

**AUSTRALIAN ATV DISTRIBUTORS'
POSITION PAPER
March 2012**

1. Introduction

The purpose of this paper is to outline views concerning ATV safety held by the Federal Chamber of Automotive Industries (**FCAI**), the peak body that represents the automotive industry in Australia, and by the leading Australian importers and distributors of four-wheel motorcycles, which are generally known in Australia and throughout the world as all terrain vehicles or "ATVs".

Those importers and distributors, Honda Australia Motorcycle and Power Equipment Pty Ltd, Yamaha Motor Australia Pty Ltd, Suzuki Australia Pty Limited, Kawasaki Motors Pty Ltd, Polaris Sales Australia Pty Ltd and Bombardier Recreational Products Australia Pty Ltd (referred to in this paper as the "Distributors") collectively account for about 98% of new ATV sales each year in Australia.¹

ATVs have proved to be a popular type of off-road utility vehicle in Australia. They have many and varied uses and their unique attributes have made them a valuable resource in many industries, particularly on farms, where they have largely replaced horses. But, as with any other type of vehicle, their safe use cannot be taken for granted. Rather, it is the responsibility of all stakeholders to take all available steps to promote ATV safety. Amongst other things, this paper describes what the Distributors and others have done, and are doing, in that regard.

2. All terrain vehicles

Use and characteristics

It is estimated that there are at least 11 million ATVs currently in use worldwide. First introduced into the Australian market in the early 1980's (initially as a three wheeled design, and subsequently in a four wheel configuration), there are believed to be about 300,000 of the Distributors' ATVs currently in use in Australia.

ATVs have found widespread use in Australia, as they are mobile, manoeuvrable and economical. Highly adaptable, they are ideally suited to farm work, as well as in land management, the military, search and rescue and many other industries. ATVs were designed to provide a flexible and safe form of off-road transportation for utility and recreational purposes. The key functional aspects of the design of the vehicle which allow it to achieve its design goals include:-

- Vehicle dimensions that are properly sized to accommodate an operator on a one person vehicle and either an operator or an operator and a passenger on a two person vehicle in typical off-road settings;
- A tyre configuration that provides stability and high mobility on a range of off-road surfaces;
- Suspension and weight transfer characteristics that allow the vehicle to easily accommodate various off-road terrains;
- Ease of operation (for appropriate operators); and
- Appropriate controls, power and braking features.

Design safety

There has been significant design evolution of the ATV since it was first introduced in the USA in 1967, including the addition of more than 30 standardised safety features. All ATVs imported into

¹ There are a number of other ATV importers who are not FCAI members, and with whom the Distributors have no affiliation.

Australia by the Distributors comply with the US Consumer Product Safety Commission's approved standard for ATVs, known as "ANSI/SVIA-1 Four-Wheel All-Terrain Vehicles", as affirmed by the American National Standards Institute. This safety standard was first published by the Specialty Vehicle Institute of America in 1990 as a voluntary industry standard and, since 2008, it has been adopted as a mandatory standard by the Consumer Product Safety Commission. The standard includes specific approved requirements for pitch stability, operation (such as controls, braking performance and mechanical suspension) and limited speed capabilities for all youth-sized ATVs.

The safety engineering evolution of ATVs has included the development of independent front and rear brake systems, standardised warning decals and owners' manual warnings, lighting, indicators, yielding handlebars, smooth flexible body panels and mudguards, minimal external projections and an engine stop switch.

ROPS

As for all of their products, research by ATV manufacturers (primarily, the respective parent companies of the Distributors) to seek to identify and develop further safety enhancements for ATVs is ongoing. Some suggested developments have already been exhaustively examined and rejected. Prominent amongst these is the possible fitment to ATVs of roll over protection systems, or "ROPS".

ROPS take many forms – depending upon the size, design characteristics and purposes of the vehicle to which they are fitted – but perhaps the most familiar and common in Australia are those fitted in recent years to tractors. This initiative has been one of the most successful workplace safety programs ever undertaken; very few, if any, tractor operators have been seriously injured or died in tractor rollovers since ROPS became mandatory.

However, whilst it may be seductive to believe that this success could be replicated if only ROPS were fitted to ATVs, the assumption inherent in this proposition - that what works on tractors will work on ATVs - is entirely flawed. In fact, despite repeated international scientific investigation and research into ROPS over the last 20 years by the ATV manufacturers and by regulatory authorities and associated bodies², they have found each of the proposed devices they have tested to be unsuitable for ATVs as:

- each of them raised the centre of gravity of the ATV;
- each proposed structure revealed injury risks similar to, or greater in magnitude than, their respective injury benefits (if any);
- ROPS on a small, lightweight vehicle such as an ATV have been found to:
 - impact or crush the (dummy) rider's head, spine and/or chest in:
 - rollovers
 - pitchovers
 - tumbling type overturns
 - riding over rough terrain and obstacles;
 - inhibit rider (natural) separation or escape in overturns
 - without restraints, to act as a rigid external projection which is highly injurious to the rider
 - with restraints, to transmit large g-forces to the rider (ie, because of small vehicle mass), increasing injuries and fatalities.

Depending on the specific design, ROPS fitted to ATVs have also been found to:

- degrade vehicle stability;
- increase rollovers or pitchovers;
- degrade rider mount/dismount;

² This research has concerned the United Kingdom "U-Bar", the New Zealand "T-Bar", the US Dahle ROPS, the US Johnson ROPS, the Australian MUARC ROPS and the Australian Robertson "Quad-Bar" – copies of the research are available on request. The Distributors have produced a DVD which outlines further the research on ROPS – copies of which are also available on request.

- degrade cargo capacity;
- degrade overhead clearance;
- encourage misuse (passenger, improper cargo, non-use of restraints, risk-taking behaviour);
- conflict with 'rider body active' vehicle operational needs with regard to stability, mobility, visibility and comfort.

The FCAI, the Distributors as well as their parent companies each have a strongly held view that the published scientific research has demonstrated that the nature of ATVs is such that adding a ROPS can, when rollover incidents do occur, cause more injuries than they prevent. An example of this research is that of Piziali et al (of Failure Analysis and Associates, Inc) in their paper published by the Society of Automotive Engineers (1993) following their instrumented tests of a ROPS device (known as the "Johnson ROPS").³ That research, along with other submitted evidence, led the US Consumer Product Safety Commission to conclude that ROPS should not be fitted to ATVs.

This view is no less applicable in relation to the so-called "Quad Bar" which is currently being promoted in Australia. Further discussion concerning this device is contained in appendix B.

Moreover, the design changes that would be necessary to accommodate the placement of a ROPS (including restraint) on the ATV (with a view to minimising the effect that its placement would have on the ATV's centre of gravity) would result in a fundamentally different type of vehicle and therefore no longer suited to many of the uses for which it is now extremely popular – due to the increased size and weight and substantially decreased mobility and manoeuvrability. Safe operation of an ATV fitted with ROPS would also require a seat restraint system, which would in turn necessitate further significant modification of the ATV, as well as compliance in the use of those restraints by ATV operators.

In fact, other types of vehicles which do have these characteristics – and which are therefore quite different in their design, mobility and utility to ATVs - have already been developed by ATV manufacturers and are available to consumers as an alternative to ATVs.

Examples of these vehicles include the Big Red 700 (Honda Motor Corporation), the Ranger (Polaris Industries Inc), the Mule (Kawasaki Motors Corporation), the Rhino (Yamaha Motor Corporation) and the Teryx (Kawasaki Motors Corporation).

3. Injury and death associated with ATVs

Data

The popularity of ATVs as farm, work and recreational vehicles has made their use widespread. Naturally, with more vehicles on the ground, the unfortunate incidence of ATV related injuries – and some deaths – has consequently increased. As an industry, the Distributors are very concerned by *any* such incidents; the safety of ATV operators is of paramount concern to them.

The incidence of injury from ATVs is actually very low. Indeed, the limited data available suggest that, each year, some 99.6% of ATVs in Australia are used without any injury to their operator, and that fatal incidents are associated with less than one hundredth of one percent of ATVs in use.⁴ Compared, for example, with the reported rates of injury from the use of horses on farms, the risk of injury with ATVs is considerably lower.

Safe ATV operation

It is essential that ATVs are operated properly in order to ensure their safe use. However, regrettably, misuse is a factor in the majority of ATV-related injuries, particularly:

³ In a paper published by the International Federation of Automotive Engineering Societies (FISITA) in 2008, Dynamic Research studied five ATV ROPS devices, including the Johnson ROPS, and concluded that all five have injury risks similar or greater in magnitude to their injury benefits and that each has an injury risk/benefit percentage far above the values for acceptable safety devices indicated in the guidelines of ISO 13232-5 (2005) Annex E.

⁴ Breen K, Risk Analysis and Historical Perspective – All Terrain Vehicles, Engineering Systems Inc, 9 January 2004, at pages 22-23.

- children riding adult sized ATVs;
- ATV operators not wearing helmets;
- ATV operators carrying pillion passengers on single operator ATVs;
- Inappropriately or untrained operators;
- Poor or no maintenance;
- Overloading; and
- Operators impaired by health, alcohol or drugs.

This is despite the warnings against such misuse which appear in prominent decals located on every ATV sold by the Distributors, in the operators' manuals and in an instructional video/DVD made by the Distributors and provided to each ATV purchaser in Australia, free of charge.

The "do's and don'ts" of ATV ownership and operation are reproduced in Annexure A.

In recent years, there have been two substantial inquiries conducted in Australia concerning ATV safety issues; one by the then Victorian State Coroner (which was completed by another coroner following the State Coroner's retirement through ill-health) and the second by a Victorian Parliamentary Committee enquiring into the cause of fatality and injury on farms.

Coronial inquests

In December 2002, the then Victorian State Coroner Graeme Johnstone commenced coronial inquests into the circumstances surrounding the deaths of 6 individuals in Victoria. The State Coroner was also appointed a coroner of the State of Tasmania in order to permit him to undertake inquests in relation to the deaths of two further individuals in Tasmania. Each of the 8 deceased was involved in riding and/or operating an ATV at or about the time of their death.

As well as the Distributors and family members of some of the deceased, FarmSafe Australia and the Victorian WorkCover Authority called witnesses and/or made submissions at the inquests.

In the course of the inquests, the Distributors submitted that it would be appropriate for the following coronial recommendations to be made:

- that it be mandatory for all ATV operators to wear helmets;
- that children under the age of 16 be prohibited from operating adult-size ATVs;
- that the carrying of pillion passengers on single operator ATVs be prohibited;
- that relevant state workplace legislation be amended by, amongst other things, inclusion of express reference to ATVs in the definition of 'plant or equipment' and by the introduction of ATV 'operator safety standards', which would include a requirement that accredited ATV safety training be an integral part of farm safety management;
- as to the need for appropriate maintenance of ATVs; and
- in relation to the spray tanks and other structures that can be appropriately mounted on ATVs.

Coroner John Olle handed down his findings and recommendations in the inquests on 17 April 2009. Some key points arising from these inquests are:

- (1) During the hearings, and after hearing much evidence from experts concerning the technical issues about ROPS, State Coroner Johnstone said that he would not recommend that ROPS be fitted to ATVs. Ultimately, Coroner Olle did not make any recommendation concerning the possible fitment of ROPS on ATVs.
- (2) Coroner Olle made a number of recommendations that accorded with the Distributors' submissions, including that:
 - (a) there be a "certified training program" for all ATV operators, specifically, that

- *Worksafe Authorities in Victoria and Tasmania work with the Victorian and Tasmanian Consumer Affairs Authorities to ensure that ATVs are not sold to or operated by persons who have not completed a “certified training program”; and*
- *these authorities investigate, in conjunction with the Distributors and FarmSafe, and develop a certified training program along the lines of the Honda Australia Rider Training or Yamaha ATV Safety Institute Programs;*

(b) children be prohibited from operating adult sized ATVs; and

(c) helmets be mandatory for all ATV operators.

(3) Coroner Olle also made comments about towing capacity limitations and the limitations of ATVs on certain terrains.

Parliamentary Inquiry

The Rural and Regional Services and Development Committee of the Parliament of Victoria held an inquiry into The cause of fatality and injury on Victorian farms, producing its report in August 2005. The Distributors presented evidence and made a written submission to that inquiry, in which they made proposals consistent with the submissions that they made in the coronial inquests, including the introduction of legislation to clarify and confirm training, maintenance and other obligations in relation to the use of ATVs in workplaces. The Distributors also suggested to the Inquiry:

- *that a public/private sponsored Farm Safety Unit be created; and*
- *that they work with community groups and government to develop:*
 - *a comprehensive safety awareness program to promote and educate ATV operators on the new legislative and regulatory requirements; and*
 - *the distribution of additional ATV safety promotional material to alert the public and the farming community to the potential hazards of misuse of ATVs.*

In its final report, the Rural and Regional Services and Development Committee made the following recommendations to the Victorian government (amongst others):

- (1) That the State Government formally request the Australian Standards Committee to consider as a priority the development of a standard for ATV helmets (recommendation 7);
- (2) That the State Government urge ATV and agricultural motorcycle manufacturers and dealers to provide an appropriate helmet for use in farming applications upon the purchase of a new ATV and that these helmets be provided free of charge to the purchaser (recommendation 8);
- (3) That the State Government establish a program to encourage riders of ATVs and motorcycles to wear an appropriate helmet at all times (recommendation 9);
- (4) That the State Government introduce an education program to demonstrate that:
 - *Children should not ride adult-sized ATVs;*
 - *Passengers should not be carried on ATVs; and*
 - *Loading and attachments should not exceed manufacturers’ recommendations*
(recommendation 10);
- (5) That the State Government ensure that safe use of ATVs and motorcycles is portrayed in all government publications; and that the State Government work with the industry and media stakeholders to develop a code of practice for safe portrayal of ATVs (recommendation 11).

The Committee specifically did not make a recommendation that ROPS be fitted to ATVs. Rather, its conclusion was that, to its knowledge:

“...there is no existing example of a roll over protective structure device that satisfies requirements for driver protection without substantially reducing the handling characteristics of ATVs”.

4. Safety initiatives

The FCAI and Distributors are committed to the safe ownership and operation of ATVs. In conjunction with their respective parent companies the Distributors have and continue to engage in initiatives to promote those objectives. As well as the ongoing research and development by the manufacturers other initiatives include:

Rider training programs

Appropriate rider training is an extremely important factor in minimising accidents involving the operation of ATVs. The FCAI and distributors have done, and will continue to do, all that is reasonably practicable on their part to promote and facilitate rider training. In particular:

- The Distributors have, as a group, funded the production of a safety video/DVD detailing safe riding techniques, which is distributed free of charge to all purchasers of their ATVs.
- Honda, through its non-profit division Honda Australia Rider Training (HART), has developed a nationally accredited ATV training course, available to all ATV users, employers and government departments. HART also provides training to all Honda franchisees and attends agricultural field days nationally to provide safety demonstrations and promote the availability and benefits of ATV training.
- The Yamaha ATV Safety Institute makes rider training and education available to users of all ATVs and to government departments, other employers and Yamaha franchisees, and attends agricultural field days nationally to provide safety demonstrations and promote the availability and benefits of ATV training.

There are a number of independent training organisations who offer ATV training as described in the following table:

Organisation	Website	Telephone	Course Location
Honda (HART) ATV Training	www.hondampe.com.au	03 9335 2766	Australia wide
Yamaha ATV Safety Institute	www.yamaha-motor.com.au	0408187288	Australia wide
Stay Upright ATV Training	www.stayupright.com.au	1300 366 640	Australia wide
DECA Training	www.deca.com.au	1300 365 400	Australia wide
Top Rider	www.toprider.com.au	1300 13 13 62	Australia wide
CITS Training	www.citstraining.com.au	1800 633 500	Northern and Western Victoria
Victorian Farm Safety Centre	www.ballarat.edu.au/vfsc	03 5335 3717	Western Victoria
Goulburn Ovens TAFE	www.gotafe.vic.edu.au	1300 468 233	Northern and Eastern Victoria
Roadcraft ATV Training	www.roadcraftplus.com.au	08 8536 2677	South Australia
TAFE South Australia	www.tafesa.edu.au	1800 882 661	Various TAFE's South Australia
TAFE Western Australia	www.tafe.wa.edu.au	1800 999 167	Various TAFE's

Organisation	Website	Telephone	Course Location
			Western Australia
Rider Training Australia	www.dtec.com.au	08 9479 5754	Perth – Western Australia
Shawsett Training	www.shawset.com.au	08 9248 7208	Perth – Western Australia
Australian 4WD Academy	www.australian4wdacademy.com.au	08 8088 2389	Broken Hill – South Australia
North Coast TAFE	www.nci.tafensw.edu.au	02 6591 3600	North Coast New South Wales
Riverina Institute TAFE	www.rit.tafensw.edu.au	1800 441 244	Riverina New South Wales
Queensland TAFE	www.tafe.qld.gov.au	1300 30 8233	Various TAFE's Queensland
SMART NT	www.smartdrivertraining.com	08 8947 2470	Northern Territory
Tas Skills Institute (contractor Stay Upright)	www.skillsinstitute.tas.edu.au	03 6434 5846	Various locations

However, notwithstanding the number of avenues available to ATV owners and operators from which to obtain training, the effective provision of ATV rider training in Australia is substantially constrained by 4 key factors:

- (1) the almost universal absence of any perception of the need for such training on the part of members of the community and, in particular, on the part of the rural community – which accounts for overwhelmingly the largest group of ATV purchasers and users in Australia;
- (2) the practical difficulties in making training convenient and accessible to farmers and their families nationwide, particularly in areas of relatively low population density;
- (3) difficulties in obtaining the necessary insurance cover for training courses involving motorised vehicles; and
- (4) the inability to ensure that the person who receives training will be the only person who operates any given ATV, including those that are newly purchased.

The Distributors' long-held view is that prescriptive legislation should be introduced to mandate safety measures generally, and a requirement for rider training in particular. A partial solution to the issues discussed above may be for governments to legislate for ATV safety training to be included as an integral part of farm safety management, so that accreditation in ATV safety is enforced in accordance with the relevant occupational health and safety legislation. By introducing such legislation, sufficient demand for training should be created so as to make it feasible for accreditation programs to be delivered through additional organisations such as TAFEs, which already provide Farm Safety Training Centre programs.

Liaison with regulators and stakeholders

The FCAI and Distributors liaise with representatives of all workplace health and safety regulatory groups and stakeholders in Australia and New Zealand (including the Heads of Workplace Safety

Authorities, the Tractor and Machinery Association, Farmsafe Australia, Standards Australia and the National Farmers Federation) in relation to ATV related safety issues. In particular, during 2005 there was a period of intensive consultation, during which the Distributors made recommendations which included the introduction of prescriptive legislation.⁵

The FCAI and Distributors have also contributed to the Farmsafe Australia Reference Group for ATV Safety in the development of its ATV Strategy, including undertaking a review of its draft guideline and providing detailed information and answers to questions relevant to that strategy during 2004 and 2005.

One of the key recommendations to the regulatory groups and stakeholders was that there should be a code of practice covering all aspects of ATV sale, training and operation. This was the only recommendation that was met with universally positive feedback from the occupational health and safety regulators.

The ATV industry code of practice

Under the auspices of the FCAI, the Distributors have developed a draft employers' and employees' code of practice relating to the use of ATVs in workplaces.

This draft code of practice is being circulated to all regulators and key stakeholders in Australia, for review and comment. After comments have been received, the code of practice will be finalised, published and promoted by the FCAI and Distributors and, they hope, by all other interested stakeholders.

Relevantly, the draft code of practice reiterates the FCAI and Distributors recommendations with respect to the importance of training and instruction, wearing of helmets, regular and routine vehicle maintenance and the limitation on children or passengers operating (or riding on) adult sized single operator ATVs.

It is intended by the FCAI and Distributors that a suite of complementary codes of practice will ultimately be published, covering the following topics:

Part 1: Designers', manufacturers' and importers' code of practice;

Part 2: Suppliers' (including dealers) code of practice, including new and used vehicle certification;

Part 3: Employers' & employees' code of practice related to ATVs (currently in draft form as discussed above);

Part 4: Media code of practice related to ATVs;

Part 5: ATV training organisations' code of practice;

Part 6: Emergency services and medical providers' code of practice related to ATVs.

It is the FCAI and Distributors' goal to have these codes of practice adopted by the regulators under their respective occupational health & safety legislation.

With respect to the proposed media code of practice related to ATVs (part 4), it is a matter of great ongoing concern to the FCAI and Distributors that unsafe ATV usage practices are frequently seen in newspapers and on television programs and advertisements, even in the rural press. These representations tend to normalise or even encourage dangerous practices such as not wearing an approved helmet (or, most often, no helmet at all) and carrying children as passengers. The FCAI and Distributors believe that each depiction of ATV use in the media is an opportunity instead to promote safe practices, and the media code of practice related to ATVs will be directed to achieving this. In the meantime, via the FCAI, the Distributors monitor media portrayals of ATVs and write to offending media outlets to advise them if inappropriate ATV usage or behaviour is depicted.

⁵ A number of recommendations were part of a presentation which the Distributors developed. The presentation has been updated and is available on request.

Safety orientated marketing

Consistent with their views concerning the portrayal of ATVs in the media, the Distributors are committed to marketing ATVs in a safety conscious manner.

To this end, amongst other things, the Distributors:

- publish only safety-orientated marketing material and advertising (depicting use of helmets, protective personal equipment, suitable loading etc);
- regularly communicate safety reminders to their respective national franchise networks, including each distributor issuing a 'dealer bulletin' discussing the issues arising from the coronial inquests; and
- have funded television commercials about safety for broadcast in rural areas.

Alternate vehicles

Many of the ATV manufacturers have participated in the development of an alternate vehicle market, including "side-by-side vehicles" which enable greater person and cargo capacity, for suitable applications. Examples of these vehicles include the Big Red 700 (Honda Motor Corporation), the Ranger (Polaris Industries Inc), the Mule (Kawasaki Motors Corporation), the Rhino (Yamaha Motor Corporation) and the Teryx (Kawasaki Motors Corporation).

Their availability means that potential ATV purchasers have a choice between vehicles with some of the attributes of the ATV – including manoeuvrability and flexibility – and heavier, more stable vehicles with greater carrying capacity and the size and other characteristics such as to permit ROPS.

5. Distributors' proposed actions

Legislative reform

The FCAI and Distributors long held view is that prescriptive legislation to regulate the operation of ATVs is appropriate.⁶ In particular, amendment to relevant occupational health and safety legislation or other safety legislation is needed in four key areas:

- (1) to mandate the use of helmets by all ATV operators⁷
- (2) to prohibit those under 16 riding adult-sized ATVs (and to prohibit adults from permitting them to do so);
- (3) to prohibit passengers on single operator ATVs, and carrying of more than one passenger on two person ATVs; and
- (4) to require ATV users to be appropriately trained through a licensing regime for ATVs used in a work environment.

Other safety issues which might either be legislated for, or which might be key requirements in any prescribed ATV operators' safety standard or code of practice, include:

- requiring all operators of ATVs to confirm that they have read, understood and will comply with the recommendations contained in the owners' manual, service manual, the FCAI ATV safety video/DVD and in the on-product warning decals;
- requiring regular maintenance checks of ATVs;

⁶ Model legislation adopted through states in the USA has proven successful.

⁷ Head injuries contribute to around 25% of ATV related deaths in Australia – Reichnitzer G, Day L, Grzbieta R, Zou R and Richardson S, All Terrain Vehicle Injuries and Deaths, Monash University Accident Research Centre, 19 March 2003, at page 7.

- providing for "userworthy" certificates (similar to roadworthy certificates) to be obtained in relation to any purchase of second-hand ATVs;
- an audit function to be undertaken by WorkCover (or equivalent) to enforce the ATV operators' safety standards.

Other initiatives

The FCAI and Distributors would support an Australian Industry Safety Standard. This would involve amendments to relevant Australian Standards legislation to ensure that all distributors, importers and manufacturers of ATVs comply with design rules similar to the American National Standards Institute (ANSI) Safety Standard, "Four Wheel All-Terrain Vehicles", ANSI/SVIA-1.

Currently all ATVs imported into Australia by any of the Distributors comply with the ANSI Safety Standard. Compliance with this standard ensures that the ATV has been designed and manufactured to the highest level of safety. The FCAI and Distributors are concerned that some ATVs imported into Australia are not ANSI/SVIA-1 compliant, and therefore do not meet what they regard as minimum safety requirements.

National Partnership Measures

Standards Australia should be supported to achieve a prompt outcome in the approval of a suitable helmet for farm use. If it is determined that any such alternative helmet complies with the relevant Australian Standard, AS1698, the Distributors will endorse, promote and make that helmet available for sale to Australian farmers through their franchisees and authorised dealer networks.

6. Conclusion

ATVs are important and popular for farm applications (in particular) due to their versatility and economy. They are safe if used correctly and in accordance with manufacturer's recommendations and warnings (as posted on the ATV itself, as outlined in the operator's manual and safety video and as demonstrated in rider-training). Australian and international statistics demonstrate that the risk of accidents on ATVs is significantly lower relative to other modes of transport.

Unfortunately, operator misuse and error are the single greatest cause of ATV injury and deaths. While the FCAI and Distributors will do everything they are reasonably able to promote safe use of ATVs, the measures available to them are limited. In particular, they are unable to compel new or existing ATV owners and operators to undergo training or to wear helmets.

ROPS have been examined and rejected by regulatory authorities and associated bodies in a number of countries. The FCAI, the Distributors and their parent companies believe that ROPS are unsuitable for ATVs because they would have significant detrimental effects on the operation and safety of ATVs.

The FCAI, Distributors and parent companies believe a combination of safety measures is required to improve ATV rider safety. Industry uses the ANSI consumer product safety standard, which contains extensive provisions to ensure that riders are provided with a vehicle which is as safe as possible. Riders must take care to use their vehicles safely. In particular, they must:

- Wear a helmet
- Undertake training
- Not ride an adult-sized ATV if they are under 16
- Read the owner's manual and watch the safety video provided with the ATV
- Not carry more than the approved number of persons
- Not use the ATV on terrain or in application for which it is not suited.

The FCAI and Distributors welcome the assistance of all governments, regulators and other key stakeholders in advancing the ATV safety initiatives that they have proposed and that they are undertaking on an ongoing basis.

APPENDIX A - THE DO'S AND DON'T'S FOR ALL ATV OWNERS AND OPERATORS⁸

DO	DON'T
Undertake approved training and instruction before operating your ATV	Operate your ATV without first: <ul style="list-style-type: none"> • undertaking training and instruction in correct operation of the ATV • reading the operator's manual; and • reviewing the safety decals affixed to your ATV.
Read the operator's manual prior to operating your ATV, and watch the supplied FCAI Safety DVD "You and Your ATV"	Operate an (adult sized) ATV if you are under 16 years of age
Review the on-product safety decals and make use of the on product safety features	Carry pillion passengers on (single operator) ATVs Carry more than one passenger on two person ATVs
Always wear a suitable approved helmet	Operate your ATV on paved or sealed surfaces
Keep your ATV well maintained, for optimal performance and longevity	Undertake (or have undertaken) service, repairs or modifications that are unauthorised or contrary to the manufacturer's recommendations (including after market accessories), as these may adversely affect the design and performance of your ATV
Wear appropriate personal protective equipment including suitable eye protection, and protective clothing (gloves, closed in shoes, long sleeved shirt and long trousers).	Operate your ATV whilst under the influence of drugs and/or alcohol
Exercise caution when traversing uneven or unfamiliar terrain, particularly when carrying and/or towing loads	Exceed the manufacturer's recommended load capacity and be careful not to obscure your visibility
Follow the manufacturer's recommendations for towing limitations (including spray tanks)	Exceed the recommended tyre pressure for your ATV
Know your limitations	Ride beyond your experience and capability.
Ask your reputable authorised dealer for more information given your particular circumstances	

⁸ Please also refer to the manufacturer's recommendations and warnings as posted on the ATV itself, as outlined in the operator's manual and as demonstrated in rider-training.

APPENDIX B - THE "QUAD-BAR"

In recent years the so-called "Quad Bar" has been marketed for sale in Australia by QB Industries.

While it accepts that "a typical roll over protective structure would require a full cage and driver restraint, which are not feasible on a rider active vehicle such as a quad bike", QB Industries claims that its "roll over protection device" nevertheless does *not* require a cage or restraints but is both safe and reduces the risk of injury caused by ATV rollovers. This claim is made without any explanation of how the Quad Bar in fact differs from other roll over protection systems.

The Distributors reject this claim. The Quad-Bar is, in their view, no different to any other ATV ROPS design that has been put forward over the past two decades and will, if fitted, subject ATV operators to a risk of injury that cannot be justified by any supposed benefits.

In the context of the coronial inquiries, research requested by the then Victorian State Coroner Johnstone was undertaken specifically in relation to the Quad-Bar, and a report was submitted to the Coroner.

That research – as with some of the other research over the past 20 years– was undertaken by Dynamic Research, Inc of Torrance, USA. The expertise and experience of Dynamic Research in this field is well established. Its employees, including, in particular, Mr John Zellner, have been involved in full scale instrumented testing and simulation of ATVs for more than 25 years and, amongst other things, have participated with the US Consumer Product Safety Commission in the development of the American National Standard for ATVs.

In summary, on the basis of the more than 100 accident scenarios that it modelled using a sophisticated computer simulation program called 'MADYMO', Dynamic Research concluded in its report⁹ that:

- (1) the injury risks of fitting the Quad-Bar to ATVs were nearly equal to the injury benefits, in terms of 'Normalised Injury Costs', and any net benefit was not statistically significant;
- (2) the injury risks of fitting the Quad-Bar are much greater than those specified as permissible by the guidelines in the international standard for occupant protection systems (ISO13232-5); and
- (3) the substantial number of injuries seen in the modeling to be caused by the Quad-Bar were due, at times, to the device itself impacting and/or crushing various body regions, and/or changing the nature of the overturning motions of the ATV.

It is to be noted that these conclusions expressly did not take account of the potential adverse impact on other safety factors of fitting the Quad-Bar to ATVs, such as vehicle stability and the increased potential for misuse related to the improper carrying of passengers and/or equipment.

As QB Industries acknowledges, similar to several other ATV ROPS researched in the past, the Quad-Bar does not include a restraint system. The unsuitability of ROPS devices which do not incorporate rider/passenger restraints was the subject of evidence given in the coronial inquests conducted by the Victorian State Coroner, by engineers from the Monash University Accident Research Centre (George Rechnitzer, Lesley Day, Raphael Grzebieta, Roger Zou and Shane Richardson) ("**MUARC**"). In their March 2003 report,¹⁰ which was commissioned jointly by the Coroner and the Victorian WorkCover Authority, the MUARC engineers observed that:

What can, however, be emphatically concluded from the research to date is that it has proven that poorly designed rollover protective structures (or even systems) without properly designed seat and seatbelt systems will not reduce serious and fatal injury risk associated with ATVs and are likely to even increase such risks. None of the proposed systems (seen in the

⁹ Zellner et al: *An Assessment of the Effects of the Robertson V-Bar ROPS on the Risk of Rider Injury due to Overturns Resulting from ATV Misuse*, Dynamic Research Inc, July 2007.

¹⁰ George Rechnitzer et al: *All Terrain Vehicles Injuries and Deaths*, Monash University Accident Research Centre, 19 March 2003.

literature) for ATVs could be regarded as meeting necessary design criteria for a Rollover Protective System. The only Rollover Protective Systems that could be regarded as appearing to follow fundamental principles for effective ROPS is the Honda Pilot “dune buggy”.

(at page 91)

For severe injury prevention, ATVs would require an effective Rollover Protective System which includes a protective structure and integrated seat and seatbelt system.

(at page 93)

Virtually all of the previous international research on fitting rollover protective structures on ATVs to date has been predicated on having an unrestrained (or ineffectively restrained) rider so as to maintain active riding. This has led to ROPS designs with very poor effectiveness and in many cases designs which could well increase severe injury risk. Similarly the Rollover Protective Structure designs suggested through the NZ ROPS guide, and those of UK HSE are ill-conceived, totally inadequate, and potentially dangerous, as they provide inadequate survival space and do not require proper restraint systems.

(at page 94)

The claims made by QB Industries for the Quad-Bar are essentially limited to its alleged utility only in very low speed ATV rollovers. However, QB Industries has not referred to any research involving objective measurement of injury potential which might indicate that the Quad-Bar does in fact “protect” users at low speeds. Nor has QB Industries cited any research as to how the Quad-Bar might impact on injury potential in higher speed incidents. Rather, the evaluation carried out by Mr Chris Snook of the University of Southern Queensland, which QB Industries relies upon to support its claims, related only to the possible utility of Quad-Bars on ATVs which are not moving forward at all.

To the contrary, in an investigation requested by and submitted to the Victorian State Coroner, Dynamic Research found that a full restraint type ROPS (as advocated by MUARC, as noted above) was harmful at low speeds as well, because the rare injuries that occur at such speeds were worsened by the ROPS.

Moreover, the available evidence shows that most deaths associated with the use of ATVs occur in incidents where the vehicle was in fact travelling at a speed that was in excess of 30 kph¹¹. Those data show that of the 26 cases where there was available information on speed, no more than 7 – and possibly fewer - occurred when the ATV was travelling at less than 30 kph.

Accordingly, the likely consequence of fitment of a Quad-Bar for ATV riders who are involved in accidents occurring in a variety of conditions is, in many cases, to increase - rather than decrease - the potential for injury or death.

The FCAI and Distributors are deeply concerned that QB Industries’ promotion of its device is likely to mislead farmers and other ATV users and potential users into believing that the device has benefits which “effectively protect” ATV riders from risk of injury or death, and which therefore make them appropriate to be fitted to baseline ATVs, when that is not in fact the case.

¹¹ Data on page 6 of the “Background Paper” (by Lyn Fragar, Emily Herde and Kirrily Pollock) presented at the August 2009 Farmsafe Australia meeting.