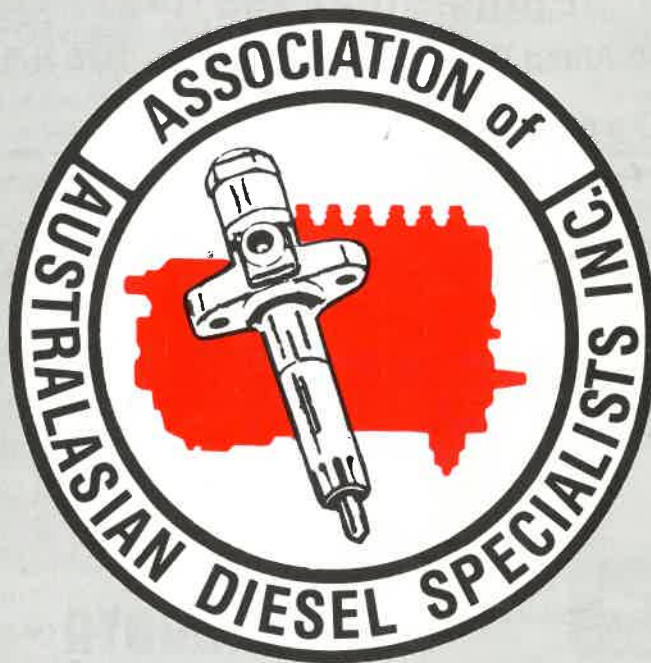


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# **DIESEL TORQUE**



**Official Magazine of the Association of  
Australasian Diesel Specialists Inc.**

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EDITION THIRTY-EIGHT

JUNE, 1994

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## EDITORIAL

Some things in life seem to go in cycles, some good, some bad and unfortunately a bad cycle has hit AADS members at the present time. I refer to clause 7, items 7.11 and 7.12 of the AADS constitution on 'Behaviour of Members'. Instances of members not following these procedures have occurred in Victoria, NSW and Queensland in recent weeks and as such are totally unacceptable. The trouble that is caused between customers, other repairers such as engine reconditioners, automotive repairers etc, could easily have been prevented by a simple phone call to the member concerned. No one wins when uninformed comments or statements are made without first establishing the facts, except the solicitors, barristers and court employees. It causes a breakdown in the confidence and fellowship of members and generally lowers the image of the Fuel Injection and Turbocharger repair industry.

Another side issue of this problem is that some members say they are going to resign because of the perceived wrong doing of another. This attitude does not rectify the situation or benefit the members involved or the Association in any way at all. Why resign because of someone else and miss out on the real benefits of AADS membership?

I hope this reminder of our responsibilities to each other as AADS members is taken seriously and that further incidents in this area will not occur again. In case you do not have access to the relevant constitutional clauses they are printed below for your information. Read them and follow them please.

MICK RANKIN  
EDITOR AADS INC.

7.11 Members servicing diesel fuel injection equipment shall use a job identification code incorporating service member number, month

and year of repair also (if desired) a job reference number (eg. 52/384/11857); and stamp the code in a readily visible position if possible on each job done by them and affix at least one (1) lead seal using sealing pliers as supplied by the Association.

7.12 Any service member who is requested to service equipment that was recently serviced by another service member and is not operating to the satisfaction of the equipments owner, shall contact and fully discuss the matter of warranty or otherwise with the service member concerned and shall not denigrate or make any adverse comments on his fellow's workmanship.

## AADS Executive Committee

President .....Stuart Walton  
Vice President F.I.E .....Kevin Cripps  
Vice President T/C .....Bert Sievers  
Treasurer .....Doug Riley  
Secretary .....Don Holgate  
Executive Officer .....Lance Hosking

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## **PRESIDENT'S REPORT**

I would like to start my report by saying a big thankyou to all members who attended our recent Sydney convention. In particular, your attendance at the A.G.M. and the support demonstrated provided the driving force for those on the committee to work harder and develop further our great association.

Some very significant decisions were taken at the A.G.M., decisions that will allow us to develop in a more cohesive and cost effective manner. For those unable to attend the meeting an extract has been forwarded to members with their subscriptions outlining the changes agreed to.

Already, since March a very useful meeting has been held with T.A.F.E., major OEM's and our now combined T.E.C. committee with a view to providing more meaningful and credible training. The T.E.C. committee chairman will report in more detail.

Preparations are well under way for the Melbourne convention. Based on the unprecedented enthusiasm from the Victorian Branch and their desire to be involved in the conceptual work, you had better make it to Melbourne next March, it will be a ripper. Don't forget, it is a fully tax deductible expense as are your membership fees.

Members, thank you again for allowing me to serve another year as your President. Significant goals have been set for all committees this year so please support the programmes being developed and benefit from them.

S.N. Walton  
PRESIDENT AADS INC.

## **TREASURERS REPORT**

All members should have received their statement of accounts by now and I hope that the trend of the last few years continue in that all accounts will be in early.

Members will note the new \$100 levy fee is now included with the annual membership fees.

Lance and Mary have balanced off the books for the convention in Sydney and a nett profit of \$10,100 was made. This was a reflection of the excellent attendance we had at this convention. Congratulations Lance and Mary.

Rumour on the grape vine is the Victorian committee has some wonderful idea's for the format of the Melbourne convention.

Our Perth meeting will be looking at the proposed convention site for the 1996 convention. We also hope to meet with the WA branch while in Perth.

Doug Riley  
TREASURER AADS INC.

## **VICTORIAN/TASMANIAN BRANCH REPORT**

Thirty five members attended the AGM at the Carlton Social Club on Friday 29th April, 1994.

The following state executive for 1994 are:

State Chairman:.....Mick Rankin  
Vice Chairman: .....Bruce Cornell  
Secretary/Treasurer:.....Terry Brain

Mick Rankin outlined the formation of the AADS National Education and Certification Committee to be known as T.E.C.C. Mick Rankin is the Chairman, Tom Beesley is Secretary and Keith Jurgs Committee. Their first meeting was held at Batman TAFE which involved senior personnel from Batman TAFE, Bosch, Lucas/Atkins Carlyle, Nippon Denso and Australian Automotive Industry Training council which are all co-opted members of the T.E.C.C. The meeting successfully covered future planning and development of specialised training programmes, certification and manuals.

The second Victorian training programme under the scheme was held from 30th April to 2nd May at Batman TAFE with eleven personnel in attendance. The subject was VE pumps. The meeting discussed suitable meeting venues for Vic/Tas for 1994 along with subject matters which members would like to see presented at these meetings. The suggestion to hold another meeting in Tasmania will be investigated.

The world class facilities and modern features the 'World Congress Centre' has to offer all members for the forthcoming national convention to be held in Melbourne during March 1995 was explained. The meeting discussed many ideas to make the Melbourne convention interesting and informative so more members will attend.

The Vic/Tas state committee invite and urge all members to get involved in the 1995 Melbourne convention and any suggestions or advice would be most welcome. Please make the Melbourne convention a must in March 1995. We really need your support.

Terry Brain  
VIC/TAS SECRETARY/TREASURER AADS INC.

## QLD BRANCH REPORT

With a year intake of only five apprentices entering year 1, it has been necessary to combine years 1 and 2 to make the course viable.

Six pump rooms have formed a liaison with AADS/TAFE to establish a course syllabus more suited to our present day needs. As yet, TAFE have not draughted the syllabus so no meetings have been forthcoming.

All pump rooms I have spoken to have been very busy. We have not had a meeting since February as I have been trying to combine our next meeting with a TAFE syllabus meeting so we could all have more input.

Our next meeting will have a good guest speaker on a subject many members are involved with, Quality Assurance. Date and venue yet to be finalised.

A special thank you to all pump rooms who have had comments and thoughts on making our Association stronger. Remembering in these days of litigation it is critical that all pump rooms work closer together and I urge all of you to read very carefully Mick Rankin's Editorial as it really does apply to *all* of us as members.

Ted Sanders  
QLD SECRETARY/TREASURER AADS INC.

## SOUTH AUSTRALIAN REPORT

The news from South Australia is all about nice things. First, congratulations to Don and Cheryl Wilkey on becoming proud grandparents. Don was seen nervously clutching his 'yuppie' device in anticipation of a call from Cheryl while at Don Tothill's retirement presentation.

Congratulations and Happy Birthday to AADS Executive Officer Lance Hosking. On June 1st Lance reached the 'official' retirement age of 65. Lance retired as Executive Officer of the Tip-Truck Association at the beginning of May after 25 years in the position. As AADS Executive Officer we wish Lance and Mary a long and happy part-retirement.

Congratulations also go to Vic Woods and Brian Agostini in winning trips to Japan as prizes in an Australia-wide Nippondenso dealer competition. It could not happen to two nicer guys. Finally, all the best to the two Johns, Brook and Bassett, Southern Fuel Injection, who have moved to a new location.

Tom Beesley  
P.R. S.A. BRANCH AADS INC.

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## NSW BRANCH REPORT

Our AGM was attended by twenty three. Twelve workshops were represented. Five were from Sydney area, a poor attendance when you consider the number of workshops in close proximity to the venue.

Committee persons were elected as follows:

Chairman.....Ken Scott - Car Parts Pty Ltd  
V/Chairman...Barry Bulleen - Cessnock Diesel  
Sec/Treas .....Les Gordon - Repco Diesel  
Committee.....Tom Waring - Nepean Diesel  
Service  
Peter McNally - Robert Bosch (Aust.) Pty Ltd  
Del. Nat. Committee .....A.Weller-Parks Diesel

Owing to the proposed changes to our constitution regarding elections to state and national committees, it may be necessary to hold a second AGM during this year.

AADS signs not generally recognised by public. Everyone has heard of the M.T.A., MVRIC, perhaps our Association should advertise more.

Discussion was held on membership attendance, main reasons for non-attendance appears to be: recession still a major problem, working on Saturdays, meetings too formal. Committee to formulate survey to all NSW members. The results may assist us to rejuvenate members to attend future meetings.

Members should continue to study electronics to keep up with future diesel progress. More stringent emission controls come into force during 1995. Are you ready for it? Are you equipped for it?

Committee to investigate possibilities of another series of electronic courses for NSW members.

Our next meetings will be held on Saturday 6th August 1994 - Orange Ex Services Club.  
Saturday 12th November 1994 - Port Macquarie Country Comfort Motel.

Les Gordon  
NSW SECRETARY/TREASURER AADS INC.

## N.Z. BRANCH REPORT

May already, report due again, no pressure yet from the editor and everyone's back to the real world recovering from another great AADS conference.

March was the month when AADS members from New Zealand migrated to Sydney for a few days, to see what was new in the industry and meet old friends.

Plans for the New Zealand branch conference are well under way, with Lucas supplying a guest speaker from England and sponsors coming forward with their welcome support.

Our training programme has kicked off with Mike Christie from the Zexel distributors attending the training programme in Melbourne. Mike will be holding training programmes on VE, Bosch, Zexel and Nippon Denso. These dates will be advised.

Japanese importers are bringing some weird products into the country with twin spring injectors never seen before turning up, such as Hino HO6TC with Nippon Denso twin springs, Isuzu 2.8T1 Bighorn with Zexel twin springs, 1987 to 1993 Toyotas with electronic controlled injector pumps, and Nissan's with ceramic turbos. With test equipment not available for these models, there are a lot of disgruntled customers.

For those Australians looking for a break in September, come on over to our AADS conference in Auckland and enjoy yourselves. Yes, it is true that a 'Kiwi' was the first to pass the Senior Technicians Diesel Module.

\*\*Editions Note: Note true. One S.A. also passed, guess who?

TRIVIA: To have a gentlemen's agreement, first you must have two gentlemen.

To those who poach other people's workers - don't cry when it happens to you.

## MERLIN THE MAGICAL MECHANIC

A customer arrived at our workshop with a Hino bus and told of the magical powers of his mechanic to predict low compressions on No. 2 and No. 6 cylinders while the vehicle is idling.

So to remove all doubt, out came the injectors and in went the compression tester. He was just about right, it was No. 1 and No. 5 cylinder. Seeing as the owners' mechanic was the magician and not us we did not have the

magic wand to repair it. By this time the owner was running a shade late and with one more gossip stop down the motorway he was even later. Twenty minutes after he left I received a phone call from the owner and he told me of this amazing problem that had just occurred. It went something like this:

Bus owner: "Hey mate, I don't know what you did but I stopped the bus just off the motorway and now it won't start."

Mechanic (Diesel Shop): "Look mate, where are you? I can't see what's gone wrong over the phone, but I will be there shortly."

Remember, his mechanic was the magician so we had to drive to the broken down bus to diagnose the problem. As we came around the a corner and on to the straight, I spotted some debris on the side of the road and up ahead the dreaded bus. As I got out of the service vehicle the driver was waiting beside the bus and after hearing a blow by blow description from when he left the workshop until now, under the bus I went to investigate and the starting problem was plainly apparent. The low compressions must have been from bad valves and as he was running late and to make up time the old Hino had been called on for the supreme effort. Yes, a valve had dropped and a conrod had come out the side of the block and smashed the starter motor clean off its mounts. It was then I realised what the debris on the side of the motorway was.

So the moral of this story is, if you don't have a magic wand and your mechanic's name is not Merlin, be careful when working on Hino buses.

Don Holgate  
CHAIRMAN N.Z. BRANCH AADS INC.

## TECC REPORT

The use of abbreviations is unfortunately becoming a feature of our written communications. Government documents are full of them. Our industry has used abbreviations from its very beginning. BTDC, RPM, NOP, ISO, VE, DPA, EPIC and POQ to name a few. Hell, a few of us have trouble remembering our own telephone and car registration numbers. Is it a sign of a persons lack of knowledge that he/she wants to hide behind vague and sometimes indecipherable jargon?

Last year our Executive Committee decided to combine the Technical and Training Committees. At the National Committee meeting held during the Sydney Convention it was decided to rename the committee the Technical Education Certification Committee, in short, TECC. The National Committee elected three members, Mick Rankin, Chairman, Tom Beesley, Secretary and Keith Jurgs as the TECC.

As announced by AADS President Stuart Walton at the AGM, the TECC will be represented on the Management Committee of the AADS when the proposed management restructuring becomes effective. AADS policy and management decisions on service, training and certification matters should be more effective because of the proposed restructuring.

Not wanting to wait twelve months for things to start happening, TECC Chairman Mick Rankin chaired a meeting of the TECC, representatives of Bosch, Nippondenso, Lucas Products and Batman Automotive College of TAFE in Melbourne at the end of April. In all thirteen persons attended the all day meeting. Mike Christie in Melbourne to attend a 'train the trainer' course, represented the New Zealand branch of the AADS.

Topics discussed included AADS restructuring and the role each organisation can play in the proposed format, AADS/TAFE training, including 'train the trainer', training facilities such as test benches, test requirements and tooling, FIE OEM's recognition of AADS/TAFE training and certification, future training subjects, especially basic electrics, electronics, diagnostic equipment and operating procedures, advice of new FIE coming into Australia and training for same, eg., the LUCAS EPIC and DPC systems, recognition of FIE franchise holders in the members directory listing, service information and training for members not having any FIE franchise and last, but not the least, minimum workshop requirements. It was a long day, but one during which all who attended contributed much to each agenda item. The information exchanged and noted, should enable each group represented to work together with a positive and progressive attitude in meeting the future needs of the AADS membership.



*Vic. Chairman Mick Rankin addressing participants in the recent VE School at Batman College.*



*Jim Hunt receiving his certificate.*



*Jim Hunt from Canberra, Barry Wellington from QLD, Reg Donoghue from SA and Ian Leslie from N.T. TAFE teachers who took part in the staff development programme at the recent AADS VE course at Batman College.*



*Ian Leslie receiving his certificate.*



*Chairman Mick Rankin congratulating his fellow oldie John Treller on receiving his certificate while proud teacher Phil Berryman looks on.*



*Barry Wellington receiving his certificate.*



*Jim Witt, Wayne Heyward, Chris Falzon, Steve Munro, Ted Giliam, Shane Wolf, Peter East and in back, Barry Wellington, John Treller and Ian Leslie. Students who took part in the recent AADS VE Course at Batman College.*



*Reg Donoghue receiving his certificate.*



## AADS CERTIFICATION EXAMINATIONS

The AADS Certification Examinations held at the Sydney Convention were very encouraging. Sixteen members sat for a total of nineteen examinations. Overall the examination results were very good, but it would be even better to have recorded a few more passes. The feed back and the 'white board' discussion after the examinations was very positive and in the true spirit of the Association. I noticed several candidates had put together a reference manual from the 'Test your knowledge' items that appear in Diesel Torque. Congratulations to all successful candidates.

### SUCCESSFUL CANDIDATES

#### FIE Technician

Bryan Newton, Southcoast Diesel QLD. Credit Pass.

David Webster, Cooma Diesel NSW. Credit Pass.

Scott Wood, Denco Diesel NSW. Credit Pass  
Douglas Meredith, Neptune Engineering NSW. Pass.

#### Turbocharger Technician

Paul Taylor, Turbo Dynamics NSW. Pass.

#### Senior Technician, Diesel Principles Module

Warren Ellis, Warrens Diesel NSW. Pass.

Donald Holgate, Pukekohe Diesel & Turbo NZ. Pass.

Peter Pocock, TAFE College Albany W Aust. Pass.

Don Wilkey, Adelaide Fuel Injection Service Sth. Aust. Pass.

#### Senior Technician, 'V' Pumps Module

Ted Sanders, Beenleigh Diesel Qld. Pass.

It is planned to hold Certification Examinations simultaneously in all States and New Zealand during September. You will be advised through your State Branches when the date and other detail has been finalised.

## FEAR OF SUCCESS

From the book, Psycho Golf;

'If a child has a toy and gives it to another child, they are both deprived of it themselves. But, if you have a piece of technical knowledge which you can share with someone else, that other person will be enriched without you becoming any poorer. In

this way, the art of sharing enriches both parties.'

Tom Beesley  
SECRETARY TECC

## OTHER TECHNICAL MATTERS

Outside of the Technical Forum, but during the Convention, two matters which I believe are significant were drawn to my attention. The first involved the use of a Hartridge 650 test bench for the testing of the FIE, and of the same being acceptable in an application for Quality Assurance Certification. The second matter involved two unrelated situations in which new parts were not up to standard according to end users and repair shops. Space will not permit a detailed reply in this edition of Diesel Torque, but I make the following comments.

It is important to check the FIE manufacturers fuel pump test requirements. In the case of the Hartridge 650 test bench, it would not be a very suitable piece of test equipment for most of the types of fuel pumps of today, except to perhaps run a cambox to test some single cylinder fuel pumps. For Quality Assurance Certification, a definite no. Read carefully the Lucas Rotary and P pump explanatory notes (ISO conditions). The information in those two publications give very good guide lines as to the dollar value of particular test benches with respect to meeting an industry quality repair standard. When considering purchasing test benches that come on to the market, 'Caveat Emptor', let the buyer beware.

As regards new parts not performing after short amount of service, I must say some members should begin to support suppliers and manufacturers, and also to consider the ramifications of involving fellow members. Frankly, the AADS can do without members who do not or will not support other AADS members by at least making a phone call and finding out the facts when confronted with a complaint about another member. Look to your motives morally, and as a member of the AADS. If members were to identify on the fuel pump their repair standard according to Association rules then better member/member and member/customer relationships will follow.

A plunger, delivery valve and rotary pump parts that have gone from having a shiny,

polished finish when new, to one which is dull and scored is, in nearly every case not the fault of the manufacturer of the part or for that matter another repairer. Obviously defective new or original part/s should not be refitted to a fuel pump or injector. If they are, someone stands a good chance of being accused of not knowing what they are doing, or something more unfavourable. A defective or unacceptable part cannot perform correctly on the test bench, just as it will not allow acceptable engine performance.

The culprit for the appearance of the disputed parts will most certainly be contaminated or wrong fuel and certainly not faulty manufacture. And don't overlook the condition of the fluid in your test bench. Look to the filtration system on the engine or vehicle, particularly the fuel tank, is the filtration system the best for the operating conditions, ask about fuel handling and storage, if possible collect a sample of fuel from the pump, are you sure the fuel filter has been correctly plumbed? The questions go on.

From experience it is tough, as one does not like the possibility of offending and loosing customers, but do the right thing by yourself, fellow members of the AADS, manufacturers and parts suppliers. For those who heard Mike Raynes keynote address at the Adelaide Convention, do you remember Mike's chart of where do you stand with respect to quality v/s price?

Tom Beesley  
June 1994

## **LOW SULPHUR DIESEL-FUEL**

Bosch supports the introduction of environmentally friendly fuels, eg. fuels with low sulphur content and reduced aromatics. However in order to assure trouble-free operation of our fuel injection equipment, the new fuels must have similar characteristics when compared with currently available fuels. Lubricating characteristics and chemical reactions of sealing and gasket materials can especially be affected by these new fuels.

Bosch experience with low sulphur fuels is comparable to experiments conducted in Sweden. There, fuels with low sulphur content of <10 or <50 ppm are being used (Common fuels contain a sulphur content of approx. 2,000 ppm). The aromatics content of these fuels is <5% or <10%.

## **Known results with low sulphur fuels from Sweden.**

Fuels with low sulphur content and reduced aromatics have a decreased density as compared to commonly known fuels. With the use of these new fuels, less mass is injected as the injection system measures the fuel by volume. Therefore a power reduction of up to 7% may be experienced relative to our current fuels.

Extensive endurance testing has indicated that the use of these Swedish fuels with their low sulphur content and without lube additives leads to wear problems on Bosch distributor type injection pumps. In the meantime however, all critical fuels used in Sweden have received lubrication additives and since then no further wear problems have been observed in the field.

The use on non-additive fuels with Inline-type pump assemblies have not yet shown any wear problems.

### **Conclusions:**

- \* The Bosch distributor type pump is fuel lubricated and therefore very sensitive to the lubricating characteristics of fuels. This is the reason why all tests were conducted with the distributor type pump.
- \* Specific wear problems with the Inline type pumps and injection nozzles are not yet known.
- \* Fuels with minimal lubricating characteristics can cause unacceptable wear in distributor type pumps.

### **Definition of lubricating characteristics**

Currently standardised simulation tests which are representative for wear do not exist. However, the results of a series of simulation test and endurance runs correlate, partially, very well with one another.

Bosch is working intensely with international committees to define simulation tests which correlate with lubricating characteristics. These simulation tests should then become part of published fuel standards. (Europe - PF26 / USA-ISO TC22/SC7/WG6).

The usual physical or chemical specifications of fuels are insufficient to describe the lubricating characteristics of the fuel.

Decisive for the lubricating characteristics is the base product from which the fuel is manufactured. Depending on the sulphur content of the base product, more or less hydro processing will be required. During this hydro process, the essential components responsible for the lubricating characteristics are removed from the fuel.

Available test results of experiments show clearly that the lubrication can be sufficiently restored with the appropriate additives.

#### **Information from the USA.**

Reports from the USA indicate that with the introduction of low sulphur and low aromatics fuels, various problems with respect to leaks on fuel injection equipment have occurred. Eg. O-rings not made from "viton" can harden, shrink, become brittle and can cause fuel leaks (for example nitrile rubber O-rings). This type of failure did not occur in Sweden - even with low aromatic fuel. At this point in time, a clear connection between the type of failure and the cause is not known at Bosch.

#### **Testing and release of fuels.**

New fuels must be tested in the vehicles. Bench testing alone does not allow adequate conclusions as to the suitability in the field.

The release of fuel and their additives is the sole responsibility of the fuel manufacturers. Bosch can only be supportive in this process. Use of fuels with insufficient lubrication characteristics or effects on sealing materials can not be warranted by Bosch.

#### **After market additives/"Lubrication improver"**

Bosch does not recommend the use of after market fuel additives. However, until the new fuels reflect a satisfactory lubrication characteristic, Bosch - in principle - agrees to the use of selected after market additives if recommended by our OEM engine manufacturer.

Norbert Schueller  
TECHNICAL OFFICER - SERVICE  
ROBERT BOSCH (AUST) P/L.

### **JOSEPH LUCAS, PRINCE OF DARKNESS**

During the Petroject presentation at the recent AADS Convention in Sydney, John Bateman said, "when you see smoke coming from an electrical circuit....." This reminded of a story

written many years ago about what it is that really flows through the wires of an auto-electrical circuit.

The following slogan was seen printed on a T-shirt of a fellow at a motor show. "*The reason why the Poms drink warm beer is that their fridges are made by Lucas...*" The fellow was asked as to its origin and replied that it was one of many slogans that owners of old British motor bikes had about Lucas. The best he said was, "JOSEPH LUCAS, PRINCE of DARKNESS," and was really quite unfair as it displayed a basic ignorance of the simple principles of motor vehicle electrics.

Forget all the nonsense about magnetic fields and the flow of electrons along conductors, for it is just that, ... nonsense. A myth put about by auto-electricians to support their lavish life style at your expense. The reality is smoke! When you think about it, it all becomes startlingly obvious - smoke makes all things electrical function. If the smoke escapes, the component stops working. For example, the last time you had to grovel under your car to replace the starter motor, didn't it start smoking before it ceased working? Of course. The wiring loom in your car carries smoke from one component to another, pumped around the system by the alternator, and when a wire springs a leak, it lets out all the smoke and everything stops. The starter motor needs lots of smoke to work properly and so it has a very thick wire going to it.

The battery actually stores up large quantities of smoke dissolved in the battery acid, which is why they were called accumulators, until it became apparent that we home mechanics would twig to the secret. Naturally, if you try to dissolve too much smoke in your battery it will escape through those little holes in the top. This is why the new fangled batteries with sealed tops explode when they get too much smoke in them.

But, with regard to Joseph Lucas and his sullied reputation - why is he so maligned? Why are Lucas components more likely to leak smoke than Bosch or Marelli? Because it is British and British things always leak. British engines leak oil; British sports cars leak rain; British hydrolastic units leak fluid and British electrical components leak smoke!

Should teachers of auto-electrics change some of their lesson notes?

Tom Beesley June 1994

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## LETTER TO THE EDITOR

Dear Sir,

In response to the editorial in the last issue of 'Diesel Torque', I would like to respond to the challenge put in the final paragraph, especially section (C) with regard to the employing of apprentices by the FIE industry.

I am well aware that we all need technicians in the future and that we must be doing something about it now.

I have over the years started apprentices and maybe they were the 'wrong ones', maybe I was too short with them, maybe there were a lot of reasons, but it didn't work out. I then had a third year apprentice motor mechanic (who was of more mature years - 23) he was not cut out to be either in the FIE field or even motor mechanics. I then employed an ex NSW railways trained fitter and turner (no laughter please) and while he knew something about diesels and less about fuel injection systems, he was keen and eager to learn a new trade. He was (and is) aware of close tolerances, the need for precision, cleanliness and he also has a desire to be successful and see the job through. At this time he is able to service the vast majority of FIE (I told him not to touch any VM pumps). He is able to work alone and manage the shop while I attend the AGM's.

The point is that I feel that people coming into a very narrow and highly specialised field such as fuel injection, really should be trained as a motor mechanic first, so that they will have an understanding about engines, especially diesels. They should know what they are, how they work, why there is a fuel system, why timing is important and why it is necessary for such meticulous care when repairing the fuel system.

There are fuel injection specialists out there who have very little knowledge about the engine and the real reasons why some things happen that are not necessarily the fault of the fuel system.

I would prefer to employ a good senior mechanic as he will learn the FIE trade very quickly and will be a top tradesman. He will be interested in the job as he has a background and is able to learn the 'other side' of the engine functions, that is the FIE.

I hope that I have made clear what I am saying, that is, I am not against apprentices, but it is much easier in a specialist trade such as ours, (and the same applies to auto electrics, steering, front suspension and

automatics) that the workman have a basic knowledge of what a diesel engine is and how it works. Then he can understand much quicker and better the FIE and why it is there what it does.

Alistair Weller.

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 1 x vacuum gauge  
 1 x pressure gauge  
 1 x Norglen regulator and two pressure gauges  
 1 x hydrometer battery tester BB4C  
 1 x cooling system tester SUT-262  
 1 x compression tester (TOYOTA) 0992-00023  
 10 x Lucas parts trays

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## CONVENTION TECHNICAL FORUM

Chaired by Don Wilkey the Technical Forum covered a wide range of topics and problems. As usual slow to begin, things started to move with some prodding from "Chief Whip" Kevin Cripps.

Discussed/debated were the advantages of **sonic cleaning**, problems caused by **edge type filters** and the inability to do much other than replace the complete unit. Many performance and smoke problems are caused by **incorrect engine temperature** and **blocked air cleaners**.

The perennial question of why some FIE manufacturers have **differing standards** with respect to **test injectors**. Same answer, an **FIE manufacturer right to design** and develop his **own test equipment** to enable **his FIE** to be set to meet an engine **manufacturers requirements**. For many members the **cost** to attain the desirable test equipment requirements of **several makes** of FIE is felt to be **unrealistic**. It was pointed out that all manufacturers of **test benches** have **complied** with **ISO requirements** since about **1986**.

A question about **fuel deliveries differing** even though supposedly the **same dimensioned test pipes** are used during fuel pump testing really stirred some members into voicing an opinion. The unfortunate thing about this debate was that **no one spoke up** and said that fuel deliveries will differ on the test bench and **explain the reasons why**. After all, what are

AADS technical Forums supposed to be about! Refer to my Certification Report, "Fear of Success". The fact is, fuel deliveries can be shown to **differ**, and I think as many as **thirty five percent** of members will say they do, because they have seen it demonstrated. Maybe at **some point** in the **test procedure** a **significant difference** will not be measured, but at other points there will. **Maybe** in some cases no significant **vehicle performance difference** **will be noticed**, but this is where many could be wrong. How many operators know how well their **vehicle can perform?** Finally, what has a well known FIE manufacturer done to his test pipes to make them suitable to meet **increased hydraulic loading**, and why the earlier pipes of the **same dimensions cannot be mixed** to make up numbers?

Adding some Caster Oil to the distillate can make an engine **"run well"** according to Warren Ellis.

The problem of **cam plate breakup** can be overcome by using a roller assembly manufactured **without a bush** according to John Pathak, Rased Spaco of Italy. It is the bush which breaks up first.

A final question raised by Don Wilkey regarding fuel supply from a partially filled filter fitted to a Cummins engine was unresolved. All in all a good Forum.

Tom Beesley  
June 1994



Lads and Lassies enjoying themselves at the opening dinner of the March convention.

# HIGHLIGHTS FROM THE AADS SYDNEY

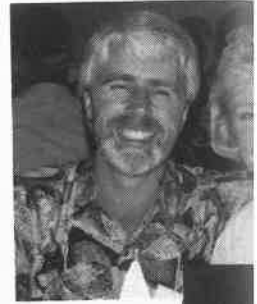


Lance and Mary Hoskins receiving Awards from President Stuart Walton for their much appreciated efforts on behalf of AADS



DSR stand at the March convention received an Honourable mention.

## FIVE LOVING COUP COMPANY AT TI



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# C. 19TH ANNUAL CONVENTION, Y 1994

ENJOYING EACH OTHERS  
MARCH CONVENTION



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JOAN**



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JAN**



*Repco Diesel NSW, winner of the AADS Presidents Shield for best exhibitor at the March Convention*



*Dynamic Turbochargers stand at the March Convention received an Honourable mention*

## CONVENTION CHAT

"According to wives, girl friends and acquaintances of people who work in the diesel fuel injection and turbocharger industry, we all stink." So said Stuart Walton in the opening remarks of his Saturday morning address.

Hello ladies! "Question, why is a ship called 'she'?" "Answer, because in calm conditions it is easy to handle, in not so calm conditions it can be very difficult." Peter Rashleigh, Nippondenso welcome speech Friday night Harbour Cruise.

"The diesel engine is an anti-social beast." Peter Madden, General Manager, Cummins Diesel.

"My goodness, I have been upstaged by this person in all his sartorial splendour." Stuart Walton commenting on how MC Michael J Rankin looked decked out in a dark dinner suit, stiff shirt, bow tie, blue cummerbund and all other trimmings.

When asked during the Saturday night dinner/dance what he thought of Australia, Herbert Andreesen, Robert Bosch, Germany, replied, "at the moment I could sell up my home in Germany and happily settle and work in Australia. I did not think that people in the fuel injection industry could be so friendly and enjoy themselves so much."

Training schools or Introduction agencies? It was a sight many senior members of the Association could not help but make a note of. Sitting at one table of the Saturday night dinner/dance up to ten younger members all really enjoying themselves and looking like great mates. These young people had all

originally met at either a Bosch or Nippondenso training school. They are hopefully the future senior members of the AADS, and all of whom will have had a start in the industry most senior members would not have had.

I understand Kevin Cripps created some kind of a record at the bar after the Saturday night dinner/dance. Also, the miniature three wheeled Singaporean transport vehicle provided some fun that probably would not have been condoned in Malaysia.

Bert Sievers looked quite a different person especially when jammed against a wall by a Hartridge test bench when it rolled out of control from a service lift during post Convention equipment removals. Bert would have made a good before and after weight-loss picture.

Who is responsible?

"Vare is Jack" "I vill kill him!" Arthur Walz a little upset and calling for Jack Philips during the shifting of Jack's Magasa test bench after the Convention.

The post Convention effort by a group of senior members in shifting two test benches and other equipment from the display area to the ground level pick-up and receive area via the service lift was highly applauded and appreciated by Hotel management. Members mostly sixty and over, with heart, back and other physical and medical problems, and constantly supervised by wives and friends put in a tremendous team effort lasting nearly one and a half hours. The effort saved the AADS Convention Committee a lot of money.

Tom Beesley May 1994



Arthur Walz and his aged staff of test bench removalists.

## 1995 MELBOURNE CONVENTION

Members should now plan for their attendance at the Association's next Annual Convention. It will be our 20th and held at the World Congress Centre, Melbourne, from Friday 17th to Sunday, 19th March, 1995.

Delegates will be accommodated within the complex at Centra on Yarra which is a 5 star hotel with room rates to suit their pockets. At the time of our Convention Melbourne will have its Casino up and running within the same building.

Already the organisers have drawn up an interesting programme, ie., for those not doing exams on the Friday, Bosch and Kevin Cripps are organising a golf day for them. Those who like good food and entertainment will not be disappointed on the Friday night, as 15 trade displays will be around the perimeter of the modern display area and delegates and guests will be well catered for within the trade display area with delicious food and drinks while viewing what the exhibitors have on show.

Those willing to still learn something about their Industry will be given the opportunity on Saturday to listen to world class speakers. The ladies will be well catered for on Saturday culminating with a gala dinner dance that evening.

As usual the Annual General Meeting will be held on Sunday morning and all members should endeavour to be in attendance and have their say for the benefit of their great Association and the Industry generally.

Mick Rankin is State Chairman and really wants to show us some real Victorian hospitality, so don't let him down and be there in March 1995.

Kindest regards to all members,

Lance Hosking, Convention Manager  
AADS Inc.

## AN INTRODUCTION TO PETRO-JECT

**PETRO-JECT** is a wholly owned Australian company specializing in engine management systems and provides the automotive and diesel service industries with distinctively helpful technology, OEM test equipment, spare parts and service chemical programmes. It is a wholesale organization supporting the service trade only and protects its customer base by refraining from retail sales.

Training schools provide engine management information and fault diagnosis procedures for increasingly complex engines and their control systems and customers have access to technical updates by personal, printed and electronic contact.

**PETRO-JECT** supplies a range of high quality equipment from some of the world's leading automotive groups such as **BEAR, BOSCH, OTC** and **FLUKE**. Our aim is to supply workshops and dealers with the equipment, chemical programmes and expertise to service today's needs and the ability to upgrade to cover tomorrow's changes. Our comprehensive National Training and Service Network will catapult professional workshops and dealers to a position of strength with the technical back-up to guarantee a competitive edge in tomorrow's marketplace.

Runnability and emission control chemical programmes from **PETROCHEMICAL PRODUCTS INC.** and **CARBON CLEAN INTERNATIONAL** are available to OEM's and the after-market service centres alike. Diesel fuel system cleaning and engine cooling system technology and products are as much a part of our function as is similar know-how in the petrol market.

Distribution is achieved by a network of international, interstate and metropolitan branches.

## BUSINESS APPOINTMENTS DAVID HAYES



**PETRO-JECT'S** continuing expansion as a speciality supply company to the automotive service industry has placed additional demands for professional interface between the company and its major suppliers, and with major

customer groups.

Mr David Hayes has been appointed to fulfil this role and brings expertise and experience to the position, which will benefit suppliers with increased distribution, and customers with superior service. Based in Melbourne, David's responsibilities will take him to all states maintaining the supplier-customer contact necessary to stay abreast of innovation, customer demand and ever-changing vehicle design.

## PROFILE: MICHAEL JOSEPH RANKIN



*I'll just give it a little tweak.*

In 1938 Australia won "THE ASHES", Herb Elliott, Rod Laver, Betty Cuthbert and MICK RANKIN were born. Mick is the elder son of Veronica and the late Stan Rankin.

Married to Jill for 34 years, he is the father of four; Joanne, Geoff, David and Christine and grandfather of four, including twins.

Mick attended the Marist Brothers' College at St. John's Hawthorn and at the age of fifteen began work with Repco serving his apprenticeship under Mr. Gordon Dangerfield, thereby setting him on the way for his future in the diesel fuel injection trade.

Mick left Repco after successfully completing his apprenticeship and opened his own business known as Knox Diesel doing what he does best - diesel fuel injection and mechanical repairs.

The name changed to Rankin Diesel when Mick moved to another factory in Bayswater. This he soon outgrew and moved into the much larger premises he is in today. His two sons are involved in the running of the workshop, whilst daughter Christine (when motherhood allows) also is a great help to her father by taking care of the office.

More recently, Mick has taken on a Petro-ject franchise which is situated next door to Rankin Diesel. He employs a staff of two, George and Craig, who are kept busy organising and running EFI training schools and parts and equipment sales.

Mick joined AADS very early, his name appears in the minutes as early as March 1977 and it would be difficult to find national minutes in which he was not involved in some way. Ever since Mick has served as Publicity Officer, Secretary, State Chairman, Diesel Torque Editor and served as President for four years. Mick attended the second convention at Broadbeach and has not missed one since. He could be seen as MC as early as the third convention when he still had black hair.

Diesel Torque was Mick's brain child which began

as a newsletter, early issues being a two page loose leaf affair. He has been involved in every issue since inception and will be shocked when he finds this in his beloved magazine. The current Diesel Torque is a credit to him.

Mick has put much effort into the training program and is largely responsible for the training courses AADS now offers. The Association recognised Mick's outstanding contribution to AADS by awarding him Life Membership which he richly deserves for his marathon efforts for the good of AADS, and like the true marathon man he is he continues on as the Editor of Diesel Torque, Victorian Chairman and Chairman of the Technical & Training Committee. Unfortunately he no longer has black hair. He certainly has contributed a lot of time and energy to ensure the Association continues to be of benefit to all.

If you happen to be Catholic, a Liberal voter and a Carlton supporter, then you have a great chance of becoming a special friend of Mick's. If not and you are still a good friend, then consider yourself privileged.

Football, athletics, squash, fishing and more recently flying are all of great importance to Mick. In younger days he managed to win quite a few trophies for the first two, while the game of squash was taken up at a later stage. He still continues to play competitively and do very well. Learning to fly was a challenge to Mick which he met head on, as he does most things, and becoming a fully licensed pilot was a great achievement for him.

Mick really does have a soft spot which is usually kept hidden, an example being the story of the Christmas Tree. Each year he is sent out, his mission is to bring home the tree and each year the family has the same problem. He brings home the tree nobody wants, the one with very few branches and just looks pathetic, not even decorating it would improve its appearance. When asked why he brings home such an awful tree he always replies, "I just felt sorry for it!" So now he is never allowed out on his own to buy the Christmas Tree - he must be accompanied by a family member!!

Mick has had a few set backs and disappointments over the years, hard times and decisions that had to be made along the way, but he always made them with the determination he still shows in the every day running of Rankin Diesel & Petro-ject.

In closing, the diesel industry Australasia wide is all the better for his efforts and like him or not, no-one can ever say that he didn't do it his way.

Keep up the good work Mick.

Michael Joseph... We are not Catholic, we hate Carlton, but we are Liberal voters...

"NEVER EVER SAY CAN'T BE DONE"

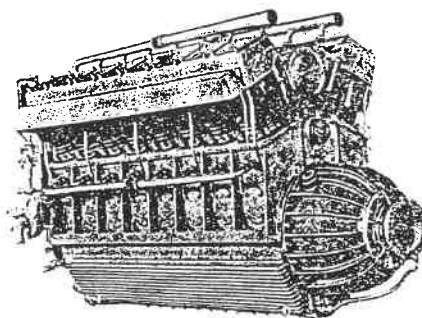
## MERCEDES-BENZ ZEPPELIN DIESEL

In arriving at the decision to abandon gas motors and adopt Diesels for the "Hindenburg" and other trans-Atlantic Zeppelins, several factors were overwhelming in favour of the Diesel. These were:

1. Elimination of fire hazard.
2. Considerably increased power requirement for a ship twice the size of the "Graf":.
3. Increased economy of the service by the use of heavy oil engines, because Diesel oil is considerably cheaper than gasoline and the fuel consumption of the Diesel motor is only about 0.396 lb. per horsepower-hour, which is considerably less than that of the gasoline motor.

Not less than three of the best-known German engine manufacturers have occupied themselves intensively with the solution of this difficult problem. The Daimler-Benz A-G was approached on this problem in 1932, and in the spring of 1934, a completely satisfactory solution was offered to the Luftschiffbau Zeppelin, so that delivery of the main engines for the new commercial ship could be effected in 1935. Daimler-Benz had the advantage of its experience with the previously built 750-horsepower, 12-cylinder airplane Diesel, type OF-2, as well as its vast practical experience during many years in the building of its well-known automotive Diesel engines for trucks, buses, and railcars on their patented, pre-combustion chamber principle.

Based on the results with an experimental motor on the testing stand, it was decided upon the construction of a V-type Diesel with two banks of 8 cylinders and with roller bearings for the connecting rods and the crankshaft. At the stage of development at the time it would not have been possible for the ever-so-much larger ship, which necessitated twice the engine power, to build a 12-cylinder motor of sufficient output without supercharging. The airship builders, however, insisted upon an engine as simple as possible without extra auxiliaries. Also, in this connection, preliminary calculations of the torsional vibration conditions showed even more favourable conditions for a 16-cylinder than for a 12-cylinder engine.



*Fig 114. Mercedes-Benz V-Type 900 Horsepower Diesel used in Hindenburg Zeppelin.*

In the final specifications of the order, a cruising output of 800-900 horsepower at fuel consumption of not more than 0.396 lb per horsepower was agreed upon. As against a cruising output of 800-900 horsepower, the engine, Fig. 114, allows a maximum output of 1200 horsepower, at which output the fuel consumption still remains below the guaranteed figure of 0.396 pound. The power-plant of the new airship, therefore, has a very large reserve power for use in an emergency.

**Frame.** The upper and lower engine casting is made of Silumin-Gamma. The crankcase bottom is provided with an ample number of cooling ribs. The crankshaft is carried in nine bearings and has counterweights. The bearing surfaces of the crankshaft are hardened. The cylinder heads are covered with a valve-gear housing, and each head has two inlet and two exhaust valves. The pistons, furnished by Elektron-Metall, Connstatt, are made of special alloy EC-124; they carry a properly shaped Niresist insert to deflect the heat.

**Lubrication System.** On account of possible inclination of the engines, two oil suction pumps are provided for the lubricating oil circulation, which pumps force the oil from the crankcase through the cooler to the service oil tank. From here, the main pump forces the oil through the filter directly in front of the motor to eight plunger pumps which serve individual bearings of the engine. An adequate control system attends to the faultless working of the entire lubrication system. The lubricating oil is carried chiefly in two 400 litre containers on each side of the ship, from which containers it can be filled into the gondola through proper connections. As replacement for unseen difficulties, there are still two lubricating oil containers in the keel of the ship.

**Fuel-Injection System.** Four Bosch fuel-oil pumps, arranged on the forward end of the engine (one for each four cylinders) are driven by the forward end of the crankshaft. These pumps inject the fuel into the pre-combustion chamber, of the Daimler-Benz type, Fig. 115, located in the centre of the water-cooled steel cylinders. A governor assures correct idling with sixteen or also with eight cylinders at sufficiently low engine speed.

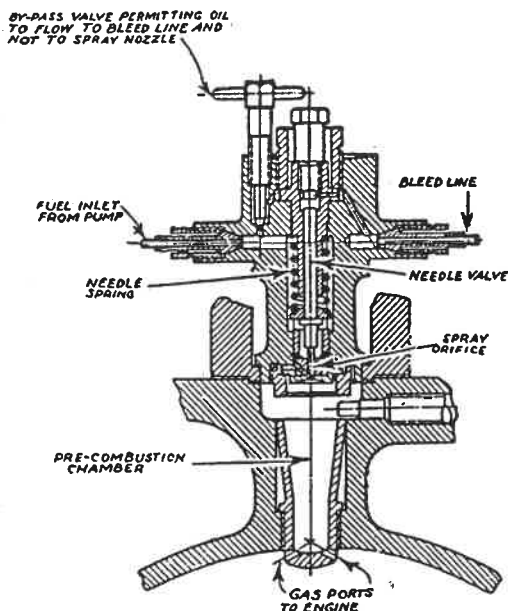


Fig. 115. Daimler-Benz Combustion Chamber

The amount of fuel for the airship, about 60 tons, required the building of large containers with a capacity of 2500 litres, whereas the containers from the previous ships were only 400 litres capacity. Gas oil containers are hung on both sides of the keel of the gang walk. Special arrangements have been made to refuel at the anchor mast whenever necessary in case of mooring in a wind. Size of connections are so planned that from the anchor mast a total amount of fuel of 60 tons can be pumped in 6 hours. Gear pumps of duraluminium pump the fuel from the main containers into the necessary side containers near the gondola.

During the acceptance tests at the works of the builders, the guaranteed fuel-oil consumption not only was attained but appreciably bettered. Over the entire working range and even beyond the cruising output of 900 horsepower, the fuel consumption remained

below 0.374 lb. per horsepower hour. This means, for the airship service, a valuable saving on quantity of fuel to be carried and a corresponding gain in the payload.

It is further very important for the airship service that the engine stands exceptionally quiet on the comparatively weak duraluminium framework of the gondolas, and that the sound of the exhaust is only weakly audible even inside the latter.

*Many thanks to Alastair Weller for this article. More on these unique diesel engines in following issues.*

## ZEXEL

In mid 1990 DIESEL KIKI decided to ignite a new era in diesel fuel injection and formally changed its corporate name to ZEXEL Corporation. The name ZEXEL is a compound of the letter "Z", for Ultimate, and the work "Excellence".

## QUOTES

"You can be young without money, but you can't be old without it"

"Building bridges is harder than building walls"

"The best cure for hypochondria is to forget about your own body and get interested in somebody else's".

"They thought lacrosse was what you find in la church".

## THE AADS 1994 THEME

Environmentalists claim that the emissions which spew from the diesel engine exhaust is contaminating the air, and they are looking at alternative fuels. This creates a challenge to all AADS service members to do the best repair work possible. Fuel pumps should be calibrated to factory specifications, injectors should be repaired and set correctly, and the turbocharger and blower assembly must function properly. This is something we can all do toward perfection.

It is a challenge the AADS FIE and Turbocharger industry must face responsibly in the coming years.

'AADS - ENVIRONMENTALLY RESPONSIBLE'

Tom Beesley  
June 1994

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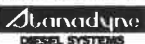
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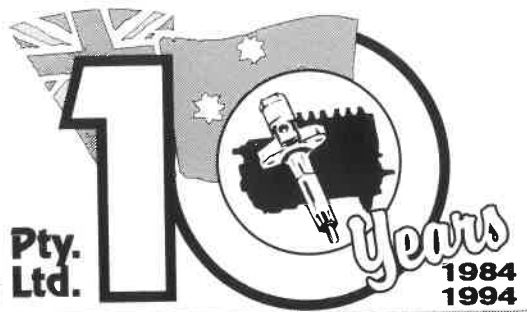
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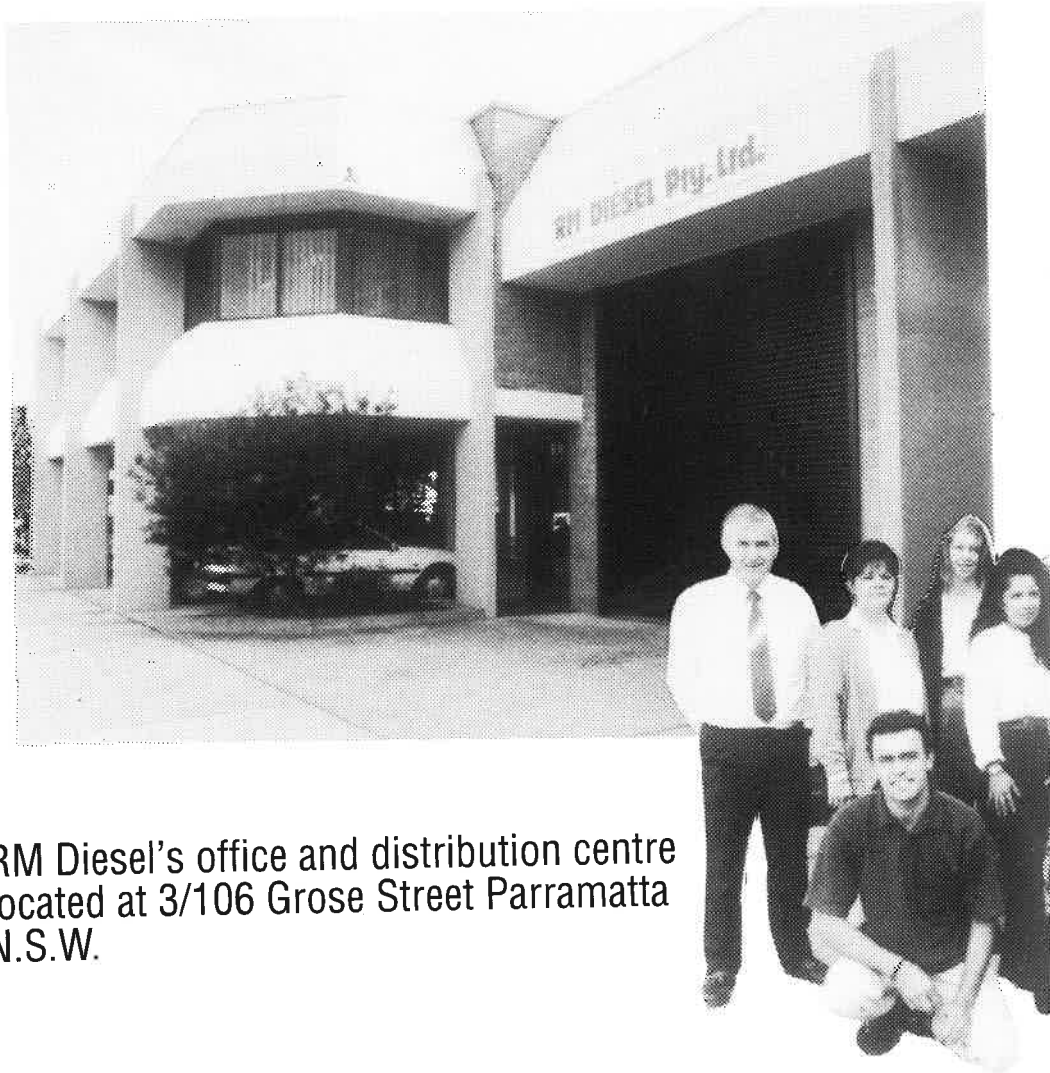
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# QUALITY OF SERVICE AND PRODUCT SUPPORT ARE THE CONTINUING OBJECTIVES OF RM DIESEL

In June of 1984 RM Diesel was established by a group of people who recognised a need for a more efficient, independent parts supplier to the Diesel Fuel Injection Industry.

The founders of RM Diesel include two honorary life members and five service members of the Association of Australasian Diesel Specialists and they have made an ongoing commitment of total support to the A.A.D.S. and its members.

Improvement to the quality of the product support available to the Diesel Fuel Injection Industry is a major objective of the company.

RM Diesel is proud of its achievements thus far and as an Australian company will continue, wherever possible to provide Australian made products to the industry.

**RM Diesel takes this opportunity to sincerely thank A.A.D.S. members who have given so much valued support during the past ten years and in return pledges continuing dedication to the ideal of honesty and integrity in all its dealings.**

**The staff at RM Diesel look forward to the pleasure of serving the A.A.D.S. service members well into the 21st century.**



## HILLARY'S MEDICAL DICTIONARY

*I recently broadcast a dramatic reading of this little list, which citizens have been faxing each other for months.*

**ARTERY:** study of paintings  
**BACTERIA:** rear entrance to cafeteria  
**BARIUM:** what doctors do when patients die  
**BOWEL:** letters like a, e, i, o, u.  
**CATSCAN:** searching for socks  
**CAUTERISE:** made eye contact with her  
**D & C:** where Washington is  
**DILATE:** live longer  
**EAR:** where you are now  
**ENEMA:** not a friend  
**FESTER:** quicker  
**GENITAL:** not Jewish  
**G.I. SERIES:** military ball game  
**IMPOTENT:** worthy of attention  
**KIDNEY:** part of a child's leg  
**LABOR PAIN:** injured at work  
**MAMMOGRAM:** telegram to yo' mama  
**MORBID:** higher offer  
**NITRATES:** cheaper than day rates  
**NODE:** realised  
**OUTPATIENT:** inpatient who fainted  
**PAP SMEAR:** fatherhood test  
**POSTOPERATIVE:** letter carrier  
**RECTUM:** dang near killed 'em  
**SEIZURE:** Roman emperor  
**TERMINAL ILLNESS:** getting sick at the airport  
**TUMOUR:** after one more  
**URINE:** opposite of you're out  
**VARICOSE:** nearby  
**VEIN:** conceited

## THE EPITAH CHOSEN FOR JOSEPH LUCAS;

*Lives of all great men remind us  
We can make our lives sublime,  
And, departing, leave behind us  
Footprints on the sands of time.*

'Look after the complaints, the compliments  
will take care of themselves'.  
'No one can get the best out of others who is  
not himself doing his best'.  
'Do the duty that lies nearest to you'.  
'If you are at fault acknowledge it; this will  
gain respect from all'.  
'Let the bank be you servant not your master'.  
'The use of the present opportunity will decide  
your future'.  
Life is not a dress rehearsal  
Tom Beesley June 1994

## OUR INDUSTRY AND THE ENVIRONMENT

The following are a few lines taken at random from the Keynote address presented by Mike Rayne at the 1993 Adelaide Convention.

"There will be a commitment to global environment quality"

"A bowing to International Standards"

"It is diesel V's alternative fuels with their no guarantee for a cleaner environment and a reduction of global warming"

"It is our responsibility not to let diesel engine exhaust emissions promote environmental and global pollution"

"The future will see the development and application of high tech, full authority fuel pumps being fitted to diesel engines"

"It is possible you won't live to regret it"

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emissions are released  
from the home.**

Tom Beesley May 1994

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## FORD TRANSIT

In early May, a shipment of Ford Transit vans powered by the Ford 2.5 litre Diesel engine arrived in Australia. This news sent a few shock waves in the direction of the Lucas Products Division of Atkins Carlyle as some information from Europe and New Zealand said the Lucas EPIC fuel system is fitted to the Ford 2.5 litre diesel Transit van.

Ford Australia when first contacted were not sure, saying it could be either the Lucas or Bosch system.

The latest information received by Wynne Matthews, Marketing Manager Lucas Products Aust., is that the Transit vans were fitted with the normally aspirated diesel engine with a Bosch VE fuel system. The more powerful turbocharged version is apparently fitted with the Lucas EPIC fuel system, but there are no immediate plans for FORD to bring this version into Australia.

Wynne was naturally a little disappointed.

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Any vehicle that is stopped by the authorities would have an under the bonnet inspection for deliberately adjusted or disabled smog control devices. Further traditional emission control tests can also be carried out on the 'polluter'.

Tom Beesley June 1994



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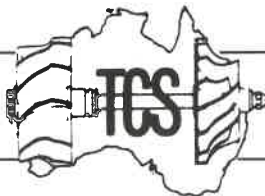
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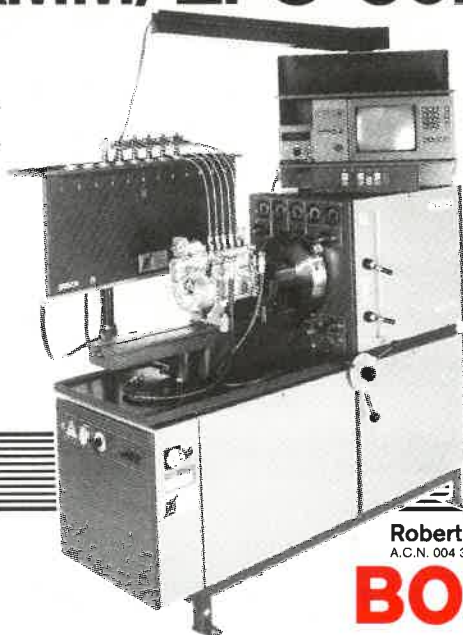
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