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- *Submission*

Queensland Parliamentary Inquiry
into Vehicle Safety, Standards and
Technology, including Engine
Immobiliser Technology

- *For Information*

Author R. Manning

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RACQ thanks the Queensland Parliament for the opportunity to provide comment on its inquiry into Vehicle Safety, Standards, Technology, and Engine Immobiliser Technology. Our comments are addressed in the order shown in the Terms of Reference.

1. Options to reduce or prevent vehicles being used illegally or dangerously on Queensland roads, including vehicle engine immobilisation technology, non-technology options, operational considerations, or other measures.

Engine immobilisation technology

Vehicle immobilisation falls into two categories. Devices that prevent the engine being started without the vehicle's key / key fob being present, and systems that can remotely disable a vehicle.

Devices that prevent the engine being started

A large portion of the Queensland vehicle fleet is already quite secure as all passenger vehicles, forward control passenger vehicles, and off-road passenger vehicles built since 1/7/2001 require an engine immobiliser to comply with Australian Design Rule 82.

Additionally, some vehicles built before this date had immobilisers that were fitted voluntarily by the manufacturer. While some light commercial vehicles and 4WDs built since this time may have an immobiliser, they are not required to have one and many don't, so these are still a potential theft target and a candidate for immobiliser installation.

Systems that can remotely disable a vehicle

While the technology exists to remotely immobilise vehicles, few vehicle manufacturers choose to incorporate it.

General Motor's OnStar is probably the best known of these systems however it is not supported in Australia and given GMs' withdrawal from this market it is unlikely it ever will be.
(1)

OnStar allows a vehicle to be tracked and disabled remotely, but to ensure the safety of other road users, company safety protocols only allow this when police have the vehicle in sight, confirm that it is the subject vehicle, and authorise first a slow down by disabling the vehicle's accelerator, and then a complete shutdown.

Other manufacturers may also have this ability; however, if they do it is not openly promoted in the way OnStar is.

A number of aftermarket systems also allow remote shutdown, however they either prevent a restart once the engine is stopped, or if they do shutdown a moving vehicle, they appear to incorporate lower-level safety protocols, e.g., the engine can only be shut down if the vehicle is travelling at low speed while being tracked. Clearly, this cannot account for the full impact a shutdown may have on other road users.

In all cases, the vehicle must be connected to the mobile phone network, which generates ongoing access costs for the vehicle operator and is a likely barrier to uptake. (2)

Offender management

While RACQ is reluctant to comment on offender management and the broader social issues relating to vehicle crime as it is outside our area of expertise, it is clear from member feedback and media commentary that there is increasing public support for a more effective method of dealing with motor vehicle crime, and in particular recidivist juvenile offenders. We therefore draw the committee's attention to a review of the New South Wales situation by the National Motor Vehicle Theft Reduction Council. <https://carsafe.com.au/nsw-sentencing-trends>

Additionally, we would also bring to the committee's attention a significant diversionary program that dealt specifically with recidivist juvenile offenders. Unfortunately, the Synergy program based in Melbourne, has recently closed due to the effects of the COVID-19 pandemic, while a similar program, known as *U-turn*, which operated in Queensland's Logan area, closed some time ago due to withdrawal of funding/support by the Newman government.

From <https://www.missionaustralia.com.au/news-blog/news-media/ground-breaking-social-enterprise-changing-lives>

Synergy Repairs is a commercial business offering quality non-structural smash repair services, while at the same time providing on-the-job training, work experience and support to young people with a history of motor vehicle related offences, such as theft, vandalism, and hooning.

The social enterprise is designed as a diversionary program, to not only stop participants from re-offending, but also set them up for the future, while at the same time creating a new skilled workforce for the smash repairs industry.

Participants are supervised by an experienced, trade-qualified workshop manager, who also acts as the commercial manager of the business. The business is supported by a full time, experienced spray painter, and a full time, experienced panel-beater.

Participants are assisted to gain ongoing employment in the industry through Suncorp's network of smash repairers, or undertake further education, or employment in another industry.

To date, 65% of participants who entered the Synergy program are engaged in full time employment or other forms of full-time education.

RACQ recommends the Queensland Government considers funding and support to reinstate and expand this program.

Key points

- The use of immobilisers has significantly improved the vehicle theft situation as these vehicles are, in the main, very secure.
- For most the only practical method of theft is with the vehicle's key.
- According to the NMVTRC, approximately 7 in 10 immobilised vehicles are stolen with keys (national figures, not Queensland specific).
- Immobilisers have the most impact on opportunistic thieves, who generally take what ever is easily available. This group will usually move on to something else if their first target becomes too difficult.
- Profit motivated thieves will often target particular models or steal to order, which is more difficult to counter. This group is responsible for fewer thefts. (3)
- Cars that were not originally equipped with an immobiliser can be made more secure by fitting an approved immobiliser.
- The cost/benefit of fitting immobilisers is uncertain and would need detailed analysis.
- Neither factory nor aftermarket immobilisers are effective if the thief has access to the vehicle's keys/remote fob, so key security is vital.

- There are aftermarket systems that allow remote immobilising of vehicles; however public take up is limited, and mandating fitment as suggested in 2019 by the Police Union is likely to be difficult and expensive, and the cost/benefit questionable.
- Clearly, the prime focus needs to be on preventing illegal use rather than stopping a stolen vehicle once it is on the road.
- Reduced access to keys or other forms of target hardening could result in an increase in violence to access the vehicle.

Notes:

- (1) Holden attempted to introduce OnStar to the Australian market approximately 20 years ago, but it was dropped due to limited consumer interest. There were plans to reintroduce it in 2019 but this never eventuated due to the withdrawal of GM from Australia.
- (2) Austroads estimates that approximately 1 per cent of the Australian fleet is equipped with some form of connectivity. Page 37.
<https://www.ntc.gov.au/sites/default/files/assets/files/NTC%20Discussion%20Paper%20-%20Government%20access%20to%20vehicle-generated%20data.pdf>
- (3) Profit motivated thefts in 12 months to December 2020. 8,725 thefts valued at \$98.6 million.

Short term thefts in 12 months to December 2020. 30,675 thefts valued at \$440.7 million. Source: <https://carsafe.com.au/market>

Recommendations

- Investigate if amending ADR 82 to include a wider range of vehicles to reduce the potential theft pool would be cost effective.
 - Consider what actions can be taken to address the issue of key security. This has the potential to provide significant, low-cost improvements. However, on-going media coverage of the issue does not appear to have been effective in changing behaviour.
- (4)
- Investigate other security technology that offers a user unique identifier, such as fingerprint recognition, to determine if any can be cost effectively applied to vehicles, either as original or aftermarket equipment.
 - Introduce diversionary programs, and funding for such, for recidivist offenders.
 - Investigate the cost/benefit of requiring the installation of immobilisers to non-immobilised in-service vehicles (see commentary about the Western Australian scheme next).

Notes:

- (4) NMVTRC *Consumer perceptions of motor vehicle theft*. April 2020
“While messaging around key theft is resonating with motorists, there still appears to be some confusion about how vehicles are stolen and the most effective security measures. The results point to a lack of awareness of the connection between key theft and the fact that vehicles are most commonly stolen from the home, including the garage or a driveway”.

Note too that some see the issue of key security as a form of 'victim blaming' as they believe they should not have to take such precautions in their own home.

2. Lessons learned from other jurisdictions, particularly regarding the implementation of vehicle engine immobilisation technology to the existing vehicle fleet.

Western Australia's immobiliser program (5) was introduced in 1997 with a government rebate to encourage the voluntary installation of immobilisers. The voluntary program became mandatory from 1999.

The program requires that defined vehicles be fitted with an approved immobiliser on re-registration or transfer of registration. It appears to have been effective in reducing theft numbers (6) however, as vehicles more than 25 years old are exempt from the requirement the program is effectively nearing its end. It will still have some ongoing impact on non-immobilised vehicles entering the State, and those vehicle classes that do not have a factory fitted immobiliser.

Based on the early success of the Western Australian program the NMVTRC introduced its *Immobilise Now* campaign around 2000. This was a limited time national program to promote the installation of vehicle immobilisers.

The cost effectiveness of introducing a similar program to Queensland, at this stage, is questionable as the subject group of vehicles is now small and the likely benefits equally small.

No immobiliser program will be completely effective unless, as noted earlier, some action is taken to prevent access to keys / key fobs.

Notes:

(5) <https://www.transport.wa.gov.au/licensing/immobilisers.asp>

(6) Refer Annex 1

3. The Commonwealth's role in relation to vehicle standards and safety, and measures the Commonwealth could take, including requiring all new vehicles to be fitted with remote engine immobilisation technology.

The Commonwealth has the power to require new vehicles to be fitted with remote immobiliser technology through the Australian Design Rules for road vehicles. However, there is a general reluctance to introduce unique motor vehicle requirements, and in fact there is a process in place to adopt European standards and harmonise existing Australian motor vehicle standards with those of Europe as far as is reasonably possible*. Additionally, new or changed rules are subject to a cost/benefit analysis before adoption is considered.

* Australia is a signatory to the UNECE 1958 Agreement concerning the adoption of harmonised technical United Nations Regulations, as well as the UNECE 1998 Agreement on UN Global Technical Regulations.

The Australian Government's policy is to harmonise national vehicle standards with international regulations where possible and to consider the adoption of UNECE

international regulations. As a result, the Australian Design Rules are generally aligned with the UN regulations.

The Australian Government has generally resisted calls to regulate vehicle safety technologies ahead of the relevant UN regulation, suggesting the treaty effectively prevents such action.

Issues to consider in the context of this discussion point:

- There is currently limited availability of remote immobilisation technology.
- Unless the requirement was adopted by other large markets, there would be limited ability to amortise the development costs, meaning that Australian consumers would pay dearly for the technology.
- Such systems only operate in mobile phone network areas, and the vehicle needs an ongoing connection to the phone network. This potentially introduces ongoing costs for the consumer.
- There are likely to be relatively few opportunities to apply the function, which would make the cost/benefit even less attractive.
- Some smaller volume vehicle manufacturers/importers may choose to leave the Australian market rather than invest heavily in complying with a unique Australian rule.
- Such systems would probably incorporate vehicle tracking which is likely to create a public backlash, particularly if police were permitted to manage the process of immobilising vehicles.
- A back-office support infrastructure would be required to enable the system's operation.
- As with other vehicle standards requirements, the States and Territories would be required to enforce continued in-service compliance.

A possible future solution

The now mandatory European Ecall system (7) may eventually offer at least a partial future solution to remote immobilisation. It offers limited two-way emergency communication between the vehicle and emergency services and automated emergency vehicle location notification (triggered by airbag deployment) via the mobile phone network.

While it doesn't provide remote immobilisation, it does overcome the connectivity issue and, in theory at least, could in the future be designed to incorporate remote immobilisation. The possibility of including other safety features has already been identified, though remote immobilisation isn't one of them at this point.

However, there are some significant issues to address:

- It isn't offered in this market as Australia's emergency phone system is incapable of dealing with the data packets required for location notification.
- Many parts of Europe have a much more extensive mobile phone coverage than Australia, so the value proposition of mandating it here would be quite different.
- Such a system would offer no benefit to vehicles that predominantly operate in areas with no mobile phone coverage.
- We understand vehicle manufacturers pay the access costs involved, which would in some form be passed onto the vehicle operator.
- We also understand that, while it is being considered for adoption in Australia, it is a low priority and unlikely to progress in the next five years.

- Incorporation of remote immobilisation would need to address many of the issues mentioned previously if Australia chose to independently mandate the function.
- It would take many years from introduction before there were sufficient remote immobilised vehicles in the Australian fleet to have a meaningful impact on vehicle crime.

(7) Refer Annex 2

4. The effectiveness of any proposed measures in improving road safety, preventing crime, and assisting police in operational matters.

5. A recommended framework for legislative, policy and operational implementation of any proposed measures.

These issues (aside from Road Safety) are outside RACQ's area of expertise and as such we offer no comment on them. With regard to road safety benefits, if the theft of a vehicle can be prevented, or a vehicle that is being driven dangerously can be slowed or stopped, there is an obvious road safety benefit. Similarly, if a young offender can be taught vehicle repair skills and educated to make choices that don't result in vehicle theft, that also has a potential road safety benefit.

6. The benefit to and role of insurers in supporting any recommended measures.

The following is a statement from RACQ Insurance.

At this stage RACQI finds it hard to definitively comment on any potential recommended measures and their proposed operation. As such, we are unable to pre-empt any insurance costs or benefits arising, nor the nature of any supporting role we could undertake.

RACQI's general observation is that improved vehicle safety, standards and technology has the potential to give rise to fewer incidents of vehicle accidents and/or theft. Over time as these advancements become effective in the majority of cars on the road this may lead to a lower rate of bodily injury and/or motor vehicle property damage insurance claims.

Safety and accident minimisation are critical to the health and wellbeing of our member base and we support initiatives designed to increase the factors impacting underlying safety, the standards supporting the work and the verification of adherence to the supporting processes. However, it should be noted that as such improvements occur, we may also have a situation where there is an increased motor vehicle insurance claim repair costs arising from the complexity of these underlying technological components.

It is too early to assess the relative impacts in terms of costs, but we will continue to monitor.

7. Options to improve vehicle standards and safety in Queensland, including in relation to the:

1.current Australian vehicle design rules.

Queensland, like other Australian jurisdictions, has limited ability to influence the Commonwealth to adopt new national vehicle standards through the ADRs. There are

processes in place for investigating the benefits of new technology, and while slow, they do work.

While other jurisdictions have considered, and one did introduce a unique requirement before it was mandated by the Commonwealth, we would discourage this as it has the potential to create inconsistencies that could outweigh the benefits of the change.

2. Inspection regime for registered vehicles

Vehicle inspections

RACQ is aware that DTMR has recently commenced a review of the Queensland *Code of Practice - Vehicle Inspection Guidelines*, as we have been invited to contribute.

Our initial thoughts are that the current version of the COP:

- Lacks clarity in its requirements and wording.
- Needs to provide better guidance as to what and how things are to be checked.
- Should provide clear references to source documents where performance and other standards are defined.
- Needs to be regularly updated to reflect current and emerging technologies.

Periodic motor vehicle inspections (i.e. annual inspection)

RACQ does not support the introduction of periodic vehicle inspections, though we know that some industry groups do.

Instead of periodic inspections, we believe the current inspection system plus regular, highly visible random roadside inspections by DTMR is a more cost-effective method of policing the roadworthiness of Queensland vehicles.

RACQ's view is that the introduction of annual vehicle inspections:

- Would significantly add to motoring costs.
- Would add an unnecessary financial impost on those motorists who make the effort to keep their vehicles in good condition.
- Could produce a culture where vehicle roadworthiness became a 'once a year' issue rather than a 365-day a year necessity.
- Is unlikely to have a significant impact on fatalities and serious injuries.
- Is likely to exceed the capacity of an industry that is already suffering the effects of a skills shortage.

Discussion

If increased income for the inspection/repair industry is ignored, there generally appears to be two reasons given to support the introduction of PMVI. One is to reduce the number of defective vehicles on the roads; the other is to reduce the number of serious crashes by improving the mechanical condition of vehicles.

A number of studies question the ability of PMVI programs to reduce the number of defects, given that defects occur all through the year rather than only at the time of inspection. Keatsdale (1999) states:

"Belief in the effectiveness of PMVI presumes that defects present in a manner which is amenable to identification at inspection, but this is not necessarily so; presumes that

defects will be present at the time of inspection, but defects are highly likely to develop during the interval between inspections; and assumes PMVI inspection systems are reliable and produce consistent outcomes, but this is not necessarily so". (8)

As an example, tyres are one of the most commonly reported defects. Tyres can become unroadworthy/unsafe at any time and with little warning.

Safety outcomes

While it would be untenable to argue that vehicle roadworthiness has no impact on crashes, on the evidence it seems highly questionable if PMVI is a good use of the motorists' money, given the high ongoing costs involved. Most studies show that vehicle defects do not contribute significantly to serious crashes, with the majority suggesting that defects are a contributing factor in between 1% and about 6% of crashes and that defects are probably a significant causal factor in about 1% of fatalities. (10)

Costs

There were approximately 4 million registered light vehicles in Queensland (excluding motorcycles and trailers) as of 1 July 2020 (9).

Some of these will already be subject to periodic inspection (taxis, private hire vehicles, etc), however, introduction of a mandatory inspection program would greatly add to this number, and to the operational costs of these vehicles.

The current Safety Certificate fee for motor vehicles up to 4.5 tonnes GVM is \$86.20. Based on a need for an estimated 4 million inspections annually, this would add approximately \$345 million in direct inspection costs (to be paid by the vehicle operator), and an approximately similar amount in indirect costs (set up, administration, etc) (10), which would need to be funded by government, and indirectly by the public. Note that this figure assumes inspection on change of registration is eliminated (in 2019, DTMR figures suggest this was about 550,000, not including new registrations of privately owned used vehicles) (11). Costs will be correspondingly higher if this was retained.

Even a truncated inspection at a reduced cost, as applied by New South Wales for registration renewal, would add significantly to both government and vehicle operating costs. A New South Wales 'pink slip' inspection is approximately \$42.

Clearly, inspection costs of this order would be a major financial impost on motorists and the process would be a source of considerable inconvenience, both of which are likely to generate considerable backlash against the government that introduces such a program.

(8) Cost Effectiveness of Periodic Motor Vehicle Inspection – a report for the Federal Office of Road Safety, April 1999 Keatsdale Pty Ltd

(9) DTMR. Vehicles on Queensland Register as of 30 June from 1992 to 2020

(10) Keatsdale 1999

https://www.infrastructure.gov.au/roads/safety/publications/1999/pdf/vehicle_inspect.pdf

(11) Yearly summary of vehicle transfers in Queensland

<https://www.tmr.qld.gov.au/Safety/Transport-and-road-statistics/Registration-statistics>

Providing the service

Should some form of PMVI be introduced to Queensland, the existing Approved Inspection Stations would likely be insufficient to achieve the number of inspections required each year, and still be able to service normal demand for repairs and maintenance.

The actual number of inspection stations required would obviously depend on the model selected; however, even a truncated inspection such as used for registration renewal in New South Wales would require a significant increase in the capacity of inspection stations.

Given the current skills shortage and the difficulties in attracting and retaining qualified staff, it may not be possible to appoint and maintain the number of Approved Inspection Stations needed to meet the demand.

Alternatives to PMVI

These include:

- Extension of the 'Anywhere - Any time' concept of enforcement to random vehicle inspections with an appropriate increase in resources to support an increased number of inspections.
- Increased attention to light vehicle condition and defects by police and transport inspectors.
- Development of a uniform roadside safety test that can be quickly and consistently applied by police and transport inspectors.
- Development of a public awareness campaign to inform motorists of what constitutes a roadworthiness or safety defect.
- More widespread use of existing provisions for defect notice clearance by Approved Inspection Stations.
- Immediate suspension of registration for grossly defective (unsafe) vehicles and greater penalties for continued use of a vehicle that has been deregistered for being grossly defective.
- Allowing police and transport inspectors to direct vehicles to Approved Inspection Stations for (Safety Certificate) inspection where reasonable doubt exists as to their roadworthiness.
- Introduction of random cursory roadworthiness inspections in shopping centre and other car parks with an option to issue warnings, defect notices or inspection orders.
- Encouraging the public to report unroadworthy vehicles and ensuring such reports are followed up by the Department of Transport and Main Roads.

Regardless of the measures put in place, the focus should be on ensuring compliance without unfairly penalising those motorists who make the effort to maintain their vehicles in roadworthy condition.

3. Pre-sale certification scheme, including measures to reduce fraud and improve consumer safety.

RACQ understands this point relates to internal DTMR processes and as such we have no comment.

4. Management of written-off vehicles and 're-birthing'

Written-Off Vehicles

The Transport Minister's March 19, 2021 announcement of a revision to Queensland's written off vehicle scheme to provide closer alignment with other jurisdictions is both welcomed and long overdue.

However, as full details of the revision are yet to be communicated, we offer the following comments.

In RACQ's opinion the Written-Off Vehicle Register is a substantial barrier to the re-birthing of stolen vehicles and has also significantly reduced the number of very poorly repaired vehicles on Queensland roads by preventing the reregistration of the most severely damaged vehicles.

However, we've always been concerned that Queensland's Written-Off Vehicle Inspection approach largely failed to address the fundamental issue of repair quality for repairable write-offs.

There are numerous firsthand and anecdotal accounts of:

- shortcut repair methods,
- incomplete, inappropriate, or generally unsatisfactory repairs,
- vehicles being reassembled without their full complement of airbags,
- potentially faulty or dangerous parts such as second-hand safety components being used
- vehicles being rebuilt by persons with limited skill and without the appropriate knowledge and equipment.

This is clearly a significant consumer issue as these repaired vehicles eventually found their way onto the used car market and were purchased by unsuspecting buyers.

We would also suggest that consideration be given to introducing an ongoing requirement that sellers of repaired written-off vehicles be required to notify prospective buyers of the vehicle's written-off history. This has been a requirement in Victoria for some time, and significant fines apply for failing to do so.

A copy of a 2017 RACQ submission to DTMR on the shortcomings of the Queensland system is attached at Annex 3 for the Committee's information.

5. After-market vehicle modification framework, including achieving consistency to ensure best alignment with other Australian jurisdictions.

Vehicle Standards Bulletin 14, the so-called *National Code of Practice for Light Vehicle Construction and Modification*, is national in name only. While it was an attempt to introduce some consistency into the rules for light vehicle modifications, not all jurisdictions (Queensland is one) accept all of its requirements and therefore there is still something of a piecemeal approach to the subject, though the situation is clearly better than it was prior to its introduction.

While it would be unreasonable to suggest the lack of consistency causes safety issues, there is no doubt that it generates a variety of consumer problems when vehicles transfer between States and Territories. In short, what may be acceptable in one jurisdiction may not be accepted by another, and the vehicle owner can face the prospect of having to modify the vehicle to comply with the differing requirements. There are also issues with inconsistencies in the approval process that mean the vehicle's already certified modifications may not be accepted by another jurisdiction and will need to be recertified.

An example is the inconsistent approach to Gross Vehicle Mass and Braked Towing Capacity upgrades. Some jurisdictions allow both, while some only accept GVM upgrades. A resolution to this issue is currently being worked through, but not before the aftermarket industry resorted to some very public, and at times inflammatory commentary about the difficulties it faced in resolving the matter in Queensland.

As it is unlikely that the various vehicle standards areas will achieve a consistent view of the issues of their own accord, it may be necessary to consider other alternatives, such as the introduction of a Light Vehicle Regulator, similar to the National Heavy Vehicle Regulator, to centralise the formulation of light vehicle modification standards.

Should you require further information on the content of this submission please contact Russell Manning on [REDACTED]

Annex 1Extract from <https://www.aic.gov.au/publications/tandi/tandi453>**Effectiveness of electronic vehicle immobilisation**

There is some evidence of the success of electronic vehicle immobilisation in reducing the theft of vehicles in Australia. However, it should be noted that such studies are often marked by design limitations, especially in relation to the use of non-comparable experimental and control groups, consisting of vehicles with and without immobilisation.

An early study of the effectiveness of compulsory electronic immobilisation of new vehicles was undertaken by Potter and Thomas (2001) soon after the introduction of the regulatory requirements. Their study compared the theft rates of vehicles fitted with Australian Standard (AS) immobilisers, to those fitted with non-AS immobilisers and those with no immobiliser fitted. The results showed that vehicles fitted with AS immobilisers had lower theft rates than other vehicles. Examining vehicles registered after 1991, the theft rate for vehicles in 2000 was found to be 29.0 per 10,000 vehicles registered, compared with 52.8 per 10,000 for vehicles with a non-AS immobiliser fitted and 47.8 per 10,000 for vehicles with no immobiliser at all.

Potter and Thomas (2001) also undertook a separate analysis of vehicle theft patterns in Western Australia, where different regulation was introduced. Prior to the introduction of regulation requiring new and used vehicles to be immobilised from 1999 onwards in Western Australia, a voluntary scheme had operated from 1997, which encouraged the retrofit of immobilisers. This state-led scheme offered a subsidy of \$30, which was deducted from the price of installing an electronic immobiliser. Following the introduction of the mandatory scheme in 1999, subsidies were initially continued (at an increased rate of \$50) for the retrofitting of immobilisers. These subsidies ceased in September 2001. Analysis by Potter and Thomas (2001) showed that vehicles retrofitted with an AS immobiliser under the voluntary scheme had an average age of 14.85 years and a rate of theft of 73.8 per 10,000 registered. By contrast, those with no immobiliser fitted were of a similar average age (15.61 years) but had a much higher theft rate, with 109.9 thefts per 10,000 registered.

This study was replicated by the National Motor Vehicle Theft Reduction Council (2007) using data for vehicles stolen in 2006. This showed that the impact of electronic immobilisation had continued, although the size of the effect had declined. While vehicles less than 10 years old that were fitted with an AS immobiliser had a theft rate of 20.5 per 10,000 vehicles registered, those fitted with a non-AS immobiliser had a theft rate of 34.8 per 10,000 and those with no immobiliser at all had a theft rate of 32.5 per 10,000.

A further study that focused on the mandatory scheme introduced in Western Australia in 1999 also found an impact associated with the introduction of electronic vehicle immobilisation (MM Starrs Pty Ltd 2002). A regression model of the monthly number of vehicles stolen estimated that the introduction of the Western Australia scheme resulted in an eight percent reduction in vehicle theft per year. This was attributed to a reduction in temporary theft (usually associated with amateur thieves stealing for joyriding) rather than permanent theft by professional thieves.

More equivocal results were provided by Kriven and Ziersch (2007) who examined changes in the stolen vehicle age curves for vehicles stolen in 2000 and 2004. If electronic immobilisation had been responsible for the reduction, then one would have expected to observe a greater reduction in theft rates in the years following the introduction of immobilisers. Kriven and Ziersch (2007) found that there was an above average decline in theft rates following the introduction of electronic immobilisation in vehicles aged under three years. There was also some evidence of target displacement towards vehicles less likely to be immobilised in the

six- to nine-year-old bracket. However, Kriven and Ziersh (2007) also found a second wave of theft reduction among vehicles aged 10 to 13 years (well before the 2001 regulations were introduced), with evidence of displacement towards vehicles aged 19 years or older. This pattern proved more difficult to explain, with suggestions that it was due to the introduction of regulations on the re-use of Vehicle Identification Numbers following the insurance write-off of a vehicle, or due to the early introduction of immobilisers on some models in the early 1990s.

Similar results have been observed in the United Kingdom (Brown 2004; Brown & Thomas 2003; Farrell et al. 2010; Farrell, Tseloni & Tilley 2011; Lee, Wyndham & Fairman 2006; Webb, Smith & Laycock 2004) and in Germany (Bässmann 2011), where significant reductions in vehicle theft were observed following the introduction of European Union regulations requiring all new vehicles sold in Europe to be installed with electronic immobilisers from October 1998. In the United States, where there has been no regulation requiring manufacturers to install electronic immobilisers, such devices have taken longer to penetrate the vehicle fleet. However, there is also evidence to show that, where they have been installed, they have significantly reduced theft risks (Fujita & Maxfield 2012). Indeed, Brown (2013) identified 16 studies across Australia, the United Kingdom, Germany, and the United States that have examined the effectiveness of electronic vehicle immobilisation, with 15 reporting a positive impact on vehicle theft.

Annex 2

<https://etsc.eu/automated-emergency-calling-ecall-now-mandatory-on-new-car-models/>

Automated emergency calling (eCall) now mandatory on new car models

- April 3, 2018



All new models of car launched in the EU since 31 March include eCall, the automated emergency call system that alerts emergency services in the event of a collision.

Research showed that, with eCall, emergency service response time would be cut by 50% in rural areas and 40% in urban areas.

Inclusion of the system means that all new models of car sold in the EU are fitted with GPS devices and are capable of communication over the GSM phone network. This will facilitate the introduction of future safety systems such as Intelligent Speed Assistance, which can use GPS to locate speed limits on digital maps, and could use the GSM connection to download regular map updates. The fact that eCall technology is already fitted as standard will make introduction of the technology considerably cheaper.

Currently the system is only mandatory on cars, and it will take many years before the majority of vehicles are covered. However, recent developments in [Advanced Mobile Location](#) technology may help other road users get emergency assistance faster.

Apple announced in January that the latest version of its phone operating system iOS would support AML technology. The system automatically sends location data to emergency services when a call is placed. The system was launched on Android phones in 2016. However, it only works in areas where emergency call centers are equipped to receive the data. EU countries including Austria, Belgium, Estonia, Finland, Ireland, Lithuania, and the United Kingdom have implemented the technology nationwide. Eight other countries are working on implementation.

Annex 3

The Queensland Written Off Vehicle Inspection system A discussion paper

Background

The Written Off Vehicle Register (WOVR) and Written Off Vehicle Inspection system (WOVI) have been in place in Queensland since the early 2000s. They are part of a national approach to reducing vehicle theft by regulating the management of Written Off vehicles. Their prime purpose is to prevent the use of a crashed vehicle's identifiers in the "re-birthing" of stolen vehicles and ensuring that stolen parts are not used in the repair of written off vehicles. i.e. confirmation of the vehicle's identity and the provenance of the parts used in its repair.

When first announced, RACQ considered tendering for the inspection business but was concerned about several aspects of the scheme, not the least of which was the lack of any proper assessment of repair quality. RACQ had a fundamental objection to this and thus decided not to submit a tender.

Discussion

The introduction of the WOVR with its integral concept of statutory write offs has in RACQ's opinion significantly reduced the number of very poorly repaired vehicles on Queensland roads by regulating which written off vehicles can be reregistered.

But in the case of repairable write offs, the WOVI process largely fails to address the fundamental issue of repair quality. Instead, it relies on the Safety Certificate inspection to identify shortcomings in the quality of repairs. The Safety Certificate inspection is a general assessment of a vehicle's compliance with vehicle standards, conducted by persons who are not required to know about the body repair industry or its processes.

While we understand that WOVI inspectors could offer a second opportunity to identify substandard repairs, we believe they are not specifically trained for this role. As their prime task is to confirm the vehicle's identity rather than assess repair quality, it's likely that they'd only be able to identify fairly obvious deficiencies.

Further, we would argue that in many cases it is completely unreasonable to expect even someone with body repair industry experience to assess if a repair has been carried out to an acceptable standard without knowledge and oversight of the repair process.

This point is particularly important when dealing with the high strength and special steels that are now extensively used in vehicle structures. Vehicle manufacturers provide detailed instructions on how structural repairs are to be carried out, however it can be difficult to determine if these instructions have been complied with after the event.

There are numerous anecdotal accounts of shortcut repair methods that have resulted in:

- incomplete, inappropriate, or generally unsatisfactory repairs,
- vehicles being reassembled without their full complement of airbags, or
- potentially faulty or dangerous parts such as second-hand safety components being used.

The use of second-hand safety parts such as seat belts and airbags is of particular concern to us. Queensland has no specific guidelines in place to manage the reuse of second-hand safety equipment in the repair of any vehicle.

Additionally, the Queensland Safety Certificate inspection rules could be seen as enabling the use of second-hand SRS and other parts as it is "*acceptable to rely on the vehicle's fault code*

logging system as a means of indicating that the system is operable (unless other aspects of the inspection indicate that the system is damaged or not operable)". i.e. if the vehicle's system believes that the components are serviceable then the Safety Certificate inspector has no further responsibility in the matter unless there are obvious signs that the system is unserviceable. However, it appears to be reasonably common knowledge that there are ways to fool the vehicle's systems into thinking that certain aspects are intact and functional.

Queensland is the only jurisdiction to take this approach with written off vehicles. All others require some form of independent verification from an accredited dealer for the vehicle involved, certifying that the system has been checked and found to be serviceable.

The current worldwide recall of Takata airbags due to explosion of their inflators is another case in point. Given that this recall was necessitated by exposure of the inflators to high levels of humidity, it would appear reasonable to require the replacement of any airbag subjected to flooding, yet no such requirement exists in Queensland. Nor is there any restriction on the reuse of airbags and associated equipment from flood affected vehicles.

We are aware that several years ago DTMR proposed regulating what second-hand parts could be used in the repair of a written off vehicle. RACQ provided comment on this at the time, however it appears that the proposal did not progress beyond the draft stage. Our file on the subject also indicates that there was discussion about implementing a Code of Conduct for repair of these vehicles, probably at a national level, as far back as 2006. However, while we still have our comments to QT from early 2010, the link to the original document is no longer operative and it now isn't clear to us where this proposal originated or what it encompassed.

Additionally, Judy Oswin Consulting was contracted to develop Best Practice Principles for the inspection of repairable write offs around 2010. See Appendix 3 for the discussion paper and RACQ's comments. The issues mentioned in that paper are still pertinent to this discussion.

Written off vehicles and fraud

RACQ is concerned that the lack of controls in the reinstatement of written off vehicles can increase the propensity for fraud and staged accidents. Simply, such vehicles are purchased at salvage value, cosmetically repaired, cleared from the WOVR and within a matter of days of being put back on the road are involved in another accident that again writes them off.

Some vehicles have been identified where some pre-existing structural and body damage has not been appropriately repaired. The Queensland WOVI process, for whatever reason, is failing to identify these substandard repairs.

The photos in Appendix 1 show examples of prior sub-standard repairs performed on two such vehicles identified by RACQ Insurance in a subsequent claim. One was listed as a repairable write off and the other wasn't, though based on the extent of the original damage it's arguable that it should have been. It should be noted that both had concealed, unrepaired, structural damage in addition to the poorly repaired panel damage shown. The damage shown is not related to the latest crashes, which involved different parts of the vehicle, presumably in the hope that the earlier damage would not be detected.

Suggested solutions

RACQ's preference is for greater consistency between jurisdictions and the following changes are suggested.

There is clearly a significant consumer issue to be addressed, as many of these repaired vehicles eventually find their way onto the used car market and are purchased by unsuspecting buyers.

Given the inherent limitations of Queensland Safety Certificate inspections, the lack of any real attention to repair quality during the WOVI, the fact that these vehicles may be being rebuilt by persons with limited skill and without the appropriate knowledge and equipment, and the likely economic imperative to repair the vehicle as cheaply as possible, it is clear to us that a more appropriate and focussed inspection process is needed to ensure structural damage has been repaired to a satisfactory standard.

If nothing else, this is needed to bring Queensland's WOVI system into closer alignment with other jurisdictions.

RACQ believes there is a need to include progressive inspections during structural repairs to ensure they meet a satisfactory standard and that repair methods comply with those set by the vehicle manufacturer, or in their absence, accepted industry practice. Depending on the scope of work, these inspections may need to be carried out before the application of body filler, paint, and the refitting of panels, trims, etc.

To maintain the security and integrity of the WOVI system and the safety of the inspectors, it would be necessary to present the vehicle to the inspection centre for this. i.e. inspectors should not be expected to travel to the premises of a vehicle owner or repairer to carry out an inspection.

A list of parts from damaged vehicles that cannot be reused should be developed and supporting regulation written. In our view this should include defined safety components as well as body sections taken from salt water affected vehicles.

A mandatory assessment of SRS and other primary safety systems by an accredited dealer for the make of vehicle being repaired is needed. Every other jurisdiction already requires this as part of the WOVI assessment.

Issues arising from this proposal

DTMR would need to develop an appropriate repair quality assessment. Given that other jurisdictions have already done this; it shouldn't be too onerous.

WOVI inspectors would need either appropriate panel industry experience or failing this, additional training. Alternatively, it may be appropriate to introduce another tier of inspection to be conducted by appropriately qualified persons to address this. The current WOVI inspectors could then continue to concentrate on the vehicle's identity, which is their current area of expertise. Some jurisdictions have taken this approach.

Implementation of these additional checks would require more time. Costs of certifying the repaired vehicle for re-registration would therefore rise, probably significantly. The introduction of progressive inspections will increase costs and be inconvenient for the owner / repairer. This may impact salvage values and make the repair of these vehicles less attractive.

This proposal is likely to generate a strong backlash from those currently involved in repairing these vehicles. At least some could be expected to exit the industry because of the increased level of scrutiny and compliance requirements, or possibly their inability to meet acceptable repair standards.

For some, this option would likely represent a significant disincentive to the purchase of a wreck for repair. This too may impact salvage values.

Increased scrutiny of repair quality is likely to be a disincentive to those conducting staged accidents and other forms of insurance fraud involving reparable write offs as the availability of low-cost vehicles would reduce. This is likely to drive the development of different and more creative methods of gaming the system.

Increased scrutiny of repair quality will produce broad consumer benefits.

Russell Manning
Principle Technical Researcher
14 June 2017

Appendix 1





Appendix 2

WOVI requirements by State and Territory

	QLD	VIC	TAS	ACT	SA	WA	NT
ID check	X	X	X	X	X	X	X
Stolen vehicle check							X
Repair diary required	4	X	X	X	X		
Parts receipts	X	X	X	X	X	X	X
Before and after pics	5	1	1	1	X	9	X
Wheel alignment report					X		X
Body alignment/ measurement report		X	3	X	X		
Structural certificate/inspection			X	3			X
SRS report		X	X	3	X	X	X
Repair quality inspection	6	X				X	
RWC/SC	X	X	X	X	X	X	X
Progress inspections			3	10		2	
Manufacturer repair standards	X	X	X	X	X		X
Or, repaired to appropriate industry standards	X	X		X	X	X	
Repaired to defined standards				X			
Specified repairs for flooded cars			7		X		
Defined welding processes / standards				X			X
Ban on re-use of certain parts			X 8	11	X		
Engineer's certificate				3	X		X

New South Wales only allows the re-registration of written off vehicles that have no non-repairable damage and those in an exempt category.

1. Before photos may be / are required
2. Inspections of structural repairs are required before paint and filler is applied.
3. As required.

QLD doesn't require a repair diary per se. However, the WOVI checklist mentions a *"repair document of some nature"* *

4. Photos appear to not be a mandatory requirement. i.e. the WOVI checklist states: *"Photographs of vehicles in their damaged state and during various stages of repair will always assist the inspection to proceed with less difficulty and these should always be available"* *
5. From WOVI checklist: *"A WOVI is a visual inspection to detect vehicle identity irregularities that require further investigation. It is not an inspection of the structural integrity of the vehicle, or the quality of restoration work carried out (e.g. panel or suspension repairs), and does not purport to be a guarantee of such matters"* *

6. Water immersion report AMBRIS6 is required.
7. SRS ECUs from water damaged vehicles cannot be reused.
8. Photos showing the stages of the repair process are required.
9. Vehicle having undergone structural or sectional repairs or parts from a water immersed vehicle are to be left exposed for inspection.
10. Body parts from salt water affected vehicles cannot be used to repair a written off vehicle.

** These requirements are outlined on the Queensland Inspection Service website. It is not clear if they are QIS or Queensland Government requirements.*

Appendix 3

This discussion paper was provided by Judy Oswin Consulting in March 2010. RACQ comments are in italics.

Background to Project

The project is to develop Best Practice Principles (BPPs) for the Inspection of Repairable Write Offs. The following are the key areas which must be covered by the BPPs:

- The repair is in accordance with the vehicle manufacturer specified method or appropriate to the type of damage sustained.
- The vehicle is safe for use.
- The vehicle is correctly identified.
- Use of legitimately acquired parts.

A draft report covering the following areas is to be produced by 14 May:

- Based on experience and evidence what are the key risks and issues which need to be addressed in ensuring legal and minimum acceptable quality repair and inspection of repairable write offs (RWOs) including appropriate monitoring and auditing of the system
- Given these risks and issues what are the range of options or possible approaches to repair, inspection, and monitoring of written off vehicles.
- What are the benefits and costs of various options and what combinations or key features are needed to sufficiently address risks?
- Recommended Best Practice Principles
- Guidelines to the practical implementation of BPPs – e.g.: features that would need to be present to enable the BPP to be achieved.
- Assessment of the extent to which current jurisdictional practice aligns with the recommended BPPs.

There is a companion project which is being undertaken by consultants, Shane, and Max from Delta V Experts – this project relates to the classification criteria for statutory and repairable write offs.

Areas for Consideration in Stakeholder Meetings – Indicative Only.

Safe Repair:

- What are the key factors that influence a safe repair?

The type and construction of the vehicle, the extent of the damage, the skills and knowledge of the repairer, the type of repair equipment available and financial constraints on the repair.

- Is there any evidence or research on current issues or problems with safe repairs that you are aware of?

IAG has a repair research centre that looks at general repair issues. While this does not specifically deal with repairs to written off vehicles, its research looks at the problems repairers face with later vehicles. The issues will be much the same. I CAR, as an industry training provider, will also have a good knowledge of repair issues.

- Do you have any comments about areas of high risk in the repair industry – e.g.: types of repairers, types of vehicles.

Vehicles utilising special steels or uncommon materials, such as aluminium, and 'new' manufacturing processes such as bonded panels and laser welding present repair challenges if the structural integrity of the vehicle is to be maintained. i.e. some damaged sections cannot be repaired and may need to be replaced, and some production methods cannot be duplicated outside the factory. Similarly, special metals can have special welding requirements to ensure the repaired component maintains its design strength.

Also the amount of technology even basic modern cars carry is likely to increase repair costs and the degree of difficulty for repairers. This raises the possibility that repairs may be shortcut or features not refitted to keep costs down.

Repairers that do not have a sound knowledge of current vehicle construction methods, materials, and repair procedures, or lack the necessary skills and equipment to repair later vehicles could be producing potentially unsafe vehicles.

Manufacturer's Repair Guidelines

- How readily available are manufacturer's repair guidelines.

It varies. Some manufacturers have comprehensive body repair manuals that are readily obtainable. Some have information that is not readily available, and some have little or nothing.

- Where these are available how prescriptive are they in repair of a vehicle

Usually very prescriptive. These manuals usually cover a model or range of models in the manufacturer's line up and often deal with identifying areas of the different special steels used and acceptable repair methods (including welding and straightening). They often also specify where a rail can be joined for example.

- How useful do you believe these documents are in establishing measurable minimum standards for vehicle repair.

Their use would probably only be of benefit to the particular vehicle or vehicles covered. It's unlikely that the information could be applied to other vehicles.

- Where manufacturer's repair guidelines are not available – how should this (be) handled from both a repair and inspection process. Can principles be set for repair in these circumstances?

This would probably require further consultation with industry; however repair and welding guidelines may be applicable to a broad range of vehicles if the material specifications of the various components were known. TAFE, IAG and I CAR would probably be good places to start.

For discussion. Would the use of insurance industry repair standards be appropriate for the repair of Written off vehicles given that the damage may be far more extensive than would normally be repaired in an insurance claim?

Inspection Process

- Based on your understanding of what makes a safe repair – how should this be translated into a sound inspection process:
 - Timing of inspections during the repair
 - Elements to be inspected at various points
 - Use of tools such as repair diaries and photographs – how useful are these

Repairs involving replacement or joining of body sections containing internal reinforcements (sill, rails, pillars etc.) must be inspected after the internal reinforcements have been welded but before the outer panels have been refitted / welded in place. If this is not done there is no way of knowing if the repairer has refitted /welded all the internal reinforcing. Also for vehicles undergoing major structural repairs (sectional body replacement, replacement rails, straightening of structural components etc.) repair and welding should be inspected before filler or paint is applied, to check the integrity of the repair.

Where special steels are used a check must be carried out to ensure that the welding method used is acceptable to the vehicle's manufacturer and /or for the type of material being welded. Similarly, where structural components utilising special steels have been repaired or straightened there must be confirmation that the repair method is acceptable to the vehicle's manufacturer.

Suggest that it is also desirable for the repairer to provide a statement confirming that body alignment has been checked and is satisfactory. This could also be extended to wheel

alignment. Both have proven to be areas of concern in the past. I believe this is required in South Australia.

It would also be reasonable to require certification by an authorised dealer to confirm that SRS systems (airbags, seatbelt pre-tensioners etc.) were fitted as per the vehicle's original specification, and are operative. i.e. de-specing a vehicle's safety equipment due to financial constraints on the repair should not be allowed.

Vehicles:

- Do different:
 - vehicle types (e.g.: light vehicles; motorcycles; heavy vehicles)

Probably not, however there may be differences in the inspection and when it needs to be carried out.

- different vehicle construction methods

Yes. See comments above about special steels and construction methods.

- types of damage

Yes. See comments above about types of repair.

require a different approach to inspection

Skills and Qualifications of Repairers and Inspectors:

1. what competencies/skills are required to adequately undertake repairs to written off vehicles

A broad range of motor trade skills, though these would probably be biased towards the body repair trade. It's unlikely that a person without appropriate formal trade qualifications or at least extensive industry experience would be capable of properly repairing extensively damaged modern vehicles.

2. do these competencies/skills differ from those generally needed to be a vehicle repairer

If we're talking about a qualified vehicle body repairer, probably not provided the person has up to date knowledge and access to appropriate equipment. However, see further comments below.

3. how should skills/competencies be obtained and regularly maintained

Not sure. Probably need to talk to TAFE and I CAR about this.

4. is there any evidence that skills in the industry are insufficient for the task?
Why are we only talking about the industry? Or is 'industry' intended to encompass anyone who repairs a written off vehicle?

I'd have thought that most repairers running a commercial body repair operation would at least have the qualifications and experience to repair vehicles to a reasonable standard. In fact, it's not unusual for a panel shop to buy a repairable write off to repair when work is slow. Would these repairers take on something that's above their skill level or available equipment? Probably not (at least not knowingly)

The problem I see is with the unqualified 'back yarders' and the 'under qualified' minority in the repair industry who lack the interest, knowledge and equipment to do the job properly. These are more likely to take on something that is beyond their capabilities simply because they lack the basic knowledge to assess the vehicle properly in the first place.

5. should there be some differentiation in competence needed for different risks, repairs, or types of vehicles

Clearly yes. The skills and equipment needed, for example, to do a hail repair are quite different to those needed to repair major front end damage to a late model BMW.

Parts Provenance

Illegal or deceptive practice related to parts used in the repair of vehicles appears to centre on practices such as:

- Fraudulent production of parts receipts
- Use of legitimate receipts but parts have been returned
- Reuse of legitimate receipts on multiple occasions
- What options are there to minimise practices such as those outlined above – and any other fraudulent practices you are aware of?

Fraudulent documents are easy to produce and can be difficult to identify. This is particularly true of handwritten receipts that some wreckers still use. It may be worth considering accepting only original receipts and stamping or otherwise marking them to prevent reuse. The use of the same parts to repair a number of wrecks appears to be common. The vehicle is rebuilt using legitimate parts and is cleared from the register. Then the legitimate parts are replaced with stolen parts and the vehicle is sold. The legitimate parts are then used to repair another vehicle and the cycle repeats. Cancelling of invoices (as above) would make this practice more difficult. Also consider applying Data Dots to the repaired areas of the vehicle as it goes through the WOVl inspection process. If the same panels then appear on another vehicle presented for inspection, or if the cleared vehicle is recalled later and found not to have the correct Data Dots there would be grounds for further investigation by QPS. I'm sure Data Dot would be happy to produce a unique product for this purpose at minimal cost.