



**Law
Commission**
Reforming the law

Remote Driving

Summary of Issues Paper

24 June 2022

A. Introduction

- A.1 The Law Commission has been asked by the UK Government to consider the law and regulation of remote driving. This is where a person outside a vehicle uses connectivity to control a vehicle on public roads.
- A.2 On 24 June 2022 we published a 93 page paper seeking views by **2 September 2022**. Here we summarise that paper. Details of how to respond can be found below.

Comments may be sent:

Using an online form at:

<https://consult.justice.gov.uk/law-commission/remote-driving>

We have also produced a questionnaire in word format available on request. We are happy to accept comments in other formats. Please send your response:

By email to remotedriving@lawcommission.gov.uk

OR

By post to Remote Driving Team, Law Commission, 1st Floor, Tower, 52 Queen Anne's Gate, London, SW1H 9AG.

If you send your comments by post, it would be helpful if, whenever possible, you could also send them by email.

- A.3 Further information about how we handle data is available at:
<https://www.lawcom.gov.uk/document/handling-data/>.
- A.4 The Law Commission will use the feedback received to provide advice to the UK Government on options for reform by January 2023.

BACKGROUND

- A.5 Technology that enables an individual to drive a vehicle from a remote location already exists. It is commonly used in controlled environments such as warehouses, farms and mines.
- A.6 There are three main reasons why a vehicle operator may wish the driver to be outside a vehicle rather than in it:
- (1) *To deal with hazardous or uncomfortable surroundings.* Remote driving is most advanced in off-road settings, such as mines or quarries, where the driver is kept at a distance from heavy machinery primarily for safety.

- (2) *To overcome logistical difficulties in moving the driver from one vehicle to another.* There is, for example, considerable interest in using remote drivers to deliver rental cars.
- (3) *As an adjunct to automated vehicles.* A remote driver may, for example, be used as a safety driver for vehicles that do not have driving seats. Remote drivers may also intervene if an automated vehicle encounters a situation it cannot handle. In these cases, the remote driver may perform all or only some of the dynamic driving task.¹

TERMINOLOGY

A.7 There is little consensus over the terms used to describe remote driving. Confusion may arise, for example, when an individual carries out only part of the normal driving task. For example, driving automation may steer the vehicle, but a human driver may be required to monitor the driving environment and apply an emergency brake if a hazard arises.

A.8 For the purposes of this project, we use the following tentative definitions:

- (1) A driver is an individual who performs all or any one of the following tasks: steering; braking, releasing a brake, or accelerating; or monitoring the driving environment with a view to responding to objects or events by exercising lateral or longitudinal control (provided that this activity is safety critical).
- (2) A remote assistant is not a driver if they do not exercise direct longitudinal or lateral control, but only advise an automated driving system to undertake a manoeuvre.
- (3) A “remote driver” is a driver who is outside the vehicle and who uses some form of wireless connectivity to control the vehicle. We use the term to cover both in or beyond line-of-sight driving, though the paper focuses on “beyond line-of-sight” driving.

¹ See SAE Taxonomy J3016, para 5.5.

B. The current law

- B.1 Under current road traffic law, there is no express legal requirement for a driver to be within the vehicle. Nor are there any provisions which completely prevent remote driving. However, some provisions have the potential to be problematic.

Construction and use provisions

- B.2 The current law on construction and use is found in the Road Vehicles (Construction and Use) Regulations 1986 as amended. Breach of the regulations is an offence under the Road Traffic Act 1988.² We have identified four provisions which could potentially prevent some types of remote driving:
- (1) Regulation 104 requires a driver to be in a position to have “proper control” of the vehicle and a “full view of the road and traffic ahead”.
 - (2) Regulation 107 prohibits leaving a vehicle which is not “attended by a person licenced to drive it”, unless the engine is stopped and the parking brake set.
 - (3) Regulation 109 prohibits a driver being in a position to see a screen which is being used to display non-driving related information.
 - (4) Regulation 110 prohibits the use of mobile phones and other hand-held devices whilst driving. This might apply if a person walks beside a vehicle using a hand-held device to control it.
- B.3 Our analysis of each provision is set out in Chapter 3 and Appendix 2 of the issues paper. The application of these provisions to remote driving is uncertain. We seek views on whether the provisions cause difficulties in practice. For example, are uncertainties delaying trials or making it more difficult to obtain insurance?

Exemptions from construction and use provisions

- B.4 The Secretary of State has powers to issue exemptions from construction and use regulations under section 44 of the Road Traffic Act 1988. These powers have been used in two ways:
- (1) The first is through a statutory instrument which applies to all vehicles within a listed class, without the need to make an application. The main statutory instrument is the Road Vehicles (Authorisation of Special Types) (General) Order 2003. This is known as the Special Types General Order, or STGO.
 - (2) The Secretary of State for Transport may also make individual orders, which apply to specified vehicles or to vehicles of specified persons. These are referred to as Vehicle Special Orders (VSO). They have the potential to be

² Road Traffic Act 1988, ss 41A, 41B, 41C, 41D and 42.

wider than under the STGO, but the owner or operator must apply to the Vehicle Certification Agency to obtain one.

- B.5 The STGO exempts “special motor vehicles” used in trials and demonstrations from some but not all construction and use provisions. Special vehicles are exempt from regulation 110, but not from regulations 104 or 107. To obtain an exemption from regulation 104 and 107, a developer would need to apply for a VSO.
- B.6 We provide a detailed explanation of exemption procedures in Chapter 3 of the issues paper. We seek views on whether the exemption procedures are easy to navigate, or whether they put any unnecessary obstacles in the way of trialling new forms of vehicle.

CIVIL LIABILITY

- B.7 It is important that a person who is injured by a fault in a remote driving system does not experience obstacles or undue delay in obtaining compensation. The fear is that it might be difficult to show that the remote driver was at fault if the problem lay in connectivity (or some other latent defect) rather than in the behaviour of the driver.
- B.8 Under the current law, an organisation that employs remote drivers must carry compulsory insurance. The employer would be liable for their own faults in operating an unsafe system and vicariously liable as employer for the driver’s faults. They would also be responsible for any defect in the vehicle or the remote driving system, subject to the latent defect defence. Establishing a latent defect defence requires a high evidential burden. The defendant must show that they took all reasonable care to discover the defect, but despite this the defect remained hidden.
- B.9 Complexities may arise if a driving automation feature is designed by one organisation and operated by another, or if the organisation that sets up the system subcontracts for remote drivers rather than employing them. There is also the possibility of a cyber-attack leading to an untraced or uninsured “driver” causing the harm.
- B.10 We seek views on whether these possibilities are likely to cause problems in practice.

C. The case for legal reform

THE SAFETY CHALLENGES OF REMOTE DRIVING

- C.1 Remote driving leads to many safety challenges. These include:
- (1) Connectivity: how can a reliable connection between the remote driver and vehicle be ensured and how can safety risks be mitigated if connectivity is lost?
 - (2) Situational awareness: how can drivers remain aware of their surroundings through a screen without (for example) the “feel” of acceleration?
 - (3) Keeping remote drivers alert: how can the risk of fatigue, motion sickness and distraction be overcome?
 - (4) Cybersecurity: how can unauthorised takeover of vehicles be prevented?
- C.2 In Chapter 5, we consider the need for training, rest periods, incident protocols and well-designed workstations. We ask whether any other safety challenges need to be considered.
- C.3 One particular issue is what should happen if the remote driving technology fails (for example because connectivity is lost). It is clearly essential that the vehicle is able to mitigate the risk of a crash. In some cases, this might simply involve braking in lane. However, in some environments appropriate risk mitigation might require the vehicle to be able to drive itself to the next convenient stopping place and pull into the side of the road. More complex driving automation features that drive the vehicle on a sustained basis could qualify as ‘self-driving’, carrying out manoeuvres such as lane changes.
- C.4 We seek views on the level of sophistication required for a risk mitigation system and how it should be regulated.

REMOTE DRIVING FROM ABROAD

- C.5 Remote driving brings with it the possibility that vehicles may be driven in England and Wales from abroad.
- C.6 In Chapter 6, we consider a scenario whereby a driver situated in Country A (say, Albania) commits a driving offence while driving a vehicle in City B (say Birmingham). Although the English courts would permit a criminal prosecution to be brought, there would be serious practical problems with enforcement. If, for example, the vehicle was being driven in a way associated with drunk driving, it would not be possible to find the driver and administer a breathalyser before the driver sobered up.
- C.7 The need to extradite the driver would lead to further expense and delays and extradition could not be guaranteed in respect of all jurisdictions. The effect of failing to extradite a driver accused of a driving offence is illustrated by the events which

followed the tragic death of Harry Dunn in 2019. These are a matter of acute public concern.³

- C.8 We also consider whether a remote driver who is driving vehicles on UK roads from abroad would need to hold a UK driving licence. Under the Vienna Convention on Road Traffic 1968,⁴ the UK is obliged to recognise a driving licence issued by another contracting party as valid for driving on UK roads until the driver becomes normally resident in the UK. This may be problematic if remote drivers are used to driving on the right-hand side of the road or are unfamiliar with British road layouts.
- C.9 We welcome views on how these problems can be addressed and ask whether driving from abroad should be prohibited.

ISSUES WITH THE CURRENT LAW

- C.10 As we explain in Chapter 7 of the main paper, there are three main issues with the current law:
- (1) The uncertainties of the existing law may have a chilling effect, deterring some worthwhile projects.
 - (2) The same uncertainties could be exploited to put unsafe systems on the road. At present there is little regulation of how remote driving is conducted.
 - (3) There are problems in accountability. At present, the main accountability for poor remote driving lies with the individual driver, even if the driver has little control over key aspects of the operation. The issue becomes particularly acute where vehicles are driven from abroad.

APPROACHES IN OTHER JURISDICTIONS

- C.11 In Chapter 8 of the main paper, we consider international approaches to remote driving, including from the United States, Germany, Japan, Australia and Finland.
- C.12 At present, relatively few jurisdictions regulate “pure” remote driving (that is, remote driving as an independent activity in its own right). In Japan, remote driving is only permitted as an emergency measure for vehicles equipped with an automated driving system. Similarly, remote driving is contained within self-driving regulation in California, Florida, Michigan and Germany. By contrast, in Louisiana and Alabama legislation provides for teleoperation of vehicles which are not automated, as well as those which are.
- C.13 We ask stakeholders to share their experience of any of these regimes.

³ For a summary of these events, see para 6.10 of the issues paper.

⁴ Vienna Convention on Road Traffic 1968, 1042 UNTS 17, art 41(2).

D. Options for reform

- D.1 In the paper, we present both short-term options (which do not need primary legislation) and longer-term options for introducing a new regulatory framework.

SHORT-TERM OPTIONS

- D.2 The Secretary of State for Transport has flexible powers to amend the Road Vehicles (Construction and Use) Regulations 1986 and to provide exemptions from them. Guidance on how provisions are to be interpreted may be given statutory effect through amendments to the Highway Code. Changes using these powers do not require Parliament to pass a new Act.
- D.3 Our provisional conclusion is that the possible chilling effect of the current law could be overcome using these powers, without the need for primary legislation. Changes to construction and use regulations could also be used to prohibit driving from abroad and prevent some unsafe systems from being put onto the road. However, the penalties for breach of construction and use regulations are low and enforcement powers limited. There would be no power to inspect centres or seize vehicles.
- D.4 Introducing more sophisticated safety regulation powers and changing accountability would require primary legislation.

REGULATION IN THE LONGER TERM

- D.5 Our proposals for reform in the longer term are set out in Chapter 10. The most serious safety concerns arise when the driver is beyond line of sight and is dependent on connectivity to see hazards. In these circumstances, we think that a licensed organisation should be responsible for maintaining safety.
- D.6 Our tentative view is that when remote driving is beyond line of sight, the organisation responsible for the remote driving should obtain a licence by proving to a regulator that their system is safe. New primary legislation should place non-delegable civil duties on the licensed organisation and re-assign criminal liabilities, so that individual drivers are only responsible for matters under their control.
- D.7 By contrast, we do not see a need for fundamental changes when the driver is in line of sight of the vehicle. A driver who operates a remote parking or summons feature may be an ordinary individual. Such drivers will retain the normal responsibilities of a driver for both dynamic and non-dynamic purposes, and do not require an organisation to oversee what they are doing.

A system of “ERDO” licensing

- D.8 We ask whether primary legislation should make it an offence to drive (or cause or permit a person to drive) a vehicle beyond line of sight unless the operation of the vehicle is overseen by a licensed organisation.

- D.9 The Law Commissions' report on Automated Vehicles recommended that all vehicles which operate without a driver or user-in-charge should be overseen by a licenced organisation. We called this organisation a "no user-in-charge" (NUIC) operator.
- D.10 Remote driving is different from automation, so it would not be covered directly by a NUIC operator licensing system. However, NUIC operation often raises similar concerns, and may be combined with remote driving. In our view, it would be desirable for the regulation of remote driving and NUIC operation to be as similar as possible, so that they can be combined with minimum duplication. It is also important for public acceptance that both licensing systems achieve comparable levels of safety. We have therefore drawn on the principles behind the recommended NUIC operator licensing system.
- D.11 We refer to the organisation behind remote driving as an Entity for Remote Driving Operation (or ERDO).

ERDO duties

- D.12 One advantage of a licensing scheme is that it can impose a clear list of duties on the remote driver's employer. We ask whether the licensing scheme should specifically state that the ERDO should be under a duty:
- (1) to ensure that the driver is able to drive safely by:
 - (a) taking reasonable care that connectivity is suitable;
 - (b) ensuring that in the absence of connectivity or driver input, the vehicle comes to a safe stop;
 - (c) providing suitable work-stations; and
 - (d) maintaining suitable training, vetting, health checks, working hours and breaks;
 - (2) to maintain the vehicle (including software updates and cyber-security);
 - (3) to check that any load is safe and secure before that journey starts, and ensure that the number of passengers does not overload the vehicle;
 - (4) to insure the vehicle;
 - (5) following an incident, to provide information to other road users, the police and the regulator;
 - (6) not to impede traffic flow, by (for example) ensuring that vehicles are not left in inappropriate places; and
 - (7) to check the route and pay any tolls and/or charges.
- D.13 We ask if statute should give claimants a right to claim compensation if they are injured by a breach of the first three ERDO duties.

- D.14 In addition, we propose that an ERDO that breaches a duty should face regulatory sanctions. We ask if these should be similar to those recommended for NUIC operators, including compliance orders, civil penalties and (in serious cases) withdrawal of licence.

Reducing some responsibilities on individual drivers

- D.15 Under the current law, individual drivers bear heavy responsibilities, not only for their driving but also for the condition of the vehicle. The paper considers possible reductions in individual driver responsibilities in limited and specific cases as follows:

Non-dynamic responsibilities outside the individual driver's control

- D.16 Under the current law, drivers have duties to ensure that the vehicle is roadworthy, any load is safe and secure, and that child passengers wear seatbelts.
- D.17 A driver in a remote-control centre may find some of these duties difficult or impossible to fulfil. For example, the individual driver may have no way of knowing that the tyres are bald, the number plate is obscured, or a lamp housing is cracked. They will not be in position to check the roof-rack or the load. Nor would they be able to strap a toddler into a child seat. Instead, the ERDO will need to find other ways to fulfil these duties by (for example) employing other staff to check vehicles as they leave the depot.
- D.18 We ask whether the law should provide individuals who drive vehicles beyond line of sight with an immunity from prosecution for issues concerned with roadworthiness, loading and seat-belts which are outside their knowledge or control.

Dynamic driving offences where the individual driver was not at fault

- D.19 In the event of a collision, individual drivers can face serious charges, such as causing serious injury or death by dangerous driving. This has the potential to act unfairly where the individual driver did nothing wrong, and the fault lay entirely with the organisation (for example, as a result of inadequate connectivity). It is important that responsibilities lie with those able to meet them.
- D.20 We ask whether a beyond line-of-sight driver should have a defence to a driving charge if, given failures within the remote driving system, a competent and careful driver could not have avoided the offence in the circumstances.

E. Questions

DEFINING A “REMOTE DRIVER”

Q1: Do you agree with the following tentative definitions?

- (1) A driver is an individual who performs all or any of the following tasks:
 - (a) steering (lateral control);
 - (b) braking, removing a brake, or accelerating (longitudinal control); or
 - (c) monitoring the driving environment with a view to responding to objects or events by exercising lateral or longitudinal control (provided that this activity is safety critical).
- (2) A remote assistant is not a driver if they do not exercise direct longitudinal or lateral control, but only advise an automated driving system to undertake a manoeuvre.
- (3) For the purposes of this project, a “remote driver” is a driver who is outside the vehicle and who uses some form of wireless connectivity to control the vehicle (covering both in or beyond line of sight).

CONSTRUCTION AND USE REGULATIONS

Q2: Do uncertainties surrounding construction and use provisions cause difficulties in practice? We are particularly interested in whether uncertainties over regulations 104, 107 or 110 are delaying trials or making it more difficult to obtain insurance.

Q3: Are the various exemptions easy to navigate, or do they put any unnecessary obstacles in the way of trialling new forms of vehicle?

Q4: We seek views on whether any particular construction and use provisions should be maintained in the interests of safety, even for trials and demonstrations.

CIVIL LIABILITY

Q5: Is remote driving likely to cause victims undue delay and expense in claiming compensation; or could it defeat claims altogether?

THE SAFETY CHALLENGES OF REMOTE DRIVING

Q6: We have identified that any system to regulate beyond line-of-sight driving needs to consider the following:

- (1) the adequacy of the communication network;
- (2) cybersecurity;
- (3) workstation layouts;
- (4) staff training;
- (5) staff health, fitness and vetting;
- (6) staff attention and rest periods; and
- (7) incident protocols.

Apart from the above, are there any additional challenges to consider?

Q7: If remote driving fails (through loss of connectivity, for example), how sophisticated would a risk mitigation system need to be? Would it effectively need to be an automated driving system, and regulated as such?

REMOTE DRIVING FROM ABROAD

Q8: We welcome views on how the problems raised by remote driving from outside the jurisdiction can be addressed.

Q9: Should remote driving on roads in Great Britain from outside the UK be prohibited?

INTERNATIONAL PERSPECTIVES

Q10: We would be grateful if stakeholders could inform us about their experience of how remote driving is regulated abroad.

SHORT-TERM REFORM

Q11: Should the Road Vehicles (Authorisation of Special Types) (General) Order 2003 be amended? In particular, we welcome views on whether amendments should:

- (1) specify that regulation 104 is satisfied if the driver of a special vehicle has a view of the road ahead through a screen, provided that appropriate steps have been taken to ensure safety;
- (2) specify that regulation 107 is satisfied by remote supervision, provided that the user has taken appropriate steps to prevent interference with the vehicle;
- (3) make any exemptions contingent on the user obtaining written consent from the road authority to use the vehicle on a particular road; and
- (4) permit trials and demonstrations with a commercial element to them?

Q12: Should any provisions of the CCAV Code of Practice relating to remote driving be added to the Highway Code?

Q13: Are changes needed to construction and use regulations to enable the safe introduction of remote driving?

REGULATION IN THE LONGER TERM

Q14: To distinguish clearly between organisational and individual responsibilities, should the organisation behind remote driving be referred to with new terminology, as an Entity for Remote Driving Operation (or ERDO)?

Q15(1): Should primary legislation make it an offence to drive (or cause or permit a person to drive) a vehicle beyond line of sight unless the vehicle is overseen by a licensed ERDO?

Q15(2): For these purposes, is it appropriate to define a “beyond line-of-sight” driver as one who relies on connectivity to see all or part of the driving environment?

Q16: To obtain a licence, should an ERDO be required to show that it:

- (1) is of good repute;
- (2) has appropriate financial standing;
- (3) conducts its operation within Great Britain; and
- (4) is professionally competent to run the service?

Q17: Should an ERDO be required to submit a safety case to show how it will operate remotely driven vehicles safely?

Q18: Should an ERDO face criminal offences where misrepresentations and non-disclosure in the safety case have implications for safety?

Q19: Should an ERDO be under a duty:

- (1) to ensure that the driver is able to drive safely by:
 - (a) taking reasonable care that connectivity is suitable;
 - (b) ensuring that in the absence of connectivity or driver input, the vehicle comes to a safe stop;
 - (c) providing suitable work-stations; and
 - (d) maintaining suitable training, vetting, health checks, working hours and breaks;
- (2) to maintain the vehicle (including software updates and cybersecurity);
- (3) to check that any load is safe and secure before that journey starts, and ensure that the number of passengers does not overload the vehicle;
- (4) to insure the vehicle;
- (5) following an incident, to provide information to other road users, the police and the regulator;
- (6) not to impede traffic flow by (for example) ensuring that vehicles are not left in inappropriate places;
- (7) to check the route and pay any tolls and/or charges;
- (8) to respond to the regulator's requests for information about the safety of remote driving; and
- (9) any other duties not mentioned above?

Q20: To claim compensation should a person:

- (1) have a right to claim compensation from the ERDO for injuries caused by a breach of the first three ERDO duties outlined above, subject to the normal law of contributory negligence?
- (2) Alternatively, should an insurer be liable irrespective of where the fault lies (in a similar way to the Automated and Electric Vehicles Act 2018)?

Q21: Should the regulator have power to impose a range of sanctions on an ERDO, including improvement notices, civil penalties and (in serious cases) withdrawal of licence?

Q22: Should the regulator have powers to inspect remote operation centres, both in the event of a problem and more generally?

Q23: Should the law provide individuals who drive beyond line of sight with:

- (1) an immunity from being prosecuted for any issues concerned with roadworthiness, loading and seat-belts which are beyond the driver's knowledge and control; and
- (2) a defence to a driving charge if a competent and careful driver in the same circumstances could not have avoided the offence?