

# Truck World

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## Better air for a better journey

**Bosch cabin air filters for trucks keep the air fresh in the cab, helping the driver to stay alert and enhancing road safety.**

A large blue truck with a grey trailer is driving on a road. In the foreground, there is a field of bright yellow flowers, likely rapeseed. A small dark car is visible on the road to the left of the truck. The background shows a line of trees and a clear blue sky.

**ESI[tronic] 2.0**  
Workshop software with off-highway functionality  
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## EDITORIAL

### CABIN AIR FILTERS KEEP THE AIR FRESH AND CAN HELP ENHANCE SAFETY



**Bosch products for commercial vehicles have a reputation for safety.**

**Dear truck fans,**

Truck drivers are exposed to airborne particles, like pollen, pollutants, and dust, every single working day – and even more so during the pollen season. Cabin air filters that are in good working order can help improve the driver's concentration and can also ensure a clearer view thanks to fewer deposits on the windows. For annual mileages of 100,000 to 150,000 km, Bosch recommends that the cabin air filter be replaced every two years at the latest. When looking for a replacement, it is worth opting for quality – pages 2–3 explain why.

Enjoy reading and have a great journey into the connected workshop future!

**Your commercial-vehicle team**  
**Christoph Bratzler Tobias Weiss**

#### Dates: FIA ETRC 2019

<b>Hungaroring</b>	June 22–23, 2019
<b>Slovakia Ring</b>	July 6–7, 2019
<b>Nürburgring</b>	July 20–21, 2019
<b>Most</b>	Aug. 31–Sept. 1, 2019
<b>Zolder</b>	Sept. 14–15, 2019
<b>Le Mans</b>	Sept. 28–29, 2019
<b>Jarama</b>	Oct. 5–6, 2019



# A breeze of fresh air! Bosch cabin air filters for trucks

Driving shifts in trucks involve working long hours and require the driver's full concentration. For this reason, the air in the commercial-vehicle workplace should be kept as fresh and pollen-free as possible. Cabin air filters must therefore do their job efficiently. What is important here is that the particle separation rate remains high with as little drop in pressure as possible throughout the filter's service life. With their multi-layered design, Bosch cabin air filters capture most of the pollen, pollutants, and dust. Activated-carbon filters additionally remove harmful and bad-smelling gases from the air – even in tunnels and traffic congestion. The driver's concentration increases, and visibility is improved because there are fewer deposits on the windows. This, of course, requires the replacement of the cabin air filter at regular intervals. **Bosch recommends a replacement every two years at the latest for annual mileages of 100,000 to 150,000 km.**

#### BOSCH CABIN AIR FILTERS – ONLY QUALITY IS EFFECTIVE

Effective filtration is a complex process. High-grade materials and a well-thought-out design are an essential part of a successful filtration strategy. All Bosch cabin air filters are made up of multiple filter layers that have been carefully matched to one another. The product's top quality pays off in many ways. The high-grade fibers used in Bosch cabin air filters ensure particularly reliable filtration. The filtration media have an especially large surface area due to their structure, and the fold geometry remains stable even in moist conditions. A high-quality activated-carbon layer does a particularly good job of absorbing harmful gases. Bosch cabin air filters are furthermore designed to precisely fit the filter installation space in the respective commercial vehicle. This ensures filter replacement is a straightforward job, even in tricky installation situations.



### ACTIVATED CARBON – AMPLE QUALITY AND QUANTITY

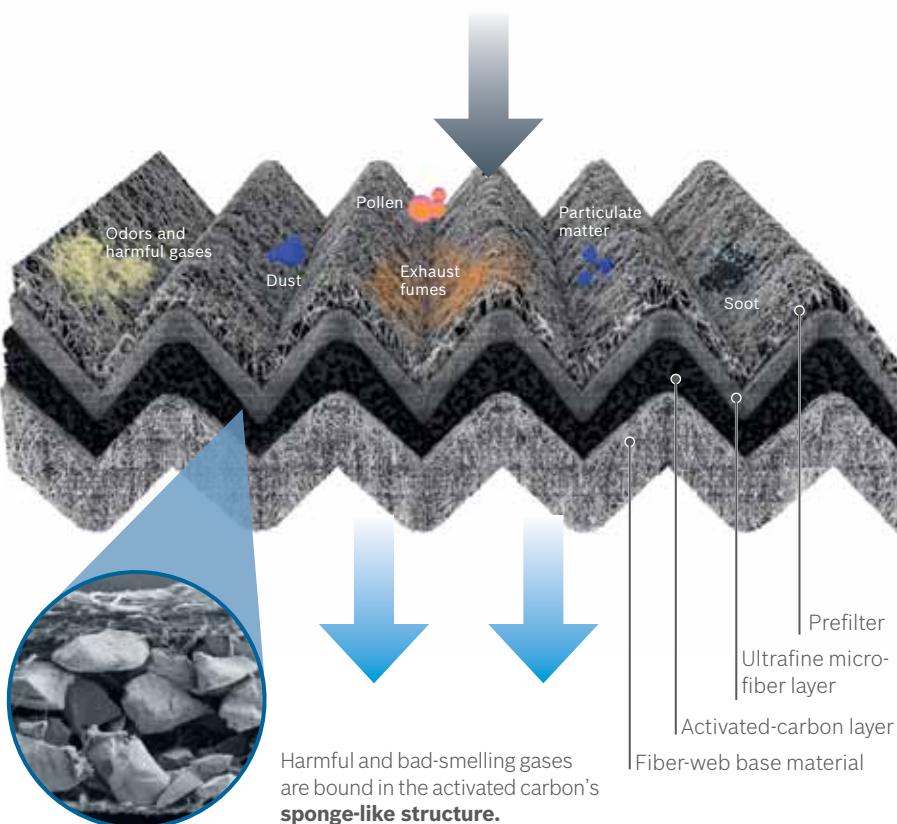
High-grade activated carbon features a large internal surface area. It is produced in a complex, high-temperature, air-free process. Its sponge-like structure allows it to neutralize harmful and

bad-smelling gases. Bosch equips its cabin air filters with an ample amount of high-grade activated carbon to ensure they can bind as many of these gases as possible throughout their service life.

### COMBINATION OF WOVEN AND NON-WOVEN FIBER WEB

Bosch cabin air filters comprise a combination of different layers that is specific to each filter. Both types of fiber web – woven and non-woven – are used together. Non-woven layers are primarily suitable for the efficient removal of relatively large particles. They are used, for instance, as a pre-filter or as a base material. The woven fiber web ensures smaller particles are removed efficiently.

## Activated-carbon filter



## A/C SERVICE

### BOSCH A/C SERVICE UNITS



### SERVICING LARGE-VOLUME AIR CONDITIONING UNITS

The ACS 810 air conditioning service unit has been specially designed to meet the requirements of buses, coaches, trucks, and R134a-based high-capacity air conditioning systems. It is equipped with workshop-compatible hardware, user-friendly menu navigation, system components optimized for large-volume A/C systems, and a custom range of accessories.

### TRUCK AND CAR A/C SERVICE

For commercial-vehicle workshops that do not predominantly service the air conditioning systems of buses and coaches, Bosch also offers the ACS 863 with refrigerant detection (R1234yf refrigerant) and the ACS 753 (R134a refrigerant) as well as corresponding accessories. Both units have an integrated leak testing function (using forming gas) and are Wi-Fi-enabled for connection to an ASA network as well as Bosch Connected Repair and for status displays in the smartphone app.



# ESI[tronic] 2.0 Truck for OHW applications takes on rough terrain



Excavators, heavy trucks, tractors, or engines – the OHW (off-highway) version of ESI[tronic] 2.0 Truck

Vehicle technologies are being continuously improved to make vehicles quieter, cleaner, safer, and more comfortable, convenient, and robust. Workshops inevitably have to keep up with these advancements. But as their range of tools and equipment grows because of this, workshops can also benefit from being able to perform repairs and servicing on the latest vehicle models. The updates to the ESI[tronic] 2.0 workshop software, which are released several times a year, provide workshops with the necessary information to carry out repairs and servicing efficiently and to a high professional standard. The 2018/3 update (September 2018) made ESI[tronic] 2.0 OHW (Off-Highway) available – it includes all the relevant information specially for agricultural machinery, construction machinery, and engines.

## ESI[TRONIC] 2.0 OHW USES PROVEN HARDWARE

The system specifically makes use of the products and information that are

already firmly established in the market. The second generation of KTS truck diagnostic modules (as of April 2013) as well as the all-in-one solution KTS 900 Truck (comprising the module and DCU 220 tablet PC) can continue to be used. Using the ESI[tronic] 2.0 diagnostic software as the basis, Bosch has developed two new information packages for use in the diagno-



**ESI[tronic] 2.0 Agricultural machinery (OHW 1)**  
Diagnostic software for agricultural vehicles (tractors, combine harvesters, etc.)

**ESI[tronic] 2.0 Construction machinery/engines (OHW 2)**  
Diagnostic software for construction vehicles (excavators, engines, etc.)

sis of vehicles predominantly deployed in agriculture and the construction industry. Four different license types are available. Workshops can subscribe to the software for one, three, or four years, or indefinitely (as a main license or supplementary license).

## WITH ALL THE BENEFITS OF ESI[TRONIC] 2.0

The OHW variant comes with all the benefits of the tried-and-tested ESI[tronic] 2.0 Truck diagnostic tool for commercial vehicles. It includes important basic information relevant to commercial vehicles (e.g. the model series, performance characteristics, engine identifier, and axle configuration) as the basis for thorough diagnosis. The software reads and erases fault codes, displays actual values, activates actuators, resets servicing intervals, and can also program new components.

If replacement parts are needed, they can easily be selected and ordered using the integrated Bosch spare parts catalog. The software also provides technical data that is useful in the CV workshop when technicians are looking for the cause of a fault. This includes component-related information as well as required values, output voltages, and characteristic curves. Circuit diagrams are quick and easy to use thanks to an intuitive user interface that dynamically displays component descriptions. The user furthermore has access to periodic inspections that include additional inspection items. All of these features make ESI[tronic] 2.0 Truck OHW an excellent diagnostic solution for all types of CV.

# Gentle giants – Bosch HEF/HEP 109 starters for off-highway applications



Bosch HEF 109 starter

Large-displacement engines are used all over the world in ore mining, decentralized electric power supplies, construction machinery, agricultural machinery, watercraft, and rail vehicles. Engine displacements of up to 180 l, high thermal loads, and large additional hydraulic loads are not uncommon in such applications. High-performance Bosch HEF 109 starters are deployed here as single units or in parallel starter systems to provide reliable engine starts.

## STARTER RANGE FOR A WIDE VARIETY OF OFF-HIGHWAY APPLICATIONS

Off-highway (OHW) applications are not “one size fits all” solutions. They are designed to handle the various conditions of the environment in which they are going to be deployed. HEF 109 starters are therefore available in a variety of versions. A modular starter

concept means that performance features can be selected as required and can also, to some extent, be combined with one another. This enables the creation of custom solutions that satisfy a specific set of requirements.

## POWERFUL STARTERS

With rated power outputs of up to 10 kW (24 V), HEF 109 starters are capable of starting diesel engines with piston displacements of up to 30 l under common cold-start conditions. Their robustness, modest installation space requirements, and modular design make HEF 109 starters a sought-after solution. They are designed for extended operational performance of up to 14,000 operating hours in stationary machinery and off-highway applications (approx. 800,000 km on-highway). Their high power density and cold-start capability are impressive.

## HEP 109 PARALLEL STARTER SYSTEM FOR LARGE ENGINES

Parallel starter systems, comprising two or three coupled HEP 109 starter motors, extend the application range to up to 90 l displacement for diesel engines and 180 l for gasoline engines.

## DESIGN FOLLOWS APPLICATION

If deployed under harsh conditions, the starter can be equipped with additional protection up to a rating of IP57. This rating also provides protection during brief immersion of the vehicle. A reversible protective thermal circuit breaker can be integrated in the starter's cabling to provide overload protection. A mechanical relay (IMR) with optional plug-in connection simplifies connection to the vehicle electrical system. This obviates the need for an external control relay, and controlled starts are possible via the engine control unit. The starter's design always follows the intended application. Outstanding cold-start performance, high cranking torque, and excellent start-up assistance are therefore intrinsic features of its design. It is also possible to supply various motor components with specific thermal characteristics optimized for the particular application scenario. HEF starters furthermore engage electrically and very smoothly in two stages. This extends the service life of the ring gear and starter pinion.



# Stay on the safe side and keep to the testing and replacement intervals



Bosch lambda sensor and its connector for connection to the cable harness

All engine functions, from mixture formation to exhaust-gas treatment, need access to the latest highly accurate data from the exhaust gas system. Mixture formation, which is controlled by the engine control unit, has an influence on the pollutant content of the raw exhaust gas. The LSU 4.9 wideband lambda sensor precisely determines the residual

oxygen content in the exhaust gas and thus helps to ensure that compliance with current and future emission and OBD regulations is maintained. The LSU 4.9 is used in commercial vehicles with a 24 V electrical system. Its robust sensor element design ensures it is particularly durable. It furthermore has a high thermal stability. The sensor is built for continuous operation at  $\leq 930^{\circ}\text{C}$  and can handle peak temperatures in the exhaust gas system of  $\leq 1030^{\circ}\text{C}$ . Despite its high durability, though, a lambda sensor is still a wearing part. Contaminated fuels and oil residues formed during combustion can leave traces over time and shorten the sensor's service life. Regular inspection and replacement therefore make economic sense. After all, only lambda sensors that do their job properly can be relied

## LAMBDA SENSOR DIAGNOSIS IN THREE STEPS:

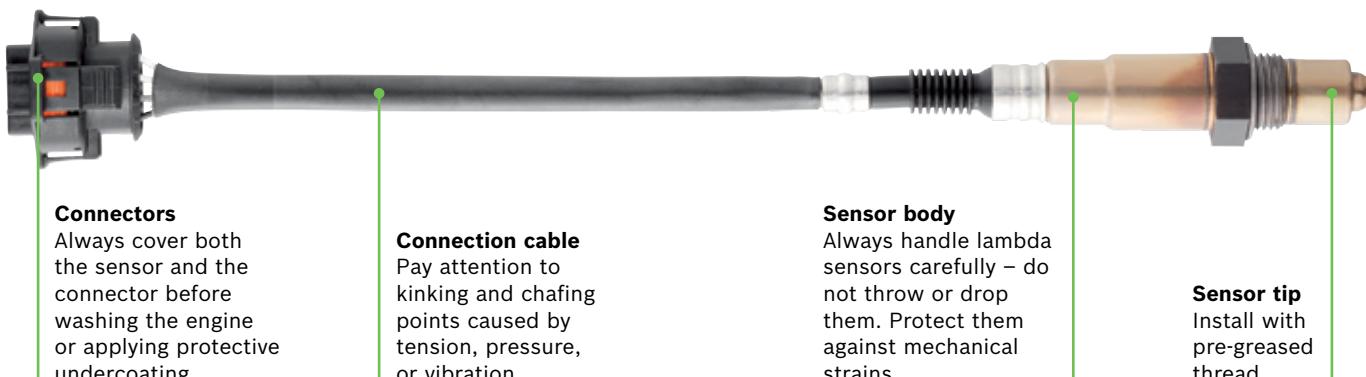
1. Read out fault memory and check actual values
2. Check signal patterns (as per ESI[tronic] 2.0)
3. Check cables and connectors for good contact

upon to help keep the engine functioning as it should.

## BOSCH RIGHT FROM THE START

Since most commercial vehicles are already fitted at the factory with lambda sensors from Bosch, workshops will easily find just the right replacement in the Bosch workshop range.

## HANDLING THE LAMBDA SENSOR CORRECTLY



### Simple but highly effective precautions

Do not apply contact spray or grease, as ambient air is required for the operation of lambda sensors.

Avoid hot resting points and contact surfaces on or at the exhaust system.

Protect the sensor against impact and do not clean using high-pressure cleaners.

Do not use leaded fuels. Do not apply thread grease to the protective tube. Keep the engine mechanically flawless, as residues – e.g. combustion residues – may cause deposits on the lambda sensor.

# Visual Connect: four eyes see more than two



The Visual Connect app from Bosch, which can be downloaded from Google Play and Apple's App Store, allows the hotline expert to see exactly what the mechanic sees.

For many people, the smartphone has become a constant companion – and that is also the case in the commercial-vehicle workshop too. Besides providing quick access to information, it also simplifies communication with customers and suppliers. Now, Bosch has developed the Visual Connect app for smartphones. If ESI[tronic] users have it installed on their phone, the app can assist during a hotline support call when troubleshooting a repair. The solution is a real timesaver. What is more, the workshop generally does not have to invest in additional hardware to use it. It means every workshop employee

basically has an expert advisor in their pocket.

## ESI[TRONIC] – THE REPAIR SUBSCRIPTION FOR WORKSHOPS

If the commercial-vehicle workshop has subscribed to the ESI[tronic] software and Technical Support, the mechanics can get in contact with experts for advice with particularly tricky fault tracing. Thanks to its additional functions, the free-of-charge Visual Connect smartphone app ensures the on-site support that the technician receives is even faster and more effective.



The latest version of the ESI[tronic] software makes it even easier to contact the hotline.

## ESI[TRONIC] FOR EVEN FASTER HOTLINE ACCESS

The new "Technical inquiry" button in the main menu of the ESI[tronic] workshop software ensures that fast, easy-to-reach Technical Support is now only a mouse click away.

[www.bosch-esitronic.com](http://www.bosch-esitronic.com)

## FASTER PROBLEM SOLVING WITH THE VISUAL CONNECT APP FROM BOSCH

The Visual Connect app proves to be a valuable support tool especially with complex repair issues when, for instance, the explanation provided by the Bosch expert over the telephone may not be immediately clear to the technician. Using the app and the smartphone's camera, the technician can present the problem to Technical Support much more effectively. The support expert sees exactly what the technician sees and can provide advice and assistance during every step towards the solution. The expert furthermore helps the technician make more effective use of the diagnostic units and other equipment available in the workshop. The support expert can at the same time draw on the screen within the app in order to explain something more clearly and can display additional information, like wiring diagrams or the position of concealed components. The mechanic can scan additional information, such as the vehicle identification number, and send it to the support expert and can use a pointer to indicate particular parts.



It's easy: mark the details in the Visual Connect app and share them with the hotline expert.

# Powering into ETRC 2019 yields successful season start

Photo: Hahn Racing

## BOSCH IN THE 2019 HAHN TRUCK

- ▶ Batteries
- ▶ Crankshaft sensor
- ▶ Camshaft sensor
- ▶ Diesel injection system with EDC7U control unit and unit injectors
- ▶ Fuel-filter replacement box
- ▶ Fuses
- ▶ Heavy duty alternator
- ▶ Intake-manifold pressure sensor
- ▶ Oil filter
- ▶ Relays
- ▶ Ribbed V-belts
- ▶ Wiper blades



Excitement in Misano – Jochen Hahn began the 2019 season with a win in the first race in his 1,150 hp Iveco racing truck.

## Title defense 5.0: two victories at the Misano World Circuit

Jochen Hahn completed the first race of the season with the same dominance of the track displayed during training and qualifying. The Iveco driver won the start and took the lead already at the first bend. He put a little distance between himself and his pursuers straight away and in the end crossed the finish line with a clear lead. In the second Saturday race, the eight top-placed drivers started in reverse order. Hahn got a drive-through penalty already while in sixth place and dropped back to eleventh. The start of the first race on Sunday saw the rain



Photo: Hahn Racing  
Autograph session – being very fan oriented, ETRC is one of the most popular racing series.

intensifying. Adverse track conditions meant the truck racers had to spend the formation lap and first race lap behind the pace truck. And the entire next lap was yellow flagged – so no overtaking for

a whole circuit. Not until the third lap did the race really get underway. In the end, Hahn crossed the finish line in a secure third place.

40,300 spectators watched the final race at Misano. Improving weather allowed the track to dry off. The three front runners, Hahn, Lenz, and Janiec, successfully broke away from the others, ultimately taking to the podium in that order too.

[www.team-hahn-racing.de](http://www.team-hahn-racing.de)

## IMPRINT

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