BRAKING NEWS

CHRISTMAS CAMPAIGN AT HIGHWAY SERVICE AREAS
DocStop brings happiness to truckers

SUSTAINABLE TIRES
Renewable and recyclable materials are increasingly important

TRUCK CHARGING INFRASTRUCTURE
Setting up the system together

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KNORR-BREMSE

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Dear Reader,

ALEXANDER WAGNER,
Head of Aftermarket/TruckServices EMEA at Knorr-Bremse Commercial Vehicle Systems

The commercial vehicle industry is making a huge effort to combat climate change by reducing truck CO_2 emissions. This alone will not stop climate change, but will make a significant contribution. Transformation of vehicle fleets plays an important role in the process, and there is high demand for trucks with battery-electric drive systems. A wide range of models is now available, but for the change to succeed, rapid, large-scale expansion of the charging infrastructure is called for. A network of public and private charging hubs tailored to the space and power requirements of heavy-duty trucks is essential. The cover story on page 20 describes the German government's expansion plans in this field, as well as private sector initiatives and the sources of funding that are available.

The tire industry is also helping the transport sector to reduce its carbon footprint, by working hard to cut overall CO_2 emissions from the tire production process. The use of sustainably sourced materials and components plays an important role here. On page 4 we describe the tire industry's progress towards a circular economy. Optimizing tire rolling resistance can also improve the fuel efficiency of vehicle operations, and on page 9 we explain how Knorr-Bremse's iTPMS intelligent tire pressure monitoring system can help prolong service life by ensuring the correct degree of rolling resistance at all times.

At the end of 2023 our partner Jochen Hahn celebrated winning a silver medal for his consistently excellent performance during all eight rounds of the European Truck Race Championship. We would like to congratulate him on his great achievement!

Finally, we hope that our article about the DocStop Christmas campaign will prompt you to lend a thought to professional truck drivers during the festive season. In our hectic everyday lives, we can all too easily forget the people who help keep our economy running, even if this involves spending the holiday alone on the road.

The next Bremspunkt will be published next year. Until then, I hope you enjoy reading this issue. Have a Merry Christmas and a Happy New Year!

Alexander Wagner

A question of efficiency

The long road to a green tire

By 2050 at the latest, Europe's leading tire manufacturers are aiming to produce all their commercial vehicle tires sustainably, using renewable and recycled materials. Their prototypes provide some clues as to how they might hit that target.

Tires have a major influences on the carbon footprint of any shipment. For instance, rolling resistance is a particularly significant contributor to the fuel consumption and CO_2 emissions of commercial vehicles. According to Michelin, increasing rolling resistance by 30 percent can push up fuel consumption by as much as five percent. Manufacturers are therefore looking to reduce rolling resistance using a combination of new rubber compounds and improved tire casing design. Only by improving every aspect of their tires can they continue to make significant progress without compromising key characteristics such as safety. The latest example of progress is Continental's recently-introduced Conti EfficientPro Gen 3+ range, which is designed for long-distance routes and, depending on the size of the tire, is claimed to deliver a reduction in rolling resistance of up to nine percent.

» ContiConnect helps improve tire maintenance, and therefore saves fleet fuel costs. «

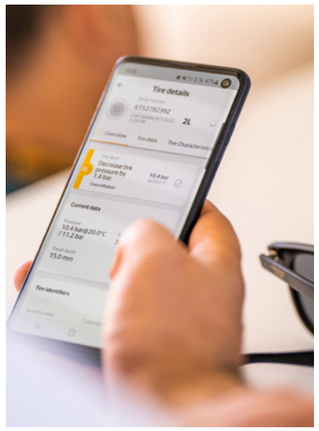
Ralf Benack,
Head of Fleet Solutions EMEA, Continental

But there is more to a "green" tire than low rolling resistance. Another crucial factor is the tire's maximum mileage; replacing a tire less frequently will reduce its carbon footprint. With this in mind, manufacturers are now launching digital services designed to prolong the operating lives of their tires. One such example is Conti SmartConnect 2.0. Data from sensors provides fleet managers with information about the pressure and temperature of their tires. Under-inflating a tire by one bar causes a 1 percent increase in fuel consumption. By contrast, getting the pressure right reduces fuel consumption and lengthens overall tire life. The digital systems also help to schedule the best time for tire changes and prevent punctures.

The main factor determining a tire's service life is whether or not it can be re-treaded – Michelin estimates that re-treading can increase maximum mileage by as much as 150 percent. Re-using the casing also requires far less material than making a new tire from scratch. According to Continental, the difference amounts to around 70 percent. The German firm also estimates that re-treading a tire emits about 24 percent less CO_2 and uses 19 percent less water than making a new one.

However the biggest step towards sustainability would be the widespread use of renewable and recyclable materials. The steel belts from used tires have been routinely recycled for some time already, and recycled soot, carbon-capture technology, plant-derived oils and low-carbon methane pyrolysis are being used more and more often. Some crude-oil-based products can be replaced with plant-based oils such as rapeseed oil, which is a byproduct of the paper and timber industries. Silica can

SUSTAINABLE MATERIALS: In future, renewable raw materials will be increasingly used in tire production. But the quantities are currently often limited.



THE CONTI-CONNECT 2.0 APP also provides drivers with essential real-time information and messages.

be derived from the ash of rice husks, while Continental, Goodyear and Hankook all have plans to produce polyester yarn from PET bottles, cabling and similar plastic waste.

Using natural rubber from dandelion roots (taraxagum) could be another way of delivering a big improvement in carbon footprint, and Continental's first bicycle tire made with this natural rubber material has already been on the market for three years. According to their own calculations, the next task will be to scale-up the same technology so it can be used in commercial vehicle tires. If they succeed, they will deliver a significant reduction in the carbon emissions currently associated with transporting natural rubber from conventional sources in South America and Asia. In the meantime, sustainably-produced natural or synthetic rubber represents a workable stopgap solution.

There are already clear signs of progress. Continental has recently unveiled its Urban tire, a concept tire designed for buses and goods vehicles. Almost 50 percent of the materials used to make the Urban are renewable and/or recycled, and fully 68 percent of the tread is made up of sustainable materials. If these tires are then re-treaded, the share of renewable materials rises above 90 percent. Michelin and Goodyear have both released similar statistics. The French company has just unveiled a bus tire made of 58 percent sustainable materials, and the American firm has demonstrated a truck tire made of 63 percent sustainable materials.

Truck racing tires reborn

Even with the tires used by Jochen Hahn's race truck, the emphasis at Goodyear is on sustainability. Though the 315/70 R 22.5 racing tires have a unique tread design using a special formulation, the casings themselves are indistinguishable from those of ordinary trucks driving on European roads. This means that Goodyear can extend the life of these tires by retreading them for ordinary daily use. The company also minimizes the environmental impact of its tire production by using renewable energy sources such as hydro, wind or solar energy, as well as geothermal biomass.

» Recycling is a key component of a circular economy. «

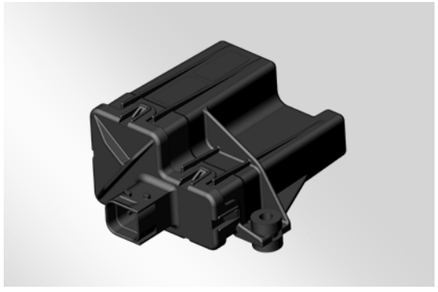
Markus Bast,
Managing Director and Director B2B for Germany, Austria and Switzerland, Michelin

All tire manufacturers are aiming to raise those figures to 100 percent by 2050. As Mirco Brodthage, Head of Continental Germany's Tire Replacement division, explains: "Delivering a circular process by 2050 is a key pillar of our sustainability strategy. To do that, we are looking at every phase of our tires' lives, from materials procurement to production and customer use, right down to to disposal or, ideally, re-use." Michelin's Markus Bast, Managing Director and Head of B2B Sales for Germany, Austria and Switzerland, is thinking along similar lines. "We are taking a holistic approach to sustainability, from the production process to the product itself and its recycling after use", he says. Hankook have also stated: "By 2050 we aim to replace crude-oil-based materials with 100 percent sustainable ones."

All these companies are moving in the same direction, but they are doing so at different speeds. For example, Continental wants to make 60 of the materials used in its most important products sustainably produced by 2030, whereas Michelin is aiming for 40 per cent by the same date. Hankook, meanwhile, is currently using about 30 per cent sustainable materials, and has explained that limited supplies are making for a challenging transition. Despite recent progress, the road to a truly green tire is still a long one.

LONG LIFE: According to Michelin, retreading increases mileage by a factor of 1.5 This saves resources.

Sustainable and safe



ITPMS CONSISTS OF BATTERY-POWERED SENSORS (r), that are attached to the rim well of each wheel by a tension strap. These send radio signals to the iTPMS ECU (l.).

Compatible with the iTEBS® X and TEBS G2.2 EBS generations, Knorr-Bremse's iTPMS tire pressure monitoring system prevents accidents and saves fuel by warning drivers when a loss of pressure occurs.

According to its own figures, the ADAC TruckService breakdown team attends around 40,000 call-outs a year, two thirds of which are for tire failures. Most are caused by poor maintenance and underinflated tires. Underinflated tires are more prone to wear and this can result in blowouts. But even if there isn't a puncture, tires that aren't inflated to the correct pressure will always increase fuel consumption. As a rule of thumb, fuel consumption rises by one percent for every bar below the recommended pressure. Depending on a trailer's mileage, this can easily add several hundred euros a year to a fleet operator's costs.

"Tire pressure monitoring systems are an effective and affordable way of preventing this", says Anuj Kumar Shrivastava, PMO and PM team leader for Trailer PG at Knorr-Bremse Technology Center India. A tire pressure monitoring system (TPMS) monitors the tire pressure on all of a trailer's wheels. According to the UN ECE R 141 standard, if a tire pressure loss of 20 percent or a malfunction occurs, the driver must receive a warning in the cab within ten minutes so that they can fix the problem at the next available opportunity. If the TPMS gives a second warning, the driver knows that the tire is damaged and must be changed to prevent a failure while the vehicle is on the road. "A TPMS saves fuel, reduces tire wear and prevents unplanned downtime and costly additional damage. When a tire suffers a blowout, bits of it can fly off and damage other components in the vicinity of the wheel", explains Shrivastava.

Knorr-Bremse's iTPMS intelligent tire pressure monitoring system complies with the UN ECE R 141 standard and communicates with the Company's latest trailer EBS systems, the iTEBS® X and TEBS G2.2. It is also compatible with any other third-party, R141-compliant trailer EBS. Battery-powered sensors attached by a tension strap to the rim well of each wheel monitor the pressure and temperature of every tire and report them separately. The iTPMS sensors send their reports to the trailer EBS. Warnings are communicated via the truck trailer CAN bus to the driver's cab, where they are shown on a dashboard indicator or separate display. The signal can also be sent to a fleet telematics system.

Even setting aside the additional costs and downtime associated with damage to the vehicle, depending on its mileage the iTPMS soon pays for itself through fuel savings alone. Moreover, federal government funding for up to 80 percent of the purchase price is available through schemes such as the De minimis program. According to Anuj Kumar Shrivastava, this means you start saving money within a matter of months. However, the funding will only be available until tire pressure monitoring systems become a statutory requirement. With effect from July 2024, it will be mandatory for all new trailer registrations to have a TPMS, and the systems will no longer be eligible for funding from this date. So make sure you install a TPMS on your new vehicles now, before it's too late.

Mobility solutions for today and tomorrow

This year, Knorr-Bremse Commercial Vehicle Systems attended the Busworld Exhibition for the first time, presenting itself as a supplier of state-of-the-art braking, safety and comfort systems for city buses and coaches.

KNORR-BREMSE showcased its wide range of systems solutions for today's and tomorrow's bus fleets.

Busworld Europe, in Brussels, is one of the leading trade fairs for the international bus industry. This year, more than 40,000 visitors from 111 countries used the opportunity to find out from over 500 exhibitors about the latest trends and technical developments in the segment. For the first time, Knorr-Bremse Commercial Vehicle Systems took part in the fair, showcasing its wide range of systems solutions for today's and tomorrow's bus fleets.

Scalable platforms and weight savings are two key requirements of the commercial vehicle industry. The modular Global Scalable Brake Control system (GSBC) fulfils both of these. It simplifies system layout, reduces the number of components, and cuts weight and installation costs. GSBC integrates vehicle dynamics control systems such as ABS and ESP and offers interfaces, for example to driver assistance systems. In addition, it can be easily and cost-effectively configured as a high-redundancy braking system to facilitate highly automated driving (HAD). E-buses also benefit from the possibility of integrating the drive motors into the driving dynamics control circuit, extending the vehicle's range and generating less wear on the brakes. The Electric Vehicle Motion Control (eVMC) software extension also further improves the vehicle's range by optimizing energy recovery during deceleration and braking.

The Synact® disc brake family, which has undergone continuous development over the years, also strikes a balance between traditional and futuristic forms of mobility. The modular axial or radial brakes offer advantages for buses with both conventional and electrified drive trains, saving up to 48 kilograms of weight per bus and also capable of being supplemented with Active Caliper Release (ACR). This mechanical system disengages the brake pads from the brake disc and at the same time re-centers the caliper, minimizing brake drag and delivering fuel savings of up to one per cent. The Noise, Vibration and Harshness (NVH) toolbox further reduces noise emissions from the brake - an advantage especially for city buses.

KNORR-BREMSE offers components for both conventionally and electrically powered buses.

The Electric Screw Module (ESM) is also an ideal solution for electrically powered city buses or for e-buses with medium to high air requirements. It is highly efficient and also particularly reliable and quiet. And the Intelligent Air Processing Unit (iAPU), can further optimize energy efficiency by managing various vehicle functions according to demand. In addition, the iAPU takes over the electric motor control of the Electric Screw Module (ESM).

At Busworld Knorr-Bremse also presented advanced driver assistance and safety systems. The retrofittable ProFleet Assist+ turning assistant helps prevent accidents during turning or when the driver comes too close to the vehicle in front. The strength of the camera-based system lies in its high level of accuracy and its speed in detecting vulnerable road users such as cyclists and pedestrians. ProFleet Assist+ also includes traffic sign recognition, distance monitoring and lane departure warning functions. If the camera detects a hazard, it emits an audible driver alert and a visual warning via the EyeWatch display.

Knorr-Bremse also offers a comprehensive portfolio of bus steering systems, including versions for electrified vehicles. These improve road safety by helping the driver to stay in lane, for example, and at the same time offer a high level of comfort through flexibly adaptable steering feel and speed-dependent steering assistance. The electrohydraulic Advanced Hybrid Power Steering (AHPS) system that was exhibited in Brussels supplements manual steering with a superimposed torque on the steering shaft and can amplify, attenuate or replace the driver's steering input, depending on the driving situation. Thus numerous driver assistance functions can be activated via the link to the vehicle's assistance systems.

Full House in Fulda

Alltrucks partner events offer a relaxed setting in which to network and talk shop about current aftermarket trends. The main focus of the Fulda meeting was on fleet electrification and digitalization, but it also provided an opportunity to celebrate Alltrucks' tenth birthday.

MARKET MEGATRENDS: Presentations by Alltrucks and partners analyzed the challenges and opportunities associated with fleet electrification and digitalization.

» Zero-emission drives and digitalization present both challenges and opportunities for service businesses. «

Alexander Wagner,
Head of Aftermarket/TruckServices EMEA at Knorr-Bremse and chair of the Alltrucks advisory board.

» Our founders, business partners, service providers - and in particular, our workshop-partners once again made sure the Alltrucks partner event was a very special occasion. «

Homer Smyrliadis
CEO Alltrucks

This year, Alltrucks founders Bosch, Knorr-Bremse and ZF met with the multi-brand full-service workshop system's business partners and service providers at an event in Fulda. The event started with an evening stroll through Fulda's tranquil old town, and also a chance to toast the successful workshop network's tenth anniversary – Happy Birthday Alltrucks! Thus the ice was already broken and were conversations in full flow by the time the participants sat down to a hearty evening meal in a traditional Bavarian inn.

As well as networking, the Alltrucks partner events are also about sharing knowledge. Alongside Knorr-Bremse and fellow Alltrucks founders Bosch and ZF, this year's presenters also included Quantron, Krone and Semmler TachoControl. Their presentations analyzed current trends in the workshop business, which is being transformed by zero-emission drive systems and digitalization. These changes present both challenges and opportunities for businesses. "Remote condition monitoring is a promising business opportunity for commercial vehicle workshops", explained Alexander Wagner, Head of Aftermarket/TruckServices EMEA at Knorr-Bremse and chair of the Alltrucks advisory board. Condition monitoring uses the data from networked vehicles to schedule predictive service and maintenance. It's a win-win-situation. Service companies are able to work more efficiently if they can prepare for jobs and plan their workload in advance. At the same time, the digital information collected from trucks and trailers reduces downtimes by enabling precise diagnoses to be made. Fleets also benefit from the cost predictability made possible by combining this information with service contracts. Knorr-Bremse is well-equipped for condition monitoring. In addition to the tried-and-tested Knorr-Bremse tools, Alltrucks firms are also offered Jaltest telematics, with integrated remote diagnostics and other efficiency-boosting tools from Cojali. Electric mobility is also set to have a lasting impact on the service business. However, there is now more than one drive type to contend with. Both battery electric and fuel cell commercial vehicles will be needed if zero-carbon freight transportation is to be achieved. And even conventional drive technology will remain part of the service business for many years to come. In other words, tomorrow's workshops will have to be equally capable of servicing diesel, BEV and hydrogen vehicles.

The new regulations requiring retrofitting of modern tachographs are another business opportunity. From August 21, 2025, all commercial vehicles engaging in cross-border transportation will have to use Version 2 smart tachographs. Older devices in existing fleets will therefore have to be replaced by that date. If, when the deadline arrives, there are not enough Version 2 devices to fully meet the aftermarket's needs, workshops will be allowed to install Version 1 smart tachographs instead, at least for a two-year transition period.

THE KNORR-BREMSE TEAM WAS DELIGHTED WITH THE SUCCESS OF THE EVENT. (L. TO R.) Florian Schlüter, Florian Bentlage-Schmölzer, Sarah Klein, Alexander Wagner, Simon Binar, Gonzalo Cordoba.

Knowledge as a competitive advantage

Every two years, Knorr-Bremse TruckServices sales partners from Portugal and Spain meet at a Knorr-Bremse site to learn about the OE supplier's latest products, services and processes. This time round, the focus in Liberec was also on remanufacturing.

Information represents an important competitive advantage in the aftermarket. In a variety of ways Knorr-Bremse helps its aftermarket sales partners to keep pace with the latest technical developments and gain insights into development, testing and production processes. Distributors' meetings are an important way to achieve this, providing first-hand knowledge of Knorr-Bremse's expanding portfolio, new services and production processes.

KNOWLEDGE TRANSFER IN THEORY AND PRACTICE: the distributors' meetings include plant visits as well as information sessions.

This year, companies from Spain and Portugal met in Liberec, Czech Republic, where Knorr-Bremse has two operations: an OEM plant and a remanufacturing facility. The dealers were impressed by the level of automation at the former. They were able to see for themselves how market leader Knorr-Bremse manufactures filter cartridges at its own plant with an impressive production rate and stringent quality standards. The remanufacturing plant also offers top-quality products. On an area measuring 12,000 square meters, more than 1,000 EconX® products are manufactured to OE standards using patented cleaning and testing processes and state-of-the-art equipment. This triggered great interest amongst the participants: after all, the countries of southwestern Europe have some of the biggest customers for industrially reconditioned EconX products.

During the site visit, distributors learned from Jose Luis Iza, Managing Director Knorr-Bremse Iberica, and Katrin Gienger, Sales Director IAM EMEA at Knorr-Bremse TruckServices, about the extensive range of services offered by Knorr-Bremse TruckServices and the recent expansion of this side of the business. Thomas Meyer, Director TruckServices Remanufacturing, then explained how Knorr-Bremse ensures that the functionality and safety of these parts are equivalent to those of new service products, despite offering an attractive cost/benefit ratio that makes them particularly suitable for economical repair operations in keeping with the current value of a vehicle. Another argument in favor of remanufacturing is the significant savings that can be achieved in terms of resources and energy - which means these parts also have a favorable carbon footprint.

The dealers gained an impression of the advantages of remanufacturing during a tour of the plant, as well as discussing the topic at length during an evening visit to Prague. In two years' time they will again have an opportunity to visit a Knorr-Bremse site to refresh their knowledge and extend their competitive advantage.

Perfect synergy: NexTT® brake generation and NG4 EVO PRO brake cylinder

Knorr-Bremse has developed a weight-optimized wheelend for trailers with nine-ton axles and 22.5-inch brakes that increases vehicle productivity while at the same time ensuring high braking efficiency. The system consists of the SyT7 NexTT® disc brake and the NG4 EVO PRO brake cylinder. What is new to the latest NexTT® brake generation is the single-piston system in combination with a tried-and-tested adjuster and encapsulated guidance system. Weighing in at 29 kg - 3 kg less than the previous ST7 model - it is currently the lightest 22.5-inch trailer brake on the market and its low dead weight contributes to a higher payload capacity and thus increases vehicle efficiency.

Another advantage of the new wheelend is the easier servicing of the disc brake. The pad concept with taper wear compensation system and a new pad retention system contributes to this. Here, the inner pad is suspended from the carrier, reducing the effort required for replacement. The fully crimped NG4 EVO PRO brake cylinder combines the product characteristics of a piston- and a double-diaphragm cylinder. This means it simultaneously achieves a longer service life, improved braking effect and an attractive cost-benefit ratio. The NexTT® SyT7 brake is available for installation in original equipment and is already in volume production.

Up2Date

- Redesigned EAC1 (Y503442)
- Brake Pads – new environmentally friendly pad quality (Y508057)
- EconX® clutch compressor for MAN applications (Y490587)
- A dessicant cartridge harmonized for most Daimler Truck applications. (Y501210)
- Knorr-Bremse TruckServices brake disc portfolio extension (Y492126)

The documents can be downloaded at

https://mytruckservices.knorr-bremse.com

Hahn consistently strong

After eight races, Norbert Kiss wins the battle for the European truck racing crown once again, with Jochen Hahn finishing as runner-up.

The pattern that emerged during the first half of the season – which ended with the Nürburgring Truck Grand Prix – continued in the final four race weekends in Most, Zolder, Le Mans and Jarama. This year, there was simply no stopping defending champion Norbert Kiss in his flame-red MAN truck. But Knorr-Bremse-sponsored driver Jochen Hahn was able to claim an ultimately comfortable second place in the European Championship. The Swabian's solid performances in his Iveco vehicle included two podium finishes in Most and three in Zolder, with a victory in the first race there. As a result of these consistently strong showings,

THE FIELD BATTLES for position on the first bend in Jarama.

CONSISTENTLY HIGH FINISHES helped Jochen Hahn claim the runner-up spot in the European Championship, 40 points clear of the third-placed driver.

Hahn went into the final race weekend in Jarama with an unassailable 41-point lead over rival Sascha Lenz, meaning he had already secured the runner-up spot before the final races began.

By the second half of the race weekend in Most, the drivers were already having to contend with the Czech race track's famously unpredictable weather. Race two had to be restarted after a serious accident involving Mark Taylor. But things would get decidedly hairy in the fourth race on Sunday, which eventually had to be abandoned due to torrential rain. Jochen Hahn's teammate Steffi Halm was leading the race, only to be overtaken by Kiss shortly before it was stopped.

The weather in Zolder couldn't have been more different. Some of the race trucks struggled to cope as temperatures soared above 30 degrees, with Norbert Kiss forced out of the first race due to a turbocharger failure. Jochen Hahn, who was already hot on the Hungarian's heels, was the beneficiary of this stroke of luck. Race three was red flagged when the track was engulfed in fire, smoke and oil from Luis Recuenco's vehicle on lap nine of twelve. Kiss came out on top again over the four races in Zolder. But Hahn's consistently strong performances earned him valuable points.

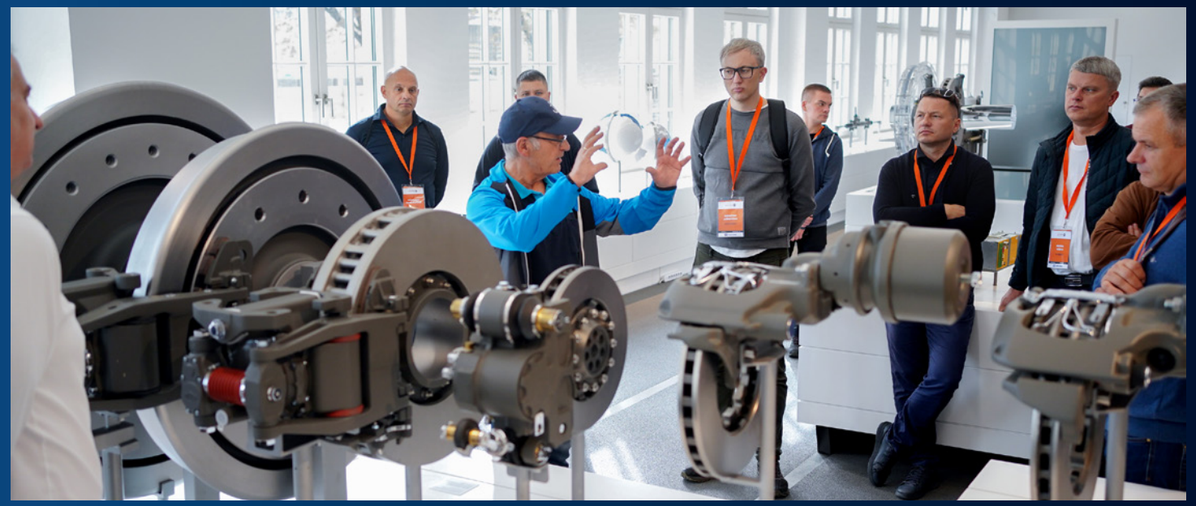
Things continued in the same vein in Le Mans, where Kiss wrapped up his third title in a row with one race weekend to spare. But Steffi Halm's run of bad luck continued. Things went downhill after a third-placed finish in the first race, and she was unable to compete in the final race due to a damaged water pipe. For his part, Jochen Hahn was consistently at the front of the field, finishing second in two races and third in another.

Although Kiss already had the title in the bag when he arrived at Jarama for the final race weekend, Hungary's "new old master" still managed to check off a personal goal by making it 16 out of 16 pole positions for the season, something no truck racer had ever done before. But he was denied a perfect end to the season as victory eluded him in the final race. With the replacement engine that André Kursim's team started using in Most having failed to deliver, they decided to revert to the stricken but still functioning original engine for the season finale. It provided the Iveco with an injection of pace that helped Kursim to victory in the final race. With Steffi Halm suffering an engine failure in race three, the win allowed Kursim to sneak past her into fifth place in the overall standings. It meant that the final top 10 positions in the 2023 European Championship were as follows: Norbert Kiss, Jochen Hahn, Sascha Lenz, Antonio Albacete, André Kursim, Steffi Halm, Jamie Anderson, José Eduardo Rodrigues, Steffen Faas and finally Lukas Hahn in an impressive tenth place finish for the next generation from the renowned Team Hahn Racing stable.

A WIN IN ZOLDER: Jochen Hahn tops the podium ahead of Sascha Lenz and José Eduardo Rodrigues.

Nexus partners visit Knorr-Bremse

Since 2018, Knorr-Bremse has been collaborating with Nexus, one of the biggest internationally active trading groups in the automotive aftermarket. Representatives of Nexus service companies in Lithuania recently visited Munich and Aldersbach to find out about Knorr-Bremse's aftermarket offering.



KNORR-BREMSE TRUCKSERVICES trainer Günther Neumann guided the guests through the products and systems on display in the Knorr-Bremse Forum.

OWNERS OF NEXUS SERVICE COMPANIES from Lithuania visited Knorr-Bremse's sites in Munich and Aldersbach.

Nexus is a top-class trading group in the global automotive aftermarket, supplying 396 dealers, 2,188 workshops and 9,055 retailers in 139 countries with services and parts from more than 90 OE suppliers, including Knorr-Bremse, with whom Nexus has been collaborating since 2018. In mid-October of this year, 25 owners of Nexus service companies in Lithuania paid a visit to Knorr-Bremse's Munich and Aldersbach sites accompanied by Arunas Martikotis, Manager Nexus Nordic Baltic, and representatives of KB parts dealer Jupojos technika, which is responsible for developing the Nexus workshop concept in the Baltic state.

Alexander Wagner, Vice President Aftermarket/TruckServices EMEA at Knorr-Bremse Commercial Vehicle Systems, Miklós Gerendai, Head of International Trade Groups at Knorr-Bremse Fékrendszerek, and Simon Binar, Team Lead Technical Support, Digital Service and Workshop Equipment, introduced the brake specialist's range of products, diagnostic systems and services. "Knorr-Bremse TruckServices supplies workshops and dealers with top-quality products and service solutions for commercial vehicles of all types and ages. We offer all the expertise of an OE manufacturer combined with the experience of more than 110 years in the commercial vehicle aftermarket," explained Alexander Wagner.

In addition to visiting the IAM Training Center, they had an opportunity to inspect the Aldersbach plant, where Knorr-Bremse manufactures systems for commercial vehicles. Here they gained a first-hand impression of the production processes involved and the high quality of Knorr-Bremse brake components. Together with Knorr-Bremse's aftermarket specialists they also explored business areas and product segments in Lithuania that could offer scope for additional development opportunities for the partnership.

» We offer all the expertise of an OE manufacturer and the experience of more than 110 years in the commercial vehicle aftermarket. «

Alexander Wagner,
Head of Aftermarket/TruckServices EMEA,
Knorr-Bremse Commercial Vehicle Systems

Urgent need for truck charging facilities

The battery electric truck market ramp-up is reliant on a high-capacity public and non-public charging infrastructure. While the EU and Germany's federal government have ambitious plans, in practice there are a number of sticking points.

THE eTRUCK CHARGING PARK at the Mercedes-Benz Trucks facility in Wörth has 6 charging stations with outputs of between 40 and 300 kW, enabling customers to test and compare different charging technologies.

In mid-October, the Council of the European Union agreed on new rules to strengthen CO_2 emission standards for heavy-duty vehicles. According to the Council, "The proposal aims to encourage an increasing share of zero-emission vehicles in the EU-wide heavy-duty vehicle fleet". It will certainly be impossible to meet the new standards without zero-emission vehicles. But German Association of the Automotive Industry (VDA) President Hildegard Müller warns that "The proposed regulation for the heavy-duty vehicle fleet is incredibly ambitious given the regrettable current lack of an adequate charging and hydrogen infrastructure". Germany's federal government is responsible for expanding the public electric truck charging network. The European Union sets out targets for the network's expansion in the Alternative Fuels Infrastructure Regulation (AFIR) (see panel on p. 23).

However, one key problem is that Germany's 97,495 existing public charging stations are meant for cars and are not designed to meet the space, location or capacity requirements of heavy-duty vehicles. When asked to comment, the Federal Ministry for Digital and Transport (BMDV) gave the following response: "The development of the charging infrastructure for heavy-duty vehicles will call for connections to the high-voltage grid at certain heavily-used locations by mid-2030. The federal government is currently identifying the relevant rest areas so that it can initiate a grid connection request in good time". However, the federal government has to put the installation of public charging stations out to tender. The call for tenders was supposed to open in the third quarter of 2023. But when the BMDV was contacted at the end of October, it said the documentation was still in preparation.

What all this means is that fleet operators cannot expect to see enough suitable public charging stations any time soon. According to the Federal Highway Research Institute (BASt), Germany's highways need an additional 40,000 truck parking spaces. It would therefore seem unlikely that the existing parking areas have enough extra space for charging electric trucks. Transport industry representatives fear that this may be too challenging. In a paper on decarbonizing road freight transport, several industry associations also call for most top-up charging stations to provide the highest charging capacities promised by the forthcoming Megawatt Charging System (MCS). This system, which enables charging capacities in excess of the current 350 kW high-power charging (HPC) limit, is currently being trialed by the federal government on the A2 highway. The paper urges the federal government to pursue a target of 4,000 MCS charging points by 2030. Such high charging capacities place particularly demanding requirements on the grid connection, especially if they have to be available to multiple charging points at the same time.

In a study on facilitating charging in rest areas, the National Centre for Charging Infrastructure (NLL) investigates the energy requirements associated with switching the fleet over to electric vehicles. The study assumes that battery electric trucks will account for 7.5 percent of the fleet by 2027 and 50 percent by 2035, and that connections to the high-

A TYPICAL FAST-CHARGING PARK: Public charging points like this one from EnBW, are still designed for cars. Trucks require considerably more space; high charging capacity and locations close to busy long-distance routes.

IN JANUARY 2023, Aral opened a charging corridor of eight 300 kW truck charging stations between Schwegenheim and Dortmund along the 600-kilometer Rhine-Alpine corridor.

The alternative fuels infrastruk-tur regulation (AFIR)

The AFIR stipulates that, from 2025, there should be a charging point of at least 350 kW for heavy-duty vehicles every 60 kilometers on the TEN-T core network and every 100 kilometers on the TEN-T comprehensive network. By 2030, coverage should be total.

» The planning, licensing and installation of a public charging hub connected to the high-voltage grid takes time. You're looking at up to ten years. «

Martin Konermann,
Managing Director of Netze BW

voltage grid will already be needed on the busiest routes by 2030. It puts the timeframe for implementing high-voltage connections at between 5 and 10 years, assuming that a suitable location for the charging hub has already been identified. In other words, time is running out to deliver a high-capacity network by 2030.

Martin Konermann, Managing Director of EnBW subsidiary Netze BW, concurs: "The planning, licensing and installation processes all take time. You're looking at up to ten years." The space needed for electric trucks in rest areas can be expected to increase by between 50 and 100 percent, and acquiring this will also be a protracted process. Referencing the NLL study, Konermann recommends preparing selected rest areas for connection to the high-voltage grid as soon as possible. He says that an MCS charging point is ideal for charging the batteries of a long-distance electric truck during the driver's 45-minute break. This will allow the vehicle to cover another 400 kilometers, a typical distance for four-and-a-half hours' driving time. But MCS charging points won't always be necessary. 100 kW is enough for a full charge during the driver's overnight break of 9 to 11 hours. Moreover, not every electric truck model is designed for 700, 900 or even 1,000 kW charging, and HPC chargers are sufficient for these.

The NLL modeled three different charging hub types based on rest area type and truck traffic levels on different highways. Each hub type provides the three different charging point capacities, but with different numbers of each one. The study found that by 2035 the busiest rest areas on international infrastructure axes will need 32 MVA (megavolt-amperes, a unit used to measure the connection's power rating, including the power used by transformers during operation) in each direction of travel. Facilities on less busy routes will require 19.5 MVA. As a rule, both types of rest area already have a medium-voltage grid connection. According to Konermann, a connection to the 110 kV high-voltage grid is essential for anything over 25 MVA. This will ensure that the rest area is fit for the future and won't have to make more time-consuming changes at a later date. The third type of charging hub identified by the study would be installed in previously unserviced parking areas on highway network secondary routes that do not currently have a suitable grid connection. Even in the long term, medium-voltage connections would be enough to meet the projected 10.5 MVA demand of these facilities.

The cost of the grid connections varies enormously depending on what infrastructure already exists and the target charging capacity after upgrading. According to the NLL study, the financial outlay for anything under 8 MVA is relatively low. Connections of this type can be installed in a maximum of two years at a cost of between 70,000 and 350,000 euros. A connection to the medium-voltage grid, on the other hand, can take between five and ten years to deliver and cost anywhere between 0.4 and 5 million euros. And a high-voltage grid connection will take up to ten years to install and require a significant investment of 6 to 20 million euros. The customer will have to pay at least part of the cost in all three cases, but some funding is available. Lower-capacity grid connections may also require an investment in battery storage systems to provide backup power.

Public truck charging facilities are, however, still a thing of the future in Germany; and the first ones are only just starting to appear in other European countries. Consequently, it is energy companies like Aral and Shell, joint ventures like Milence (a collaboration between Daimler Trucks, Volvo Group and Traton) and large fleets who are pioneering this field. Milence plans to roll out 1,700 truck charging points over the next few years, while Aral already opened a charging corridor of eight 300 kW truck charging stations along the Rhine-Alpine corridor at the start of this year. The fleets have also taken the initiative by installing non-public charging hubs on their own premises. "If it wasn't for the private sector, the ramp-up of the electric road freight vehicle market would never be happening", says Sascha Hähnke, Managing Director of Remondis Sustainable Services (see p. 25). But private companies need the relevant technological and bureaucratic expertise. Fortunately, experts from the vehicle manufacturers and charging infrastructure providers are on hand to help fleet operators deliver their projects. GP JOULE, for example, offers customers a turnkey depot charging infrastructure solution complete with grid connection. According to Thomas Leven, Team Leader Truck & Bus at GP JOULE, no two projects are alike. GP JOULE's customers include municipal waste disposal companies whose garbage trucks only travel short distances but need additional power for auxiliary drives. These vehicles can, of course, charge overnight. At the other end of the spectrum, they also work with logistics companies who want

MANUFACTURERS HAVE SIGNIFICANTLY EXPANDED their electric truck and tractor unit ranges.

»Once we've installed the charging infrastructure, all the schedulers need to do is instruct the driver to connect the vehicle to the charging point at a particular time.«

Thomas Leven,
Team Leader Truck & Bus at GP Joule Connect

to fast-charge their vehicles in 30-90 minutes while they are in the loading bay, so that they are ready to travel a long distance before their next charge. GP JOULE determines the customer's requirements, checks their current grid connection and, if necessary, helps the customer submit a grid connection request to the distribution system operator. Meanwhile, the truck manufacturer provides the data needed to adapt the charging strategy and energy management system to the vehicle concerned. A route analysis, seasonal effects and logistics processes are also taken into account by the charging management system.

GP JOULE uses this data to model charging demand, in other words the optimal charging locations, capacities and durations. The energy and charging management system then has the task of reducing load peaks by preventing too many vehicles from charging at one and the same time. Load peaks are costly for businesses, not least due to the associated technical equipment costs. "Once we've installed the charging infrastructure, all the schedulers need to do is instruct the driver to connect the vehicle to the charging point at a particular time. The charging load and energy management system handles everything from there", explains Leven.

But distribution grid constraints mean even GP JOULE can't fulfil everyone's wishes. "At most locations you won't be able to install thirty 300 kW charging points all at once ", he says. Nevertheless, charging points can still be installed in regions with less developed infrastructure. "In these cases, we design a modular system that can be expanded at a later date", he explains. The demand from fleets keeps growing and the grid operators are constantly having to follow their lead", says the GP JOULE expert. In any case, strict EU CO_2 standards and the rising cost of carbon credits mean they have little choice but to do so.

Funding for charging stations

The "Climate-friendly Commercial Vehicles and Infrastructure" (KsNI) program provides funding for up to 80 percent of the cost of stationary and mobile normal and fast charging stations. If necessary, funding is also available for the installation or upgrading of a grid connection, transformer, transfer station and backup storage system.

THE MEGAWATT CHARGING SYSTEM promises to enable charging capacities up to 900 kW and more. Connector standardization should be completed by 2024.

"There's no alternative to alternative drive systems"

Remondis Sustainable Services Managing Director Sascha Hähnke is investing in switching the company's truck fleet to low- and zero-emission vehicles. He spoke to Bremspunkt about expansion of the charging infrastructure.

SASCHA HÄHNKE,
General Manger Remondis, Sustainable Services

What do you think of the KsNI funding program for climate-friendly commercial vehicles?
I think it's great that you can get funding for 80 percent of the investment. But the program has been poorly managed. The government said there would be three calls for funding applications per year, but in the end there was only one. We only got funding approval for charging infrastructure a year after we submitted our application. By then, either the technical staff was no longer available to install it or the costs had risen significantly. So we ended up having to pay the difference out of our own pockets. On top of that, the government awards the funding for trucks and charging stations separately. But I can't buy an electric truck without a charging station. And the funding pot has already dried up anyway – we might not see any new money until 2027. So it looks like efforts to tackle climate change have been put on the back burner!

What plans do you have to expand your electric vehicle fleet?
Together, Rhenus and Remondis own around 10,000 trucks, of which some 50 are already electric - and we are adding more almost every week. There's no alternative to alternative drive systems!

Is the German central government doing enough to expand the charging network?
No. We still don't have a public charging infrastructure for trucks. If it wasn't for the private sector, the ramp-up of the electric road freight vehicle market would never be happening. The government can't even manage to provide the 40,000 additional truck parking spaces we need without charging points. It does own unserviced "PWC" highway rest stops with sanitary facilities, but these are unsuitable for charging points, since their grid connections generally don't have the necessary voltage. And you have to wonder how a truck driver is supposed to be able to find an available charging point at a public rest area after four-and-a-half hours on the road. But in saying that, I'm not trying to pass the buck for switching to electric drives. Despite these problems, we can still start transforming our fleets by introducing a limited number of electric trucks.

Is a non-public charging infrastructure enough in practice?
Depot charging isn't enough to transform the industry. The grid connections in some industrial parks don't have a high enough voltage, which means the businesses there have to rely on public charging facilities. There are also constraints for large fleets – there's a huge difference between charging 4 trucks and charging 40 trucks. Many sites will struggle to provide enough power for 40 vehicles. Trucks' huge energy requirements mean protracted licensing procedures and high investments. For instance, a transformer and the kilometers of cables you sometimes need to reach a medium- or high-voltage connection can easily cost in the region of a million euros. And I want to be able to focus on providing waste disposal services rather than on operating a medium-voltage power plant.

Does electric mobility mean changing your logistics processes, for example increasing hub-to-hub transportation?
Only up to a point. What we really need to do is get the loaders and unloading stations on board so that our trucks can charge there, too – while they're on the ramp, for example, or better still, in the waiting areas.

One big family

IN ADDITION TO ITS HEADQUARTERS IN KOBLENZ, Profi Parts has 13 other locations serving its sales territory.

AROUND 60,000-PART NUMBERS are currently stored in the main warehouse; following expansion, there should be 80,000.

Quality, competence, customer proximity and flexibility are the basis of Profi Parts' success. And the medium-sized parts supplier has a partner at its side that shares these values: Knorr-Bremse.

Achim Schmitt, Managing Director Sales, Profi Parts, explains the company's success: "We know our customers personally and aim to establish a long-term, reliable partnership with them. Our field service team, consisting mainly of automotive master craftsmen and technicians, is able to put itself in the customers' shoes and work with our in-house staff to solve their problems." One of the company's strengths is the premium quality of the parts that its drivers deliver up to four times daily to commercial vehicle workshops, construction and transport companies, as well as municipal operations and bus fleets with

the aim of minimizing downtimes. "We can also deliver small shipments - even on Friday afternoons. And on Saturdays, workshops have the option of picking them up for themselves, so they can make sure their customers' vehicles stay on the road," says Schmitt. This high degree of flexibility is another advantage of Profi Parts. It boosts customer satisfaction levels and enables them to maintain smaller warehouses that tie up less capital.

Profi Parts in turn stores its spare parts in four regional warehouses, from which it supplies smaller locations. The company recently further boosted parts availability, expanding the warehouse at its Koblenz headquarters by 4,000 square meters to a total of 10,000 m2. Around 60,000 part numbers are currently stored there, and the number will soon rise to around 80,000. Profi Parts also has 14 locations covering Rhineland-Palatinate, Saarland, the south of North Rhine-Westphalia and Hessen, and an area as far south as Aschaffenburg. Luxembourg is also part of the company's sales territory. Service companies can identify and order parts 24/7, using Profi Parts' online ordering store, the Commercial Vehicle Parts Pilot. It is also possible for fleet operators to register details of their own vehicles in the software program, enabling them for example to conveniently select the appropriate parts according to license plate number or order history.

In addition to a wide range of products for passenger cars, commercial vehicle parts are an important pillar of Profi Parts' business – and the company intends to expand further in this area. A third element of the business is the provision of workshop equipment and servicing. As part of this, the Koblenz-based company supplies service companies with workshop equipment, instructing employees in its use and also repairing and maintaining the machines. Profi Parts relies exclusively on its own personnel for this service. "Nothing is outsourced. That is the only way to maintain our high-quality standards," explains the managing director.

The company's high-quality standards are also enhanced by the direct sourcing of OEM-quality spare parts - amongst others from Knorr-Bremse. "Knorr-Bremse is a strong brand and a highly professional partner whose employees have a wealth of expertise," says Schmitt. In addition, he says, KB has a highly market-relevant portfolio. As a supplier to leading OEMs, the company has access to information about the technologies that are shaping the market today and, in the future, - another advantage for Profi Parts.

SALES REPRESENTATIVE THOMAS BASLER was in charge of the Knorr-Bremse TruckServices stand during the event.

Relations between the two companies are also very positive. Profi Parts puts great emphasis on personal interaction and cooperation. For example, it regularly organizes customer events such as this year's in-house spectacular attended by 2,000 guests, the focus of which was not on selling, but rather on getting to know each other and having an informal exchange of information between the entire Profi Parts family, from small to large: employees, suppliers and service companies, including their families. That is the only way to really get to know each other and is ultimately the basis of Profi Parts' success.

» We know our customers personally and our goal is to establish a long-term, reliable relationship. «

Achim Schmitt,
Managing Director Sales, Profi Parts

EVENTS SUCH AS THE 2023 WORKSHOP SPECTACULAR ARE PART OF IT. They enable Profi Parts employees to meet suppliers and customers - as well as their families - and talk shop.

The DocStop Association

DocStop is a European health project that aims to improve medical care for professional drivers in commercial road haulage and bus services on European transport routes. Its founders want to contribute to road safety and the creation of a humane workplace in the transport industry. This includes providing drivers with fast and unbureaucratic medical assistance via a hotline and enabling them to park their trucks safely while visiting a doctor.

ALWAYS TIME FOR SOME KIND WORDS: Accompanied by no fewer than two Santa Clauses, highway patrol officer Andrea Möller gives a truck driver a present.

ALONE AT THE TRUCK STOP: To make sure the presents are all under the tree and the supermarkets are well stocked before the holidays, some people have to spend Christmas on the road.

» At Christmas, it becomes clear that truckers play a crucial role in making sure our presents are under the tree on time. «

Joachim Fehrenkötter,
Chairman of the Board Docstop and Managing Director Fehrenkötter Transport & Logistik.

» A moment of joy «

At Christmas, while most of us are sitting celebrating at home in the warmth, DocStop helpers are out and about distributing Christmas bags to truck drivers at highway service areas. Santa Claus comes along for the ride too.

At Christmas, when most people are enjoying the comfort of their warm living rooms, DocStop volunteers are still out and about. The reason? Some people don't get to spend the Christmas period at home: Many truck drivers have to spend the festive season in the cabs of their vehicles, parked up in a highway service area. Despite their role in keeping the economy running, they can easily be forgotten at this time of year – but not by the DocStop members. "Especially at Christmas, it becomes clear how crucial a role these professionals play in ensuring that our presents are under the tree by Christmas Eve - not to mention maintaining the supply of everything else our society needs," explains Joachim Fehrenkötter, CEO of DocStop.

For several years now, DocStop volunteers have been driving from one service area to the next along various German highways, handing out Christmas bags. "The idea is to give people a moment of joy," says association member Andrea Möller. In her main job, she is a police superintendent, ensuring highway safety in the area covered by the Winsen (Luhe) autobahn police.

Last year saw DocStop supporters distribute more than 1,000 bags. In recent years, the group has spread across Germany, and now includes transport companies, HGV instructors, police officers and truck drivers, all of whom support this Christmas Day campaign.

Amongst last year's helpers were the organizers of regular informal pub meetings of members of Lüneburg and Osnabrück police departments. Together with Santa Claus and other volunteers, the team operated along the A1 highway between Bremen and Hamburg, distributing gift bags with Christmas treats and small presents to the truckers. DocStop provided the bags, as well as the gingerbread and cookies inside, while sponsors also donated warm hats and high-viz vests. "More important than the actual contents is the gesture," Andrea Möller tells us. The drivers thank her profusely, delighted when Santa Claus knocks on their cab window. "During the Christmas campaign, I often experience special moments, such as when recipients, with tears in their eyes, express their gratitude in the form of little return gifts," reports Joachim Fehrenkötter. Andrea Möller confirms: "Putting a smile on people's faces is the best Christmas present for me." With her helpers, the highway patrol officer is currently getting down to work bringing some happiness to truck drivers who don't get a chance to spend the festive season at home with friends and family.

FROHE WEIHNACHTEN
MERRY CHRISTMAS

KNORR-BREMSE