Truck World

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The future of truck racing

With the Iveco E-Race Truck, Hahn Racing and Bosch Motorsport lay the foundation for future truck racing formats

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EDITORIAL

BOSCH – A STRONG PARTNER FOR TRUCK WORKSHOPS

Dear truck fans,

truck technologies are a changing sector, where Bosch is a reliable partner for workshops. Bosch supports workshops concerning the maintenance and repair business with its ESI[tronic] Truck diagnostic software which is continuously expanded adding additional vehicle models. It includes a broad range of spare parts and numerous different services such as the hotline and trainings. However, Bosch also actively helps shaping the future. The electric race truck developed together with Jochen Hahn, 2023 ETRC vice champion, is one of numerous examples of this fact.

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

Your commercial-vehicle team

The electric truck

Hahn builds truck for new series

The task was set by Iveco. Together with the FIA, the owner of the European Truck Racing Championship (ETRC), Jochen Hahn was asked to homologate an electrically powered race truck. After all, the Swabian truck racer is not just six-time European Truck Racing Champion, but also responsible for building the race trucks for several teams. Climate crisis, fuel consumption and sustainability have become considerable keywords demanding technical innovations at the ETRC. After all, six-ton tractor units equipped with diesel engines featuring more than 1,000 bhp are sent out onto European race tracks. Even though the series started using HVO (hydrotreated vegetable oil) in 2021, a “keep it up” would have been unexceptable.

Building up the electrically powered race truck is also evolving a completely new racing format. Hahn isn’t just working at his workshop, with the truck buildup he is also shaping the key aspects of the future series. It’s all about specific characteristics and require-ments of an international e-racing format. Just as workshops need to observe special safety requirements when repairing

BOSCH/MOTEC IN THE E-TRUCK

- VCU (vehicle control unit) incl. logger
- color display incl. logger
- PDM (power distribution module)
- keypad
- GPS
- ADR (accident recorder)
- electric drive software
- Bosch Motorsport: System integration, tests, application

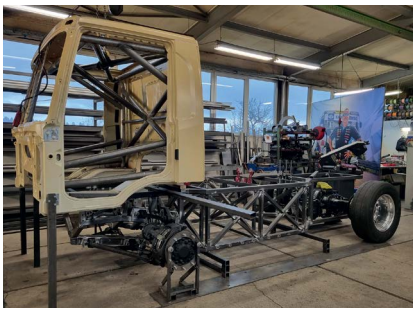
MoTeC – a Bosch company – is specialized on motorsport components and services.

and/or servicing electric power-trains, electric motorsports also brings along a whole series of technical requirements differing from the ETRC as we know it so far.

Completely new safety and charging structures must be developed and described in the regulations. This includes recovery and repair of electric race trucks. Trainings must be developed and performed since mechanics and race stewards should always be up to date. Switching to fully electric power-trains causes profound structural changes.

HAHN RACING – THE NEW TRUCK

The challenges of building up a prototype for a new truck racing series are huge. Hahn Racing already built nineteen race trucks complying with the FIA ETRC regulations for different teams. Turning vehicles into ready-to-race conditions has become everyday business at the Hahn Racing workshop. Iveco S-way acts as a model while numerous different bodywork components – such as doors – can be integrated. For this purpose, the bodywork



is mounted onto a welded ladder frame. The electric power-train, however, is a complete novelty in race trucks. Since Bosch has been supporting the European champion truck racing team Hahn Racing ever since 2011, opting for Bosch Motorsport as competence partner was an obvious choice. The racing specialists from Abstatt have not only proven their worth for decades in gasoline- or diesel-driven racing series, Bosch Motorsport also supports the new American LMDh 24-hours racing format with its know-how.

BOSCH MOTORSPORT: TALKING ABOUT SYSTEM COMPETENCE

Today's key aspects in motorsports are: fuel savings, sustainability and cost efficiency. As leading developer and integrator of the unit hybrid system, Bosch Motorsport also performs high-quality work on hard- and software under the tough conditions of the Le Mans Daytoa hybrid (LMDh) prototype class and works on the interaction of all components and partners of the LMDh. This high competence also benefits the engineering and integration support for the buildup of a new, fully electric race truck. In fact, the vehicle is ready for racing. The 252 kW battery copes with the 45 km load profile of ETRC race tracks. The engine performance of 1,000 bhp also does. The racing top speed of 160 km/h can be set and controlled by the system. The FIA regulations for the future electric truck racing series, however, are not ready yet. They are expected to be launched in approximately two or three years.

RACE PARTNER

BOSCH MOTORSPORT AT LE MANS DAYTONA HYBRID

System integration of hard- and software in motorsports

By means of the LMDh category (Le Mans Daytona hybrid), both the ACO and the IMSA, two major racing organizations, created a common vehicle platform allowing both manufaturers and teams to race the same car at the FIA World Endurance Championship and at the IMSA WeatherTech SportsCar Championship without having to perform any modifications.

Bosch Motorsport was nominated as exclusive supplier of several highly technological vehicle components and for their system integration. Bosch supplies the LMDh with key e-mobility hardware reaching from e-machines to power inverters and vehicle control units through to brake-by-wire systems and additional periferical electronic systems. Furthermore, Bosch Motorsport also provides an intelligent hybrid power management software controlling the torque distribution between combustion engine, e-machine and brake-by-wire system.

Changing vehicle bulbs, relays and fuses in commercial vehicles

Bosch relays, bulbs and fuses

GOOD PREPARATIONS HELP TO AVOID INTERRUPTIONS OF THE JOURNEY

Commercial vehicles should always be ready for action so that they can carry out orders quickly and reliably. Disturbances and the associated interruptions to the journey are always inconvenient and appear often without warning. However, being prepared for disruptions is easy – even for failures of vehicle bulbs, relays and fuses. The most important tip is therefore: Always have a replacement ready!

VEHICLE BULBS ARE WEARING PARTS

In continuous use, the filament wears out. A defective bulb must be replaced immediately. If the right light bulb is at hand, this can be done very quickly. Gloves or a soft cloth should be used when doing this, as light bulbs that have just been switched off are very hot and can cause burns. Furthermore, touching it with bare fingers could shorten the lifetime of the bulb. Workshops are well prepared if they always have the most common bulbs in stock and check the lighting during maintenance and repairs.

RELAYS LAST A LONG TIME – BUT NOT FOREVER

If an electrical consumer in the vehicle does not work, it may be due to a defective relay. After disconnecting the battery, the relay can in most cases be carefully loosened and replaced with a screwdriver.

OVERHEATING: POSSIBLE CAUSE OF BLOWN FUSES

If the windscreen wipers, windscreen heating or radio stop working, this may be due to a fuse broken because of overheating. It must then be replaced. To avoid an electric shock, the battery has to be disconnected. After pulling the broken fuse out of the spring terminals with long flat-nosed pliers or tweezers it is to be replaced by a fuse of the same type.

It is advantageous to have bulbs, relays and fuses on board. During the transport of heavy loads sometimes little things ensure reaching the destination on time.

ESI[tronic] Truck/OHW: data for 13,757 CV models

Bosch ESI[tronic] software for commercial vehicles is continuously expanded.

By now, commercial-vehicle workshops expect more than just ECU diagnoses if they think about diagnostic software. Intelligent troubleshooting, support for quick servicing in line with the manufacturer specifications and experience-based repair cases have become standard at the diagnostic sector. In order to comply with ongoing further developments on the vehicle markets, diagnostic software must be updated regularly.

DCU 120 tablet computer,
DCU 220 convertible PC and KTS Truck

Combinations for CV diagnoses via ESI[tronic] Truck/OHW software

Robust workshop hardware for successful diagnoses.

- KTS Truck VCI – combined with DCU 120/220 or any other normal computer
- KTS 900 Truck VCI and PC – complete solution consisting of a KTS Truck and a DCU 220
- adapter cables
- manufacturer-specific adapter cables

ESI[tronic] Truck/OHW: vehicle diagnoses with active troubleshooting

ESI[tronic] Truck supervises and supports at all tasks reaching from troubleshooting to repair. Commercial-vehicle workshops benefit from maintenance schedules and circuit diagrams, diagnostic functions, repair and troubleshooting instructions, manuals and vehicle data for numerous commercial-vehicle brands. In order to increase the efficiency of ECU diagnoses, mechanics are guided step by step from troubleshooting to all necessary maintenance and repair jobs to be performed on the commercial vehicle while relevant data is provided. Moreover, hotline and training experts are available to help on in case of particularly sophisticated repair tasks.

Up to date thanks to regular updates

Besides suitable data packages for different types of workshops, regular ESI[tronic] updates are of major benefit for the users. The 2023/3 update for truck, OHW 1 and 2 packages provides additional application possibilities and a higher market coverage:

- 11 new brands
- 423 new models
- 1,873 new control units
- 1,806 new diagnostic functions
- 110 new diagrams
- 16,007 new code units

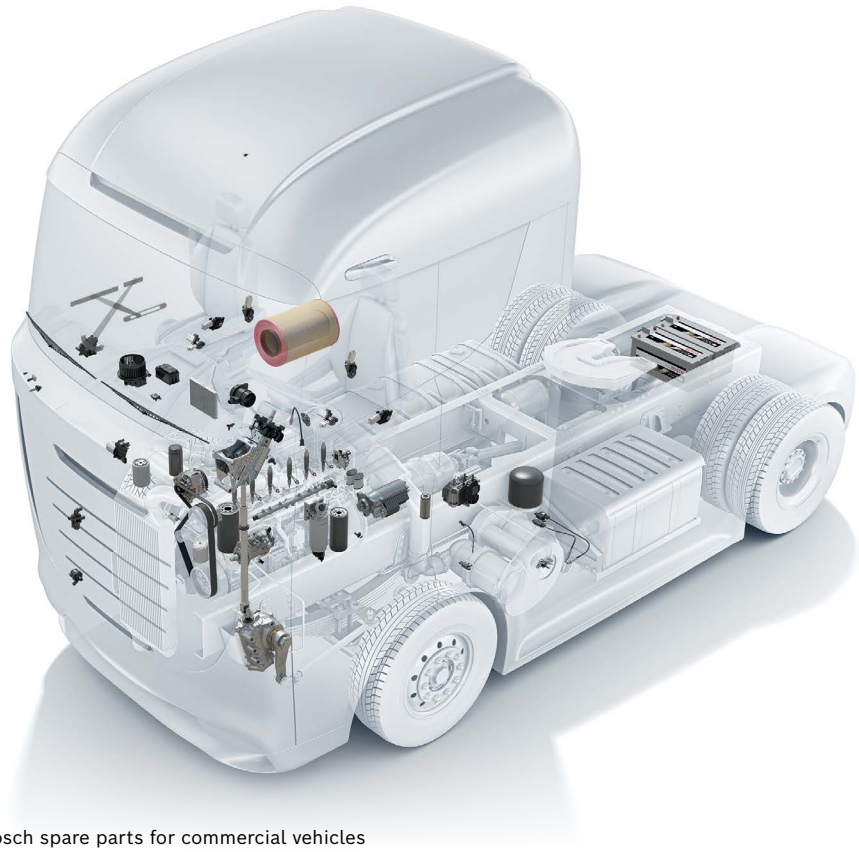
Practical SD truck adapter suitcase: Volvo, Iveco 3-pole, Iveco, Mercedes-Benz 14-pole, Scania, Renault, MAN TG round plug, MAN 2000 series, DAF and Scania round plug

ESI[tronic] Truck/OHW software

Commercial-vehicle workshops can choose a series of different data packages and even combine them if required:

- truck package (light and heavy commercial vehicles, trailers, LCVs, vans and buses)
- agricultural-machinery package (OHW 1)
- construction-machinery and engines package (OHW 2)

Bosch spare parts for commercial-vehicle energy management



Bosch spare parts for commercial vehicles

Reliable startups, power supply and operation: Energy management systems of modern commercial vehicles fulfill sophisticated and interconnected tasks. Reliable starting, continuous electric power supply of comfort and convenience functions and reliable engine and powertrain technologies reduce unexpected downtimes caused by breakdowns and repair jobs.

BATTERIES

As the most powerful Bosch commercial-vehicle battery featuring AGM technology (Absorbent Glass Mat) and a special grid, **TA AGM** supports start/stop systems. It was specifically designed for advanced comfort and convenience features. Extremely powerful and vibration-resistant **TE EFB** truck batteries featuring EFB technology (Enhanced Flooded Battery) and a special grid for optimized current flow and reduced corrosion are designed to cope with the huge energy demands of numerous convenience functions in long-distance traffic, off-highway and heavy-duty applications.

ALTERNATORS

The Bosch commercial-vehicle alternators ensure a reliable on-board supply for on- and off-highway vehicles with a large number of electrical consumers. They are designed for most diverse applications and cover almost all energy demands – even in case of extreme requirements.

DRIVE BELTS

Replacing drive components on time has by now become a standard task for workshops. This ensures efficient power transmission and prevents damages if the fixed service intervals specified by the manufacturers are strictly observed. For quicker and safe replacement, Bosch provides just the right V-belt types for a wide range of commercial vehicles – the large majority being modern ribbed V-belts.

STARTERS

Bosch provides a broad range of high-quality commercial-vehicle starters. They stand out for their high reliability and starting performance even under tough external conditions and they meet the high demands in terms of robustness and quality.

Trailer PIN: permit can now be obtained online

Adjusting or repairing electronic brake systems of commercial vehicles and trailers requires an access permit which can be obtained at the web-based Trailer PIN training.

For security reasons, the module for the adjustment of electronic commercial-vehicle and trailer brake systems of the ESI[tronic] Truck workshop software can only be activated once the access permit has been obtained. Members of the workshop staff can now acquire this qualification not only at a face-to-face training but also in a flexible manner and independently from time and space at the web-based Trailer PIN seminary – both as initial or update training. They will be qualified to parameterize the braking systems and thus offer a safety-relevant service.

TRAILER PIN PERMIT WEB-BASED TRAINING (APPROX. 4 HOURS) 1 987 726 405

The training allows to get started with CV diagnoses on trailers. The participants gain profound knowledge about the logics of trailer PIN 2 and the respective legal fundamentals. The successful completion of the course is documented by a certificate which entitles the graduates to use the expanded mode for KTS Truck diagnoses for trailers. Besides legal guidelines for brake-force alignment between tractor unit and trailer, the participants also learn how to use KTS in such a manner as to identify the vehicles and to access both the functional overview and technical information. The identification of different components of trailer brake systems is trained. In addition to this, know-how about where to find information, instructions and technical documents on ESI[tronic] 2.0 is also taught. The participants get to know different generations of electronic brake systems (EBS), their manufacturers and opportunities of diagnoses. They use different dataset options – such as displaying ALB signs and printing as well as data mirroring and conversion. They perform target-oriented troubleshooting tasks using the ESI[tronic] Truck diagnostic functions. They will also be able to replace EBS and to transmit their respective datasets.

Bosch Service trainings on commercial vehicles

Prerequisites: It is recommended to perform the ESI[tronic] 2.0 in combination with KTS training (1 987 726 145) prior to the trailer PIN training.

Registration and training dates at **www.automotive-campus.com**

Commercial-vehicle exhaust-gas treatment, face-to-face training (2 days) 1 987 727 577

Workshops performing proper maintenance and repair tasks on exhaust-gas treatment systems help protecting the environment and make customers happy. At this training, practical work and troubleshooting on different exhaust-gas treatment systems is taught using KTS and Denoxtronic test sets.

Commercial-vehicle diesel injection technology, F2F training (3 days) 1 987 727 563

Due to the Euro 6 emission standard, latest commercial vehicles are all equipped with common-rail systems. Accordingly, that's what this training focuses on. Troubleshooting and practical tasks are performed right on the vehicle. Proper use of KTS Truck, FSA 500, Diesel set 1 and additional service tools are trained and comprehensive diesel system know-how is taught.

ETRC final in Jarama: Hahn again vice champion

BOSCH INSIDE 2023 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

Photo: Bartscher/Team Hahn Racing

Using full speed and taking advantage of every gap, Jochen Hahn once again took second place in the overall ETRC rankings in Jarama, Spain.

Fast family: Jochen and Lukas Hahn both vice champs

At the final round of this year's FIA European Truck Racing Championship on Circuito del Jarama, Jochen Hahn, the Iveco pilot from Altensteig, secured his second rank on the overall standings right behind the ETRC 2023 champion Norbert Kiss. Already at the free practice sessions on Saturday, Jochen proved, he got along very well with the traditional race track north of Madrid. Despite racing accidents and technical defects of other competitors, which upset the schedule of the first race day, Hahn kept full concentration and used the gaps that arose to push forward place by place. At exciting battles with local heroes Luis Recuenco and Antonio Albacete and over several rounds with Sascha Lenz, great entertainment was pro-vided. "This was a great racing weekend for us down here in Jarama," Jochen Hahn summarized overwhelmed with joy on Sunday evening. "On Saturday, I managed to win the vice championship ahead of time while Lukas became young drivers' vice champion. Together with Steffi Halm, we also won the vice championship at the team ranking. We sincerely thank our whole team and our partners and sponsors, of course. This successful season was only possible thanks to their great support."

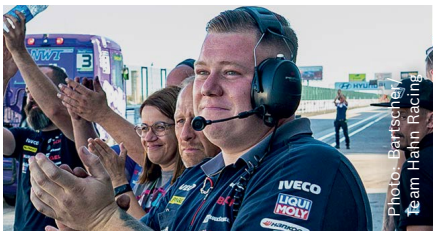


Photo: Bartscher/Team Hahn Racing

Lukas Hahn: European Vice Champion Young Drivers

www.team-hahn-racing.de

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