

Future Workshop

Issue 1 • February 2009

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BOSCH
Invented for life

The NEW Bosch KTS 340: Simple Diagnosis at your fingertips

The most important tool in your workshop is information. Now you can access it easier, faster and in more detail than ever before with the new Bosch KTS 340 diagnostic tool.

Compact, comprehensive and mobile, the Bosch KTS 340 is the latest addition to the KTS series of diagnostic testers, designed specifically for mobile use. The KTS 340 enables the workshop to have everything needed for diagnosis, troubleshooting, maintenance and service simply at the touch of a button.

With the Bosch KTS 340 frequently used information such as, vehicle data, diagnostic plug installation, or maintenance information can be accessed with one touch. The 8.4" touch screen makes it simpler to switch between the applications.

Equipped with WLAN, the KTS 340 makes it possible to print test results, allowing access to older vehicle information that may be saved on a workshop PC.

The totally mobile unit operates without a mains connection, using integrated AA batteries.

In developing the KTS 340 Bosch have also modified the ESI[tronic] software, making it much easier to use. All the information software required for troubleshooting, maintenance and service work is incorporated in the device.

An integrated two-channel multimeter enables comprehensive resistance, diode, voltage and current measurements. CAS[plus], included in the ESI[tronic] software, links the fault-finding instructions to the diagnostics, guiding the mechanic through test steps and providing all the fault information and diagnostics functions needed for repair.



The Bosch KTS 340

A new Technical Service Bulletin (TSB) is also included in the KTS 340 package, providing rapid access to common vehicle faults, symptoms classified by systems groups (such as ABS, airbag, engine management, etc.), a clear description of the cause of the problem and validated repair tips and/or solutions.

All these steps are supported by diagrams, making every step even simpler to follow. The KTS 340 with these clear, intuitive operation elements and integrated measuring technology is therefore more powerful, easier to use and better able to support the demands of today's workshops.

When you buy a Bosch KTS 340 you are also provided with software updates, technical training and a product support hotline.

FIND OUT MORE ABOUT DIAGNOSTIC SCAN TOOLS ON PAGE 5.

Contents and Contacts

- P2. • Diesel Vehicle News
• Bosch Diesel History
- P3. • Tech Tips and Tricks
- Fuel Pump Failures
• Tuned for Profit
- Bosch Spark Plugs
- P4. • Invented For Life
- Bosch Start/Stop Technology
- Hybrid Development
- P5. • Diagnostics
- What Diagnostic Tools Do I Need?
- Today's Workshop
- P6. • Bosch Car Service
• Qik Tips
- Oxygen Sensors
- P7. • Bosch Market Updates
• In The Pits
- SBR Competition
- Drive Belt catalogue release

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Customer Service: 1300 30 70 40

Bosch Start/Stop Technology in the new Fiat 500

With the current global economic crisis, fluctuating fuel prices, ever stricter emission limits, and the constant strive to reduce CO₂ emissions, the demand for new technologies with all these assets is increasing.

The Bosch Smart Electronic Start/Stop System is just one innovation now in production, providing a cost-effective way of conserving resources and protecting the environment.

The Bosch Start/Stop System automatically stops the engine when the vehicle is stationary, for example at traffic lights. The engine is restarted as soon as the driver puts the vehicle back into gear.

Maximum fuel savings are achieved on congested city streets, where savings of up to

15 percent can be achieved. CO₂ emissions are obviously reduced given the fact that no fuel is consumed when the car comes to a standstill and therefore no CO₂ is emitted.

More and more models of cars are hitting the road with Bosch Start/Stop technology. As of December 2008, the new Fiat 500 is the first Fiat model to feature a Start/Stop system.

Bosch has been manufacturing Start/Stop technology since 2007, and has already delivered more than 500,000 starters, to various models of BMW and Mini vehicles.

In fitting the Start/Stop System in the Fiat 500, Bosch has made a number of modifications. The service life of the powerful electric starter motor has been



Fiat 500

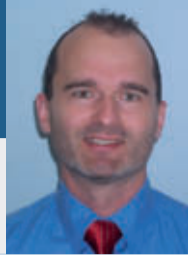
adapted for a greater number of starts, and enhanced meshing mechanics guarantee the engine not only runs quieter, but also ensures safe, fast and quiet starts.

Bosch also supplies ECU's for the Fiat 500, including the software used to analyse all the sen-

sor data to stop and start the engine.

In the Fiat 500, the Start/Stop System will be available in combination with the Dualogic automated manual transmission and a 1.2 litre engine. Fiat plans to install the system in other models later this year.

Editorial



Welcome to the first issue of *Future Workshop*. Over the past 12 months we've been receiving feedback from many workshops, on the ways in which we can be of assistance to you and your businesses.

Being able to access practical and up-to-date product, market and business information is one of the most essential tools every business needs.

You are all part of the Bosch family and we would like the opportunity to share with you the knowledge and information that we have gathered over many years in the automotive business.

So with this in mind, we have created this publication, *Future Workshop*, as a way of sharing useful technical tips, new product information and opportunities for you to increase profits in your business.

In this issue the launch of the new KTS 340, the powerful yet simple to use addition to the Bosch KTS range of Diagnostics scan tools, is the big news on the Diagnostics front.

We've included profit opportunities for your business with the Bosch Spark Plug range and practical, technical information and tips regarding oxygen sensors, fuel pumps and diagnostics. Other interesting information also included in this first issue is new products news, technology updates and current market trends and information.

Finally, don't miss the latest Motorsport News and your chance to win one of 10 caps signed by SBR driver Shane Van Gisbergen.

We wish you and your business all the best in 2009. Happy reading!

Rolf Schillinger
Marketing Manager
Automotive Aftermarket

The next issue of *Future Workshop* will be published in May 2009.

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Industry News

Diesel Vehicle News in Australia

For the last two years, the share of diesel vehicles in the global markets has increased significantly. Consumers are slowly getting used to the fact that smelly and noisy diesel vehicles are a thing of the past. The performance of today's diesel passenger vehicles is exceptional, they are very economical and not to mention fun to drive.

In the Australian market approximately 3% of all registered passenger vehicles are diesel powered. This figure significantly lags behind the rest of the world, especially Europe, where approximately 50% of new passenger vehicles are diesel powered. However more and more diesel powered vehicles are appearing on our roads.

Looking at the end of year 2008 vehicle sales figures released by the FCAI, sales of diesel vehicles for the year jumped significantly. Diesel vehicle sales were up 17% on 2007 figures, despite the fact that overall vehicle sales were down 3.6%. In particular, 2008 sales of diesel passenger vehicles rose by 15%, compared to the December 2007 figure.

2009 looks set to see a number of new diesel passenger vehicles enter our market.

The first ever diesel-powered Porsche will be hitting our market this year. April will see the arrival of the Porsche Cayenne diesel engine model, six months earlier than originally expected, apparently due to strong enquiries for a diesel engine option from local customers. Fuel consumption of the Cayenne Diesel easily outperforms the petrol models, with the average figure of 9.3 litres per 100km, compared with 12.9 litres for the V6 model and 14.9 litres for the V8.

The 2009 diesel version of the Mini Cooper is also set to be introduced into our market, ready for sale in June. The Mini Cooper's fuel consumption of just 3.9 litres per 100km will make it the most fuel efficient

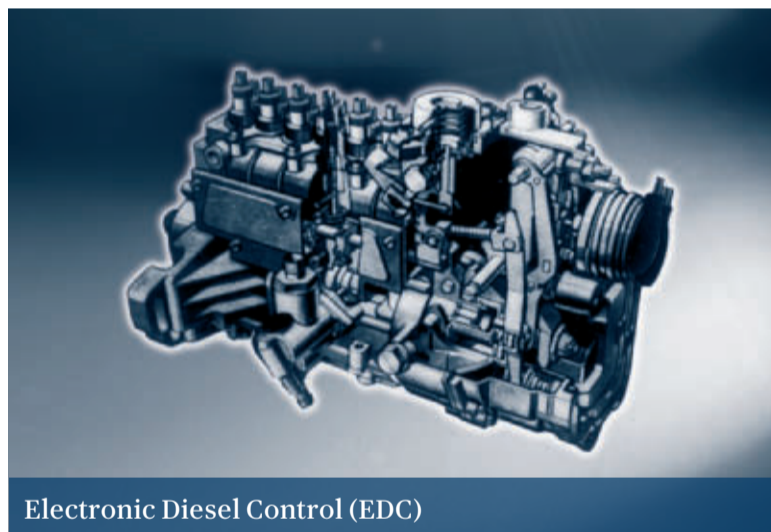
NEW DIESEL VEHICLE SALES BY BUYER			
Vehicle Type	Qty YTD		Variance %
	2007	2008	YTD
Passenger Private	17,215	19,791	15.0%
Passenger Non-Private	9,835	16,479	67.6%
SUV Private	22,263	24,129	8.4%
SUV Non-Private	24,890	31,504	26.6%
Light Comm. Private	22,110	21,612	-2.3%
Light Comm. Non-Private	78,709	91,799	16.6%

*Source: VFACTS

car in Australia, emitting fewer emissions than any other car on sale in the country.

From the local vehicle scene, both Holden and Ford have indicated that they are exploring alternative fuels, so 2009 could potentially see the development of diesel-powered vehicles for both brands.

Bosch Diesel History



Electronic Diesel Control (EDC)



Modern Diesel Componentry

Internal combustion engines are "self-regulating" but diesel engines are not. In order to maintain stability during rotation, Bosch engineers took up the challenge of designing an additional governor.

Starting in 1927

Bosch engineers came up with two solutions: The pneumatic governor, whose performance is controlled by the pressure in the intake manifold and the mechanical governor, which works independent of the RPM. The mechanical governor prevailed due to its faster response time.

1931

Bosch produced a complete diesel system with a pump, lines, fuel filters, injection nozzles, nozzle holders and glow plugs. The next step was to build an advanced mechanical diesel governor for optimal fuel dosage in any vehicle condition.

1980

Bosch innovations heralded a



Common Rail Diesel (CRD)

new age for diesel, making the compression ignition engine environmentally cleaner, quieter and more comfortable than before. Primary milestones included the drastically shortened pre-glow time (rapid-start plug), fewer un-combusted hydrocarbons (return-flow restriction), minimised coking and emissions (innovative nozzles) as well as the capture of the beginning and duration of injections (needle motion sensor). Electronic Diesel Control (EDC) produced further progress in the perfection of engines for distributor and inline fuel injection pumps. It involved sensors to continuously measure a multitude of operating values for control purposes.

2009

Bosch supplies current diesel systems of all kinds, from inline and distributor pumps via common-rail systems, to injector components. Bosch also supplies electronic control units tailored to different injection systems.

Tech Tips and Tricks

Failure of Electric Fuel Pumps in Fuel Injected Vehicles

Have you ever had a customer complain to you about the repeat failure of an electric fuel pump? Why does this happen? To determine the reasons for electric fuel pumps not functioning correctly, you'll need to do some investigation.

- Start by talking to your customer. A vehicle's prior history can often provide you with the answer to why this occurs. Was the pump noisy? Did the fuse blow? Has the fuel filter been changed? Has the vehicle been converted to run on gas? Did you run out of fuel recently?
- Usually when the pump has a high current draw it is also noisy, this is often due to foreign material being lodged in the pumping element.
- If necessary remove the pump and bench test it. If the pump is seized, empty the fuel contents from the inlet side into a clean glass container. Examine the fuel carefully for signs of contamination such as rust, small fibres, water or other matter. If any is present, the whole fuel injection system must be cleaned including the petrol tank before a new pump is fitted. Failure to do this will result in another pump failure.
- The next step involves determining why the pump stopped. Check to see if the fuse has blown. If it has, was the fuse the correct rating? Check the vehicle owners' manual or workshop manual for the fuse rating.
- Next, check the current draw of the pump. To do this, remove the fuel pump fuse, install an ammeter across the fuse holder, start and run the engine. This current should be approximately 7 amps for an L-Jetronic system and up to 11 amps for a K or KE system. If in doubt check the vehicle manufacturer's service manual. If the current draw is higher than these figures it is most likely that the pump element is fouled by foreign material.
- If contaminants are found and the pump is seized, it is a good idea to cut the fuel pump open with a pipe cutter at the inlet end, to examine the pumping cell. This only applies to fully sealed pumps. For other types which can be dismantled, remove the pump from the motor assembly and inspect the pump.



Some pumps have a Teflon coating on the inside roller track to provide a working surface for the rollers. Foreign matter can become embedded in this coating causing the rollers to jam and blowing the fuse. Other pump types may use Eaton Borman rotors or vanes.

All are affected in a similar way by foreign material. Some customers will put a larger fuse in the pump circuit to force the pump into operation. This practice can result in excessive current which can cause high internal temperatures within the pump, melting the brush plate assembly and damaging the

vehicle wiring.

Vehicles which have been converted to operation on gas can suffer from a number of problems. In order to fit the gas tank some vehicles have their petrol tank capacity reduced by cutting and welding the tank.

This welding process leaves behind the slag from the weld, which over time breaks down leaving fine gravel in the bottom of the tank. This material can get into the pump through the coarse screen of the pre-filter. It is extremely hard and will destroy the pump in a short time.

Any sign of rust in the tank can indicate water entry. This condition is difficult to treat but the most effective way of dealing with this problem is to replace the tank.

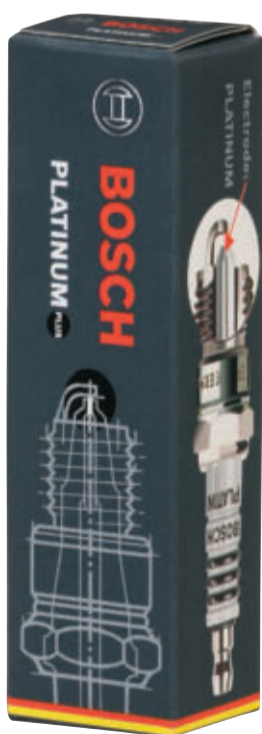
When replacing the filter on the output side of the pump, be careful not to damage the hose fittings. It is possible to shave off small particles of Neoprene or Viton hose material when fitting filters. These small shavings can pass through the fuel pressure regulator and return to the tank or lodge elsewhere in the system causing problems.

Bosch Spark Plugs – Tuned for Profit



Service more vehicles with less stock investment with the Bosch spark plug programme.

Today's Bosch spark plug programme is the best solution to the challenge of increasing your



Bosch's rationalised range of part numbers, whilst still providing your customers with the latest in proven spark plug technology, supported by a trusted, quality brand.

spark plug sales and profitability in today's market.

The programme offers a comprehensive range of precious metal spark plugs at various performance levels, with very high vehicle coverage for all domestic and imported cars, vans, SUVs and light trucks.

You can now service more vehicles with less stock investment, given

Covering more than 95% of vehicle applications, it provides the security of having the right spark plug for any performance requirement. The range comprises of the Platinum-Ir Fusion, Platinum Plus and Super Plus spark plugs.

Bosch Platinum-Ir Fusion delivers the ultimate in spark plug performance and the longest service life. The unique combination of a patented, heat fused iridium and platinum centre electrode, coupled with exclusive surface air gap firing technology, delivers the most powerful sparks for maximum horsepower. The four unique yttrium-enhanced ground electrodes significantly reduce gap wear leading to the longest service life of more than 100,000km.

Bosch Platinum Plus offers premium performance and excellent value. Surpassing original equipment specifications, the exclusive platinum centre elec-

trode provides increased fuel efficiency, while the yttrium enhanced ground electrode ensures maximum durability and engine protection. These two features also increase the service life to 60,000km. Platinum Plus delivers a more reliable spark, at higher RPMs, for premium engine performance.

Bosch Super Plus is the longest-lasting copper core spark plug on the market, offering true value for money. Using an yttrium enhanced centre electrode, these original equipment quality plugs offer smooth acceleration and driving comfort, with a service life of up to 40,000km.

Trade-focused packaging is available for the Platinum Plus, Super Plus and Double Platinum plugs in either individual boxes or convenient packs of ten.

Bosch invented the spark plug. With 100 years experience in developing, testing and manufacturing spark plugs, it's no surprise that Bosch spark plugs are recommended by more vehicle manufacturers than any other brand.

“Covering more than 95% of vehicle applications, it provides the security of having the right spark plug for any performance requirement.”

Invented for Life

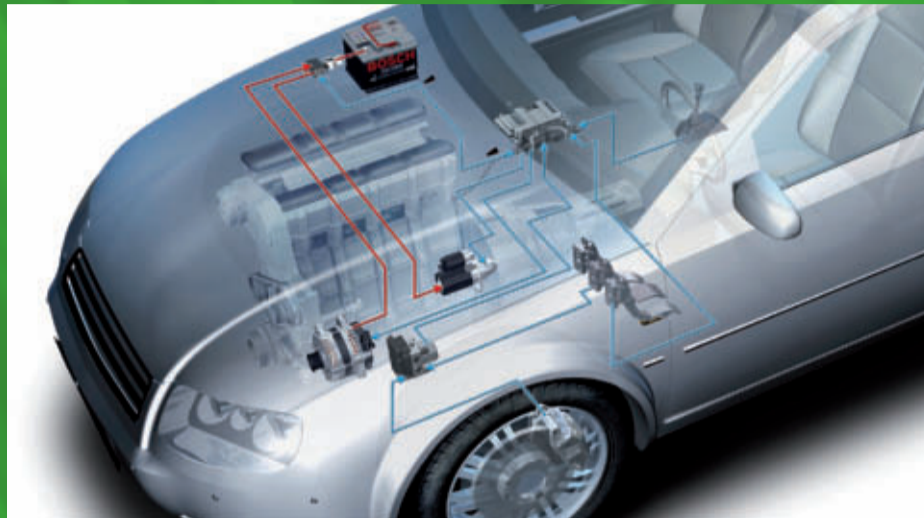
The Bosch Start/Stop System – Reducing fuel consumption and CO₂ emissions

The Bosch Smart Electronic Start/Stop System has been manufactured since 2007, developed from expertise in products such as drive trains, energy management and starter technology. With an aim to develop “greener” yet economic technology, Bosch's Start/Stop System delivers a cost-effective yet environmentally friendly solution for the passenger car market.

How It Works

The Bosch Start/Stop System automatically stops the engine when the vehicle is stationary, for example at traffic lights or in a traffic jam. The engine is restarted automatically as soon as the driver wishes to move off again, for example in a manual car, by depressing the clutch pedal to put the vehicle back into gear.

This system may sound easy, but is the result of a very complex interplay between the engine management system and a number of sensors. In the fraction of a second, the engine management checks whether the engine is idle, the wheels are standing still and the battery has sufficient starting power. If all that is true, the engine is switched off. Actuating the clutch is enough to start the engine again quickly, quietly and reliably. In this new system, Bosch has incorporated its combined drive train, energy management and starter technology know-how.



Start/Stop System Components

For this system Bosch has also designed a specially adapted starter, the Smart Starter Motor. Bosch has considerably increased the specified number of starts of the Start/Stop Starter Motor and, as a consequence, has increased its service life compared with a conventional starter. The more powerful electric starter motor, as well as delivering lower noise levels through enhanced meshing mechanics, guarantees safe, fast, and quiet engine starts. The particularly rapid and quiet automatic starting is ensured not only by the high-performance Start/Stop Starter Motor but also by the electronic control of the starting operation and by fuel injection. This rapid starting is so economical that, even with stops of less than a second, it actually saves you money.

Economic and Effective

In spite of its extended functional scope, the starter is compact and remains very easy to integrate in the vehicle, so that further adjustments of the drive train or engine compartment are not required. The engine control unit, which is also supplied by Bosch, incorporates the software used to analyse all the relevant sensor data and to switch the engine off and on. Bosch also supplies the crankshaft sensor, which tells the system exactly what position the drive shaft is in. Because the Stop/Start System is made up of existing Bosch manufactured components, it has an excellent cost-benefit ratio compared with alternative products.

Customer Benefits – Cutting Fuel Consumption and Emissions

During a journey of 12-15 second stops over a distance of seven kilometres, the Bosch system reduces fuel consumption and CO₂ emissions by as much as 8%, depending on the vehicle. On average city traffic stops are generally longer than this, with an average stopping time of 30 seconds per stop. In this situation the savings are as much as 15%.

When idling, an internal combustion engine is using fuel unnecessarily. The energy required to re-start a modern engine is so minimal that even turning the engine off for as little as 0.7 seconds is worthwhile.

The Future

Despite the fact Bosch has only been manufacturing these systems for the last two years, already more than half a million vehicles have been equipped with this Start/Stop technology. Bosch is planning to continue this growth, with three further manufacturers planning to go into series production of other vehicles over the coming months.

Bosch worldwide is committed to protecting the environment and will continue to conduct research and development, in order to produce economical, environmentally friendly products.

Bosch and Peugeot Citroën join forces on Hybrid Development



Bosch and PSA Peugeot Citroën have agreed on a strategic partnership for diesel hybrid technology.

The recently signed agreement

calls for Bosch to co-develop, industrialise and supply electric motors and power electronics for PSA Peugeot Citroën's four-wheel-drive diesel hybrid powertrain. Unveiled at the Paris

Motor Show on the Peugeot Prologue and Citroën Hypnos concept cars, this innovative diesel hybrid technology will equip Peugeot and Citroën vehicles starting in 2011.

Diesel hybrid technology is a key focus of PSA Peugeot Citroën's environmental strategy, and developing and industrialising this technology is a major challenge for the carmaker.

By choosing a core partner, PSA Peugeot Citroën is paving the way to rapid market introduction of hybrid diesel vehicles. Bosch, the world's leading automobile equipment manufacturer, has been chosen to supply a number of components for this system. In the past PSA Peugeot Citroën has sourced its components from different suppliers.

As part of the agreement, Bosch will supply the rear electric motor, the front-mounted high voltage alternator and the power electronics that will con-

trol them. In addition, Bosch will deliver to PSA Peugeot Citroën specifications for the interface between the electric and electronic components, the antilock braking system (ABS) and the electronic stability program (ESP) to enhance energy recovery.

This stronger collaboration between the partners' engineering and design teams will optimise the hybrid powertrain's operation while speeding the acquisition of mutual expertise in this area, which is expected to expand rapidly in the next few years. With this partnership, PSA Peugeot Citroën has demonstrated its confidence in Bosch, as well as a commitment to forging special strategic relationships with certain suppliers over the long term.

The carmaker believes that this is the right approach for bringing to market quickly and cost effectively technological innovations that can significantly lower CO₂

emissions. PSA Peugeot Citroën also hopes that this agreement will strengthen the hybrid technology industry.

For Bosch, this close cooperation with PSA Peugeot Citroën offers a highly promising opportunity to jointly develop an innovative, powerful and competitive hybrid system.

For 30 years, Bosch has had experience with hybrid technologies and has comprehensive expertise in battery, electrical drive, and brake management, as well as in engine management. Within the Bosch group, the expertise of roughly 370 associates is pooled in a hybrid project unit, whose purpose is to develop and market systems and components for hybrid and electrical vehicles.

Diagnostics

What Diagnostic Tools Do I Need? – Diagnosing the Modern Vehicle



The increasing share of electronics in motor vehicles is making ECU diagnostics standard practice in today's workshop. Just simple maintenance work or resetting the service interval display on modern cars requires a workshop to have access to diagnostics tools.

But knowing what diagnostics tools you need to invest in, in your workshop can be confusing. There are as many answers

to this question, as there are diagnostic tools and methods.

Diagnostics - Scan Tools

Most of the problems in an engine or body computer can be diagnosed with a scan tool. But what is this "magic box" that tells you everything that is wrong?

Within each engine management system, body computer, instrument panel or CAN system is a set of DTC's, or Diagnostic Trouble

Codes, recorded in memory. A DTC will be displayed if the pre-conditions in the ECU are not met during initial start-up or during a continuous monitoring process. DTC's may be very simple, such as "the output is out of range", or very complex, where a number of conditions must be met.

All scan tools display DTC's, pointing you in the right direction. More complex scan tools provide more than this basic information, with some including an in-built multimeter, which display a voltage.

However, these models of scan tools are limited in the type of voltage readings they can display.

If the signal being measure is alternating, such as a wheel speed sensor or engine speed sensor, the multimeter is not able to give a true reading. This is when an oscilloscope is needed.

Diagnosing Waveform and Outputs

The best tool to diagnose waveforms and outputs from various sensors is the oscilloscope. This instrument is invaluable for viewing the quality and level of the signal.

What can an oscilloscope tell us?

- We can measure time. If we know time then we can calculate frequency.
- We can measure the duty cycle, that is the on and off time of the signal.
- We can view the shape of the waveform.
- We can see any noise or irregularities.
- We can measure the voltage above or below a reference point.
- We can measure the peak to peak value of the signal.
- If we have a dual channel oscilloscope we can also compare signals.
- A dual channel oscilloscope also allows us to view the phase

relationship between signals.

As you can see the oscilloscope allows you to make informed decisions about components under test.

If you are doing a lot of work on ABS systems you will also need an oscilloscope to look at wheel speed sensor signals, torque frequency measurements, road speed outputs and power train signals. The time saving obtained is worthwhile in increasing the throughput in your workshop and profitability.

A general purpose oscilloscope will allow you to perform testing on most sensor signals in a vehicle. For more detailed component testing however, a full test system analyser is needed.

Diagnostics in Today's Workshop



Mr Ross Hallett
Owner of BCS Kingston Garage

We spoke with Ross Hallett from BCS Kingston Garage about using diagnostics in his business.

FW: How many cars come into your workshop that require diagnostics equipment to be used?

RH: On average we probably scan ten cars a day and really that's about half of the cars that come through the door. We should really be scanning all cars. If you're not scanning, you are not servicing the car properly. It's a quick and easy check which ensures you don't miss anything.

FW: What diagnostics tools do you have and what do you use the most?

RH: My workshop is set up with two distinct areas, one which is set up to do all of my diagnostics scanning and testing and the other is my workshop. We bring the cars in and scan them with a scan tool, which I have several of to ensure that I can perform a scan on any vehicle that comes in. I'm lucky to be able to have the luxury of being able to afford to do that. For further component testing I also have a system tester.

FW: Has there been an increase over the last couple of years in the number of cars that require diagnostics for testing? Is this number still increasing?

RH: Definitely. These days all cars that are manufactured have some form of ECU in them. Saying that, they have done for quite a while. We still see the odd VL commodore come in, which is over 20 years old, and even that has electronic components. People don't realise that in cars today everything is electronic, not just the engine management system. There's body electronics, like the wipers, the central locking on the doors and the remote access. The transmissions are all automatic, as are safety systems, like

airbags and ESP. There are more and more of these safety systems being introduced too, and as these become mandatory on all cars, you're going to have no option but to have a scan tool to service these features on a vehicle.

FW: How much money or how much business would you miss out on if you didn't have diagnostics equipment?

RH: For me I'd have to shut my door. The way I run my business is that no matter what car comes in my door, I can fix it. I

don't know how those people without diagnostics equipment do it. They have to outsource the vehicle scanning to businesses like mine. This means working around when I'm free to do the diagnosing, which means there's always the delay in having to wait till I'm free to do it. This can delay them, as there will be other things they have to fix in the car, and inevitably will delay the return of the car to the customer. I can only see this working in the short term. As a customer you want your car back as soon as possible. Why would you take it to a workshop

that takes twice as long, because they have to outsource the vehicle testing, when you could take it to someone like me, who can do everything? It doesn't make sense.

FW: How long do you think it's possible for a business to keep working in the future without investing in diagnostics equipment?

RH: Five years maximum. You're already starting to see it happen, with businesses closing because they're not keeping up with the new technology coming

in. But you're also seeing the younger generation becoming experts at diagnostics, because they're used to using computers, so for them it's easy. There's a lot of practical training available as well, like what Bosch offer, which is also really useful.



Bosch Car Service



Independent workshops are finding it increasingly difficult to survive on their own in the modern vehicle market with its wide range of requirements.

Vehicle technology is becoming ever more complex due to the increasing amount of electronics, requiring constant technician training, up-to-date service information and modern diagnostic systems. At the same time, the amount of customer contact is falling due to extended service intervals. The customers themselves are also becoming more demanding and expect a comprehensive and effective service at competitive prices.

The Bosch Car Service concept, supports suitable independent workshops and equips them for the future. Workshops benefit from the close connection to the Bosch brand and the expertise

“With over 500 service partners, Bosch Car Service is Australia's largest network of independent workshops.”

of one of the leading suppliers to the automotive industry.

With a brand name that is known to motorists worldwide, the wide range of vehicle services on offer and expert technical knowledge, Bosch Car Service enjoys a high level of customer confidence. The high level of quality and a uniform customer-focused brand ensures a positive image is displayed to customers.

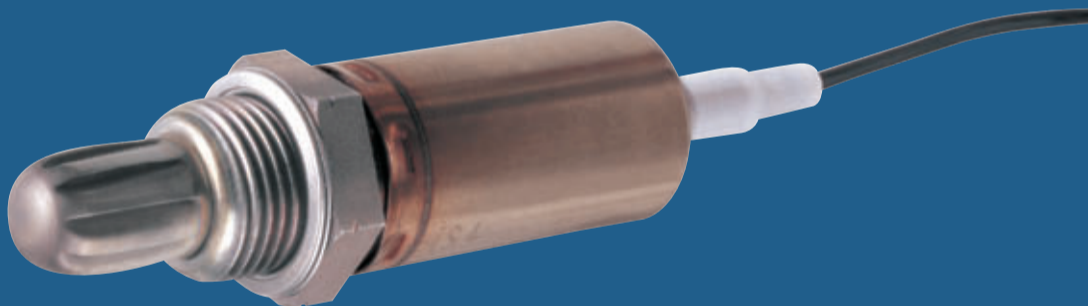
Bosch Car Service workshops are supported by the Bosch Automotive Aftermarket Division, which provides the latest diagnostics technology, cross-brand technical information and training sessions,

an effective spare parts logistics service, as well as uniform external image and marketing campaigns to ensure customer loyalty.

FOR MORE INFORMATION ABOUT THE BOSCH CAR SERVICE NETWORK, CALL US ON 1800 060 060 OR VISIT www.boschautorepair.com.au

Qik Tips

Oxygen Sensor Hints and Tips



The Oxygen Sensor ensures that the fuel and air mixture is correct. It guarantees low emissions along with low fuel consumption and optimal engine performance. Built into the exhaust system in front of the catalytic converter, the oxygen sensor monitors the oxygen content of the emission gas flowing by before it gets into the catalytic converter. If it is compromised, the car can use up to 15% more fuel, effect performance or damage the catalytic converter.

There are a number of precautions that can be taken to ensure the oxygen sensors are not damaged or subjected to contamination.

Do Not:

- Use sensors with leaded fuels or lead substitutes.
- Use silicone based sealants during engine repair or assembly.
- Paint sensors or the associated wiring.
- Clean oxygen sensors.
- Cut and join the sensor cables with standard butt connectors. Only use the special Bosch Joiners. The wiring must breathe.
- Solder the wiring as this prevents the flow of reference air to the sensor.
- Use high pressure cleaners on the sensor and /or wiring.
- Hose down a hot sensor.
- Use any contact cleaner or sealants in the connector.
- Allow excessive water in the exhaust system as this can fracture the sensor ie. blown head gasket.

Do:

- Support the wiring to ensure it does not come in contact with the hot exhaust system. Allow some slack for engine movement during acceleration.
- Use an oxygen sensor socket to remove and refit the sensor.
- Use only sensor safe anti-seize compounds and sealants.

Bosch Drive Belt Catalogue Release

The 2009 Bosch Drive Belt catalogue is now available.

This catalogue utilises the world's largest vehicle database to provide workshops with a comprehensive guide to replacement belts for the Australian and New Zealand markets. The catalogue demonstrates the growing market coverage of Bosch belts which now cover over 97% of the market, including all popular Australian, Asian and European vehicles.

All Bosch Drive Belts are made to Original Equipment specifications, using premium quality materials to ensure high performance and maximum reliability. Bosch backs the quality and performance of its Drive Belt range with a 24 month/40,000km warranty.

For a copy of the new catalogue please contact your local Bosch representative or call the Bosch Customer Service Centre on 1300 307 040.



Bosch Market Updates: Volkswagen Golf

Despite the onset of the global economic crisis last year, Volkswagen Group Australia not only set a sales record in 2008 but also expanded its market share. Achieving a new record selling 29,875 vehicles in a calendar year, Volkswagen made 2008 its fourth straight year of growth. Volkswagen also maintained its position as the 10th highest selling brand in Australia for the year, growing 9% in 2008, the highest growth of any of the top 10 brands. Volkswagen also managed to increase its market share from 2.6% to 3%.

Globally, Volkswagen also performed well in 2008, selling 6.23 million vehicles worldwide, whilst growing their market share slightly to 33.6%. Volkswagen have stated that although 2008 was challenging, the brand has continued to perform strongly and are well positioned for what could turn out to be another challenging year this year.

The current range of Volkswagen Golfs are fitted with many Bosch parts, as displayed below.



Bosch Part Numbers for Volkswagen Golf

Bosch Part No.	VW Golf 2.0L FSI	VW Golf 1.4L TSI	VW Golf 1.9L TDI	VW Golf 2.0L TDI 103kw	VW Golf 2.0L TDI 125kw
Air Mass Meter			*	*	*
Boost Pressure Sensor		*		*	*
Intake Manifold Pressure Sensor	*			*	
High-Pressure Fuel Sensor	*				
Knock Sensor	*	*			
Double Platinum Spark Plug	*				
Ignition Coil		*			
Ribbed V-belt	*	*	*	*	*
Toothed Belt	*		*	*	*
Toothed Belt/Tensioning/Idler/Guide Roller Set	*		*	*	*
Tensioning Roller				*	*
Deviating Pulley	*			*	*
Starter	*	*	*	*	*
Electronic Control Unit - Body Control	*	*	*	*	*
Unit injector (UIS)			*	*	
Lambda control sensor - Left & Right	*	*			
Lambda diagnosis sensor - Rear	*				
Lambda diagnosis sensor - Left & Right Front	*				
Injector, Gasoline	*				
Fuel filter, Gasoline Injection	*	*			
Fuel Filter Element			*	*	*
Oil Filter Element	*	*	*	*	*
Air Filter Element, Engine	*	*	*	*	*
Cabin Filter	*	*	*	*	*
Starter Battery	*	*	*	*	*
Sheathed-element Glow Plug			*	*	
ECU for glow plugs with post-glow facility			*	*	
Headlamp, left-hand traffic, LH & RH mounting	*	*	*	*	*
Adjusting motor, headlight range control	*	*	*	*	*

Bosch Part No.	VW Golf 2.0L FSI	VW Golf 1.4L TSI	VW Golf 1.9L TDI	VW Golf 2.0L TDI 103kw	VW Golf 2.0L TDI 125kw
Bulb Main Headlight				*	
Bulb Driving Lamp				*	
Bulb Fog Lamp				*	
Bulb Parking/Position/Side Marker Light				*	
Bulb Front & Rear Turn Signal Lamp				*	
Bulb Stop Lamp				*	
Bulb Rear Fog Light				*	
Bulb Reversing Lamp				*	
Bulb Tail Light				*	
Bulb Registration Plate Lamp				*	
Bulb Interior Light				*	
Lamp, Rear, LH Mounting	*	*	*	*	*
Lamp, Rear, RH Mounting		*	*	*	*
Wiper Motor	*	*	*	*	*
Wiper Blade Aerotwin, Spoiler & Rear Set	*	*	*	*	*
Electropneumatic Horn	*	*	*	*	*
Slave Cylinder, Clutch For Trans.No MQ	*	*			
Disk Brake Pad Set Front & Rear	*	*	*	*	*
Accessory Set, Disk Brake Pad, Rear	*	*	*	*	*
Disk Brake Pad Set QikStop, Rear				*	
Parts Set Brake Caliper Guide Sleeves, Front	*	*	*	*	*
Brake Disk Front & Rear	*	*	*	*	*
Brake Hose Front & Rear	*	*	*	*	*
Repair Kit Brake Caliper Without Piston, Rear	*	*	*	*	*
Brake Cable Left & Right	*	*	*	*	*
Brake Master Cylinder	*	*	*	*	*
Brake Booster	*	*	*	*	*
Wheel Speed Sensor, Front & Rear	*	*	*	*	*



In The Pits!

In 2009, Bosch will once again be a proud sponsor of Stone Brothers Racing. We will keep you updated with race results and events in each addition of Future Workshop, so keep reading for the latest news.

We wish SBR drivers Shane Van Gisbergen and Alex Davison all the best for the upcoming series and look forward to an exciting year of racing.

The dates for the first 4 rounds of the racing season are:

2009 V8 Supercar Championship Calendar

Round 1	Mar 19 - 22	Clipsal 500, Adelaide
N/C	Mar 26 - 29	Australian Grand Prix, Melbourne
Round 2	April 17 - 19	Hamilton, NZ
Round 3	May 1 - 3	Winton Raceway, VIC
Round 4	May 29 - 31	Symmons Plains, TAS

For your chance to enter the draw to win one of 10 SBR signed Caps, fax or mail the adjacent entry form (details opposite).



WIN a signed SBR Cap



Name: _____

Address: _____

Contact No.: _____

Please cut out your entry form and return by 31st March either by fax on 03 9541 5441 or mail to: Robert Bosch Australia
Dept: AA/SAO-MKT3
Reply Paid 73196
Clayton South
Vic, 3169

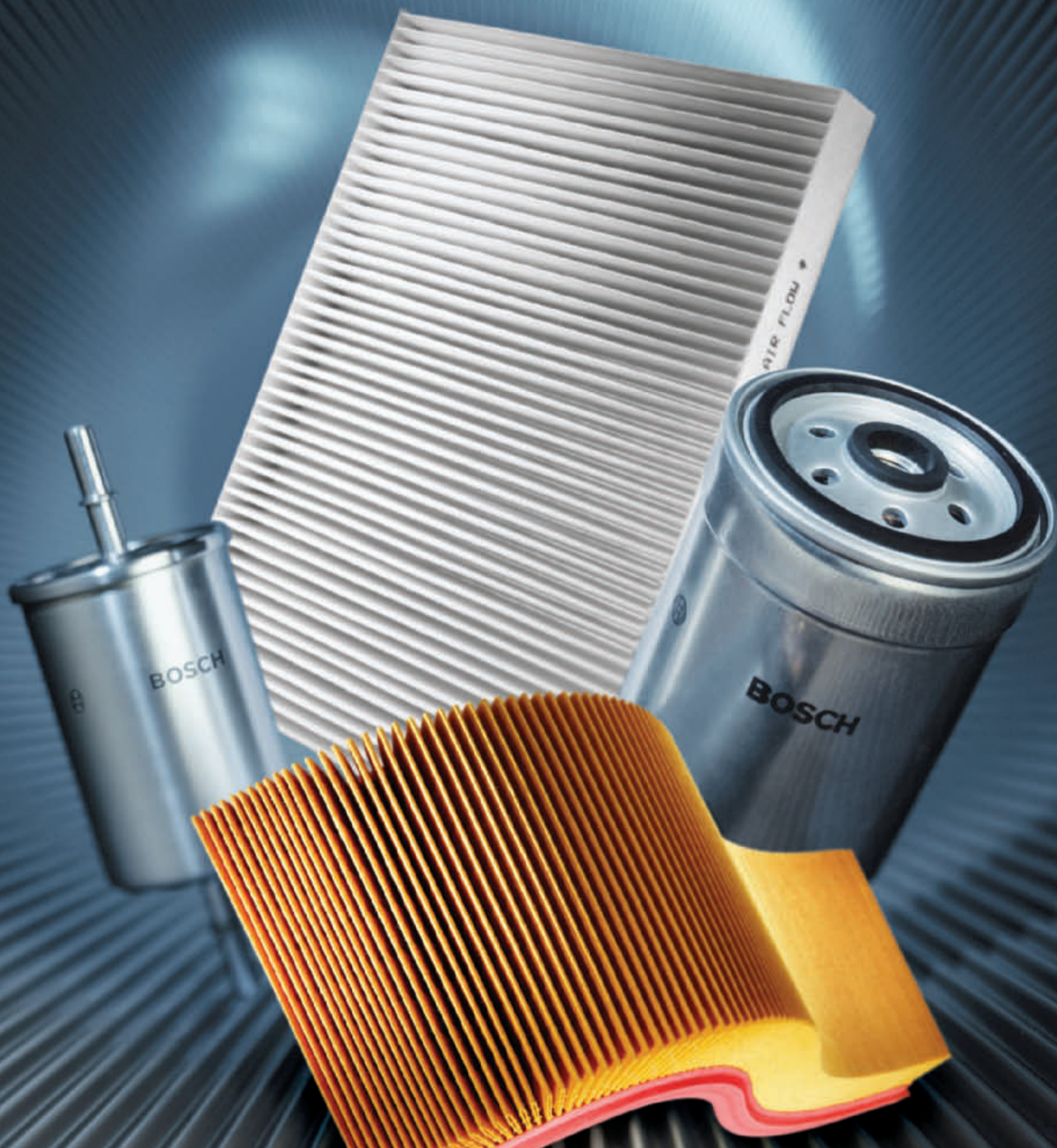
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NEW

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An extensive range of Bosch Filters is now available to the Australian market. With more than 300 different filter types – oil, air, fuel and cabin filters, Bosch offers a competitive range for Australian, Asian and European vehicles.

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For further information on any filters in the Bosch range please contact your Bosch Representative or call Bosch Customer Service on 1300 30 70 40. www.bosch.com.au



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