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DEKRA: The perils of pimping your pedelec

These days, even completely standard pedelecs can boast impressive acceleration, but the electric motor is deliberately throttled to a maximum of 25 km/h. However, this doesn't seem to put off those enthusiastic bikers who, keen to feel the need for speed, try to soup up their two-wheelers with tuning kits available on the internet. These promise to deliver higher speeds, but "many ignore the risks involved in tuning a bike," says DEKRA accident analyst David Freibott.

Traveling by air: Always pack spare batteries in carry-on luggage

The desire of Germans to travel continues unabated. And when they fly to their dream holiday destinations, they usually take a variety of electronic devices with them, such as smartphones, tablets, cameras, and power banks. Most of these devices are equipped with lithium-ion batteries, which can store a lot of energy in a small amount of space. But that is exactly why these small energy storage devices are subject to increased safety requirements on flights.

Tire check before trip: Holiday pressure

Even if there never seems enough time to prepare for the summer vacation properly – there is one thing that motorists must never forget and that is "To check the tire pressure and, going one better, to give all the tires a thorough all-round check-up before embarking on a lengthy journey," advises DEKRA tire expert Christian Koch.

Other topics

- Load correctly – travel safely: Heavier articles at the bottom
- Ecological footprint: EURO 2024 climate study
- Fit for your holidays: Checklist for the journey



*Safely on vacation:
Load your car like a pro*

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Load securely – travel safely

Heavy articles at the bottom

Fun in the holiday period only really kicks in once all the right equipment has been gathered. And this can mean all things to all people; some need to take a racing bike or pedelec on their vacation, or are happy with a stand-up paddle, while others might only be really content once they have assembled their camping equipment. However, the DEKRA experts point out that anyone who packs their vehicle to the brim must not only be aware of the permissible load, but must also consider the most suitable position for the load and how to secure it properly.

“The same golden rule applies for loading whether you are a transport professional or a vacationer: heavy luggage should be placed as far as possible at the bottom and as far as possible towards the center of the vehicle,” explains DEKRA expert Martin Kugele. The reason for this is that the higher positioning of a load leads the vehicle’s center of gravity to be displaced upwards, which, in turn, has a negative impact on the drivability of the vehicle: the car can suffer more lateral drift when cornering and can more easily break away.

The rule of “heavy cargo at the bottom and light cargo on top” naturally also applies to the roof rack, meaning that lighter, bulkier articles should ride on the roof and heavier luggage located inside the vehicle. Moreover, it is important to provide careful securing by means of tensioning straps, so that the luggage cannot slip during driving or braking. In addition, the rack and box should be inspected for secure fit and if necessary tightened. Weight limits apply not just to the whole vehicle but also to the individual carrier systems, for example, on the roof or at the rear. The permissible weight for both can be ascertained by consulting the operating instructions.

As regards station wagons, there is a danger that luggage that has been stacked too high will slide onto the rear passenger seat during braking. This can be prevented by reducing the load height or using tensioning belts, security grilles or raised partitioning nets. “Also remember that loose objects in the rear of the vehicle can transform into dangerous projectiles in a hard stop situation. A collision at 50 km/h suffices to provide a one-liter bottle a force of 25 kilograms,” says the expert.

A careful and restrained driving style is generally recommended when at the wheel of a fully laden vehicle. “Factor in longer braking paths, longer overtaking maneuvers, and altered drivability in curves and when taking evasive maneuvers,” says Kugele. When driving at night it is important to make sure that the headlight range has been correctly set. (DEKRA Info)



*Pedelec tuning: Brakes
overloaded, total right-off the
result*

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DEKRA: Pedelec tuning will push the brakes to their limits **Playing lottery with safety**

Even completely standard pedelecs these days boast impressive acceleration, but even so, the electric motor is deliberately throttled to 25 km/h maximum. This doesn't seem to put off those enthusiastic bikers, who, keen to feel the need for speed, turn to tuning kits available on the internet. "These kits promise to deliver higher speeds, but many ignore the risks involved in tuning a bike," says David Freibott, DEKRA accident analyst and expert on pedelec manipulations. The brake systems of standard pedelecs in particular are frequently unable to handle higher loading.

"A normal pedelec brake disc can naturally brake a pedelec travelling at 40 or 60 km/h, but it can't do it indefinitely," explains Freibott. The reason is the energy of motion that is transformed into heat at the brakes increases exponentially with the speed. In comparison to 25 km/h, braking from 36 km/h requires twice the heat to be dissipated. However, once overheated, a braking system is permanently damaged and slowly but surely loses its braking effect. Without repair this can lead, in a worst-case scenario, to a complete failure with fatal consequences for the rider.

Nevertheless, it is not just the pedelec braking system that is generally pushed to its limits with tuning. Frame and add-on parts can also suffer excessive loading. The strong vibrations can lead to fatigue failure of chain struts, steering or saddle mounts. The DEKRA expert therefore reminds owners to only use the bikes as intended by the manufacturer. "Everything else is just playing a game of lottery with one's own safety."

It is uncommon for tuners to consider insurance coverage. A pedal-assisted pedelec with a maximum speed of 25 km/h is still legally classified as a bicycle, despite the presence of a motor. As a result, it cannot be used as a motor vehicle and therefore does not require its own liability insurance. Resulting damage is covered by personal liability insurance insofar as the owner has one. In contrast, a so-called S-pedelec pedal assistance up to 45 km/h is legally a small motor vehicle. This obligates an insurance plate, operating license and the AM category driving license. An illegally tuned pedelec is therefore out and about in a legal no-man's land: it has no insurance cover and the instigator is solely liable for any damage caused. (DEKRA Info)



*Flying with electronic devices:
What are the rules?*

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Flying with electronic devices

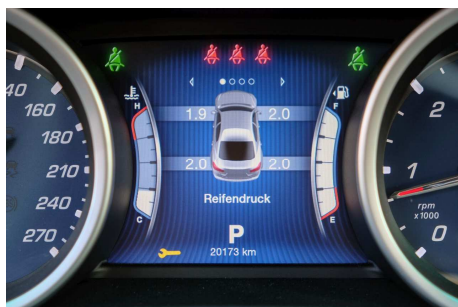
Spare batteries always in hand luggage

The desire of Germans to travel continues unabated. And when they fly to their dream holiday destinations, they usually take a variety of electronic devices with them, such as smartphones, tablets, cameras, and power banks. Most of these devices are equipped with lithium-ion batteries, which can store a lot of energy in a small amount of space. But that is exactly why these small energy storage devices are subject to increased safety requirements on flights

The International Air Transport Association, IATA, issues guidelines on what passengers need to pay attention to when they are taking portable electronic devices and spare batteries fitted with lithium-ion or lithium metal cells with them on a flight:

- **Luggage.** Smartphones, tablets, PCs, laptops or cameras can be carried in either checked or carry-on baggage.
- **Spare batteries** for portable electronic devices, however, are only permitted to be transported as hand luggage. Power banks are treated as spare batteries for this purpose. "These batteries must be secured individually against short circuiting", says Thomas Schneider, a hazardous goods expert at DEKRA. "For example, by keeping them in their original retail packaging or insulating them by other means, such as taping the unprotected poles or placing each battery in its own plastic bag or protective case." Also, battery-operated **electronic cigarettes** may only be carried in hand luggage and must be protected from accidental activation.
- **No cheap batteries.** Batteries must comply with the stipulated requirements of a UN handbook. This means: "No cut-price batteries or any home-made ones that fail to fulfill the requirements. Also, damaged batteries may not be transported," warns Schneider.
- **Deactivate.** Devices in checked baggage must be completely switched off and protected from damage. The number of portable electronic devices is limited to 15 per person.
- **Maximum figures.** Lithium-ion batteries, including replacement batteries, may have a maximum rated energy of 100Wh; for lithium-metal batteries, 2 grams of lithium is the upper limit. Higher capacity batteries require the express permission of the airline

(DEKRA Info)



*Before the trip:
a tire check gives peace of mind*

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Check the tires before the vacation

Holiday pressure

"Even if there never seems to be enough time to properly prepare for a vacation, drivers should never forget to check their tire pressure and, even better, to have all their tires thoroughly checked before setting off on a long trip," advises DEKRA tire expert Christian Koch. The combination of summer temperatures, heavy loads and long journeys exposes tires to increased stress on vacation trips. To ensure that they are up to the task, the tire pressure, tread depth and condition of the tires must be correct.

One of the most common mistakes is to set off on the holiday marathon – frequently with heavy loads – with too little pressure in the tires. "Tire failure is an all-too-common occurrence in the holiday period and not infrequently results in serious accidents," warns Koch. 0.4 bar is already far too little pressure and runs the risk that a tire becomes loose due to overheating on lengthy journeys. Road handling and fuel consumption also suffer.

This is why it is essential to match the tire pressure to the size of the cargo and to measure on cold tires in accordance with manufacturer recommendations. Modern vehicles fitted with tire pressure control systems can help here. For good grip, even in the rain, the expert recommends ensuring at least three millimeters of tread depth instead of the legally required 1.6 millimeters. It is also advisable to examine the wheels for bulging, cracks, foreign bodies as well as one-sided worn tread and other abnormalities.

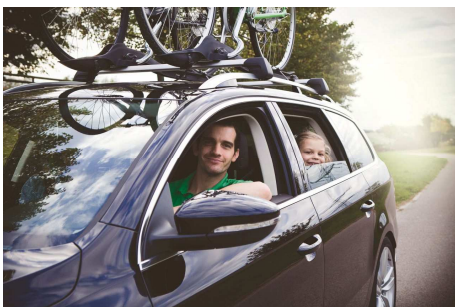
The tire expert recommends a thorough examination of the tires for all those driving cabriolets, mobile homes, campers, or trailers. These vehicles are often used seasonally, usually have low mileage and are therefore more likely to be equipped with old tires. The expert recommends that tires that are more than about seven years old should be checked by an expert to determine their serviceability. The use of tires more than ten years old is not recommended.

Koch also reminds readers that winter tires are not suitable for summer use, especially when traveling in southern climates. Winter tires will not only increase wear and fuel consumption, but also lengthen the braking distance. (DEKRA Info)

Ecological footprint of large-scale event

DEKRA draws up climate study for the EURO 2024

What about the social, economic, and environmental sustainability of the European Men's Soccer Championship to be held in Germany from June 14 to July 14, 2024? This is the question that the University of Bielefeld and the Sports University of Cologne have answered in their "Evaluation Study on the UEFA EURO 2024". The sustainability experts at DEKRA Assurance Services will be taking part in the study by determining CO2 footprint of the EURO as well as other key sustainability figures. This includes not only the climatic balance, which compares the status before and after the event, but also measures for avoiding emissions, climatic responsibility, and special analysis at the individual venues. "We are avidly looking forward to this showcase of international football, but at the same time our experts will ensure an independent and objective view to gain findings on the ecological impact of large-scale events," says Guido Kutschera, Executive Vice President of the DEKRA Group and responsible for the business in Germany, Austria, and Switzerland. (DEKRA Info)



*"Fit for your vacation" Checklist:
Don't forget anything important in
the hustle and bustle*

Checking that everything is on board

Happy holidays!

Prior to each flight, pilots are required to complete a checklist of essential items. This approach can also benefit drivers. For instance, the "Fit for your vacation?" checklist at www.dekra.de is designed to assist travelers in ensuring they do not overlook essential items amidst the hectic preparations. The Documents section contains valuable documents on a variety of topics, including the Green Card, European Accident Report form, Personal Protection Letter, Vaccination Certificate and International Health Insurance. In terms of the vehicle, the to-do list includes extra keys, a spare pair of glasses, a sun visor and a spare gas can. To ensure a smooth start to the vacation, it is important to prepare the vehicle for the journey. The overview encompasses all aspects of vehicle maintenance, from brake fluid to tires. The website also provides a wealth of other valuable driving tips for vacationers, including loading, timing, rules abroad, and driving with pets. (DEKRA Info)

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