Technical Short Courses 2012

VACC, in conjunction with Bosch, is pleased to offer its members these exciting training opportunities.

AUTOMOTIVE ELECTRICS/ELECTRONICS

Electronic Battery Management

The charging systems in many vehicles on our roads are now no longer a stand-alone electrical system. As seen in various vehicles, including the VE series Commodore, we need to move towards electronically managing the charging system in order to support the high current demands and changing battery design.

This course will give the participant a detailed insight into:

- Vehicle electrical and charging fundamental
- Alternator and regulator types and evolution
- Alternator interfaces and control signals (DFM etc)
- Power management systems and strategies
- Battery condition sensing systems
- Practical on-vehicle testing and diagnosis procedures

Date: Wednesday, 8 August 2012
Time: 8:30 am – 5 pm
Venue: Robert Bosch Australia, Clayton
Fee: $295 (members) or $354 (non-members)

Oscilloscope Waveform Interpretation

Oscilloscopes are now more than ever an essential piece of workshop diagnostic equipment. This has become the only tool to accurately and efficiently diagnose modern systems and components.

This course is designed for all technician levels and provides a thorough look into:

- Oscilloscope variants
- Vehicle connection and oscilloscope display settings
- Basic electrical principles
- Waveform interpretation and analysis
- Recognising typical defective signals
- Practical testing of vehicle circuits (voltage drop and sensor measurement)
- A selection of fault traces is provided as reference.

Whether a vehicle problem is highlighted by a scan tool, a technician's knowledge or past experience, further testing is always required to determine where the fault actually lies. The advantage of using an oscilloscope over conventional tools, even when testing basic circuits, is often overlooked.

Date: 16 & 17 October 2012 (2 days)
Time: 8:30 am – 5 pm
Venue: Robert Bosch Australia, Cnr Centre & McNaughton Roads, Clayton
Fee: $550 (members) or $660 (non-members)

ENGINE MANAGEMENT SYSTEMS

Sensor Diagnosis

Sensors play a critical role in all automotive electronic control systems. The number of sensors used today is continuously increasing with dozens of sensors integrated into the various control systems, especially in non-traditional applications such as common rail diesel vehicles.

On successful completion, participants will be able to:

- Understand the underlying theory behind sensor diagnosis operation.
- Accurately, efficiently and confidently test and diagnose various sensors.

Date: Thursday, 1 March 2012
Time: 8:30 am – 5 pm
Venue: Robert Bosch Australia, Cnr Centre & McNaughton Roads, Clayton
Fee: $295 (members) or $354 (non-members)

Gasoline Direct Injection

The growth of Gasoline Direct Injection (GDI) systems in our market has increased dramatically in recent times. This course provides a detailed description of the operation of Bosch MED 7/9 GDI family systems as well as select non-Bosch GDI systems and is an essential addition to the knowledge base of all workshop technicians.

Participants will take an in-depth look at:

- Basic design and operation of the key components,
- Control unit functions and their interaction in the complete system
- Mixture preparation modes and emissions control strategies
- System settings and servicing possibilities
- Diagnostic procedures using Scan tools (KTS) and Oscilloscopes (FSA)
- Use and application of special servicing tools

Date: Wednesday, 2 May 2012
Time: 8:30 am – 5 pm
Venue: Robert Bosch Australia, Clayton
Fee: $295 (members) or $354 (non-members)

BOSCH

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Enrolments and information: vaccsdc.com.au or 9829 1140

On Board Diagnostics

On board diagnostics are an integral part of all modern vehicles, both petrol and diesel. A clear understanding of these systems is essential for diagnosis of vehicles and efficient use of scan tools.

Topics include:

- Vehicle multiplexing structures
- Communication networks (CAN, ISO and SAE)
- Detailed investigation of OBD and OBII systems
- Use of scan tools (KTS and others) for improved fault diagnosis.

Date: Thursday, 14 June 2012
Time: 8:30 am – 5 pm
Venue: Robert Bosch Australia, Clayton
Fee: $295 (members) or $354 (non-members)

Ignition System Diagnosis

Thorough knowledge of the advancements in ignition system technology and components is essential for efficient diagnosis and repair of modern vehicles.

The objectives of this training include:

- Re-enforce the operating principles of ignition systems including;
  - computerised 3D-mapped ignition
  - single and double-spark distributorless ignition
  - cylinder selective knock control engine misfire detection.
- Diagnosis of various types of ignition systems and components including,
  - rotational speed and position sensors
  - ignition module variants
  - ignition coil selection

Effective use of the oscilloscope to diagnose various types of ignition systems & components

Date: Wednesday, 1 August 2012
Time: 8:30 am – 5 pm
Venue: Robert Bosch Australia, Clayton
Fee: $295 (members) or $354 (non-members)

Exhaust Gas Analysis

Regardless of the fuel type Diesel, Gasoline or LPG, an engine's exhaust gas composition gives valuable information about its mixture composition, combustion efficiency, tuning status and even mechanical condition. The aim of the Exhaust Gas Analysis course is to equip participants with and understanding of and engine's exhaust gas composition, it's analysis and how this knowledge provides additional support when fault finding.

This course provides an in-depth look into:

- The combustion process and its by-products
- Engine design factors effecting emissions
- Emission control systems
- Catalytic converter construction, effects and diagnosis
- Government standards (ADR and Euro standards)
- Effective use of gas analysers, opacimeters (Diesel smoke meter) and lambda meters
- Correct interpretation of exhaust gas readings and their value in vehicle diagnosis

Date: Wednesday, 12 September 2012
Time: 8:30 am – 5 pm
Venue: Robert Bosch Australia, Clayton
Fee: $295 (members) or $354 (non-members)

DIESEL SYSTEMS

Common Rail System Diagnosis

This course is aimed at technicians that perform repair work on vehicles equipped with common rail diesel systems. Its objective is to provide participants with an in-depth understanding of the mechanisms behind the combustion process exhaust emissions and learn how to diagnose electrical and fuel system faults relating to CRD.

Topics include:

- Construction, operation and diagnosis of Common Rail System, and components, as fitted to a modern day diesel engine
- Understanding the principals behind the combustion process and exhaust emissions
- Diagnostics of the electrical and fuel system faults relating to the Common Rail System
- Diagnostics of the system using the KTS scan tool.

Date: 26 & 27 March 2012 (2 days)
Time: 8:30 am – 5 pm
Venue: Robert Bosch Australia, Clayton
Fee: $550 (members) or $660 (non-members)

Common Rail Diesel Systems

This course will provide valuable insight into the technology, operation and diagnosis of Common Rail Diesel Systems that are installed in various passenger and light commercial vehicles found on our roads since the late 1990's.

Course topics include:

- Diesel operating principles, combustion processes and hydraulic principles
- Piezo Injectors, design types and function
- Variable Geometry Turbochargers
- Common Rail specific sensor and actuator functions
- Modern emissions reduction technologies including
- DPF - Diesel Particulate Filters
- SCR - Selective Catalytic Reduction (Ad-Blue)
- DOC - Diesel Oxidisation Converter
- EGR methods

Date: Wednesday, 15 August 2012
Time: 8:30 am – 5 pm
Venue: Robert Bosch Australia, Clayton
Fee: $295 (members) or $354 (non-members)

REGIONAL TECHNICAL PRESENTATION

Electronic Stability Control (ESP)

You are invited to the VACC Bosch Evening Presentation, a short course and dinner event, designed and delivered specifically for our members. Electronic stability control systems (ESP®) are now standard equipment in the majority of vehicles on our roads. This technical presentation will provide attendees with an overview of Bosch ESP® system history & evolution and system and component operation including wheel speed sensors, yaw rate sensors, steering angle sensors and common faults.

The advantages:

- It's delivered after hours, in a convenient location, in your city
- Your business receives immediate return for a small investment
- It's to the point and delivers you all the important information

The cost is inclusive of all materials and dinner is included!

Date: Geelong - Thursday, 12 April 2012
Wodonga – Tuesday, 22 May 2012
Ballarat – Tuesday, 28 August 2012
Warnambool – Tuesday, 23 October 2012
Mildura – Thursday, 15 November 2012
Time: 6 pm – 9 pm
Fee: $150 (members) or $170 (non-members)