

Meeting on	21 and 22 March 2026
Subject	Introduction of a position of the ADFC on the distinction between pedelec/EPAC and motor vehicles
Application by*	ADFC Thuringia
Application title*	Distinction between pedelec/EPAC and motor vehicles
Motion presented by	ADFC Thuringia Thilo Braun, possibly representative AG Technik Dr. Frieder Herb
Attachment	I: ZIV position paper on 750 watts II: Future Challenge Info on the legislative proposal III: Acceleration-based control IV: no appendix but practical test; Test ride option with pedelecs, where it is possible to switch between the current regulation, the 750 watt max. proposal and the regulation proposal of the ADFC
Date of receipt	(will be completed by BGSt)

The Federal State Council should decide the following:

As a member of the ECF, the ADFC Federal Association is committed to representing the following two positions of the bicycle associations on the adaptation of EU Regulation 168/2013 Article 2 (2) sentence 1 number h) to the Commission. The ADFC itself represents this position to the outside world.

Item 1)

The distinction between pedelecs (EPAC) and motor vehicles is to be defined in EU Regulation 168/2013 Article 2, paragraph 2 sentence 1 number h) as follows:

(h) bicycles with pedal drive and electromotive pedal assistance, in which the motor assistance

- stops when the driver stops pedaling,
- does not start and stop abruptly and
- increases in proportion to the pedaling power.
- only takes place, up to a level of

a) Speed increase in 2 seconds (a_{max}). This amounts to a pedalling power of:

$$0 \text{ bis } 210 \text{ W} \rightarrow a_{max} \left[\frac{km}{h * 2s} \right] = 3,0 \left[\frac{km}{h * 2s} \right] + 0,0379 \left[\frac{km}{h * 2s * W} \right] * P_T [W]$$

$$> 210 \text{ W} \rightarrow a_{max} \left[\frac{km}{h * 2s} \right] = 7,5 \left[\frac{km}{h * 2s} \right] + 0,0165 \left[\frac{km}{h * 2s * W} \right] * P_T [W]$$

b) maximum speed V_{max} . This is in the range of

$$0 - 25 \left[\frac{km}{h} \right] \rightarrow V_{max} \left[\frac{km}{h} \right] = 9,0 \left[\frac{km}{h} \right] * 0,163 \left[\frac{km}{h * W} \right] * P_T [W]$$

$$> 25 \left[\frac{km}{h} \right] \rightarrow V_{max} \left[\frac{km}{h} \right] = 25,0 \left[\frac{km}{h} \right]$$

Item 2)

The definition of the demarcation initiated by the bicycle industry (ZIV), among others (source: Annex I):

- \u2012 support ratio 1:4 and
- \u2012 Support ratio 1:6 up to max. 15 km/h possible and
- \u2012 maximum support power at the drive wheel 750 W and
- \u2012 max. 250 kg total weight for single-track EPAC or
- \u2012 max. 300 kg total weight for multi-track EPAC

rejects the ECF as a representative of bicycle user associations and thus consumer protection associations.

Reason:

The distinction between pedelec and motor vehicle is currently being discussed. This discussion is of great interest to us, as it can have an impact on the mobility transition and on inclusion. Why? Because the delimitation regulates which vehicles will be used in the future for child transport: parents, people with disabilities, children, seniors and parcel services ... without having a driver's license, without insurance plates and without type approval, which vehicles are allowed to use cycle paths and which can be parked like a bicycle. And the limits are set for which vehicles will be developed as bicycles in the future, for example as a feeder to the bus stop in rural areas, as a mobile workshop for craftsmen, for transporting goods in the local area, as a ...

The current regulation is being called into question. A proposal for amendment is on the table that, in our view, severely restricts the future in the development of bicycles as part of the mobility transition and has a negative impact on inclusion. There is a second proposal that we think is good and that does not have these disadvantages. We want to place this in the discussion and support it. We have technically described this proposal in a formula that can be found in the legal regulation above. What it does is explained below.

Why do we care about the "EU Regulation on the approval and market surveillance of two- or three-wheeled and four-wheeled vehicles EU Regulation 168/2013"? Why should the existing regulation on the distinction between pedelecs and motor vehicles be changed? What do the two proposals do and what is different/better about the proposal we support? We will go into this below.

Why are we discussing the amendment of Article 2 of EU [Regulation 168/2013](#)?

EU Regulation 168/2013 regulates the type approval of vehicles. Article 2, paragraph 2, sentence 1 regulates which vehicles are exempt from the regulation, i.e. which do not require type approval. Bicycles and pedelecs are part of this and are described in number h) of Article 2, paragraph 2, sentence 1 of the EU Regulation.

If electric bicycles are subject to type approval, they become motor vehicles and lose the bicycle character, like the motorbike (MOFA) once was, where the pedals were only used to put the feet down. Mopeds were analogue vehicles - today's pedelec is digital and this results in the possibility of designing the control system in such a way that the bicycle character is retained. The type approval brings the already mentioned disadvantages such as driving licence requirement, compulsory insurance, no use of cycle paths, helmet requirement,

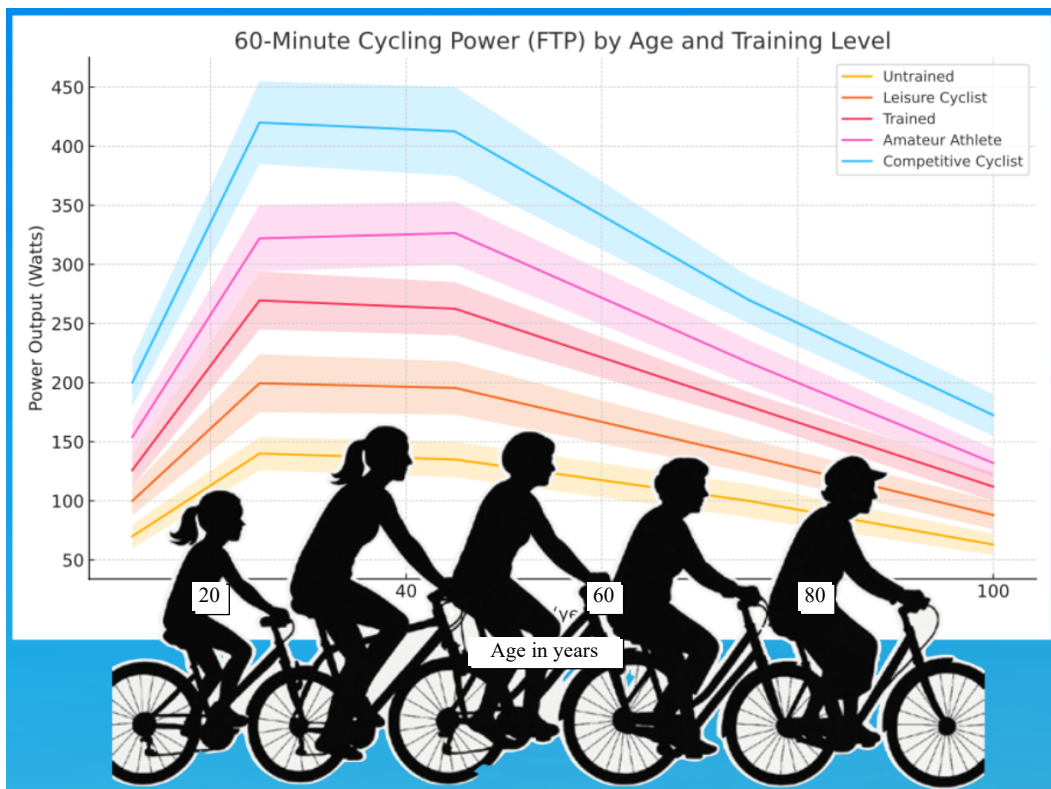
Why should the existing regulation be changed?

Article 2(2) provides: "This Regulation shall not apply to the following vehicles: ...
 (h) *pedal-driven bicycles equipped with pedal assistance equipped with an auxiliary electric motor with a maximum rated continuous power of up to 250 W, the assistance of which is interrupted when the rider stops pedalling and the assistance of which progressively decreases as the speed of the vehicle increases, and is interrupted before the speed of the vehicle reaches 25 km/h; ...'*

The upper limit of the speed up to which assistance can be provided is 25 km/h and is indisputable.

The delimitation via the nominal continuous power of 250 watts is controversial. The nominal continuous power is an average value measured over half an hour. Motors with a nominal continuous output of 250 watts can deliver peak outputs of 2,000-3,000 watts. This is slightly above the drive power of mopeds (Simson 50 cc: 2,650 W). With electric motors, the initial torque is enormous, which can lead to dangerous initial accelerations, especially in combination with a low vehicle weight.

The pedelec becomes difficult to control. Children or light people can use it to achieve accelerations similar to those of motorcycles. On the other hand, in the case of continuous loads, such as uphill, higher total weight of bike+rider+load and/or low strength of the cyclist, the motors limited by the nominal continuous power may not be sufficient for safe riding. To make matters worse, the regulation offers room for unauthorized modification. The rated continuous power cannot be checked during a traffic check.



Graphic: Not only people are different, but also each of us in the course of life. Therefore, legislation is needed that enables active mobility safely for all people, regardless of weight and performance.

What do we reject about the ZIV's proposal

Siegfried Brockmann, the long-standing head of accident research at the GDV Gesamtverband der Deutschen Versicherungswirtschaft e.V., pointed out at a cycling conference in Berlin in 2012 that the risk posed by pedelecs is based on only two things:

Actual acceleration and absolute speed.

Capping the engine power can also lead to a higher risk, for example due to the increased differential speed to the motor vehicle on a hill. He also pointed out that accidents up to 15 km/h usually do not lead to serious or life-threatening injuries and that the focus of regulation should therefore be on restricting acceleration to acceleration values that are customary for bicycles.

However, the ZIV's proposal does not attack these parameters directly, but indirectly in terms of engine power, support ratio and total weight. However, since pedelecs are very different and vary greatly in their total mass from 50 kg for young people with pedelecs to around 280 kg for cargo pedelecs with parents, children and shopping and over 300 kg for cargo bikes in delivery services, the restriction of the absolute power is totally different in effect - on a 12% incline, for example, the young person will be able to ride around 20 km/h with 750 watts of power, a parent with the fully charged cargo pedelec may have to push on the same incline, as the motor power is not sufficient to achieve a safe riding speed. It becomes even more extreme, for example, with disability-friendly tandems, where it becomes completely impossible to cope with the increase.

The present proposal of the industry association leaves the problem of the lack of controllability at high acceleration and at the same time low driver weight, for example in the case of young people, unsolved. In addition, a blanket limitation of the support power to a maximum of 750 watts massively disadvantages people with health restrictions, logistics companies and families with child trailers or cargo bikes, as such vehicles would hardly be drivable on slight inclines. On steep inclines, driving would no longer be possible at all, for example at an underground car park exit, the ramp of some bridges, ... The restriction makes it more difficult to cope with physical resistance, such as inclines and headwinds or load transport, and unnecessarily limits the variety of vehicle types required for a successful transport turnaround and the development of registration-free mobility solutions. In this respect, limiting the maximum weight has similar effects to limiting the maximum support power.

The rejection of the ADFC is constructive, because its own proposal provides a solution that makes a pedelec safe and suitable for everyday use and works across all target groups and uses without having to limit power or weight.

What specifically is different/better about the regulation we introduced and supported?

We asked ourselves how to find a better definition of when a vehicle behaves like a bicycle and when it becomes a motor vehicle. We found the following definition to be good:

The electric drive is intended to support the bicycle in such a way that it can be ridden easily and safely at all times while retaining the typical riding characteristics of a bicycle. Light, safe and typical rides a bike with low weight, without support and without headwind on the flat.

Tests were carried out on the flat with a light wheel to determine which acceleration can be achieved at which pedalling power, as well as what maximum speed is achieved at which pedalling power. These curves are used in the definition we propose to limit the assistance provided by the motor depending on the pedaling power.

If you want to move a heavy bicycle on an incline, you have to overcome mass inertia and gravity as stronger resistance. The bicycle no longer rides lightly or, depending on the force that the cyclist can exert, can only be ridden very slowly or not at all. With the definition we propose, the motor is controlled in such a way that it compensates for these resistances. With the support, the cycling feeling of a light bike is created on the flat without headwind. Regardless of the weight of the bike, the rider or the load. A rider with a low weight accelerates and rides just as fast with the same pedaling power as one with a high weight and/or a lot of load. Of course, it can also be used to accelerate or ride faster, but then only through a higher pedaling power and without assistance from the acceleration or speed limits when the acceleration or speed limits are reached. This does not mean that the bicycle loses its

character. Anyone can accelerate and ride it as they would drive a light bicycle or handbike on the flat. But not faster. The characteristic bicycle characteristics are retained.

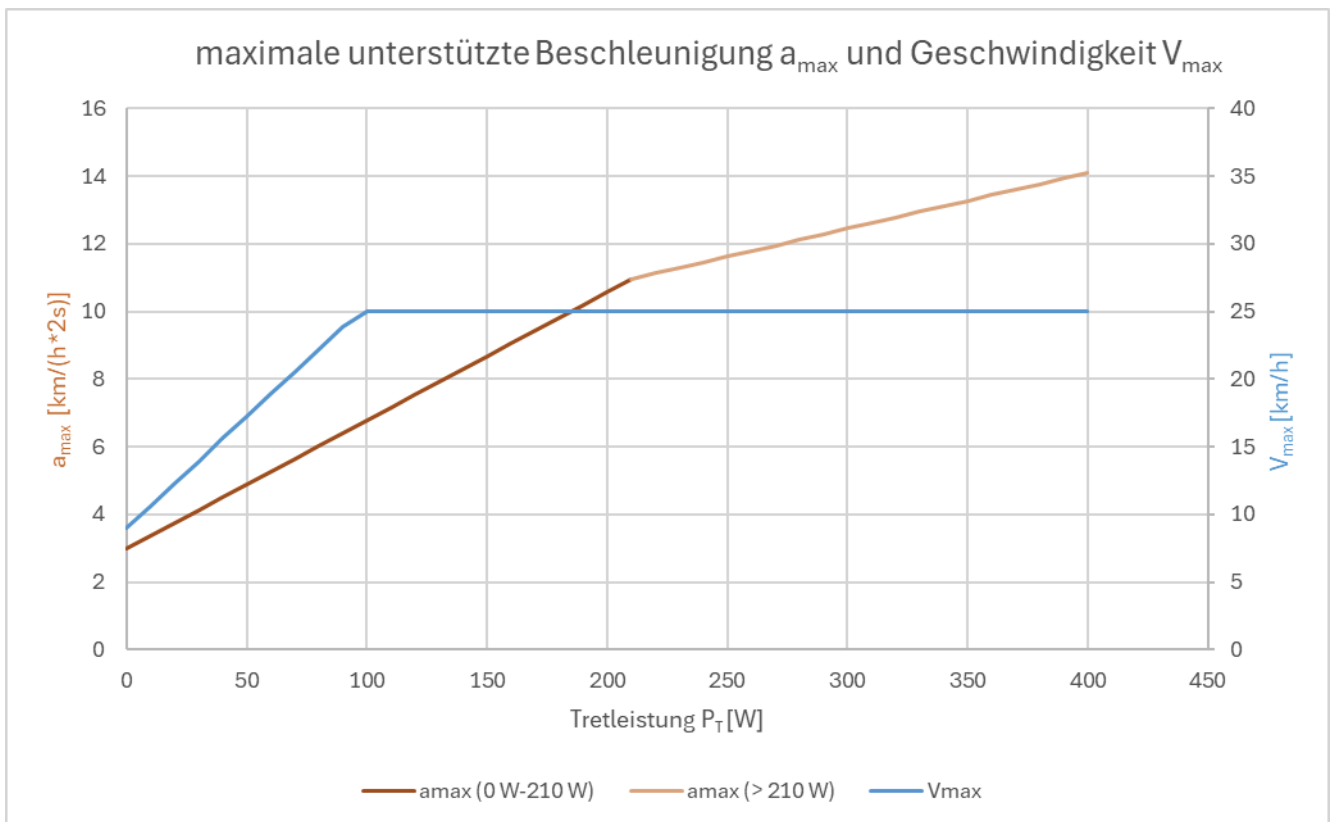
The proposal does not regulate motor power or the weight of the wheel. This is not necessary, because regardless of the motor power and only depending on the pedaling power, the assisted acceleration and the assisted speed are limited. So it makes no sense to equip lightweight bikes with large motors whose power can never be retrieved. The motors can be so large as required that they make it possible to compensate for the resistance, depending on the total weight of the bicycle or physical strength. The development of cargo bikes, family bikes, craftsmen's bikes or bicycles for people with physical disabilities is no longer limited by a power limit of the engine.

The proposal makes all pedelecs safe, from youth bikes to cargo bikes and electric trailers. And the proposed regulation is easy to check in practice during traffic checks with a stopwatch and tape measure. This makes unauthorized tuning more difficult.

The proposal of the ADFC/ECF clearly means that with a very low pedaling power (drive power e.g. handbike by hand crank drive) of 35 watts, the assisted acceleration leads to a speed of 15 km/h after about 7 seconds. An average effort of 100 watts makes it possible to reach the top speed of 25 km/h in around 7.4 seconds. With a strong pedaling power of 200 watts, the maximum support ensures that 25 km/h is reached after just 4.7 seconds. From 25 km/h onwards – as today – there is no more support. A corresponding control system has already been installed in pedelecs as an example and works. It is known as Acceleration Speed Compensation (ASC).

Characteristic curves

The characteristics used for the maximum assisted acceleration a_{max} and speed V_{max} depending on the pedaling power P_T .



Limit weight?

When drafting the ADFC/ECF proposal, we discussed whether the weight restriction proposed by the ZIV makes sense. After all, a cargo pedelec or even a disabled-friendly tandem, e.g. with 600 kg and fast downhill, can become a danger, even if it is not supported. With the following result:

Currently, there is no restriction in this regard. In principle, we consider future regulation to limit this danger to be sensible, but not in the type approval regulation now being discussed.

In our view, it makes more sense to link weight and speed limits to the user environment. Just as it is practiced today in the car/truck sector in terms of road safety. This would then have to be regulated in due course, i.e. if problems actually arise, in the right place, namely in the road traffic regulations.

Existing pedelecs

Could they be grandfathered or retrofitted.

Practical test

In order to find out the existing and intended regulations in practice, we offer you to learn about the differences between the regulations under discussion for the amendment of the EU regulation on sample bicycles during the break in the meeting. How does a heavy bicycle ride on the mountain according to the previously applicable regulation, according to the proposal of the ZIV and according to the proposal of the ADFC. Try it out.

Reference to the discussion/ background information

The topic is controversially discussed, e.g.:

- <https://www.cargobike.jetzt/epac-regulierung/>. Here, the approaches were discussed and questions were also raised about the proposal for regulation on speed and acceleration
- <https://www.gopedelec.org>
Sample images and background information
- <https://focus-mobility.de/magazin/zoff-um-leistungslimit-bei-e-bikes-750-watt-mehr-nicht>
The press is also taking up the topic
- <https://www.derstandard.de/story/3000000281780/ist-das-noch-ein-fahrrad-eu-prueft-neue-regelungen-fuer-e-bikes>
see above article not freely readable

Examples

There are already practical applications for the transport turnaround in urban logistics:

- <https://www.carlacargo.de/de>,
- <https://logistra.de/news/nfz-fuhrpark-lagerlogistik-intralogistik-bike-sattelzug-zemmi-stellt-lastenrad-aufleger-mit-450-kilo-nutzlast-vor-429958.html>
- <https://www.faz.net/aktuell/rhein-main/wirtschaft/liefere-mit-elektrofahrzeugen-amazons-neue-kastenraeder-110233680.html>
- https://www.chip.de/news/Hermes-Paketdienstleister-testet-neue-Zustellungs-art_183744547.html
- <https://www.rnd.de/wirtschaft/dhl-liefert-pakete-mit-lastenfahrradern-aus-GHTIUUXSZVP5YRS6HWUCMK3ZE4.html> or <https://dasfahrrad-blog.blogspot.com/2017/12/dhl-fahrt-express-pakete-mit.html>
- Annex II