



Servicing and Maintenance of New Generation Light Passenger Diesel Vehicles in Australia



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Executive Summary

The purpose of this Fellowship was to address skill deficiencies and to advise the Federal Government, the Automotive Industry and automotive training providers on the need to implement training modules into the Automotive Training Package that will address the technical needs of apprentices and technicians in the repair and maintenance of Common Rail Diesel engines.

This report covers the issues raised in the repair and maintenance of Common Rail Diesel as experienced by manufacturers, training providers, repair outlets and technicians in Britain and how those issues can be addressed here in Australia, through the up-skilling of apprentices and technicians. The scope of the report is focused on the identification of the needs to up-skill light vehicle technicians and apprentices, in one of the new technologies that are becoming mainstream in light vehicle propulsion systems.

With more similarities to petrol fuel injection systems than the usual mechanical diesel fuel system, Common Rail Diesel needs a new skills set to deal with extreme injection pressures, multi injection cycles and multiple ancillary emissions systems.

The rapid growth of diesel powered light passenger vehicles in Australia associated with a lack of dedicated training pathways has resulted in a significant skills deficiency. If Australia fails to enhance skills and refine processes and procedures, substantial damage could be caused to power plants and in some cases total destruction of the engine.

This training deficiency is already leading to vehicle dealers sending diesel related problems to 'diesel specialists'. With the Automotive Repair Industry struggling to retain staff and vehicle electronic technologies increasing with every new model release, this new light vehicle technology just adds more pressure to an already struggling repair industry.

During Harding's Fellowship study tour of Britain, the information that was highlighted included the following:

- Common Rail Diesel (CRD) powered vehicles comprise a major proportion of new car sales in Europe.
- Common Rail Diesel (CRD) requires a special set of skills to carry out repairs and maintenance.
- Common Rail Diesel (CRD) has unique problems that require methodical diagnosis for cost effective repairs.
- Fuel contamination is a common problem and can cause thousands of dollars worth of damage.
- Automotive training delivery needs more support from Government and industry to keep up with the rapid change of technology now being fitted to vehicles.

Another area that also needs addressing is customer awareness of how 'high-tech' vehicles have become and that the humble motor car is no longer a purely mechanical vehicle, but a sophisticated multi-computer control device, with anything up to sixty on-board computers. These computers control every aspect of the car from the engine and transmission, through to brakes and steering, and even the glove box light.

Executive Summary

The need for all this computer technology has arisen due to increased safety requirements and a global need to reduce vehicle emissions. Cars have not only increased in technology, but also in weight and power output and with little or no increase in fuel consumption. Even the cheapest car on the market has electric windows, central locking, air bags and anti-locking brakes.

Harding has been involved in the Automotive Repair Industry for the last thirty years and has been actively involved in automotive training for the last seven years. Harding still observes apprentices coming into the trade believing that they will be rebuilding engines, gearboxes and axles, when in reality the job consists of servicing, parts replacement, diagnosis and electrical related problems.

Automotive technology is changing so fast that unless there is active support from the Federal Government, the Automotive Industry and training providers ability to address these skill deficiencies will diminish and the general public will lose confidence in high-tech, low emission vehicles.

Passenger diesel vehicles are gaining popularity in Europe with their ability to deliver drivability and performance equal to their petrol counterparts, but with significantly lower emissions and fuel consumption. It is currently estimated that approximately half of new cars sold in Europe are diesel powered, with diesel sales exceeding 70% of new car sales in some countries.

Significant advances in diesel performance and rising fuel costs has prompted most Australian automotive suppliers to introduce diesel variants into the Australian market. These new generational diesel motors require particular skill sets and resources to service and maintain.

This report urges a unilateral approach by Government, industry and educational bodies to invest in the training of apprentices in these new diesel technologies and to prepare for the introduction of future vehicles powered by petrol alternatives into the Australian market.

Strong market demands in Australia for diesel cars are clearly indicating consumer driven demand for these vehicles. Urgent changes to the training programs of apprentices need to prepare future technicians who may be servicing and maintaining a high proportion of diesel cars in their future roles. Within today's context of environmental and sustainability concerns, it is essential that Australia address this issue and ensure that we become not only proficient, but leaders in this field.