

Director
Quad Bikes Taskforce
Consumer Product Safety Branch
Australian Competition & Consumer Commission
GPO Box 3131
Canberra, ACT 2601

By Email

CC: Minister

I write in response to the ACCC's proposal to legislate new minimum ATV safety standards for ATV sale and ownership in Australia.

The two documents to which this submission refers are Exposure Draft and Quad Bike Safety Final Recommendation to the Minister.

Fatalities have already declined in the absence of ACC's proposed measures

The ACCC seeks to introduce legislation requiring fitment of Operator Protection Devices to all General Purpose ATV's, in addition to the mandatory display of product safety information at the Point of Sale. It bases its submission on the premise these two measures will reduce the incidence of ATV fatalities nationally. In the absence of these measures, ATV fatalities halved since 2016, as a result of:

- "increased training and awareness of quad bike safety amongst consumers
- an increase in uptake of personal protective equipment, including helmets."

The ACCC states insufficient data has been collected to properly analyse and understand quad bike incidents. Yet it asserts that in 84-89% of all reported fatalities the deceased was not wearing a helmet (ATV) or using the available seat belt (SSV). SSV statistics (which have seat belt and ROPS) illuminate a design problem of OPDs – if the operator isn't restrained within the protected safe zone of a ROPS then they are likely to be crushed by it. The same is true of OPDs.

It is clear fatalities are declining through raised awareness of ATV safety and the use of readily available personal protection equipment (helmets/seat belts).

OPD Design benefits at best are inconclusive

Dynamic Research Inc. conducted 10 years of research and testing on 3 available OPDs in Australia and found:

"OPD research outcomes

The results of DRI's research into 3 different OPDs, including the Australian-made "Quadbar", which has been conducted over a period of some 10 years, and has involved the testing of thousands of scenarios using state of the art computer simulation technology calibrated and verified by full scale instrumented

*dummy tests, are that **each OPD was found to present unacceptably high injury risks in comparison with any injury benefits**, having regard to the relevant guidelines in ISO13232-5. Those guidelines are that, **for a safety device, a risk/benefit percentage (ie, the aggregate of risks divided by the aggregate of benefits) of 7% or less is acceptable, whilst a risk/benefit percentage of 12% or more is unacceptable.***

In particular, with respect to the Quadbar, DRI has found that the injury risk/benefit percentage associated with the fitment of that device to a vehicle operated by a rider wearing a helmet is 108%, whilst the fatality risk/benefit percentage is 121%. In each case, the percentage is grossly in excess of the ISO 13232-5 guidelines. By comparison, the injury risk/benefit percentage of wearing a helmet was found to be just 2%. Helmets therefore meet the requirements for a safety device according to ISO 13232-5, and studies show they are the most effective safety device for ride-on straddle seat type vehicles like ATVs.

DRI's research reports are publicly available at <http://www.dri-atv-rops-research.com/>

The ATV industry does not believe that there has been any other research undertaken anywhere in the world in which the potential safety benefits and risks of OPDs have been evaluated in a similarly scientifically rigorous manner, or in accordance with ISO13232-5 protocols. WorkSafe Victoria has been requested to supply any new research that contradicts the current negative findings for OPD as safety devices but, to date, has not made available or published any such data."

FCAI's summary article is attached and can be found here:

https://www.fcai.com.au/library/fitment_of_operator_protective_devices_to_all_terrain_vehicles.doc

OPD manufacturers claim their OPD will support the weight of an ATV (circa 350kg), yet are fitted to ATV rear load carriers with load ratings rarely exceeding 80kg. A chain is only as strong as its weakest link. In a rollover, the load carry rack has a risk of failing and causing the OPD to become a crush/impalement hazard for the rider. Reengineering an ATV to accommodate the OPD adds weight and after fitting a 15kg OPD, the combined effect is the equivalent of permanently adding a child passenger to the rear of the ATV, increasing the vehicle's unladen tip hazard.

Whilst the Exposure Draft seems unclear as to whether all existing ATVs will require OPDs it would seem impossible for the proposed measures to produce any results without doing. At current sales volumes it would take decades for models with OPDs to replace those in use without and so the only measures to be relied on to combat fatalities are those already in place and producing tangible results.

State Vehicle Registration legislation prohibit vehicle modifications/accessories exceeding the manufacturer's specifications. Mandating OPDs will result in ATVs with or without OPDs to fail registration requirements. Failing registration will almost certainly cause an ATV to be uninsurable, with most insurers requiring registration or compliance with its standards as a condition of cover. Introducing additional legislation to overcome this, in my view, will not shield Regulators from litigation from compelling

modification of vehicles with OPDs which do not meet ISO standards for safety devices.

ATVs which become uninsurable, either because they cannot be registered, or do not have an OPD, become valueless, causing catastrophic financial harm to ATV owners nationally, particularly the agricultural and forestry sectors which rely on them most and can least afford the burden.

ATVs are designed for specific use and come in a wide range of models to meet variations in application. Limitations are not design flaws. Manufacturers provide safe operating instructions and specifications for vehicle operation including fuel type, tyre inflation, engine & brake maintenance and maximum towing and load capacities. They also specify the use of protective personal equipment (helmets) and minimum operator ages to specific models, provide training videos and make physical training courses available. That in 84-89% of all fatalities the rider wasn't wearing a helmet/seat belt and that some 25% of those fatalities were also children operating an adult bike, points to the ATV owner's disregard for operating instructions. No amount of mandating OPDs will fix this, only continued education, training and awareness of Quad Bike safety and PPE use will.

The burden of proof for the effectiveness of a safety device (meet ISO standards) falls upon the manufacturer. This is not only true of Quad Bike Manufacturers, but also of OPD manufacturers. Testing of OPDs conducted by Dynamic Research Inc (attached articles/links) found OPDs do not meet ISO standards, so it would seem the ACCC measures will relieve OPD manufacturers of this burden. This either creates an interesting precedent for product manufacturers or a major transfer of product risk from the manufacturer to the ACCC and government for product defects, injuries and deaths caused by the devices.

It seems like a giant leap of faith to mandate OPDs for ATVs without meeting standards required for any other safety equipment in the market place.

Proposed Solution – Performance Tags, Tilt Table Testing of Operator Protective Devices (OPDs)

The ACCC expresses two major causes of fatality as

- rollover in a workplace environment causing crush injuries/asphyxiation
- collision in recreational use

In 84-89% of all fatalities, the deceased was reported not to have worn a helmet (ATV) or seat belt (SSV). The ACCC report did not examine what number of these may have been prevented had they used one. Nor did it discuss preventing other rider behaviours, such as the consuming alcohol or children riding adult bikes would also have reduce fatalities. Legislating against risk doesn't prevent carelessness, complacency or recklessness – only education, training and safety awareness does.

Whilst Point of Sale safety performance tags may lead to increased awareness of overall risk, the testing upon which it relies seems may result in misleading the consumer.

Tilt Table Testing underpinning the proposals were conducted in controlled environments which:

- were on a low scale and limited scenarios, well below the burden placed on manufacturers to prove their product is safe
- Ignore the level of rider quad bike safety awareness, training and dynamic riding technique
- Maintain the Anthropomorphic Test Device (ATD test rider) in a static position in a way that contributes to ATV rollover, and ignoring basic riding technique required in any straddle-seat motorcycle.
- Omit full scale testing of rollovers with a fitted OPD. If ATVs haven't been Tilt Table tested with the OPDs then the summary rollover information on the proposed tags will be inaccurate and **misleading**. A heavier carry rack + OPD will materially change the Centre of Gravity producing different Tilt Table results. The collective result simulates permanently mounting a small ATD (test rider) behind the rear seat of every ATV, adversely altering the centre of gravity and ride dynamics.
- Assume the rider will never need to dismount the ATV in a direction an OPD obstructs
- Has been heavily criticised by the FCAI (and others) for the same and other reasons, including the long term performance of OPDs, international research and the failure of OPDs to meeting ISO guidelines for injury risk/injury/benefits standards.

If ATV manufacturers could engineer a solution that allowed the stated performance of OPDs to be achieved, such that they improved outcomes consistent with ISO standards objectives, their productions of SSV models which include compliant ROPS evidences they would.

Cost to Businesses and the Consumer

The report notes - "While the responsible Minister has powers under the ACL to ban consumer goods if satisfied they will or may cause injury, **this could impose significant cost and disruption on the agriculture sector and other operations involving quad bikes**" yet the measures proposed will impose a financial burden on consumers and businesses on an unprecedented scale.

The FCAI estimates there 280,000 ATVs are currently in use in the Australian marketplace. Fitment of OPDs will cost these users between AUD\$185m and AUD\$420m plus shipping and installation costs which are likely to double this amount to beyond AUD\$1bn. If provisions are grandfathered, or existing ATVs exempted, then it will be decades OPDs are commonplace enough to measure their impact on preventing fatalities. Many perfectly serviceable ATVs in use will be of an age and value where retrofitting of an OPD may amount to as much as 50% or more of the ATV's current value, dissuading owners from fitting them. If insurers refuse cover for older ATVs without OPDs (either by policy restriction or pricing them out) then the cost for ATV users to replace vehicles will reach well into the billions. The vast majority of this cost will fall on those rural Australia who can least afford it and are most affected by it.

Apart from the financial cost, the installation of an OPD defeats the utility of the ATV by:

- impeding rider access to mount the ATV
- impeding cargo carrier area
- a net reduction in cargo carrying capacity
- lost productivity in industry as a result of the above.

This is a complex issue that deserves, in the very least, comprehensive product testing by OPD manufacturers to prove their products meet ISO standards for safety devices. If I have understood all the issues correctly, to expedite these measures ahead of ISO testing makes an unprecedented special case of exempting OPDs from testing standards required of any other safety device in the Australian market place.

Kind regards,

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Fitment of Operator Protective Devices to All Terrain Vehicles

The foreshadowed safety recommendation by WorkSafe Victoria, recognising so called “Operator Protective Devices” (OPDs) as a safety device for use on All Terrain Vehicles (ATVs):

- is not supported by any scientific research concerning the safety or efficacy of such devices
- flies in the face of the most reliable research into such devices, which indicates that they can cause as many new injuries as they might prevent
- is not in accord with the outcomes of recent coronial inquiries into deaths that were associated with ATV rollovers.

The information in this paper is provided to assist ATV retailers and their customers when seeking to assess the potential suitability of OPDs as a way to reduce the risk of injury if there is an ATV rollover incident.

What are OPDs?

OPDs are typically bar or hoop-like devices that are intended to be retrofitted to ATVs. No ATV manufacturer who complies with the mandatory US standard for ATV design (ANSI/SVIA 1-2010) has approved a method for the fitment of such devices to their vehicles.

OPDs (sometimes advertised as “crush protection devices” or CPDs) are very different to ROPS (Roll Over Protection Systems), which are intended in a rollover to retain the operator within a ‘survival’ space by the use of harnesses and other restraints, similar to (most) tractors. Although OPDs do not – and cannot – include the use of restraints, nonetheless, the theory underlying their supposed utility is that ATV riders do not separate from their vehicle if a rollover occurs.

ATV and OPD research

The ATV industry’s position is that there is no scientific evidence upon which it can be concluded that OPDs are a suitable means to reduce the risk of injury if there is an ATV rollover.

It is generally accepted that it is extremely difficult to research the causes and potential outcomes of ATV rollovers. It is ethically impossible to perform tests using human riders, and there is no crash test dummy in existence which can ‘operate’ vehicles like ATVs and motorcycles realistically. As a result, computer simulation – calibrated as far as possible by full scale tests using instrumented dummies – is the only viable method of conducting ATV research, including when seeking to test proposed safety devices like OPDs.

For motorcycles, international standard ISO13232-5 is the only worldwide standard available for use in evaluating safety devices. Consequently, because ATVs are similarly ‘straddle seat–handle bar–helmet required’ vehicles, with the necessary adaptations that standard provides the most appropriate methodologies and criteria for research involving ATVs.

In order to evaluate the potential suitability of OPDs as a way to reduce the risk of injury in ATV rollovers, the ATV industry engaged a US-based firm, Dynamic Research Inc. (DRI) to undertake research. DRI is a research and development organisation. Its primary area of work is testing and certification for US Federal agencies, including the National Highway Traffic Safety Administration, the Bureau of Land Management, as well as for other organisations including NASA and the United Nations. It has extensive experience in the testing of all types of motor vehicles, including both motorcycles and ATVs, and its expertise and qualifications for this type of research are unmatched by any academic institution, private firm or other person in Australia.

OPD research outcomes

The results of DRI's research into 3 different OPDs, including the Australian-made "Quadbar", which has been conducted over a period of some 10 years, and has involved the testing of thousands of scenarios using state of the art computer simulation technology calibrated and verified by full scale instrumented dummy tests, are that each OPD was found to present unacceptably high injury risks in comparison with any injury benefits, having regard to the relevant guidelines in ISO13232-5. Those guidelines are that, for a safety device, a risk/benefit percentage (ie, the aggregate of risks divided by the aggregate of benefits) of 7% or less is acceptable, whilst a risk/benefit percentage of 12% or more is unacceptable.

In particular, with respect to the Quadbar, DRI has found that the injury risk/benefit percentage associated with the fitment of that device to a vehicle operated by a rider wearing a helmet is 108%, whilst the fatality risk/benefit percentage is 121%. In each case, the percentage is grossly in excess of the ISO 13223 guidelines. By comparison, the injury risk/benefit percentage of wearing a helmet was found to be just 2%. Helmets therefore meet the requirements for a safety device according to ISO 13232-5, and studies show they are the most effective safety device for ride-on straddle seat type vehicles like ATVs.

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Attempts made by others to evaluate OPDs

Such other 'research' as *has* been conducted, and upon which the manufacturers and other proponents of OPDs seek to rely, has involved:

- Small numbers of tilt table experiments, using only a stationary ATV, with no attempt to replicate actual rollover events and no attempt at all to ascertain the relative position of a rider during or after the rollover event;
- A very small number of scenarios (ie, 10) examined using computer simulation technology that was designed for testing passenger car head-on collisions; and/or
- Static, barrier-type tests, in which a stationary ATV with an instrumented dummy was effectively dropped from a tilt table at an extreme angle onto a horizontal surface, with conclusions being based only upon subjective observations, which were in fact contrary to the objective data recorded by the dummy.

Some research into OPDs was undertaken by a University of New South Wales' Transport and Road Safety (TARS) team as part of its 'Quad Bike Performance Project'. Although the original objective of this team was to conduct full scale rollover testing of OPDs for safety rating purposes, it found that "it was unrealistic to continue with such tests" due to the large range of possible rollover permutations.

In its report, the TARS team agreed that the ATV industry's concerns and resistance to fitting of OPDs "have some potential validity". Although the TARS team expressed a view that, on balance, the addition of an OPD would likely result in a net benefit in terms of reducing harm to workplace ATV riders involved in a rollover, they conceded that this

view was based only on assumptions about the speeds at which workplace overturns typically occur; their lack of knowledge of any injuries caused by OPDs and their (admittedly) limited static tests. Moreover, as the leader of the TARS team later admitted, the conclusion of a “net benefit” was reached by them without any consideration at all of the potential risks of OPDs.

Some proponents of OPDs claim that a lack of injuries and deaths known to have been caused by OPDs provides evidence that their risks are not as great as is indicated by DRI’s research. However, because only a very small proportion of ATVs have been fitted with OPDs (around 3,000, out of about 280,000 ATVs currently in use in Australia), it is not to be expected that one of those OPDs would cause a death more than every 20 or 30 years according to DRI’s analysis (which has been publicly accepted by the leader of the TARS team). Moreover, this claim ignores all of the unmeasurable incidents in which there is no injury *because an OPD is not fitted* to the ATV when a rollover occurs.

Detailed consideration was given to the available research about OPDs during a 2015 inquest into 9 ATV-related deaths conducted by the Queensland Deputy State Coroner, Mr John Lock. A specific aim of that inquest was “... *to establish whether crush protection devices may be effective in preventing injury or death in quad bike accidents, or whether CPDs may increase the probability of injury or death in such accidents.*”

Having heard evidence from DRI, from the TARS team leader, from both the manufacturer of the Quadbar and various other proponents, and from Associate Professor Robert Anderson, who undertook an independent critique of all of the OPD research, the Deputy State Coroner said that he was unable to reach a conclusion about the efficacy of OPDs. Consequently, he did not recommend the fitment of OPDs on ATVs, but instead recommended only that there be more research done.

ATV safety measures

It is the ATV industry’s strong view that the most suitable ways to reduce the risk of injury resulting from ATV rollovers is for employers and other owners and users of these vehicles to observe, **without exception**, proven safety practices such as mandatory wearing of helmets, ensuring all riders are properly trained, preventing children from riding full sized ATVs, and ensuring that passengers are not carried on single seat ATVs.

By contrast with these proven safety measures, the ATV industry’s position is that there is no appropriate evidentiary basis for users and potential users of ATVs to be advised that OPDs are a suitable way to reduce the risk of injury in ATV rollovers.

It is the responsibility of the developer of any proposed safety device to prove that it meets recognised safety device criteria, according to international standards. The manufacturers of OPDs have made no serious attempt to meet this responsibility. A recommendation to fit to ATVs a device which is unproven (at best) amounts to the conduct of an experiment with the safety of users of ATVs.

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