

Electric and Automated Vehicles Bill: a legal vacuum on criminal and civil liability

1. Summary

1.1. This briefing sets out Cycling UK's views on the Electric and Automated Vehicles Bill. Chiefly, our concern is that, while the Bill deals with some of the civil liability aspects of the transfer from human to autonomous control, it fails to transfer criminal responsibility for inappropriate use of autonomous technology, for failing to update the vehicle's software, or for making dangerous modifications to the vehicle's software.

1.2. We recommend:

- clearer explanation by the Government of the proposed regulations which will be imposed on forthcoming autonomous vehicles, particularly with regard to vulnerable road users.
- changes to the Road Traffic Act 1988 to bring misuse or tampering with autonomous vehicle technology within the definition of dangerous driving.

2. About Cycling UK

2.1 Cycling UK has championed the cause of cycling for well over a century. We promote all forms of cycling, protect the interests of existing and would-be cyclists, and inspire people of all ages, backgrounds and abilities to discover the joys of cycling.

2.2 As an independent, democratic and expert organisation, our activities reflect the commitment of our members, volunteers and partners to make cycling mainstream, making a lasting difference to the lives of individuals and communities.

3. Background

3.1. The first part of the Electric and Automated Vehicles Bill aims to insure drivers are still insured, even when the vehicle is fully controlled by the automated system.

3.2. This step is required to move beyond Advanced Driver Assistance Systems (ADAS), already present in some cars, to Autonomous Vehicles (AV), in which much more of the driving task is performed by the vehicle itself. The steps and possible timeframe towards AV technology are set out below, using the six levels of automation - see Table 1 below.

3.3. It is unclear exactly at which level the current legislation will take effect: evidence given to the Committee suggests that it will only apply to Level 4 vehicles (currently approximately 3-4 years away from market), others suggest it may be suitable for Level 3, versions of which are being tested.

4. Risks to road users from immature automated technology

4.1. The UK government, as with many others around the world, is keen to support AVs. It is aware that this technology is likely to revolutionise surface mobility in future decades, improving access to transport for many, while potentially also improving safety.

4.2. Companies that wish to experiment with the technology have been offered grants, and regulatory barriers to both testing and more widespread use are being dismantled.

4.3. While Cycling UK appreciates the potential longer-term benefit of safer autonomous vehicles, we believe there are some short and medium term risks. With the headlong rush for AVs, we run the risk of exposing road users to the risks from immature, under-regulated technologies. This is likely to be a particular concern for vulnerable road users, given that AV technologies are still some way short of being able not only to detect pedestrians and cyclists reliably, but also to predict their possible movements.¹

4.4. Cyclists currently rely on hand-signals and eye-contact to negotiate for space with drivers (indeed they are trained to do so under the Government-backed 'Bikeability' national cycle training scheme) and there is currently no technological substitute for this. Another outstanding technological challenge is the process for ensuring AVs' software is reliably kept up to date.

4.5. If (as seems likely) AVs are to be used on public roads before these challenges are overcome, there will be a need for regulations which define the situations in which it is, or is not, appropriate for vehicles to be used in 'driverless' mode. Although the Minister has already made clear his intention to make these regulations, greater detail on what those regulations will set out to achieve are required to ensure the safety of vulnerable road users.

4.6. Since the Bill paves the way for vehicles which permit the drivers/owners of AVs to be able to switch between human and automated control, these regulations will need to make them criminally liable for the inappropriate use of the technology, i.e. using the vehicle in driverless mode when this is inappropriate, or using it without having installed safety-critical software updates. These regulations will need to take account of different road types, vehicle types and other circumstances, and the need to update these regulatory provisions over time, as the technology develops.

5. Legal sanction for inappropriate use of AV technology

5.6. Currently, drivers of vehicles with ADAS must keep control of their vehicle at all times. If they fail to do this and endanger, injure or kill, their inattention could lead to a prosecution for careless or dangerous driving, which can carry significant fines, a prison term, and driving bans. Where the AV is in control, however, such offences become unusable, as they rely on the behaviour of the driver to establish the contravention.

5.7. As currently worded, the Bill passes insurance liability from the driver to the manufacturer when the automated system is in use, but it does not pass any parallel criminal responsibility. The Bill therefore has insufficient legal safeguards to punish dangerous behaviour using the new technologies. It is unclear at present whether it will even be possible to criminally prosecute drivers who switch to the autonomous modes in inappropriate or unsafe locations and in doing so endanger, injure or kill other road users, or to criminally prosecute the manufacturers for any errors in software.

5.8. The only possible sanction for use of an approved AV system in an inappropriate location might be an infringement of Road Traffic Act 1988 (RTA 1988) section 41D, the punishment for which is just a maximum £1,000 fine and optional penalty points.²

5.9. For instance, if an AV system designed purely for motorway use offered and were allowed to take control of a vehicle on a busy urban street and that vehicle then overtook a cyclist too closely, hitting the cyclist and injuring them, an offence of careless or dangerous driving would be impossible as the legislation is currently written.

¹ For instance, the witness evidence given to the Bill Committee by Stan Boland (of technology start-up company FiveAI) makes it clear that this is still a future development: see https://www.theyworkforyou.com/psc/2017-19/Automated_and_Electric_Vehicles_Bill/02-0_2017-10-31b.65.3#g66.3

² Road Traffic Act 1988, Section 41D; Road Traffic Offenders Act 1988, Schedule 2

5.10. The dangerous condition of a vehicle is a standalone offence under RTA 1988 Section 41D, but it can also be used as evidence (under Section 2A of the RTA 1988) to establish the much more serious offence of dangerous driving, which carries a potential prison sentence. However, this requires “a person” to be driving, and thus needs altering to include the owner/designer of the autonomous system.³

6. Legal sanction from tampering with or failing to update software

6.1. The Bill aims to create an insurance structure to enable insurers to seek redress from manufacturers, or from drivers, if they have tampered with the vehicle’s software, or failed to keep it up to date. This replicates the existing approach whereby insurance is invalidated if drivers fail to disclose modifications to the vehicle.

6.2. However, currently most vehicle modifications are unlikely to be serious enough to risk injury or death to third parties - instead they often serve as indicators of risk-taking individuals. On the other hand, defective software in an automated vehicle may well represent a very serious safety risk. This is particularly the case with potential hacking of autonomous software and other cybersecurity concerns that have been raised in the Committee and elsewhere. Tampering with a vehicle’s software should therefore be made a serious offence.

6.3. Although changes to the Road Vehicles (Construction and Use) Regulations 1986 have been proposed by the Minister, these offences only attract modest fines or penalty points, and in any case the punishment is levied only against a driver or operator. Substantial changes are required to ensure that offences can also be brought against software modifications, either malicious or in error, that result in dangerous automated behaviour.

6.4. One way this could be altered would be through amendments to the Road Traffic Act 1988, to include altering software, or failing to keep software up to date as matters which may constitute the vehicle being in a “dangerous” condition, punishable with the offence of dangerous driving.

7. How the Bill could be improved

7.1. The problems set out above can begin to be resolved through changes to the Bill, both through greater specification of forthcoming regulations, and by direct changes to introduce new offences connected to the misuse or interference with the autonomous system.

7.2. The government must give a clearer indication of the expected degree of restriction in subsequent regulations on where and when AV technology can be engaged by the driver. The Bill must set out a mechanism for enhancing the criminal sanctions for circumventing those regulations, or for tampering with the software, as well as offences for manufacturers whose software is responsible for injury or death.

7.3. One solution to the problem of inappropriate use might be to mandate restrictions within the technology: for instance if the systems are initially only to apply on motorways the AV function could be geo-fenced, with drivers unable to use the AV function off the motorway. This has already been discussed in the Bill’s evolution. However, it is likely that there may be circumstances in which this geo-fencing is circumvented, deliberately or in error.

7.4. We believe that the definition of “dangerous driving”, as defined in Section 2A of RTA 1988 should be extended to include use of autonomous technology in circumstances in which it is not permitted, or the alteration/failure to update software. This is the equivalent of the current practice by which the definition of dangerous driving is extended to include driving a vehicle which is in an unsafe condition.

³ [Road Traffic Act 1988, Section 2A](#)

7.5. These could be achieved by clear indication on the face of the Bill, for instance, by using amendments. A set of draft amendments are as follows:

New Clause

Regulations permitting circumstances of the use of automated functions

- (1) The Secretary of State shall set out in regulations the circumstances or situations in which it is, or is not, appropriate for a motor vehicle to be able to drive itself.
- (2) These regulations may relate to -
 - (a) The type of vehicle,
 - (b) The type of automation system,
 - (c) The type of road or area.
- (3) The Secretary of State shall by statutory instrument make amendments to the regulations relating to the construction and use of vehicles to make it an offence -
 - (a) to allow a vehicle to drive itself in circumstances where it is not appropriate,
 - (b) to alter a vehicle's software in a way that endangers themselves or other road users,
 - (c) to fail to install safety-critical software updates that the insured person knows, or ought to reasonably know, are safety-critical.
- (4) In carrying out his functions under this section, the Secretary of State shall have regard to the safety of all road users.

Explanation:

Binds the Secretary of State to explain exactly the geo-fence or circumstances in which autonomous use will be permitted, and to create the framework for offences where these regulations are circumvented.

Amendment to the Road Traffic Act 1988

After 2A(4) insert -

- (5) In determining for the purposes of subsection (2) above the state of a vehicle, regard may had to:
 - (a) using an autonomous vehicle in autonomous mode in circumstances outside those set out in regulations in the [Electric and Autonomous Vehicles Act 2018](#)
 - (b) software alterations unauthorised by the original manufacturer of the vehicle, or
 - (c) a failure to install safety-critical software updates that the vehicle owner knows, or ought reasonably to know, are safety-critical.

Explanation:

Extends the definition of dangerous driving to encompass behaviour similar to that set out in the EAV Bill. There remains a concern that the *Act's* requirement that 'a person who *drives...*' will need redefining to include the person in charge of an autonomous vehicle.

Table 1. Technology and timeframe

SAE	Vehicle characteristics	DfT term	Time frame*	Impact on safety*
0	No driver assistance		Current	Status quo (220k injuries/year)
1	Driver assistance - either assisted steering (lane control) or acceleration/deceleration (emergency braking).	ADAS	Some current vehicles	Possible reductions from rear-ending. Risk of driver reliance on safety features.
2	Partial automation - multiple systems providing driver assistance.	ADAS	A few existing vehicles	Possible reductions from rear-ending. Risk of driver reliance on safety features.
3	Conditional automation - optional full automation with driver required to be ready to resume control.	AV	In testing: ~2018 to market	Potentially high risk if distracted driver has to take over in risky situation.
4	High automation - vehicle can achieve nearly all driving tasks independently, but driver input is optional.	AV	Some companies claim it will be ready by 2021	Risk likely to be eliminated from controlled roads (motorways), but remain where drivers take control, e.g. rural or urban minor roads.
5	Full automation - vehicle has complete autonomy and requires no human input.	AV	>2025 with total fleet coverage decades thereafter	Likely to resolve 90-95% of traffic crashes with mature technology and full market penetration.

Source: Society of Automotive Engineers International (SAE), as reproduced in the House of Lords Science and Technology Committee Report, 'Connected and Autonomous Vehicles: the future?' March 2017.

Note: * Timeline and safety impacts are those assessed by Cycling UK.

Cycling UK

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