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Additional measures for repairers, maintainers and modifiers

This paper **explores** new policy

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Overview

Work performed on an Automated Driving System (ADS) will need to be done by appropriately skilled and qualified people due to the safety implications that could result from poor work.

Even when an Automated Driving System Entity (ADSE) has taken all reasonably practicable measures to ensure safety, the acts and omissions of repairers, maintainers and modifiers could have a significant influence on the safety of an ADS. It may therefore be appropriate to include specific measures for repairers, maintainers and modifiers in the Automated Vehicle Safety Law (AVSL).

This paper explores the proposed measures for repairers, maintainers and modifiers and seeks feedback.

Key points

The policy framework for the AVSL includes measures that will help manage the risks of repairs, maintenance and modifications to an ADS, including the safety duties on ADSEs and the proposed third-party interference offence, which would include performing repairs or modifications on an ADS that are not authorised by an ADSE.

Even if the ADSE does everything that is reasonably practicable to ensure the safety of its ADS, the acts or omissions of a person repairing, maintaining or modifying an ADS may still result in safety risks.

We are seeking feedback on whether it is necessary to include further measures in the AVSL to address this issue, including, for example:

- an express requirement that an ADSE authorises repairers, maintainers and modifiers to perform work on its ADS
- a requirement that an ADSE must not unreasonably withhold authorisation from repairers, maintainers and modifiers – in the interests of supporting competition

- a duty on repairers, maintainers and modifiers to undertake work on an ADS with due care and skill, in accordance with the ADSE's authorisation and instruction, and otherwise ensure their actions do not affect the safety of the ADS
- provision for information about authorised repairers, maintainers and modifiers for an ADS to be publicly available on an automated vehicle register.

Consultation questions

We welcome feedback on all elements of the regulatory framework. In relation to the proposed measures for repairers, maintainers and modifiers, we are especially interested in the following.

7. What are your views on the proposed additional AVSL measures to manage the safety risks of repairs, maintenance and modifications? In your response, please consider:
 - a. Are the risks arising from repairs to an ADS different enough to the risks arising from repairs to a conventional vehicle to require additional regulatory measures?
 - b. Is express authorisation of repairers, maintainers and modifiers a suitable approach to manage the risks of unqualified parties working on an ADS?
 - c. What is an appropriate balance between the level of control or discretion an ADSE has over who it authorises to work on its ADSs, and the level of responsibility placed on either the ADSE or the repairer, maintainer or modifier doing that work?
 - d. Should the AVSL require that an ADSE not unreasonably withhold authorisation, and that it share necessary information? For what reasons should an ADSE reasonably be allowed to withhold authorisation?
 - e. Should the AVSL include safety duties for repairers, maintainers and modifiers of ADSs? If so, how suitable are the proposed elements of the safety duty on repairers, maintainers and modifiers?
 - f. How may the proposed additional measures for repairs, maintenance and modifications affect business models for both ADSEs and repairers, maintainers and modifiers?

Context

The AVSL will primarily regulate ADSEs as the parties with the greatest influence on the in-service safety of an ADS. However, work done on an ADS by other parties – such as repairs, maintenance and modifications – has the potential to influence the safety of an ADS. This paper explores whether additional measures are needed to ensure work done on an ADS by repairers, maintainers and modifiers is performed safely.

Repairs to automated driving systems

It is important that work on an ADS is done by a person who has the right knowledge, skills, guidance and equipment to ensure that the ADS continues to operate safely after work has been done.

Work performed on an ADS could include:

- repairs, which is work done to restore a damaged, faulty or worn ADS or ADS component to its original state
- maintenance, which is work done to preserve the condition of the ADS or ADS component so it will continue to operate correctly
- modifications, which are changes made to the ADS that vary from the manufacturer's original specifications for the ADS.

Those performing this work are referred to in this paper as repairers, maintainers and modifiers.

Under the AVSL, an ADSE has the primary responsibility for ensuring the ongoing safety of an ADS during its design life. This would include ensuring that, once the vehicle is on the road, any repairs, maintenance or modifications do not compromise the safety of the ADS. An ADSE may perform the work required on an ADS to maintain its safety throughout its design life, but the ADSE may also choose to authorise other parties to repair, maintain or modify an ADS or its components.

Need for additional measures for repairers, maintainers and modifiers

While the ADSE has duties and obligations under the AVSL to ensure the safety of an ADS, at this stage there are no supporting duties for repairers, maintainers and modifiers under the proposed AVSL, even though they will have an influence over the safety of an ADS. For example, a safety risk or hazard could arise if someone repairs an ADS but does not correctly recalibrate a sensor after the repair, resulting in unsafe operation of the ADS.

Management of the potential influence of repairers, maintainers and modifiers over the safety of an ADS is currently proposed through existing measures, including:

- the ADSE's safety duties under the AVSL, which will require the ADSE to ensure the safe operation of its ADS so far as is reasonably practicable (see the [Automated Driving System Entity in-service obligations](#) paper for more information)
- third-party interference offences in state and territory legislation and the AVSL, which will apply if any person other than the new regulator, the ADSE or a person authorised by the ADSE interferes with the ADS
- existing state and territory regulation of these repairers, maintainers and modifiers
- updated modification standards for non-ADS modifications of automated vehicles.

Despite these obligations, gaps may remain in circumstances where an authorised repairer, maintainer or modifier makes a mistake or omission resulting in faulty work, even where an ADSE has taken all reasonably practicable steps to ensure the party is suitable to undertake work on the ADS. This scenario would not be captured by the third-party interference offence, which is directed at preventing unauthorised third parties from interfering with an ADS.

This consultation aims to address these gaps.

Consultation question

7a. Are the risks arising from repairs to an ADS different enough to the risks arising from repairs to a conventional vehicle to require additional regulatory measures?

Additional measures for consultation

Given the gaps described above, additional measures for repairers, maintainers and modifiers may be appropriate to manage safety risks. Various options are discussed in this section.

Authorising repairers, maintainers and modifiers

As the ADSE is responsible for the safe operation of the ADS, it is important that the ADSE understands who is repairing, maintaining or modifying its ADSs and is able to ensure they have the capability to perform that work correctly.

The proposed third-party interference offence would make it an offence for a person who is not authorised by the ADSE to perform repairs or modifications on the ADS. This implies that an ADSE will have a mechanism for authorising repairs and modifications to its ADS, but the policy framework for the AVSL did not include an express requirement that the ADSE authorise repairs and modifications. Find more information in the [Third-party interference with an ADS](#) paper.

Authorisation would not be required to perform work on non-ADS components. Therefore, a person who is not authorised to work on the ADS would not be prevented from doing work on other parts of the vehicle. Repairs, maintenance and modifications to non-ADS components of a vehicle will continue to be regulated through existing state and territory frameworks.

ADSs will be technically complex and each ADS may have unique characteristics. The ADSE understands the technical requirements of its ADSs and is well positioned to assess the capabilities required to undertake repairs, maintenance or modifications on it. The ADSE has a safety duty to manage foreseeable risks for its ADS which extends to managing who performs works on it. To effectively manage this risk, it may be appropriate for the ADSE to authorise and oversee who works on its ADS.

The AVSL could include an express requirement for an ADSE to authorise and oversee the repairers, maintainers and modifiers for the ADS it is responsible for.

The requirement that an ADSE expressly authorise repairers, maintainers and modifiers could take different forms, depending on the level of control and oversight the ADSE has of the authorisation and work performed. For example, this could range from:

- the ADSE having complete discretion about who it authorises to work on its ADS, in which case it may be appropriate that the ADSE has the primary responsibility to ensure the work was done in a way that does not compromise the safety of the ADS
- the ADSE having an obligation to authorise repairers, maintainers and modifiers provided they meet particular criteria, in which case the ADSE would have less discretion over who it authorises to work on its ADSs and this may need to be balanced by placing greater responsibility on repairers, maintainers and modifiers for the work they perform.

The following sections further explore the concepts of ADSEs having an obligation to authorise repairers, maintainers and modifiers in particular circumstances and repairers, maintainers and modifiers having safety duties.

Measures to support competition

If an express obligation on ADSEs to authorise and oversee repairers, maintainers and modifiers is introduced in the AVSL, there is a risk that an ADSE might unreasonably limit who it authorises. This would limit competition and reduce an owner's choice of who could work on their ADS.

The technical complexity of ADSs may justify limiting authorisation of repairers, maintainers and modifiers. In practice, this work may initially be done only by ADSEs as the ADSE bears the primary safety responsibility for an ADS. Maintaining a high level of control of work that is done on the ADS may be desirable for the ADSE to fulfil its safety duties.

To promote competition, the AVSL could require that an ADSE must not withhold authorisation of a repairer, maintainer or modifier except for allowed reasons. These could include:

- not having access to equipment
- failure to undertake the required training
- insufficient expertise or experience to work on an ADS.

Things unlikely to be considered reasonable grounds to withhold authorisation would be:

- not being able to access repair information (this should be provided by the ADSE)
- not being able to access necessary training (which the ADSE would also be expected to provide).

Repairers, maintainers and modifiers will need access to the required technical information to support the work to be performed on an ADS. The AVSL could require ADSEs to provide this information to authorised repairers, maintainers and modifiers. An ADSE would also need to provide this information to a party seeking to be authorised as a repairer, maintainer or modifier, if they can show they have the technical expertise and ability to do any necessary training to perform the task.

A requirement to share information would be consistent with the Motor Vehicle Information Scheme, which applies to conventional vehicles. The Motor Vehicle Information Scheme does not currently apply to information relating to an ADS.

Consultation questions

7b. Is express authorisation of repairers, maintainers and modifiers a suitable approach to manage the risks of unqualified parties working on an ADS?

7c. What is an appropriate balance between the level of control or discretion an ADSE has over who it authorises to work on its ADSs, and the level of responsibility placed on either the ADSE or the repairer, maintainer or modifier doing that work?

7d. Should the AVSL require that an ADSE not unreasonably withhold authorisation, and that it share necessary information? For what reasons should an ADSE reasonably be allowed to withhold authorisation?

Safety duties on repairers, maintainers and modifiers of an ADS

ADSEs may perform all necessary due diligence when authorising a repairer, maintainer or modifier and provide them with all the necessary information and equipment, and yet it is possible that the repairer, maintainer or modifier may make a mistake or otherwise not perform the work correctly, resulting in an unsafe ADS.

Repairers, maintainers and modifiers can have a large influence on ADS safety, so it may be suitable for the repairer, maintainer or modifier to have accountability for work it has performed through safety

duties under the AVSL. Safety duties on repairers, maintainers and modifiers would support the ADSE's primary duty to ensure the safe operation of an ADS.

A shared duties approach is used in other transport safety regulatory frameworks, which include safety duties for various parties that have an influence on safety. For example:

- The Rail Safety National Law includes responsibilities on a number of parties, including on
 - rail transport operators to ensure that any repair, maintenance or modification is done or carried out in a way that ensures the safety of railway operations
 - rail safety workers to take reasonable care of themselves and others and comply with instructions given by rail transport operators.
- The Heavy Vehicle National Law has a chain of responsibility approach that ensures everyone who works with heavy vehicles is accountable for safety to the extent of the party's ability to control, eliminate or minimise a risk.
- The Marine Safety (Domestic Commercial Vessel) National Law includes duties on a number of parties, including:
 - a duty on owners of domestic commercial vessels to ensure safety of vessels, marine safety equipment and operations
 - a duty on a person who maintains, repairs or modifies a domestic commercial vessel or marine safety equipment to ensure that the vessel or equipment is safe if used for a purpose for which it was maintained, repaired or modified, so far as is reasonably practicable.

The AVSL could include safety duties for authorised repairers, maintainers and modifiers who undertake work on an ADS, which require them to:

- perform repairs, maintenance and modifications with care for their own safety and the safety of others affected by their acts or omissions
- perform the work in accordance with the ADSE's authorisation and following the ADSE's instructions
- otherwise ensure their actions do not affect the safety of the ADS, so far as reasonably practicable.

Consultation questions

- 7e. Should the AVSL include safety duties for repairers, maintainers and modifiers of ADSs? If so, how suitable are the proposed elements of the safety duty on repairers, maintainers and modifiers?
- 7f. How may the proposed additional measures for repairs, maintenance and modifications affect the business models for both ADSEs and repairers, maintainers and modifiers?

Providing information about authorised repairers, maintainers and modifiers

To make sure that consumers know which repairers, maintainers and modifiers are authorised to work on a particular ADS, the ADSE would record information about authorised repairers, maintainers and modifiers in the automated vehicle register (find more information in the [Establishing an automated vehicle register](#) paper), and this information would be publicly searchable.

The register will also include information about the parts of the vehicle that form part of the ADS. This information will be useful for people working on vehicles with an ADS, so they can understand which parts of the vehicle require ADSE authorisation for work.