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The digitalization of the automotive aftermarket

Bosch shows new solutions for workshops and retail trade at the Automechanika 2018

September 11, 2018

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- ▶ Connectivity as growth engine: Bosch expands range of connected solutions for retail trade and workshops
- ▶ Optimized workshop processes: Every day, Connected Repair prevents duplication of work at the workshops
- ▶ Esitronic 2.0: Collective Intelligence identifies the best repair solution

Frankfurt/Karlsruhe, Germany – Whether connectivity, automation, optimized drive systems or electromobility, Bosch Automotive Aftermarket takes a leading role in the imminent transition of the automotive industry. “Bosch increasingly relies on connected and data-based solutions. Already today, they allow for a lot of processes to be made more quickly and efficiently,” Manfred Baden, president of the Bosch Automotive Aftermarket division, said at the international trade fair Automechanika in Frankfurt. According to the auditing and consulting company PwC, there will be more than 470 million connected vehicles on the roads by 2025. Accordingly, the market for software and data services on the aftermarket will experience yet another significant growth and it will be a decisive factor concerning the future growth of the sector. “Bosch Automotive Aftermarket wants to continue growing in 2018 as well. With innovative concepts for effective and efficient maintenance and repair throughout the complete product life cycle as well as connected solutions for diagnoses and workshop processes, we support our partners concerning both current and future vehicle stocks,” Baden said. Connectivity and new data-based solutions bear the potential to optimize the workflow at the workshop while allowing them significant time savings. Bosch Connected Repair workshop software, for instance, prevents time-consuming duplication of work.

Preventing duplication of work thanks to connectivity

Bosch Connected Repair represents the basis for intelligent connectivity of diagnostic hardware in workshops. It connects vehicle reception, vehicle information and test devices, and creates a common data basis transmitted wirelessly to all connected devices. This means: The vehicle must only be identified once instead of registering it on each device separately as was the case in the past. Compared to service and maintenance with Bosch products without Connected Repair, this results in time savings of up to 10 minutes per vehicle at the workshop. Test reports, comments and images are directly stored in the digital work card and can be retrieved at any time. All employees have easy access to the digital working card and the vehicle status at any time.

Finding the best repair solution by means of collective intelligence

Besides intelligent connectivity of diagnostic hardware, Bosch Automotive Aftermarket is also working on the further development of established software. The new version of Esitronic 2.0 software, for example, allows workshops to optimize repair and diagnostic procedures, to shorten the time required for each vehicle and to perform continuous online updates. In addition, it can be used both online and offline. With the help of a free text search and a document preview, users find necessary information very easily and quickly. The experienced-based repair function provides yet another advantage. At a database, Bosch stored more than 750 000 actual use cases collected in everyday workshop life. Once a known error is recognized at the diagnosis, it automatically recommends a repair solution compiled by Bosch experts, which has already been assessed as a good solution by other users. Thanks to optimized loading times, version 2.0 provides searched information now even more rapidly. Even in regions with a low internet bandwidth, Esitronic 2.0 online can be used comfortably. All current subscribers receive the new Esitronic 2.0 online free of charge as an update.

Compact and versatile: Diagnostic Tester KTS 250

The Esitronic is also the centerpiece of the new compact KTS 250 diagnostic tester Bosch first presents at the Automechanika. It is suitable for smaller workshops or as an additional mobile device in larger workshops. The user is supported by an intuitive and Android-based user interface. KTS 250 offers comprehensive vehicle coverage of about 150 passenger car brands. It is future-proof due to its already integrated DoIP Ethernet interface and comes with an automatic vehicle identification supported by a first-class VIN data basis.

Short set-up times for the calibration of cameras and sensors

More and more vehicles are equipped with driver assistance systems. Bosch developed suitable hardware and software solutions in case a video sensor needs to be calibrated after replacing the windshield. Using the Bosch ADAS – for Advanced Driver Assistance Systems – calibration system, required tasks on radar and video sensors can be performed both quickly and accurately. Here, Esitronic software controls the vehicle-specific calibration and adjustment procedures. The ADAS calibration system is another example of how it is possible to efficiently check, mount and service sophisticated vehicle systems using innovative solutions.

Comprehensive parts supply

Apart from new developments, the conventional spare parts business is also of ongoing and high importance for Bosch Automotive Aftermarket. From new parts to series-remanufactured replacement parts and repair solutions, Bosch supplies the matching spare parts for almost any type of vehicle. At the same time, workshops benefit from the high competence based on decades of experience concerning original equipment. This means that every part stands out for its excellent functionality and is perfectly geared to optimum interaction with the vehicle's other technical components. Bosch wiper blades, for instance, feature a market coverage of 99 percent – from the latest passenger car model to commercial vehicles and classic cars. In addition, the Bosch wiper app also eases the identification of the correct wiper for each vehicle.

Press photos: #1467180, #1467181

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The Automotive Aftermarket division (AA) provides the aftermarket and repair shops worldwide with a complete range of diagnostic and repair shop equipment and a wide range of spare parts – from new and exchange parts to repair solutions – for passenger cars and commercial vehicles. Its product portfolio includes products made as Bosch original equipment, as well as aftermarket products and services developed and manufactured in-house. About 17,000 associates in more than 150 countries, as well as a global logistics network, ensure that some 650,000 different spare parts reach customers quickly and on time. In its “Automotive Service Solutions” operations, AA supplies testing and repair-shop technology, diagnostic software, service training, and information services. In addition, the division is responsible for the “Bosch Service” repair-shop franchise, one of the world’s largest independent chains of repair-shops, with some 16,000 workshops, and more than 1,000 “AutoCrew” partners.

Additional information can be accessed at www.bosch-automotive-aftermarket.com

The Bosch Group is a leading global supplier of technology and services. It employs roughly 402,000 associates worldwide (as of December 31, 2017). The company generated sales of 78.1 billion euros in 2017. Its operations are divided into four business sectors: Mobility Solutions, Industrial Technology, Consumer Goods, and Energy and Building Technology. As a leading IoT company, Bosch offers innovative solutions for smart homes, smart cities, connected mobility, and connected manufacturing. It uses its expertise in sensor technology, software, and services, as well as its own IoT cloud, to offer its customers connected, cross-domain solutions from a single source. The Bosch Group's strategic objective is to deliver innovations for a connected life. Bosch improves quality of life worldwide with products and services that are innovative and spark enthusiasm. In short, Bosch creates technology that is "Invented for life." The Bosch Group comprises Robert Bosch GmbH and its roughly 440 subsidiary and regional companies in 60 countries. Including sales and service partners, Bosch's global manufacturing, engineering, and sales network covers nearly every country in the world. The basis for the company's future growth is its innovative strength. At 125 locations across the globe, Bosch employs some 64,500 associates in research and development.

Additional information is available online at www.bosch.com, www.iot.bosch.com, www.bosch-press.com, [www.twitter.com/BoschPresse](https://twitter.com/BoschPresse).

September 11, 2018

How Bosch digitalises the Automotive Aftermarket

Manfred Baden, chairman of the Divisional Board of the Automotive
Aftermarket division of Robert Bosch GmbH

and

Dr.-Ing. Hans Peter Meyen, member of the Divisional Board of the
Automotive Aftermarket division of Robert Bosch GmbH

at the press conference at the Automechanika on September 11, 2018

Check against delivery.

Ladies and Gentlemen,

welcome to our press conference here at the Automechanika. To start with, together with my colleague Hans-Peter Meyen I would like to give you an insight into the developments at Bosch Automotive Aftermarket.

Connectivity, automation and new drive solutions will have a significant impact on our industry. The vehicles are getting more and more sophisticated. Equipped with driver assistance systems, display and infotainment systems, many of them are already safer and more comfortable on the road. Optimized and advanced combustion engines, hybridization and electrification increase the efficiency of drive systems. Bosch is working on realizing the vision of mobility without accidents, stress and as emission-free as possible. The technical paths on this way are automation, connectivity and electrification. This is a major challenge for automobile manufacturers the aftermarket alike. But at the same time, there are new opportunities. Even today, many new offers and business models are emerging. On one hand, Bosch supports the effective and efficient maintenance of the current stocks of vehicles by means of innovative service concepts. On the other hand, Bosch is preparing its partners to meet the ever-increasing challenges of tomorrow.

Before going into details about this fascinating topic, let me first present some key data on our current economic development. Bosch Automotive Aftermarket is part of the Mobility Solutions business sector, which increased its turnover by 7.8 percent to 47.6 billion euro last year. This means, that the business sector has grown stronger than the market and we expect that this positive development will also continue in 2018.

In total, Mobility Solutions currently employs 232 000 associates, of which 17 000 work at Automotive Aftermarket. As mentioned at the beginning, our industry is on the brink of an evolution which will be both a challenge and an opportunity. Opportunities exist for all companies

focusing on digitalization and connectivity in good time. Bosch Automotive Aftermarket is also focusing more than ever on the range of connected products and services.

Ladies and Gentlemen,
until 2025, more than 470 million connected vehicles will be on the roads all over the world (source: PwC). In Europe alone, the market for software and data services will also triple to about 34 billion euros by the middle of the next decade. This corresponds to an annual turnover of about 140 euros per vehicle (source: CLEPA).

I would like to use the example of our approximately 16 000 Bosch Car Service workshops in more than 150 countries around the world to describe precisely how connectivity and digitalization are changing the everyday life of our industry.

Using our “**Bosch Car Service Connect**” app plugged into the vehicle’s OBD connector by means of a connector, drivers receive driving information and information on the vehicle condition in real time. If a vehicle component reports an error, for example, the app will document it a short description. At the same time, the driver can use the app to contact the Bosch Car Service, to transmit the error codes read out, and to make an appointment directly. In that way, the Bosch Car Service is able to prepare itself for the repair work in advance.

In addition to the „Bosch Car Service Connect“ app, in a pilot phase, we have successfully launched the **MyBoschCarService online portal** in the Benelux countries and are now also rolling it out in Germany and other countries. On this service platform customers and the Bosch Car Service are connected and information such as, for example, online appointments, service history, offers or news, is made permanently available.

Both of these solutions complement each other. Whereas the **Bosch Car Service app** always keeps the driver transparently and comfortably

informed with regard to his car, the digital connection to the customer via the **MyBoschCarService online portal** opens up new possibilities for additional revenues and optimizes workshop processes for the Bosch Car Service workshops.

Our connected solutions via **Bosch Connected Repair** are yet another example. Using this solution, the vehicle identification at the workshop is required only once. Afterwards, the data will be transmitted wirelessly to all connected devices. Compared to service and maintenance without Bosch Connected Repair, this results in a time saving of 10 minutes per vehicle.

Bosch Connected Repair connects vehicle reception, vehicle information and test devices and creates a common data basis. **Test reports**, comments and images are directly stored at the digital work card and can be retrieved at any time. This means that **all associates** have easy access to the digital working card and the vehicle status at any time. This saves time and eases the workflow at the workshop a lot.

In case of connectivity, Bosch also relies on partnership. In future, open cross-manufacturer platforms and systems will be an even more important factor for success as the automotive environment faces increasing data volumes. Already at the end of 2017, the free **data marketplace Caruso** started its operation. It closes the gap between data providers and users while connecting data of different players in a **common ecosystem** and thus paves the way for several new services such as, for example, the **remote diagnosis** in case of vehicle problems or a direct **appointment** with the workshop. **Fleet managers** are supported by the automatic transmission of position data, mileage and routes. We consider the new cooperation with Caruso to be an important step for the digitalization of the automotive aftermarket.

Besides connectivity, **new drives** are both a challenge and an opportunity for the workshops at once. It is important to deal with **electromobility** as early as possible. Especially the battery-related

technology is highly sophisticated and requires great expertise. Thanks to the 48 volt electrical systems, more and more power units are already decoupled from the combustion engine even today in order to relieve it. These harbingers show how individual components and thus the requirements placed on workshops will change. For this purpose, we offer the workshops comprehensive training courses empowering the associates to work on the new electric high-voltage drives and its auxiliary units in a qualified and safe manner.

By 2020, Bosch aims on being **market leader for electromobility**. In this regard, we rely on our system know-how as well as on the development and production of the key components such as the electric motor, the power electronics, and battery systems.

Furthermore, Bosch also offers **customized solutions for the aftermarket**, available as modular components or comprehensive overall solution. The complete repair and maintenance will then be made by our global Bosch Car Service network. Accordingly, we also have comprehensive expertise in the field of e-mobility which reaches from the development of the technology to repairs and maintenance right from the start.

Ladies and Gentlemen, for 132 years Bosch has been one of the **innovation drivers** in the automobile industry. For half a century, Bosch Automotive Aftermarket has been the competent contact for retail trade and workshops. During this period, we were able to accompany a lot of developments concerning automobiles right from the beginning. When our business division was established **50 years ago**, for example, Bosch simultaneously launched the first electronically controlled gasoline injection system – the “Jetronic” – onto the market. Throughout the following years, this system became the decisive driving force for the increasingly widespread application of electronic systems in cars. Solutions such as ABS, ESP, airbag control, or the park assistant were created.

In parallel, increasingly powerful measuring and diagnostic systems allowed workshops to keep pace with the development of the vehicles. With solutions such as **Connected Repair, innovative training methods** for workshops using **Augmented Reality** as well as with new digital services, Bosch is still one of the pioneers on the market.

In order to continue working successfully in future, Hans-Peter Meyen will now present you the innovations we will present at the fair.

Ladies and Gentlemen,

some of you may still remember that – as pioneer – we sketched the vision of a connected workshop already back in 2014. At that time, we first presented Augmented Reality as an application. We were the first on the market and since then, we have continuously pushed this development forward. In the meantime, we have put a range of hardware and software solutions into practice. When you take a look at our stand afterwards, you will notice that we systematically continued this course. In all stages of workshop workflow, Bosch is able to offer solutions increasing both the efficiency and the customer satisfaction. From vehicle reception to diagnosis and from repairs to handing over the vehicle, we reliably and quickly support our customers all over the world with parts and offer workshop services from a single source.

Our **Workshop Management Software**, for example, contributes to substantial improvements in terms of efficiency and effectiveness. It depicts the **complete workshop process** with all economic, legal and financial aspects – from planning to management of individual modules such as finances, bookkeeping, parts identification and purchasing, RMI information and customer support. It is a **pure cloud solution** without need for any local hardware. The solution complies with the **General Data Protection Regulation**.

The user interface is **intuitive** and can be adapted flexibly. The software base is always up to date thanks to regular Microsoft, Incadea and Bosch updates and releases. The solution is simple and scalable according to the size of the workshop. The **software adjusts to the respective customer requirements** and even maps rather sophisticated requirements.

Of course we also support the workshops when it comes to increasing the effectiveness and efficiency in day-to-day operations at the vehicle and to keep up with state-of-the-art technology. After all, as Mr. Baden

has just outlined, automobiles get more and more sophisticated, and consequently the demands placed on workshops are increasing concomitantly.

With its **new Esitronic 2.0 workshop software**, Bosch now offers a version that can be used both online and offline. Among other things, it allows workshops, to **optimize repair and diagnostic processes, shorten vehicle handling** as well as **continuous online updates**.

With the help of a **free text search and a document preview**, users find necessary information very easily and quickly. It is possible, for instance, to search for a symptom, an error or for a certain vehicle component. As soon as the user types in the first letters of the search term, suggestions for suitable keywords are displayed. In that way, errors can be found quickly and can be resolved efficiently.

The **experienced-based repair – known errors** function provides yet another advantage. It is based on a principle called **collective intelligence**. At a database, Bosch stored more than 750 000 actual use cases collected in everyday workshop life. Once a known error is recognized at the diagnosis, a repair solution is automatically recommended which has already been assessed as a good solution by other users. In that way, users benefit from the experience of others and are able to contribute to further optimization of the "experience-based repair – known errors" function using the integrated **feedback function**.

Our developers optimized the loading times as to ensure the searched information is displayed quickly. In that way, even users with a low internet bandwidth can comfortably use Esitronic 2.0 Online.

In addition, the new Esitronic version also features an intuitive remake of the information types troubleshooting, maintenance schedules, convenient circuit diagrams and technical service bulletins. All current

users receive the **new Esitronic 2.0 Online free of charge as an update.**

The new Esitronic is also the centerpiece of the new compact **KTS 250 diagnostic tester** we are first presenting here at the Automechanika. It is suitable for smaller workshops or as an additional device in larger workshops. Its users are supported by an intuitive and Android-based user interface. Thanks to the Esitronic, about 150 passenger car brands are covered. This makes KTS 250 the fast, compact tester for the mobile control-unit diagnoses. It is **future-proof** due to its already integrated DoIP Ethernet interface. KTS 250 comes with an automatic vehicle identification supported by a **first-class VIN data basis**. And it offers comprehensive **vehicle coverage**, analogous to the large Bosch diagnostic testers with Esitronic diagnostic software.

Given the fact of new limit values according to the Euro 5 and 6 emissions standard, the accurate testing of injectors of common-rail systems is of increasing importance for the workshops. For this purpose, Bosch developed a new **DCI 700 diesel test bench** allowing for the accurate testing of all – Bosch and third-party manufacturer – injectors. Four connected injectors are tested easily and fast. There is no need for high-pressure hoses and the test cycle lasts only 20 minutes. Compared to conventional procedures, this significantly shortens the test.

The calibration works of radar and video sensors via the **Advanced Driver Assistance System** is also much faster. With its technology, this system provides for short set-up times and exact results. Here, the Esitronic software controls the vehicle-specific calibration and adjustment procedures. Our Advanced Driver Assistance System – abbreviated ADAS – is another example of how it is possible to efficiently check, mount and service sophisticated vehicle systems using innovative solutions.

The ADAS series includes the height-adjustable precision measuring bar SCT 415, for example. It supports all calibration methods for

camera sensors and magnetically records data for vehicle-specific calibration targets. SCT 415 comes with specific installation instructions, now also available for VW, Audi, Škoda, SEAT and alignment with the longitudinal vehicle center line. The triple mirror SCT 815, however, universally supports all Kia, Hyundai, Honda, Mazda, Toyota, and Lexus models for the calibration of radar sensors.

Mr. Baden already mentioned it: Bosch offers a comprehensive program of high-quality spare parts worldwide. From new part to series-remanufactured replacement parts and repair solutions, Bosch supplies the right spare part for almost any type of vehicle. Concomitantly, workshops benefit from the high competence based on decades of experience concerning original equipment. This means that every part stands out for its excellent functionality and is perfectly geared to optimum interaction with the vehicle's other technical components. At this point, I would like to mention the example of our Bosch wiper blades. They always fit perfectly – under all weather conditions, on any vehicle and thanks to the comprehensive product portfolio also for the most diverse market and customer requirements. In this case our commitment is: **safe, durable and quiet**. We offer **99% coverage**. Bosch wiper blades fit almost any vehicle from the latest passenger car model to commercial vehicles and classic cars. And with the help of the **Bosch wiper app** it is easy to identify the correct wiper for each vehicle.

The range of Bosch spare parts does not only meet the needs of current models. With our **Bosch Classic** section, we also cover the supply for classic cars with more than 60 000 products such as, for example, spark plugs, electric fuel pumps or components for Jetronic injection systems. And we offer additional alternatives by means of **remanufacturing** and repair of electric components and control units at the Bosch Electronic Service.

In addition and in cooperation with Bosch Service workshops, Bosch Classic also established a **network for modern-era classic and**

classic cars currently comprising 71 workshops in Germany, Austria, Switzerland and France having the necessary know-how for the maintenance on historic vehicles.

As already mentioned, Bosch pioneered using **Augmented Reality** in workshops. At a field study realized at Bosch Car Service workshops, we have now determined the benefits of these applications for everyday workshop activities. The result has shown that using Augmented Reality applications, time savings of 15 percent in average per step taken are possible even on common vehicles and less sophisticated repair tasks. By means of the Augmented Reality application, the mechatronics see and locate the position of hidden components. Work instructions or necessary special tools are also integrated into the real image. In that way, the next work steps are clear and unnecessary assembly works can be avoided.

Bosch also further develops **technical trainings for workshop associates using the Augmented Reality technology** – currently this is, for instance, the case in the area of electromobility. Here at the Automechanika, interested car mechatronics can extensively test the new trainings technology visiting a workshop on high-voltage engines. With the support of Augmented Reality, participants – amongst other topics – learn the differences between hybrid and fully electric vehicles, the functions and characteristics of different high-voltage components as well as strategies for troubleshooting. At the end of this year, Bosch will offer the first service training using Augmented Reality, the two-day training “High-voltage technician – working on self-protecting vehicles”. The training will take place at the Bosch’s Service Training Centers in Plochingen/Germany and in Ballerup/Denmark. This morning we have been awarded with the Innovation Award of the Automechanika fair for the application of Augmented Reality technology in technical service trainings – as winner of the category “Alternative Drive Systems & Digital Solutions”.

Let me repeat it again: the **profound expertise** of the staff **is the key for success** for every workshop. The current Bosch training portfolio at our Training Center in Plochingen offers more than 100 different trainings and has now been expanded by new interesting offers.

Ladies and Gentlemen, as you can see, we have created the necessary conditions for our trading partners and workshops to continue successfully mastering digitalization and connectivity. Convince yourself with a visit of our stand. Thank you for your kind attention, also on behalf of Mr. Baden. Now we are both looking forward to your questions.

Well-proven Bosch workshop software has been enhanced significantly: Within seconds, the new Esitronic 2.0 online version provides information searched for

Free text search and context menus concerning maintenance and repair

June 2018

PI 10683

AA Dr

- ▶ Esitronic 2.0 users will receive the new online version as a free upgrade
- ▶ Context menus show all additional information about individual vehicle components
- ▶ The “experience-based repair – known fixes” (EBR) module provides Bosch expertise online and around the clock

Karlsruhe/Plochingen – For many years, Bosch Esitronic workshop software has been part of the standard equipment of multi-brand workshops in particular. In Europe, one out of three independent workshops uses this powerful and well-proven software. The present version Esitronic 2.0 offers automotive workshops a comprehensive package for efficient and professional repair of almost all vehicles on the European market. This comprehensive package consists of diagnostic data, repair instructions, maintenance schedules and circuit diagrams as well as the “experience-based repair – known error patterns” (EBR) module. Since the data volume of Esitronic has risen due to the growing number of electronic control units and components for comfort and safety electronics as well as for modern driver assistance systems, Bosch now also offers Esitronic 2.0 Online, an online version which can be used in parallel. It eases the search and provides context-related information. Thanks to the free text search and the document preview, users will find required information both easily and quickly.

Access to any information within seconds

Together with the Esitronic update 2018/2, all users will also receive the new Esitronic 2.0 Online version as a free-of-charge upgrade. In future, they will thus be able to switch between the present version and the new online version at the click of a mouse – if connected to the internet. Both versions – off- and online – can be used in parallel and on the same device. As most users know from the

“google” search, direct access to any relevant information will be provided by means of the free text search of Esitronic 2.0 Online. The search terms can, for instance, include specific symptoms, a certain error code or specific vehicle components. As soon as the user types in the first letter of the term searched for, matching search terms are proposed. Once the search term has been found, the search results are listed according to their relevance and displayed with short summaries. Clicking onto the result, a preview of the document found is provided. By means of additional search terms such as make, type of engine or component, the search results can be filtered even more specifically. Doing so, users can even switch between the different Esitronic information types. In this manner, any required information can be found within seconds. In addition, the context menus concerning individual vehicle components also provide the users with matching additional information such as installation position, circuit diagrams or nominal values. Furthermore, Esitronic 2.0 Online also includes the “experience-based repair – known fixes” (EBR) module thus allowing support via Bosch expertise and the description of current fault cases – available around the clock.

Quick loading even with low internet bandwidth

Using intelligent caching strategies and particularly quick servers, the developers of Esitronic optimized the loading times in such a way as to quickly provide information searched for – without any waiting time. Documents are loaded in the blink of an eye. This allows even users with low internet bandwidth to use Esitronic 2.0 Online in a comfortable manner. In addition, the new Esitronic 2.0 Online also features an intuitive remake of the information types troubleshooting (SIS), maintenance schedules (M), convenient circuit diagrams (P), technical service bulletins (TSB) and experience-based repair (EBR).

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Additional information is available online at www.bosch.com, www.iot.bosch.com, www.bosch-press.com, www.twitter.com/BoschPresse.



New compact Bosch KTS 250 tester for mobile and quick ECU diagnoses

With intuitive user interface and easy handling

June 05, 2018

PI 10684 AA Kr

- ▶ Newly designed entry-level device for straightforward ECU diagnoses
- ▶ Modern Android-based user interface for high user friendliness
- ▶ Future-proof thanks to integrated DoIP ethernet interface

Karlsruhe/Plochingen (Germany) – Bosch launches a new diagnostic tester onto the market which has specifically been developed for mobile and straightforward workshop use. The compact and robust Bosch KTS 250 is perfectly suitable for small automotive workshops, for use at workshops' vehicle reception or as an additional device for larger workshops. The tester stands out for its high user friendliness. A new, intuitive and Android-based user interface supports its operator. Equipped with Bosch Esitronic workshop software, KTS 250 allows economical ECU diagnoses on almost any type of passenger car on the market. So far, the software covers some 150 car makes and is thus equally comprehensive and complete as Esitronic 2.0 installed on larger Bosch diagnostic testers. Thanks to its powerful processor programs are loaded quickly and rapid diagnoses are ensured. Bosch first presents the new KTS 250 diagnostic tester at this year's Automechanika fair in Frankfurt on the Main (Germany).

Automatic vehicle identification via VIN code

Even the vehicle identification is performed automatically via VIN code and the most comprehensive VIN database on the market so far. In almost no time, the compact seven-inch touch screen provides the user with an overview of all control units installed at the vehicle. Thanks to a resolution of 1024 x 600 pixels, texts and graphics are displayed clearly and easily readable. Once the KTS 250 tester has been connected to the vehicle by means of the OBD cable included in the scope of delivery, it allows reading out the actual values of the control units and the fault memory. Vehicle-specific OBD adapters are available for older vehicles. By means of the printing function, the results can be printed out at a printer connected to the workshop network. For its power supply, the tester is equipped with an integrated lithium-ion battery. During diagnoses, the tester is supplied by the vehicle tested via the OBD connector.

DoIP ethernet interface already integrated

With the new tester, workshops are already very well equipped for the future. KTS 250 supports DoIP (Diagnostics over Internet Protocol) – the new, ethernet-based diagnostic interface. It allows much higher data transfer rates. Since the modern interface has already been used for control unit flashing for quite a while, an increasing number of vehicle manufacturers relies on Ethernet for diagnostic purposes as well. In addition, KTS 250 also allows parallel communication with different control units on different communication channels.

Data updating is made online via WLAN connection and without any additional DVD drive or connection to a workshop computer. With the same easiness, software licensing is also carried out online. Once the user name and the password have been entered, the new KTS 250 diagnostic tester can be used right away.

Press photos: #1375105, #1375106

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Future-proof Bosch DCI 700 diesel test bench with new measurement system for latest injector technologies

June 05, 2018
PI 10685 AA Kr

Efficient testing of passenger-car and commercial-vehicle common rail injectors

- ▶ Suitable to test all passenger-car (CRI) and commercial-vehicle (CRIN) common rail injectors available on the market
- ▶ Efficient testing thanks to short mounting and testing times
- ▶ Ergonomic design and intuitive operator guidance

Karlsruhe/Plochingen (Germany) – In the light of new emission limits in line with the Euro 5 and 6 emission standards, accurate testing of common rail injectors modern diesel engines are equipped with is of increasing importance for everyday workshop business. The higher the accuracy of their quantity measurement, the more precisely can the injectors be adjusted. By means of DCI 700, Bosch developed a new diesel test bench allowing accurate and reliable testing of all – Bosch and third-party manufacturer – common rail injectors for cars and commercial vehicles. Thanks to its new measuring system, DCI 700 can also be used to test injectors equipped with current injection control systems such as Needle Closing Control (NCC) or Valve Closing Control (VCC). At injectors with NCC or VCC, an electronic control loop ensures high injection dosing accuracy throughout the entire service life thus contributing to compliance with applicable exhaust emission limits. This new technology requires new measurement systems already provided by Bosch DCI 700. This makes it a future-proof investment for automotive workshops. Bosch first presents the DCI 700 diesel test bench at the Automechanika fair in Frankfurt on the Main (Germany). It will be launched onto the market by the end of 2018.

Short testing time: four injectors tested within less than 20 minutes

The assembly and disassembly of four passenger-car or commercial-vehicle injectors takes less than five minutes each. Therefore, four connected CRI or CRIN injectors can be tested within 20 minutes at the maximum. All in all, the

system is highly service-friendly; among other things because it does not require any high-pressure hoses anymore. Software updates and test plans can be downloaded and installed online.

More ergonomic and efficient workflow

Besides modern measurement technology, the Bosch developers also focused on an efficient and ergonomic workflow and an intuitive control concept. It allows the operator to stand upright in front of the test bench without having to bend over to connect the injectors. Moreover, the base of DCI 700 is sloped towards the back. Therefore, the operator can close up to the device. The reflection-free screen can be adjusted to the operator's eye level and turned in all directions. This allows the operator to always keep an eye on the test routine. The workspace lighting is bright, dazzle-free and easy on the operator's eyes.

Specialized Bosch Diesel Service workshops worldwide

There are some 3 500 Bosch Diesel workshops worldwide specialized on the maintenance and repair of diesel injection systems. Bosch Diesel Service workshops (BDS) are specialized on the repair of diesel injection components while Bosch Diesel Centers (BDC) offer complete diesel service – reaching from diagnoses and component repair to specialized technical services. The employees of all Bosch Diesel workshops are specifically trained and have latest diagnostic and test equipment as well as the required special tools at their disposal. Due to their high diesel competence and many years of experience, they are renowned for the excellent reputation they have throughout their sector.

Press photos: #1375107, #1375108, #1375109

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At the Automechanika, Robinair presents its new fully automatic high-end units for trouble-free A/C service New line completes the range of the air-conditioning service specialist

August 2018
PI 10745 AA Dr

- The new AC1x34-5i and AC1234-5i air-conditioning service units complete the high-end line of A/C service units
- New economical ACM3000yf entry-level A/C service unit to start servicing A/C systems
- Powerful functions for safe and efficient A/C service

At the Automechanika fair in Frankfurt (Germany), Robinair will first present its new AC1x34-5i and AC1234-5i A/C service units. They complete the existing high-end line. The new economical entry-level unit ACM3000yf for air conditioning systems filled with R1234yf refrigerant will also be presented. Robinair will exhibit its complete and broad range of fully automatic air-conditioning service units for straightforward and efficient A/C services at stand C20 in hall 9.

Improved performance and precision

The new AC1x34-5i and AC1234-5i A/C service units are operated fully automatically.

Combining both maintenance and repair functions in one, these units ease the workflow at the workshop. In comparison with the predecessor line, Robinair increased the performance of the new line. The release of non-condensed gases is now controlled electronically. Within short time, these units recover 99 percent of the refrigerant. Electronic pressure and temperature controls ensure refrigerant filling with a precision of charge of 15 grams. But even the dual-stage vacuum pump featuring a flow rate of 170 liters per minute is particularly powerful as well. This makes the units suitable for quick and efficient maintenance – even in case of larger air conditioning systems used in light commercial vehicles and trucks.

An independent and hermetically sealed fresh-oil injection system prevents soiling of different oils. There is even an integrated flushing program and a hose-flushing system. With all of these features, the new high-end units can be used for A/C services on vehicles with combustion engines and those with electric drives alike.

With its innovative graphical user interface, the color display supports the workshop staff concerning the operation and monitoring of the units while guiding the operator through the maintenance procedure. An optional smartphone app allows keeping an eye on the device status and the work progress from afar as well. Even the maintenance of the A/C service units is straightforward. In terms of design and structure, these units were influenced by user experiences. As a result, the access to their inner components, for example, is much easier now.

Both of these new A/C service units – that is, AC1x34-5i and AC1234-5i – feature the same basic functions as other units of the high-end line. Optionally, they can also be equipped with an integrated printer, an automatic leakage tester, possibilities to connect them to Bosch Connected Repair or the ASA network as well as device monitoring via smartphone app.

New economical entry-level unit for air conditioning systems working with R1234yf refrigerant

Besides this new line of efficient A/C service units, Robinair also presents its new automatic ACM3000yf A/C service unit for air conditioning systems filled with R1234yf refrigerant. Based on the well-proven ACM3000 entry-level unit tried and tested over many years, the new unit includes all important functions for economical and straightforward A/C services. ACM3000yf supports workshop mechanics at all required air-conditioning service tasks and performs precise refrigerant recovery, recycling and filling in a fully automatic manner. Among other details, the unit is also equipped with an automatic flushing function for non-condensed gases and an integrated oil injection bottle. A printer being available as an option can also be connected.

For more than 60 years, Robinair has been the world's leading A/C service specialist

Founded in Warren (Michigan, USA) in 1956, Robinair soon focused on the development of A/C service units. In the 1970ies, the company launched its first unit combining refrigerant recovery, recycling and filling onto the market. By now, Robinair is a leading manufacturer of A/C service units with sales and service branch offices on all continents. Robinair also supports automotive

workshops providing know-how and future-proof service equipment for the maintenance of temperature management systems of hybrid and electric vehicles or vehicles with other innovative powertrains such as e.g. fuel-cell technology. In late 2012, Robinair became a brand of the Bosch Group.

Press photos: #1453089, #1453090, #1453091, #1351894

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As of December 2012, Robinair became a Bosch brand and was integrated into the Automotive Service Solutions Business Unit of the Bosch Automotive Aftermarket Business Division. Bosch Automotive Service Solutions is a major manufacturer and supplier of professional vehicle electronic diagnostic equipment and offers a wide range of servicing tools and equipment with various manufacturing facilities. Robinair is the leading high quality brand in automotive AC equipment and tools.

For more information on Robinair, visit www.robinair.com.

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40 years of Bosch ABS anti-lock braking system

In 1978, Bosch first started the series production of the electronic safety system developed together with the automotive industry

September 2018

PI 10728 AA Kr

- ▶ Thanks to ABS, the braking distance is reduced and the vehicle remains fully steerable in case of full braking.
- ▶ Beginning and basis of the development of additional driving safety systems
- ▶ Within 40 years, Bosch produced some 457 million ABS and ESP brake control systems

Karlsruhe (Germany) – Reliable braking has always been a key feature of safe driving. In case of excessive braking force, however, the wheels can lock up. This leaves the vehicle unmaneuverable and can even result in skidding. In 1978, Bosch was the first supplier to launch the anti-lock braking system (ABS) developed together with the automotive industry onto the market. The electronic system detects the wheels' tendency towards locking at an early stage and reduces the brake pressure in a targeted manner. As a result, the vehicle remains steerable even in case of full braking or road surfaces with varying grip. Even in case of emergency braking, the driver can thus avoid obstacles and safely bring the vehicle to a standstill. For 40 years now, ABS has thus been contributing to preventing accidents and to a significant increase in road safety. In addition, ABS is also easy on the tires as it prevents flat spots caused by wheel lockup and skidding.

As most new developments, ABS was first used in upper-class passenger cars such as Mercedes A-class or BMW 7-series. Soon, it also became available as standard equipment for the compact class – at first at an extra charge, then as standard. By 1990, some six million vehicles worldwide had already been equipped with Bosch ABS. Its effect on increased road safety was as evident as to lead the automotive manufacturers to commit themselves to equip all passenger cars built from mid-2004 onwards with ABS as standard equipment. As of early 1991, trucks with a gross vehicle weight exceeding 3.5 tons and buses

with more than 8 seats could only be registered if they had been equipped with ABS. Finally, anti-lock braking systems became available for motorcycles as well thus preventing serious accidents caused by wheel lockups. Since early 2016, ABS has become obligatory for all new motorcycles with a displacement exceeding 125 cm³. And since 2017, all newly registered bikes are to be equipped with ABS.

In 2018, Bosch launched the eBike ABS – that is, the first anti-lock braking system for bicycles with electric drive ready for series production – onto the market. It allows safe and controlled braking under tough conditions.

Continuous further development of Bosch ABS components

Once a speed sensor informs the control unit about an imminent wheel lockup, the latter sends a signal to the hydraulic modulator causing it to reduce the brake pressure. This prevents the wheel from locking. Throughout the last 40 years, Bosch has continuously been advancing the ABS: The system components have become ever smaller, more compact and more powerful.

Concomitantly, ABS laid the foundations for the development of additional modern driving safety systems. The traction control system (TCS) and the electronic stability program (ESP®), for instance, are based on ABS. But even brake fluids need to meet the growing requirements modern brake systems place on them. Bosch thus offers ENV6, a highly dynamic brake fluid with low viscosity and concomitantly high wet boiling point specifically developed for current and future brake systems. Tallying up the ABS and ESP® brake control systems Bosch supplied throughout the last 40 years, the total results in a tremendous number close to 457 million systems installed worldwide until 2018.

Value-based repair by Bosch Electronic Service

Bosch offers automotive workshops different services for ABS and ESP® control units. To provide workshop customers with a solution fitting in with the current value of their vehicle, defective devices are repaired or replaced. The Bosch Electronic Service (www.bosch-prepair-service.com) technicians boast a wealth and depth of many years of experience. Even in case of remanufactured control units, they make sure to reestablish high OE quality. Defective devices are picked up at the workshop, repaired and sent back within 48 hours. This quick and straightforward service allows workshops to score points with their customers offering them value-based prices.

Press photo: #1451886, #1451887

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Bosch ENV6 brake fluid: developed to cope with the high strains caused by modern and future brake systems

September 2018

PI 10729 AA Kr

Particularly reliable and safe thanks to its low viscosity and its high wet boiling point

- ▶ High-performance brake fluid for almost any brake system launched since 1990
- ▶ Shorter ESP® reaction times, reduced formation of vapor bubbles
- ▶ Reduced stock-keeping efforts and requirements thanks to its downward compatibility, its long shelf life and the fact that it is not classified as a dangerous substance

The performance of modern brake systems is continuously improved while the reaction times of ABS and ESP® are getting faster and faster. In addition, modern cars are more and more often equipped with driver assistance and driving safety systems with additional functions, too. In future, the dynamic pressure build-up of emergency brake assists will, for instance, be one of the factors deciding about the vehicle's safety performance assessment (NCAP). As a developer of modern vehicle safety systems, Bosch also focuses on the brake fluids used. By means of ENV6, Bosch provides a particularly powerful and reliable brake fluid meeting the growing demands of modern and future brake systems. The name "ENV" is derived from the English term "envelope". It points out the high-performance brake fluid's suitability for practically any brake system launched since 1990.

Unique combination of characteristics: low viscosity and high wet boiling point

ENV6 stands out for being the first brake fluid ever developed to combine both a very low viscosity – i.e. very high fluidity – and a very high wet boiling point in comparison with conventional brake fluids. The lower the viscosity, the shorter the reaction times of ESP® systems, for instance. The high wet boiling point reduces the risk of formation of vapor bubbles – the main cause of brake failure. So far, this combination of both of these features is absolutely unique. It makes ENV6 particularly reliable and safe. As a result, ENV6 can be used to replace several

different brake fluids such as DOT3, DOT4 or DOT5.1. Very rarely used brake fluids based on mineral oils (LHM) or containing silicones (DOT5) are the only ones not compatible.

Significantly increased replacement intervals

Thanks to its very good technical characteristics, the replacement intervals of the high-performance brake fluid were significantly increased as well. While standard DOT4 brake fluids need to be replaced every two years, the ENV6 replacement interval comprises three years. Its high lubricity prevents noises and protects the brake system against wear and corrosion.

At the workshop, ENV6 can thus be used to replace several different conventional brake fluids. This reduces the risk of filling the brake system with inappropriate brake fluids or mixing different ones. It also reduces the required storage space at the workshops. Bosch supplies ENV6 in 1.0-, 5.0 and soon also in 20.0-liter cans allowing it to be used for up to five years as long as the cans remain unopened. On top of that, its stock-keeping at the workshop is eased even further by the fact that it is not classified as a dangerous substance as specified by the Ordinance on Hazardous Substances.

Press photo: #1353516

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Bosch Classic ensures sustainable spare-parts supply for modern-era classic and classic cars

September 2018

PI 10727 AA Kr

- ▶ Starters for historic Porsche models have been reissued
- ▶ Reverse engineering as key strategy to ensure long-term parts supply of classic spare parts
- ▶ Repair concepts for electronic components ensure the future of classic cars to come

Karlsruhe (Germany) – There is a great and still growing interest in classic automobiles. This fact is proven by the great attendance of numerous classic-car events and fairs. For many years, the Bosch business division Bosch Classic has also been committed to preserving historic vehicles. “At Bosch, we share the enthusiasm of classic-car fans. After all, the history of automobiles is also part of our company’s history,” Manfred Baden, president of Bosch Automotive Aftermarket, said.

At www.bosch-classic.com, a comprehensive online archive comprising more than 60 000 technical documents provides fans of historic vehicles with a wealth of classic-car know-how. In addition, Bosch Classic also supports owners of modern-era classic and classic cars by means of tips, hints, advice and technical know-how. The main task of the classic division, however, is the spare-parts supply for historic vehicles – dealing with classic cars being at least 30 years old, this task is not an easy one. Some older parts – collected from the company’s worldwide production and subsidiary network – are still in stock. In case the production tools and documentation are still available and as long as the project is still cost-efficient, Bosch Classic even opts to have genuine parts produced again.

Joint project of the classic divisions of both Bosch and Porsche

By means of Porsche 911, 928 and 959 starters featuring their historic design, Bosch Classic presents a recent spare-parts project developed together with Porsche Classic. The drive bearings and the adaption of the overrunning clutch and the pinion of both starters with an output of 1.5 kW and 2.0 kW each have been redesigned. This allowed the use of a motor and an engagement relay out of the current series-production range. Repairability and spare-parts supply are thus ensured. These starters form part of the Bosch Classic reverse engineering program and, of course, they do also comply with the original-equipment standard.

Ensuring long-term supply of spare parts for classic cars

Since it was first released in May 1973, the olive-green fuel storage has been an important component of Bosch K/KE-Jetronic systems. In order to ensure its long-term supply, the corrosion protection on its surface has been substituted by a new and more environmentally friendly treatment.

Reverse engineering is yet another strategy used to ensure long-term parts supply. A current project in this field is the well-known hazard lights switch a lot of vehicles were retrofitted with in the 1970ies as hazard lights or flashers had become compulsory. Instead of discontinuing the production of this switch, the responsibility was handed over to Bosch Classic. As a result, the hazard lights switch is still available with its original historic design, but is now equipped with modern electronics. Thanks to its installation instructions and exemplary circuit diagrams, vehicles built before 1970 can still be retrofitted with this switch.

Another example of reverse engineering is the black classic battery. While its exterior is an exact replica of its historic predecessor, its interior combines modern technology and compliance with present quality standards.

Increasing importance of electronic component remanufacturing

When it comes to keeping classic cars running, electronic components are of increasing importance. After all, Bosch D-Jetronic celebrated its 50th anniversary just last year. By means of remanufacturing and repair of electronic components and control units, Bosch Electronic Service provides useful alternatives in this field as well. Let us take the case of D-Jetronic control units, for example. Thanks to Bosch remanufacturing, they are given a second life. Over the years of automotive engineering, the electronic components used have become increasingly sophisticated and ever more connected. As a result, there is an increasingly frequent need for comprehensive simulations of the vehicle environment for both troubleshooting and remanufacturing. The know-how required for this purpose is usually restricted to the manufacturer of the respective component. Bosch Electronic Service thus focuses on remanufacturing electronic components originally produced by the same company; although continuously

expanding its range. The portfolio now also includes important components used in classic cars such as early ABS, ignition and engine control units. In addition, Bosch Electronic Service also repairs control units of the latest generation as well as navigation, control and display systems. As the use of electronic components continues increasing, this job is also gaining importance when it comes to ensuring a lasting future for tomorrow's classic cars as well.

Servicing and trainings for classic vehicles

By means of special Bosch Services with special know-how concerning the maintenance of historic vehicles, Bosch Classic built up a network for modern-era classic and classic vehicles. At present, 71 Bosch Classic Service workshops in Germany, Austria, Switzerland and France point out their specialist knowledge regarding repairs on historic vehicles.

This year, the comprehensive online archive containing classic-vehicle knowledge has been expanded even further. From now on, it will also include operating instructions for historic Bosch testers. Manuals for devices produced until approximately 2000 are sorted by type designation and can be accessed online.

Additional special trainings on older Bosch systems allow fans of classic cars with a passion for technology to deepen their knowledge. Details on these events are available online at www.bosch-classic.com.

Press photos: #1355806, #1355807, #1355808, #1355809, #1355810

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