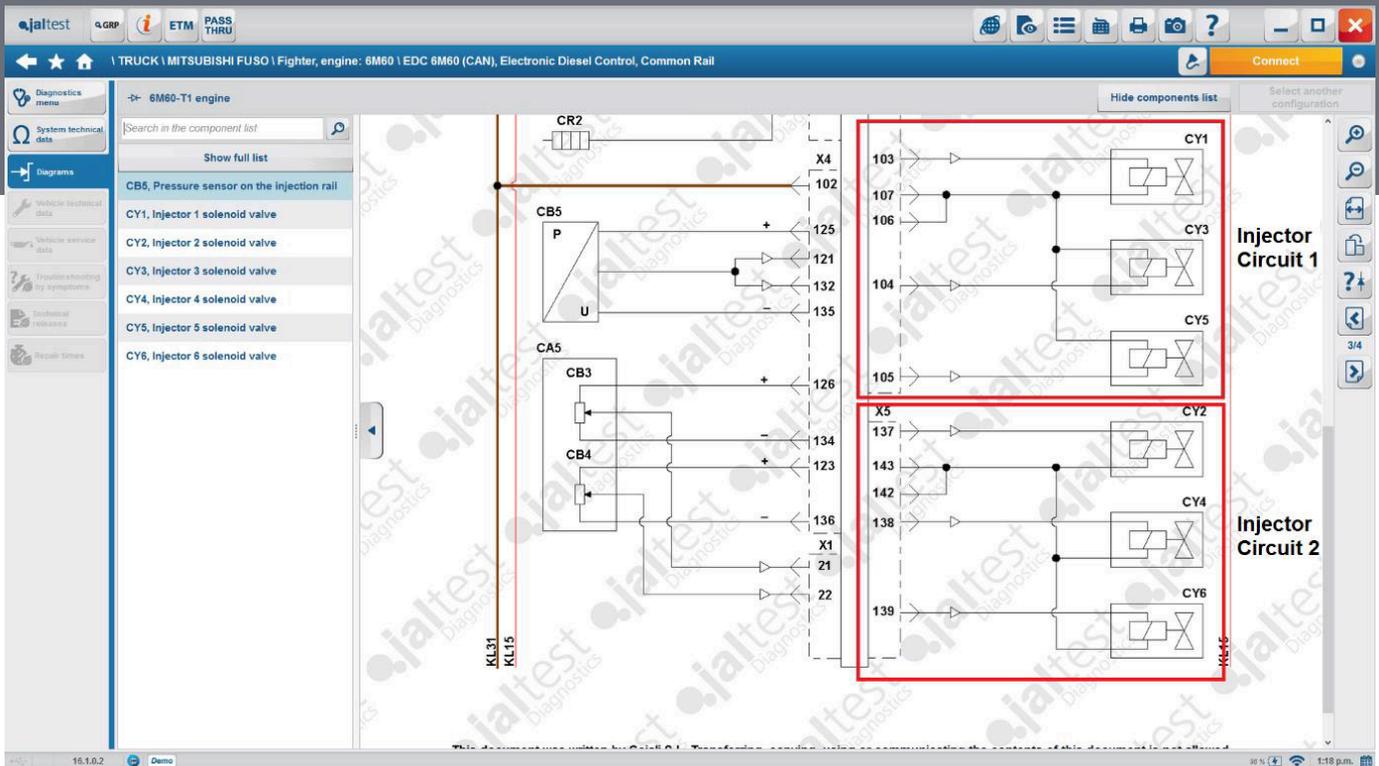
This article is a true description of an AECS technical help desk problem and how it was solved



*Fault code and description.*

### Problem presented to the Helpdesk

A 2011 Mitsubishi Fuso Fighter truck with a 6M60 engine presented to a workshop with reports of a misfire and hunting at idle. The truck had already been to another workshop who had already removed all 6 injectors and sent them away for testing. Four were reported to be faulty and replaced and the other two were returned with no fault found (it later transpired that these 2 working injectors had been replaced only the year before!). The returned injector set was then fitted and re-coded before the engine was cranked over until the battery went flat. The ECU main power fuse was found to be blown and was replaced before the battery was recharged and further cranking took place. The engine now fired but ran very badly. That's when the decision was made to call for additional help. A familiar story perhaps?



Wiring diagram in Jaltest diagnostic tool.

## Where to start?

The workshop was equipped with Jaltest diagnostic equipment which gave them the option to do a comprehensive scan of the vehicle to see what fault codes were actually stored. This would help them decide which the diagnostic path they needed to go down. Scan

The Jaltest vehicle system scan was initiated and confirmed there was indeed a code stored within the engine ECU. Connecting directly to the ECU for a more comprehensive report returned a P1200 fault code which when compared to the Mitsubishi workshop manual confirms a fault had been detected with the No2 Injector Circuit.

**CAUTION: This does not mean that there is a fault with the number 2 injector!!** The technician was very keen to dive straight in and replace the No2 injector which could have been a costly mistake.

## Fault Code P1200: Injector Circuit 2

This fault code can mean that either injector number 4, 5 or 6 is short-circuited or open-circuit.

With momentary short or open-circuits, the ECU is able to recover to run normally after the ignition has been cycled. On the 6M60 common rail engine if the fault is a permanent short or open circuit the running of the engine may be compromised. Common rail injection systems use a pre and main injection sequence with current control and on this

system if there is a permanent short circuit present the pre injection stage will be turned off while the main injection will still be attempted although the ECU will limit the actual injection quantity. EGR control will also be inhibited and the cylinder balance through fuelling control will also be switched off. It must be noted that the effects and reaction of an ECU to this kind of fault may differ slightly from one manufacturer to another.

## Wiring

Closer inspection of the wiring diagram shows that the injectors are grouped together in two lots of three.

## Measure

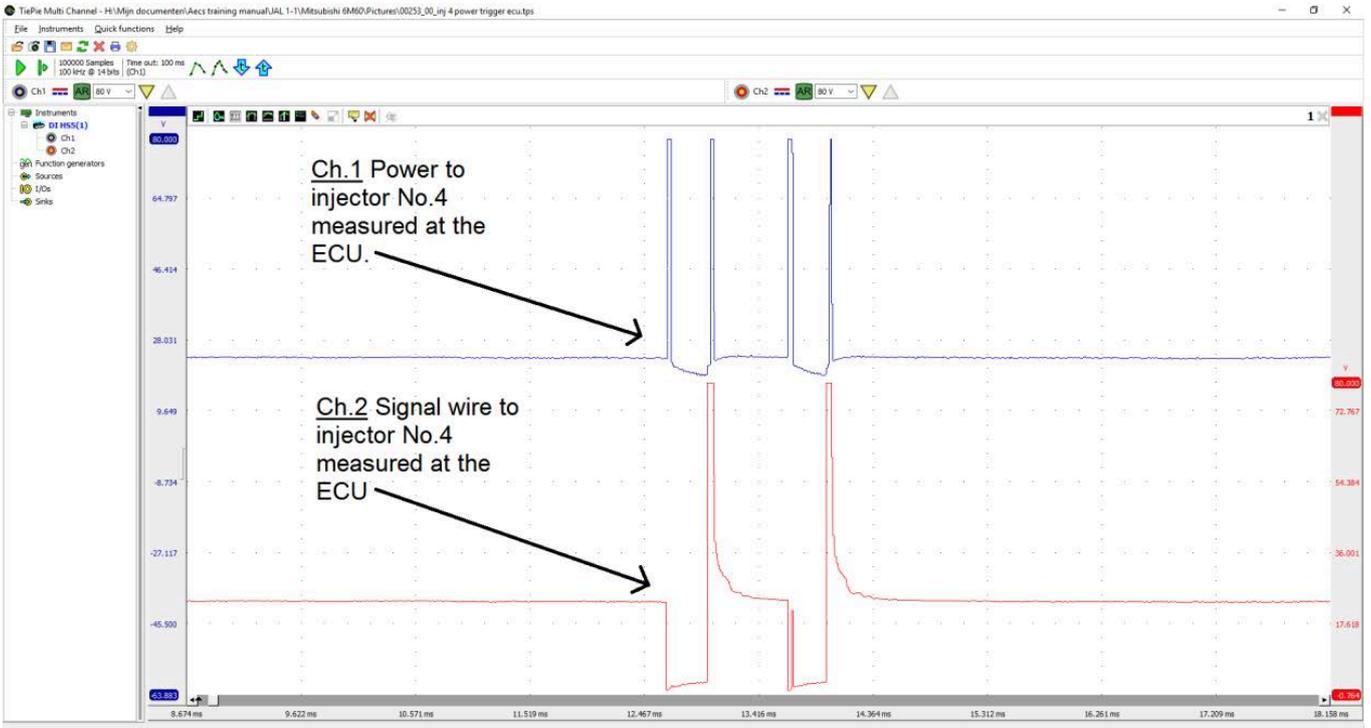
At this point a cursory measurement was taken on just one of the injectors on the suspect injector circuit #2 to establish what might be going on.

Measurement is done directly at the ECU so the whole circuit is taken into consideration. We can see from the measurement that the ECU does indeed trigger the injector with the large voltage spike required to start injector movement but the voltage then appears to be pulled down below 24volts suggesting that there may be a short circuit or failure in the power supply from the ECU.

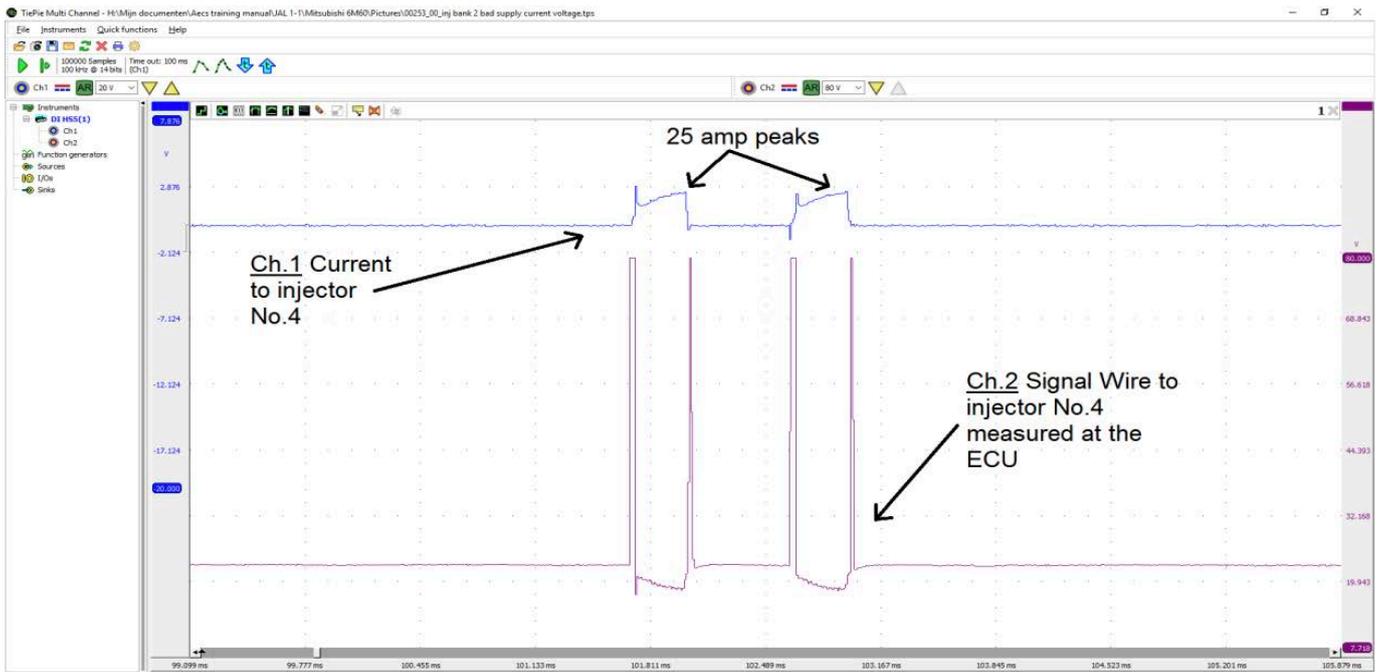
As we suspect a possible short circuit or ECU injector power supply issue we now need to measure the current actually being supplied from the ECU. A current clamp

# Failing Fuso

Vehicle 2011 Mitsubishi Fuso Fighter 6M60



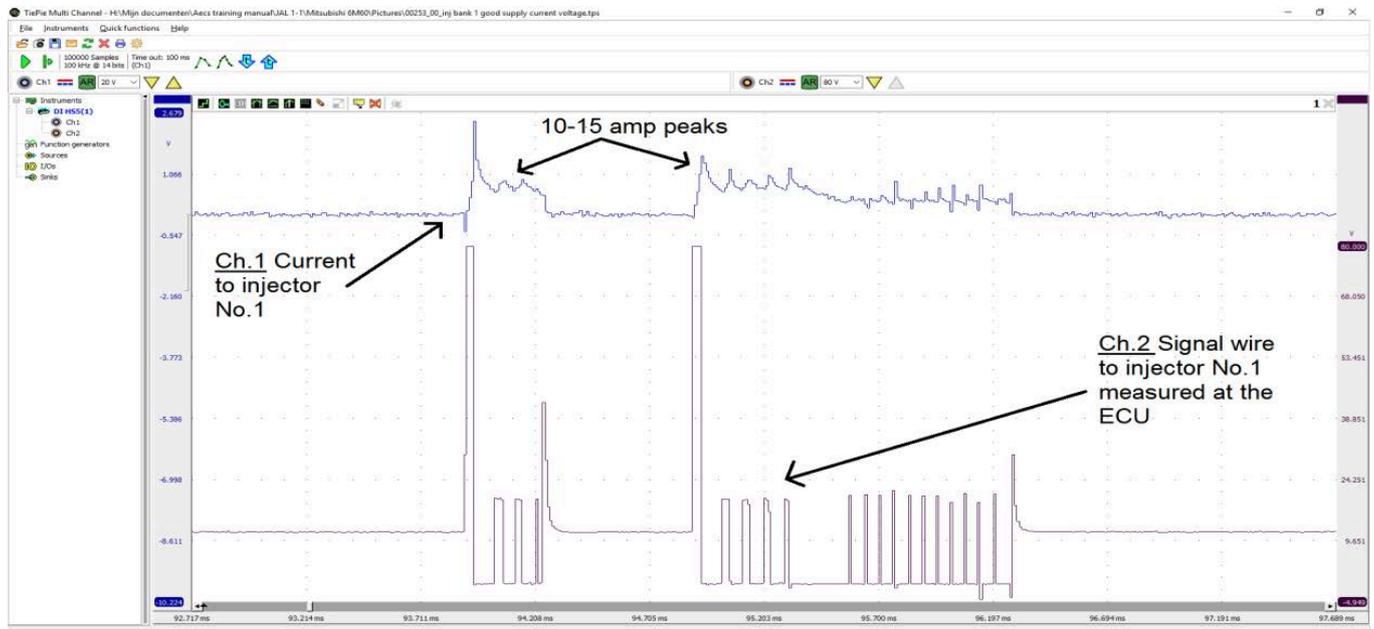
Both wires to the injector bank2 measured at the ECU.



Current and power supply to the injector bank.

# Failing Fuso

Vehicle 2011 Mitsubishi Fuso Fighter 6M60



Scope recording showing correct injector current control.

measurement can prove invaluable when trying to make a decision like this where we could potentially be looking at an ECU replacement. A very expensive call should that be the ultimate result.

Scope recording taken from the faulty injector bank. While we can see the injector being switched on, the current rapidly rises to 25amps and beyond acceptable levels to the ECU before being switched off. This amount of current should be easily high enough to activate current control by the ECU but no control is activated. The injector is then triggered again but with the same result.

The good bank of injectors was measured for reference purposes and it is immediately clear that there is normal injector activation with current control. Notice the current ramping up and down as the ECU rapidly switches the signal line to the injector.

## Conclusion

The engine wiring harness was then thoroughly inspected for physical short circuits before the decision was made to order a new \$4000 ECU. It is almost certain that the failed injectors would have been damaged over a period of time with such high currents passing through the coils. Regular diagnostic scans during annual services may have detected

this issue earlier had the owner chosen to use a workshop equipped with the latest in diagnostic technology. Note: this case is covered in more detail in the Truck scan course.

With modern diagnostic equipment and training this workshop supported by AECS technical help was able to come to the correct result in the minimum amount of time. Who will this truck owner be calling on first next time he has issues!

For AECS Ltd.  
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# Branch Updates



## Christine East *QLD*

The Queensland branch is still going along smoothly. We are currently holding 2 meetings a year and try to hold them in different places in an effort to give more members the opportunity to attend.

Our meeting held in November last year was held at Diesel Australia in Brisbane. After the meeting the members were able to use the dyno and a good day was had by all. A Subway lunch was provided along with beer & soft drink so that members could relax and socialise after the meeting. This was followed by dinner at the Coopers Colonial Motel where a number of members stayed for the weekend.

In April of this year we held our inaugural meeting at the Oaks Oasis Resort in Caloundra. This was a very relaxed meeting designed to get families to attend and the meeting was held beside the children's swimming pool. It was followed by a tech talk where several members brought up different issues for discussion. Lunch was an American buffet which consisted of hot dogs, hamburgers, wings, salads & dessert. This was a sit-down lunch but everyone was still able to mingle and socialise before a relaxing afternoon. Dinner that night was held at a local hotel only a short 5minute walk from the resort.

Join us for our next meeting to be held at Diesel Injection Technologies in Bundaberg. Lunch will be put on along with a few drinks but at this stage the menu hasn't been decided as numbers are still to be confirmed. This meeting will be followed by a trip to the local Bundaberg Barrel where their famous Bundaberg soft drink is made and if the interest is there a possible visit to a local boutique beer tasting. Dinner that night will be at a local hotel depending where most people are staying.

So as you can see we do try to get around. We hope a few more members will be able to attend the next meeting as 'the more the merrier'. We try to avoid using meeting or function rooms as this keeps the meeting costs down and leaves more money for food & drinks! Any visiting members that are visiting our beautiful state are always welcome to attend as our meetings are always a relaxed affair and we would look forward to having a relaxing time with them too. Look forward to seeing a few new faces.

# AADS MEMBER PROFILE

## DFI Sales and Service Pty Ltd

### Background

DFI Sales and Service is a Queensland owned and operated business located in Brisbane's Bayside suburb of Capalaba. The owner Daniel Frohlich started with Beenleigh Diesel at the young age of 15 and completed his apprenticeship and continued to Diesel Australia with Ted Sanders. Leanne Frohlich was also with Diesel Australia in the office up until Ted sold the business. From that Daniel and his wife Leanne started DFI Sales and Service with over 30 years' experience between them.

From a modest beginning, the company has grown and established itself in the Diesel Fuel Injection Industry now with a staff of 4 including an apprentice.

DFI Sales and Service has extensive knowledge in the Diesel Injection field and are dedicated to building long-term business relationships by maintaining high standards and ethical values. Specialising in all Diesel Fuel Injection Repairs and Diagnostics and also offering a Mobile Diagnostics Service including engine management diagnostics, engine tuning, fault tracing and on/off car diagnostics.

Being involved with the AADS helps develop new skills, expand your knowledge, gain confidence and have fun at local, state and national meetings, seminars, conferences and committees. Professional and personal development is a life-long learning process.

Have DFI Sales and Service done all that we could to become an active association member? No, not yet.... that is an ongoing process and a goal to keep in our sights. The benefits of being involved in an association are endless. Enjoy your membership!

We would also like to thank the AADS for our prizes that we won in the "New Logo Design" competition. Now to decide where to put the new shiny toolbox.



### DFI Sales and Service

Specialising in Diesel Fuel Injection Repairs & Diagnostics. Mobile Service also available.

### Products/Services

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On Vehicle Diagnostics  
Spare Parts

### Contact Details

2/32 Neumann Road  
Capalaba QLD 4157

Tel: 07 3823 4762

Email: [info@dfsalesandservice.com.au](mailto:info@dfsalesandservice.com.au)

Website: [www.dfsalesandservice.com.au](http://www.dfsalesandservice.com.au)

## Diagnosis & Repair of Modern Electronic & Common Rail Diesel Fuel Systems



### Course Details

**Date:** Saturday 22nd October 2016

**Where:** Cooma Diesel Service  
64 Kembla Street  
Fyshwick ACT

**Time:** 8:30am – 4:30pm

**Cost:** No Charge

Morning Tea and lunch will be provided

**RSVP Tuesday 18th for catering purposes**

Email: [info@coomadieselservice.com.au](mailto:info@coomadieselservice.com.au)

Phone: David or Dan on 02 6280 0178

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- Test ECU controls of Injectors (Solenoid & Piezo)
- Test Fuel Rail pressures electronically
- Testing procedures for known faults
- Test Fuel Control Solenoids
- DPF diagnostics and fixes
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### Your Trainers:

- Qualified AADS Senior Diesel Fuel Technicians
- Denso Qualified and Accredited
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- Qualified Failure Analysis Technicians and Diesel Plant Trade Trained
- Over 40 years of hands on, technical and training experience
- Certificates issued to participants





# AADS Conference 2017

For the Annual AADS Conference 2017, we will be heading to the mighty city of Melbourne

More information to come, stay tuned and join our mailing list.

# DIESEL TORQUE

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		Member	\$393	\$157
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 Website Banner all artwork to be supplied as jpg

Completed artwork can be emailed to:  
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