



Response to the  
Australian Competition and Consumer Commission's  
*"Quad bike safety, Final Recommendation to the Minister,  
February 2019"*

June 2019

## **Introduction**

After reviewing the ACCC's document entitled, *"Quad bike safety, Final Recommendation to the Minister, February 2019"* Polaris is concerned that the document is likely to mislead the Minister into making recommendations or enacting laws which are potentially dangerous to consumers purchasing All Terrain Vehicles (ATVs), sometimes colloquially known as "quad bikes".

The document contains several factual errors as well as assertions that are unsupported by empirical evidence and/or are contrary to the best evidence available.

Not only does Polaris not support some of the recommendations made by the ACCC it strongly opposes several of them, believing that they are contrary to the safety of consumers.

For appropriate context this response to the ACCCs "Quad bike safety, Final Recommendation to the Minister, February 2019" should be read in conjunction with Polaris' response to questions posed in the Australian Competition and Consumer Commission's "Quad Bike Safety Issues Paper." December 2017 and Polaris' response to questions posed in the Australian Competition and Consumer Commission's "Quad Bike Safety, Consultation Regulation Impact Statement." March 2018

Polaris Industries is Australia's and the world's largest manufacturer of dedicated off-road vehicles, established in 1954 and with its headquarters in Minnesota, USA. Polaris builds ATVs (Quad Bikes) and Side-by-Side (SSV, UTV, ROV) vehicles, along with military vehicles, motorcycles, snowmobiles, electric vehicles and other vehicles and products.

Currently Polaris produces 25 consumer specification vehicles with ROPS, including the unique and innovative single-seat Polaris "Ace" range. Prior to the development of the Polaris "Ace," vehicles with automotive style controls, a Roll-Over Protective Structure (ROPS) and supplementary restraint system consisting of a combination of seatbelts, side netting, side-bars, doors, etc. commonly were called "Side-by-Side" vehicles. They subsequently also were called UTVs or ROVs. In light of its design features, Polaris "Ace"-type vehicles fall within the class generally called Side-by-Side (SSV, UTV, ROV), even though they are single-seat vehicles with price range, performance and footprints similar to ATVs (quad bikes). It is Polaris' belief that this vehicle type should be considered a unique class which recognises the attributes of this vehicle type.

Detailed information regarding Polaris Industries and our range of products can be found at: <http://www.polaris.com/en-us>

Polaris designs and builds ATVs (quad bikes) and other off-road and road-going vehicles in nearly two dozen facilities throughout the world, including our dedicated research and design facility in Wyoming, Minnesota. Polaris currently employs over 200 specialist off-road

vehicle engineers, many of whom are world leaders in their fields. Polaris' industry leadership stems in no small part from its culture of innovation, which has produced, among other achievements, the unique Polaris "Ace" range: single-seat vehicles with the footprint of an ATV (quad bike) but the control mechanisms and protective structures of a Side-by-Side (SSV, UTV, ROV) vehicle.

Polaris would like to specifically address recommendations made in the Australian Competition and Consumer Commission's "Quad bike safety, Final Recommendation to the Minister, February 2019" paper recently made public.

In this submission Polaris will only address the recommendations made by the ACCC and not those issues or recommendations which the ACCC chose not to pursue or recommend. Should the Minister choose to reinvestigate these other issues we would respectfully request that the Minister allow Polaris to provide further information at that time.

Polaris supports the following recommendations:

*Within 12 months*

*All quad bikes must meet the specified requirements of the US quad bike Standard, ANSI/SVIA 1-2017 or the EN 15997:2011 Standard.*

Polaris has supported this requirement publicly for a number of years as it sets an appropriate standard for the importation and sale within Australia of ATVs (quad bikes) and for which there is currently no standard mandated. All ATV product produced by Polaris already meets the appropriate ANSI/SVIA 1-2017 or the EN 15997:2011 standards and Polaris believe that adoption of these world leading standards would prevent sub-standard product from entering the market where no barrier currently exists.

*Within 24 Months*

*All quad bikes must have a durable label affixed, visible and legible when the quad bike is in operation, alerting the operator to the risk of rollover and must include rollover safety information in the owner's manual.*

This is labelling and information is already in place as part of the ANSI/SVIA -1 standard therefore whilst supporting the recommendation, Polaris does not support additional labelling.

*Exemption: The safety standard will provide an exemption for second hand quad bikes, except for those that are imported.*

Whilst not supporting the majority of recommendations, Polaris does support any future changes not being made retrospective.

Polaris does not support the recommendation that:

*Within 12 months*

*All quad bikes must be tested for lateral static stability using a tilt table test and display the angle at which it tips on to two wheels on a hang tag at the point of sale.*

There is no evidence to suggest a causal link or even correlation between static roll resistance and either injury severity or fatality rates, or the propensity for a vehicle to tip in a dynamic environment.

Nevertheless, Polaris would accept such a recommendation, for purely informative purposes, if the test was conducted without the addition of a 50<sup>th</sup> percentile ATD (anthropomorphic test device or “crash test dummy”) so the test was accurately reflecting the static tipping point of a particular model of ATV (quad bike).

Polaris objects to the use of a 50<sup>th</sup> percentile ATD as it unfairly disadvantages smaller, lighter ATVs (quad bikes) and would steer users toward the purchase of larger heavier ATV’s (quad bikes).

The concept of publishing a “tilt table” angle for ATVs is problematic for many reasons. ATVs are “rider active” vehicles. The point at which they “tip” (ie: two wheels leave the ground) will vary considerably depending on many factors. Even if one considers only “static” stability, the effect of the rider on the combined “ATV + rider” system is considerable. Adding a 50<sup>th</sup> percentile ATD to the testing procedure seeks to recognise the importance of the rider to the system but in fact introduces additional inequities into that testing protocol.

Firstly, when an ATD (or any additional mass) is placed above the existing Centre of Gravity (CoG) in this testing regime, it will effectively raise the CoG of the “ATV + rider” system. Being that the ATD or additional mass is constant (approx. 77.7kg) but the weight of the different ATVs (quad bikes) vary, the effect of adding weight to the ATV above its centre of gravity will, all other things being equal, be more evident (ie: detrimental) to smaller, lighter ATVs (quad bikes) than it is to larger and heavier ATVs (quad bikes). If one was genuinely trying to rate the relative safety of ATVs (quad bikes) an *arguable* case could be made that in a crash or rollover event a smaller, lighter ATV (quad bike) is likely to be less injurious to the rider than a larger heavier ATV (quad bike). Furthermore smaller, lighter, and/or less experienced riders are more likely to be better able to control a small ATV (quad bike) and therefore are potentially less likely to be involved in an accident by choosing such a vehicle. It should be noted that there is no specific evidence to support this contention, just as there is no evidence to support the contention that ATVs with a higher static stability measure are less likely to be involved in rollover incidents or to have less injurious outcomes for users. It is likely that no evidence exists to support either contention. This is because the static tipping point of the vehicle is largely irrelevant from a safety perspective given the many other factors, such as rider size, weight, skill, behaviour, vehicle speed, load and/or terrain which are much more likely to influence safety outcomes for users.

Secondly, the ATD is placed on the ATV in a fixed upright position. As the table tilts the ATD stays perpendicular to the ATV and in effect leans down the hill in the opposite manner to that which a real rider would be expected to lean in an actual riding scenario. (ie: a real rider would be expected to lean up the hill and keep their torso vertical not perpendicular to the vehicle.) Again, this incorrect placement of the ATD overemphasises the negative effect that a rider could have on a smaller, lighter vehicle and negates the positive effect an active rider can have on vehicle stability when riding with correct technique. This error was pointed out many times to University of New South Wales TARS ATVAP researchers at the time of their study, but they chose to ignore this observation as it was (allegedly) too time consuming for them to make the many positional adjustments to the ATD to obtain accurate results by reflecting real-world rider body positions.

Thirdly, (as noted above) consistent positioning of the ATD on the ATVs (quad bikes) is critical to the outcomes of the testing. There was much difficulty experienced in attempting to consistently position the ATD, (even in a single position) on the various ATVs (quad bikes) during the University of New South Wales TARS ATVAP project. Different vehicle models do not have consistent seating positions, so the various options for positioning of the ATD on the various ATVs (quad bikes) was largely subjective. This led to inconsistencies in measurement, even on the same vehicle, dependent on the ATDs subjective positioning.

Fourthly, a 50<sup>th</sup> percentile ATD is a very expensive piece of testing equipment designed primarily to monitor injury outcomes. However, in this testing regime no injury outcomes are being measured and thus the ATD is only being used as a “dumb” stationary mass. The ATD is therefore unnecessary for this purpose and could equally be replaced by a simple mass equivalent which would not introduce the confounding factors of the multiple, varying, and therefore inequitable, adjustments of the ATD. However as eluded to in previous points the addition of a single weight is unrepresentative of the wide range of weights of real-world users and additionally skews the outcomes in favour of larger heavier vehicles.

In summary, there is no demonstrable link between measured tilt angles and injury outcomes or crash frequency. If a static tilt table angle is to be used as a proxy for static stability, it should be measured without an ATD or single mass being added so that it is the static stability of the vehicle which is being assessed.

ATVs come in a range of sizes and weights as do the users. Vehicles, users and uses (tasks) must be matched in order to select a vehicle which is “fit-for-purpose” for the particular work environment. A simple “more stable is better” mantra is both misleading and potentially dangerous.

Polaris strongly opposes the recommendation that

*Within 12 months*

*All general-use model quad bikes must be fitted with, or have integrated into the design, an operator protection device.*

The ACCC is only seeking to regulate, at this point, “General Use” quad bikes (ATVs) not “Sport” or “Youth” models. There is an immediate point of concern with this term, as the definition provided by the ACCC relies on the vague concept of “intended use” and not on any defined vehicle characteristics. Definitions of what the ACCC is seeking to regulate is defined in section 5 (p3) of the exposure draft.

*“Category G Type I, general use model*

*A quad bike intended for recreational or utility use, or both, by an operator not less than 16 years of age.*

*Category S Sports model*

*A quad bike intended for recreational use by an experienced operator not less than the 16 years of age.”*

This definition of what constitutes a “general use model” and what is a “sport model” is vague at best and relies on the presumption of “intended use”. The ACCC in its own discussion papers has already indicated that it has no ability to regulate “behaviour” (ie: intended use) only “products.” It states:

*The Australian Consumer Law (ACL) is the legal framework which empowers the responsible Commonwealth Minister to reduce the cost and trauma associated with quad bike incidents. Introducing mandatory licensing, age limits, training requirements and requiring all operators to wear protective clothing (including helmets) are not within the powers of the responsible Minister, and can only be achieved through the state and territory laws.*

*The ACCC has prepared this report with a focus on addressing quad bike design deficiencies (through performance requirements), and information asymmetries, which are within the portfolio and powers of the responsible Minister, the Hon. Stuart Robert MP.*

It is therefore unknown how any “intended use” criteria would be judged, or actual use regulated. It might be that a manufacturer need only indicate, possibly through appropriate labelling, that a particular vehicle is only *intended* for recreational use for it to be considered a “sport” model. How it was used after the point of sale would therefore not be regulated.

The question of what specific design or physical criteria defines a “general use” quad bike (ATV) model is open to interpretation and clearly needs to be resolved.

Further, what defines an “operator protection device” is similarly vague. The ACCC states on pages 69-70 of the ACCCs “Quad bike safety -Final Recommendation to the Minister” paper that:

Polaris response to the Australian Competition and Consumer Commission’s  
*“Quad bike safety, Final Recommendation to the Minister, February 2019”*

*“...a prescriptive performance requirement was considered by the ACCC to not be practical at this time.”*

*“While some stakeholders considered the testing protocols of other prescriptive international standards for OPDs a good starting point for a quad bike OPD standard, the ACCC has concluded more testing should be undertaken to ascertain their direct relevance to quad bike OPDs.*

*The ACCC is of the view OPDs should not restrict innovation and should recognise manufacturers are best placed to assess design and structural requirements for OPDs. The requirements for an OPD standard should be flexible and allow manufacturers to develop innovative OPDs, or assess which aftermarket OPD to attach, based on the specifications and performance of its quad bike models. For these reasons, this general, performance-based requirement is preferred:*

*General use quad bikes—operator protection devices*

*A general use quad bike must have one of the following devices fitted, or integrated into its design:*

*(a) an ATV Lifeguard, in the model manufactured by Ag-Tech Industries Ltd. (New Zealand) and available for supply when this instrument commences;*

*(b) a Quadbar, in the model manufactured by QB Industries Pty Ltd. and available for supply when this instrument commences;*

*(c) a device of a type that offers the same, or better, level of protection for operators from the risk of serious injury, or death, as a result of being crushed or pinned in the event of a rollover, as is offered by a device of a type mentioned in paragraph (a) or (b).”*

The “general, performance-based requirement” listed above is specified within in Section 15 of the Exposure Draft Mandatory Standard, however nowhere does the ACCC define what performance criteria (ie: “level of protection for operators”) is currently either met or not met by the “ATV Lifeguard” or “Quadbar” devices, or how that criteria was, is or should be measured or otherwise ascertained. It is thus impossible for a manufacturer to demonstrably comply with section (c) which requires a “...same, or better, level of protection for operators from the risk of serious injury.” because there is no benchmark or any objective criteria against which the performance can be measured.

The fitment of so-called operator protection devices (OPD’s) is unacceptable to Polaris as it will potentially endanger the safety of ATV (quad bike) riders to which a so-called “operator protection device” or OPD has been affixed.

Contrary to statement made by the ACCC there is currently no evidence, from any study anywhere in the world, to suggest that any currently available so-called “operator protection device” (OPD) or “crush protection device” (CPD) is either safe or will provide a net safety benefit to an unrestrained ATV (quad bike) rider in the event of a range of rollover scenarios.

In the specific case of Polaris products, we are unaware of a single model of Polaris ATV (quad bike) which has even had a so-called “operator protection device” (OPD) fitted for testing, far less any evidence or even indication that either of the ACCCs two recommended devices are either safe or will provide a net safety benefit to an unrestrained Polaris ATV (quad bike) rider in the event of a rollover. It is therefore unconscionable that the ACCC or subsequent Government regulation would seek to force Polaris to fit an untested, unproven and potentially unsafe third-party product to any of our vehicles.

It is one of the fundamental tenants of any effective Rollover Protection Structure (ROPS) that in order for such a mechanism to be effective the user(s) must be effectively restrained within the protective envelope created by the ROPS by the use of supplementary restraints such as a seatbelt, side nets, doors and the like.

Polaris has already developed an appropriate alternative ROPS safety device and fitted it to a range of single seat vehicles with footprints equivalent to those of similar engine capacity ATVs (quad bikes). Through its knowledge of off-road vehicle design, Polaris understands that for such a ROPS device to be effective the user must be restrained within its protective space; if the user wholly or partially exits this space, what is ostensibly a safety device can itself become a hazard. These ROPS equipped vehicles require the user to have a “sit-in” rather than “sit- astride” seating position, as well as a seatbelt and supplementary restraints. This is the only way to ensure that the operator remains fixed within the protective envelope afforded by the protective structure. These vehicles are the Polaris “Ace” range and are both widely available and have similar price points to equivalent capacity ATVs (quad bikes).

In its recommendations to the minister the ACCC erroneously states:

*“The relative efficacy of after-market OPDs compared to OPDs integrated into the device of a vehicle is not known. The Polaris Ace is an example of a hybrid vehicle that has integrated an OPD into its design and made other design changes to suit the specifications and performance of the vehicle, including fitting seatbelts and a steering wheel.”*

This statement indicates a comprehensive and fundamental misunderstanding of the dynamics of protecting a vehicle user in a rollover event. Equating the Roll Over Protection Structure (ROPS) and its associated seat belt and supplementary restraints, fitted to the Polaris Ace to a so-called “OPD” retrofitted to an ATV (quad bike) with an *unrestrained* rider is misleading in the extreme. There is simply no equivalency between a ROPS and a so-called OPD.

As indicated, in the Polaris Ace the rider is securely restrained within the protective structure of the integrated ROPS by a seat belt and other supplementary restrains such as side nets. This is to ensure that the ROPS does not itself become the mechanism of injury. The unfortunate, demonstrable and widely available evidence that ROPS are a hazard to unrestrained riders can be clearly seen in several Australian Coronial cases where the



unrestrained occupants (ie: not wearing seat belts) of side-by-side vehicles have been killed specifically by interaction with the vehicle's ROPS when they have been fully or partially ejected during a rollover event. That the ACCC and others continue to ignore this hard evidence of the hazard that otherwise protective "roll bars" pose to unrestrained vehicle users is mystifying.

All of the significant research (including that of UNSW TARS, DRI and Design Research Engineering) into so-called OPDs (or CPDs) has concluded that, at best there is no net benefit by fitting these devices and some research in fact shows a non-statistically significant net detriment. Polaris is unaware of any detailed and reputable evaluation of so called OPDs (or CPDs) which indicates a net benefit over a range of vehicle models and usage scenarios. There thus there appears to be no justifiable reason for their fitment, particularly as alternative vehicles with effective ROPS are widely available.

Furthermore, given the availability of the Polaris "Ace" range of single seat, ATV (quad bike) sized vehicles, it would be highly unlikely Polaris would consent to build an ATV (quad bike) with an integrated so-called OPD (or CPD) without research and development clearly and unambiguously demonstrating its efficacy and appropriateness. None of this evidence currently exists for any ATV (quad bike) of any brand and, to Polaris' extensive knowledge, no Polaris ATV (quad bike) has ever been tested, even at the most basic level.

On page 71 of the ACCCs "Quad bike safety -Final Recommendation to the Minister" paper assertions are made that:

*The available information indicates after-market OPDs improve the safety of quad bike operators.*

*There has been no reliable evidence provided to the ACCC that presents an alternate conclusion. While it is noted that in some situations after-market OPDs may contribute to injuries, these are usually minor relative to crush injuries and asphyxiation. Quad bikes with OPDs will improve the safety of consumers and reduce fatalities where an operator would have otherwise been pinned underneath the quad bike with a force sufficient to cause asphyxia or serious chest injuries.*

*The relative efficacy of after-market OPDs compared to OPDs integrated into the device of a vehicle is not known. The Polaris Ace is an example of a hybrid vehicle that has integrated an OPD into its design and made other design changes to suit the specifications and performance of the vehicle, including fitting seatbelts and a steering wheel.*

These assertions are erroneous and misleading. To our knowledge no such information exists for any Polaris ATV product. If the ACCC has information to the contrary, we call on it to make that information available to Polaris, the wider ATV industry and the public. Certainly, none of the studies cited in any of the ACCC's papers to date support such a finding.

There is simply no evidence that so-called OPDs or CPD's provide a net benefit of any kind. There is also no equivalency between the ROPS (with requisite seatbelt and nets) fitted to a Polaris Ace and the so-called OPD's being promoted by this draft regulation.

In the interests of ATV rider safety we call on the ACCC to remove this recommendation to the Minister or for the Minister to reject such an obviously flawed and potentially dangerous recommendation.

Polaris strongly opposes the recommendation that:

Within 24 Months

*All general-use model quad bikes must meet the minimum stability requirements of:*

- 1. lateral stability - a minimum TTR of 0.55.*
- 2. front and rear longitudinal pitch stability - a minimum TTR of 0.8.*

As noted in the previous section relating to so-called OPDs, the question of what specific criteria defines a "general use" quad bike (ATV) model is open to interpretation and clearly would need to be resolved prior to making any such recommendation.

Furthermore, as noted in the previous section relating to testing for lateral static stability using a tilt table test, the simplistic concept that higher stability equals higher safety is unsupported. Whilst for some work tasks, such as carrying or towing heavier loads, a more stable vehicle may be more desirable and thus arguably safer, (ie: "fit-for-purpose") for other tasks such as mustering or manoeuvring in confined spaces a less stable, more agile vehicle may be more "fit-for-purpose" and thus arguably safer. Smaller, lighter and less experienced riders may also be safer riding a smaller, lighter more agile vehicle.

The TTR values set by the ACCC are entirely arbitrary and do not relate to any demonstrable injury or fatality data. The ACCC itself states on Page 84 of the ACCC's recommendations to Minister:

*"The available information demonstrates increased static stability increases rollover resistance (for lateral, forward and rearward rollovers), though at this time there is no empirical information available that demonstrates a direct relationship between increased static stability and reduced injury rate. It seems rational however, to assume that the adoption of measures that reduce the propensity of quad bikes to rollover will result in lower injury and fatality rates of quad bike riders."*

Page 85 of the ACCC's recommendations to Minister, then contradicts the stated fact that there is no empirical evidence to show a link between injury and stability by stating:

*"Consumers can play a role in creating a safer quad bike fleet through their purchasing decisions. This requires consumers to be able to make a judgment about the relative safety*

*of quad bike models prior to purchase. The information asymmetry present in the quad bike market means consumers are not currently provided with enough information on the relative safety of quad bikes to be able to make informed purchasing decisions. Providing consumers with information about the lateral stability of quad bike models will better inform consumers and encourage them to purchase more stable quad bikes.”*

Presenting unsupported *opinion*, such as vehicles with higher static tilt table values are safer in a real-world environment regardless of task, when there is no empirical evidence to suggest such a relationship would be deceptive, misleading and disingenuous. Such a position is unworthy of any Government or Regulator. Consumers should be provided with facts or positions which are evidence based. These opinions are neither.

“More stable” ATVs may increase, decrease or have no effect on injury rates and or severity and any effect is likely to be highly dependent on task specific, fit-for-purpose relevancy. As is clearly stated by the ACCC, *“there is no empirical information available that demonstrates a direct relationship between increased static stability and reduced injury rate.”* In fact the opposite may well be true. It may be that roll-over event on a “more stable” vehicle will consequently have more energy in the system at the point of roll and will thus have more injurious outcomes. (eg: This has been demonstrated in past US studies of some highly stable sports-cars which were significantly overrepresented in injury data related to rollover events compared to their less stable counterparts.)

On page 84 the ACCC recommendations to Minister:

*“Extrapolating the UNSW TARS and SEA testing, and assuming the quad bikes tested are representative of the market, it is estimated that approximately a third of currently available quad bikes would either be removed from sale, or required to be redesigned to improve lateral stability.*

*Vehicles with TTR values higher than those proposed can still roll over and are still associated with fatalities. Substantive improvements in safety may be achieved at higher levels of static stability, up to the level where the quad bike becomes more likely to slide than roll over.”*

The minimum stability requirements of:

- lateral stability - a minimum TTR of 0.55. and

- front and rear longitudinal pitch stability - a minimum TTR of 0.8

are entirely arbitrary as there is, according to the ACCC (and many others) *“no empirical information available that demonstrates a direct relationship between increased static stability and reduced injury rate.”* In-fact the opposite may be true.

To remove, via legislation, an estimated one third of current ATVs (quad bikes) from the market, based on questionable testing of a small sample of a previous generation ATVs (quad bikes), over four years ago is unsupportable and thus unconscionable.

Polaris implores the ACCC to remove such an obviously flawed recommendation from any advice to the Minister or for the Minister to reject any such recommendation.

Polaris has always had, and continues to have, a strong interest in the safety of our users largely because we ourselves, our families and our workmates are also users. We acknowledge that any vehicle use can be potentially dangerous which is why we design our vehicles to be as safe as we can make them.

We also acknowledge that it is the intention of all stakeholders in the ATV (quad bike) safety discussion to improve safety outcomes for users. Unfortunately, due largely to lack of expertise and experience with this type of vehicle, many of the suggested ways to achieve this stated aim are simplistic and we believe will actually be counterproductive.

We understand that the Minister and his staff are not experts in the area of ATV (quad bike) safety. As the world's largest dedicated off-road vehicle manufacturer, we are. We would therefore like to assist the Minister and his staff in better understanding the issues which are complex but can be simplified through explanation and, in some cases, simple demonstration. We would therefore ask that the Minister and his staff take the time to consider this submission and Polaris' previous submissions and allow Polaris to provide a demonstration and explanation of our vehicles and the issues which are currently under consideration.

Alison Sutherland,  
Polaris Industries Australia & New Zealand  
36 Grimes Court,  
Derrimut, Victoria, 3030  
Email: [alison.sutherland@polaris.com](mailto:alison.sutherland@polaris.com)  
Phone: (03) 9394-5610