Australian Government
Department of Transport and Regional Services

Regulation Impact Statement

ADR 62
Mechanical Connections between Vehicles

November 2006

A draft statement inviting discussion and comment from parties affected by the additional requirements

This Regulation Impact Statement deals with requirements to be introduced for mechanical connections between vehicles.

Issued by: Standards and International section of the Vehicle Safety Branch within the Department of Transport and Regional Services.

TABLE OF CONTENTS

1. THE PROBLEM

1.1 Background

The Australian Government has undertaken to review the ADRs to make sure they are relevant, cost effective and do not provide a barrier to the importation of safe vehicles and components. These objectives are shared by the New Zealand Government, which has been reviewing its vehicle safety standards. The Review is being carried out by the Department of Transport and Regional Services together with the National Transport Commission (NTC) and the New Zealand Land Transport Safety Authority (NZLTSA).

It takes account of the provisions of the Trans-Tasman Mutual Recognition Arrangement (TTMRA) Annex 4 - Road Vehicles. While the main object of the TTMRA is that goods sold in Australia could be sold in New Zealand and vice versa, it was acknowledged that there would be difficulties with Trans-Tasman trade in road vehicles, given the different regulatory regimes of the two countries. Road vehicles were therefore granted a special exemption from the immediate application of the TTMRA until the regulatory systems could be aligned. In Annex 4 of TTMRA, the Parties undertook to embark on a cooperation programme aimed, where appropriate, at harmonising Australian and New Zealand standards with *United Nations - Economic Commission for Europe* (UNECE) Regulations or those national or regional standards that are agreed by the Parties. The Parties also agreed to seek to develop consistent conformance assessment and certification requirements in both countries. The UNECE is regarded as the international standards setting body, meeting the provisions of the World Trade Organisation (WTO) Agreement on Technical Barriers to Trade, as standards development in the UNECE is open to participation by the international community

However it became evident that there would be negative impacts from following a rigid program of standards alignment as required in Annex 4 and the Australian Productivity Commission was called upon to carry out a review. The Commission issued its report in 2003 “Evaluation of the Mutual Recognition Schemes” and the findings have been considered and reported in the Cross Jurisdictional Review (CJR) Forum. The Commission’s report advanced the view that “… if New Zealand mirrored the current Australian approach to motor vehicle regulation, it would adversely affect New Zealand exporters and consumers.” and “One way to apply the TTMRA to road vehicles would be for Australia to adopt the New Zealand approach of recognising motor vehicle standards from several major road vehicle producing countries. However, given the initial cost of adopting this approach and the likelihood of widespread adoption of UNECE standards internationally, this would not be in Australia’s interests”.

New Zealand and Australia’s accession to the 1958 Agreement is consistent with commitments by Asia Pacific Economic Cooperation (APEC) region economies to facilitate trade in automotive product by harmonisation of road vehicle regulations through the multilateral UN/ECE arrangements. Accordingly, the regional perspective of the TTMRA has been overtaken by APEC-wide developments. There is little to be gained at this juncture in pursuing a programme of bilateral coordination, and bilateral

convergence will be a function of the pace at which Australia moves to harmonise its ADRs with UNECE regulations.

Since 1998, motor vehicles and trailers have been required to comply with Australian Design Rule 62/01: "Mechanical Connections between Vehicles", contained in the 3rd Edition Australian Design Rules (ADRs). The ADRs are national standards under the Motor Vehicle Standards Act 1989 and are administered by the Department of Transport and Regional Services.

1.2 Contribution of ADR 62 to Road Safety

ADR 62 regulates the construction and fitment of couplings to new vehicles, including minimum strength, testing and dimensional standards for couplings in particular applications. It thereby influences the range of mechanical couplings that are available for use in Australia.

Mechanical couplings are components that are intended for mechanical interconnections between a motor vehicle and a trailer or between trailers so as to transmit pulling and retarding forces from one vehicle part to another. In the usual case the couplings have two compatible mechanical parts that are installed onto the mating vehicle parts and they can be coupled and uncoupled by simple actions. It is common for the mating coupling parts to be made by different manufacturers. There are a small minority of applications where coupling parts are ‘dedicated’ to one another and can only be disconnected using tools.

Permanent markings are placed on particular couplings, which state critical specifications such as certified test loads.

1.3 The Extent of the Problem

When trailers are towed behind motor vehicles, the mechanical connection is the sole means of transmitting acceleration, retardation and lateral stabilising forces from one vehicle to the other.

The consequences of failure are usually catastrophic; complete separation renders the trailer uncontrollable and free to wander, possibly into the path of another vehicle or off the road and liable to collision with objects and people in the vicinity of the road. Partial separation is no less catastrophic because there is the added consequence that once the trailer is no longer properly attached, the combination becomes unstable, possibly leading to the loss of both the trailer and the towing vehicle.

ADR 62 was originally drafted to counter the above problem, but certain deficiencies have been acknowledged in its content. These are discussed later in this document.

1.4 Why is Government Action Needed

The Government provides consumer protection for new vehicle consumers on two fronts, through the Trade Practices Act 1974 and through the Motor Vehicle Standards Act 1989.

The Trade Practices Act (TPA) provides consumer protection and quality of supply of product. The areas addressed by the TPA include product safety, product

information, conditions and warranties in consumer transactions, liability of and actions against manufacturers and importers for defective goods and prescription of industry codes of practice. Section 65C of the Act requires goods to meet prescribed consumer product safety standards. Part IVB of the TPA can prescribe self-regulated or quasi-regulated industry codes into black letter law which applies the remedies contained in the TPA to those who contravene codes, mandatory or voluntary. It is important to note that the TPA applies across all sectors of the economy and is not industry specific.

The Motor Vehicle Standards Act 1989 is an industry specific regulation and provides mandatory vehicle safety standards which suppliers of new vehicles are required to comply with. The mandatory standards are known as the Australian Design Rules (ADRs). The Motor Vehicle Standards Act through the ADRs specify mandatory product safety standards which is given more force in law for overall consumer protection through the Trade Practices Act 1974. It is important to note that consumer's benefit from the functions of the two Acts, the MVSA providing a preventative effect, while the TPA providing both compensatory and preventative effects. The compensatory effect comes through its comprehensive coverage in most areas of consumer protection and the preventative effect through the prescriptions of codes by legislative means.

Besides the two Acts, market mechanisms as demonstrated by consumers willingness to pay for vehicle safety and vehicle makers responsiveness to consumers' willingness to pay, may have some influence in gradually moving market forces towards a social optimum. Assistance to reach a social optimum is provided by design rules, information programs provided by government sponsored and non-government organisations and the provisions of the TPA. All these methods are deemed desirable as they help improve the allocation efficiency of markets for automotive safety.

ADR 62/01 specifies standards for the design of mechanical coupling elements so that vehicles can be safely and reliably connected to each other, such that they will not become detached while operating in combination. The aim of ADR 62/01 is to minimise the risk of failure of couplings and of miss matching of couplings.

The conditions under which the market could produce a socially optimal level of product safety is when individuals have perfect information about the risk of personal injuries (ie. with and without safety equipment) and there are no externalities. Individuals would have to balance the marginal benefits of safety devices against the marginal cost of purchasing and utilising them. This behaviour will lead to a global outcome in which total injury and injury avoidance costs are minimised for society as whole.

Determining the benefits and costs of using safety devices like mechanical couplings is generally a complex task, where the relevant risk for any individual will not be clear because the characteristics determining functional safety are not obvious. Hence individuals will likely encounter serious difficulties in making a well-informed decision about the value of mechanical couplings. There are two aspects to assessing the functionality of mechanical couplings, namely strength and dimensional compatibility. If either of these were compromised, catastrophic failure and separation of trailers from towing vehicles could occur, possibly leading to fatalities or serious injuries.

In the case of strength of coupling devices, it is highly unlikely that individuals will be equipped to assess this aspect without access to complex test facilities. On the matter of dimensional compatibility, there is possibly greater scope for danger because what may appear to be compatible coupling elements could later prove to be otherwise. This comes about because coupling elements of similar form but differing sizes may appear to fit together and withstand modest separation forces but could separate when subjected to typical in-service loads.

Another basic source of market failure is the presence of market externalities. Auto accidents that result in injuries or deaths because of the failure of individuals to use safety equipment impose costs on other parties in society. In an unregulated market system, all these factors mainly 'information problems' and externality effects result in the sub optimal safety outcomes for the community.

Therefore the need for government intervention in the market for delivery of safer vehicles to consumers arises as a result of potential market failure from:

- Imperfect Information and manufacturer myopia, and
- Externalities

Imperfect Information and Manufacturer Myopia:

Individual consumers of automotive products would be able to effectively exercise their safety preferences if they were in a position to accurately assess the safety level offered by different products. The typical consumer does not possess the engineering knowledge or information to make a comparative evaluation of principal safety devices in vehicles.

The issue of manufacturer myopia is important in regard to manufacturers who in the absence of standards or regulations could react to market pressures to the general detriment of society. In a market based regulatory environment, it is likely that manufacturers may project an image that their products are safe and the consumer may be unable to test the veracity of such claims.

Externalities:

The following negative externalities may be enhanced in a market based non-regulatory environment:

- Road trauma costs are borne by the community and not by the manufacturer. In a highly regulated environment, road trauma costs the Australian community $15.0 billion annually in terms of health care.
- Costs in terms of losses in utility to family and friends. Losses in productivity to other workers in team oriented job tasks and also from the necessity of hiring and training temporary or permanent replacements.
- Other costs include property damage and inconvenience to the community which have not been measured,
- The medical treatment of injuries and disability also draws scarce medical resources from other uses, and a significant part of the cost of these treatments falls on the public through increased taxes,

- Medical insurance programs can also introduce distortions because individuals do not have to bear the full costs of restoring their health and well-being after accidents occur.

Negative externalities are also likely to emerge when consumers make poor decisions in relation to vehicle safety. In the absence of government based regulation, products with less than the minimum level of safety requirements may become available to consumers. Such a situation could arise due to a demand by risk takers for very low cost products. Although it is perfectly rational for consumers to maximise their private benefits through such a trade off, the social costs of such a transaction are likely to result in a net cost rather than benefits to the community.

In summary, the principal reasons why market forces may not be successful in allocating safe mechanical couplings to consumers, that offer adequate protection against separation of coupled vehicles while in motion, are:

- Insufficient/inadequate information available to the consumer,
- Lack of consumer expertise to make decisions on adequate safety of mechanical coupling products,
- Information asymmetries arising from buyer-seller relationship, and
- Negative externalities emitted on community welfare objectives.

2 OBJECTIVES

2.1 General and Specific Objectives

The general and specific objectives of Commonwealth action are to establish the most appropriate measure(s) for delivering safer vehicles to the Australian community. These include:

General Objectives:

- reduce road trauma arising from any potential failure of the market to provide safer vehicles;
- ensure that community, social, economic, environmental, health and safety requirements are not compromised;
- determine what form of action is required, either government intervention or the use of market based instruments,

Specific Objectives:

- ensure that consumers have access to a range of safe mechanical coupling elements for attaching motor vehicles and trailers and to provide technical specifications for their installation on vehicles;

This particular Regulation Impact Statement examines the present Commonwealth Regulation as well as all other measures including market based alternatives. In essence the RIS assesses the relative costs and benefits of the present regulation, proposed regulations and non-regulatory alternatives.

2.1 Present Government Regulation

ADR 62/00 was developed in the early 1990's and was subsequently revised as ADR 62/01 after a major review. Both rules involved detailed input from technical experts drawn from interested parties who were co-opted into a formal 'expert working group' which was chaired by the Federal Office of Road Safety.

ADR 62 has requirements that are greatly influenced by those of the relevant ISO and Australian Standards. There is a general compatibility between requirements in the corresponding Australian and ISO standards for particular coupling types. However some minor differences exist. A brief review of the relevant national and international standards for mechanical couplings is in Attachment A – Part 1.

The key features of ADR 62/01 are:

1. Standard coupling types are recognised for which national or international standards exist which are:

- 50mm diameter pin fifth wheel couplings

  (ADR 62/01 Sections 6 and 7);
- 90mm diameter pin fifth wheel couplings

  (ADR 62/01 Sections 6 and 7);
- 50mm automatic pin couplings (ADR 62/01 Section 8);
- 40mm automatic pin couplings (ADR 62/01 Section 8);

- 50mm diameter towball couplings (ADR 62/01 Section 9);
- 76mm toroidal-eye hook couplings (ADR 62/01 Section 10).

2. An approval path is provided for non-standard coupling types. This path is called here the 'Section 12 path' (Section 12 of the rule is titled 'COUPLINGS OTHER THAN THE ABOVE'). The Section 12 path is not available for couplings that are of similar dimensions to standard couplings as there is a perceived risk that unreliable interconnections could occur.
3. Towbar, drawbar and safety chain requirements exist (Sections 12, 14 and 15) for which no national or international standard was deemed to be adequate.
4. A generic test procedure to determine whether a non-standard coupling can be rated to a given strength value is stated. In summary this requires that the coupling will not fail when it is subjected to 2 million cycles of a vibrating force equal to 60% of the claimed strength rating. For some coupling types both a horizontal and a vertical force is to be applied asynchronously. (ADR 62/01, Clause 12.3.3.1).

While reviewing the ADR, a number of issues were identified for discussion. These are detailed in Attachment A – Part 2.

While the ADRs apply to new vehicles, which must comply before they can be supplied to the market, once put into use the vehicles must comply with the in-service regulations administered by the states and territories. The general principle applied by the states and territories is that vehicles produced in compliance with ADRs applicable at the time of manufacture must continue to comply with those ADRs. In 1999, the NTC published the Australian Vehicle Standards Rules (AVSRs) with the aim of providing a set of national uniform in-service vehicle rules and all jurisdictions agreed to implement the AVSRs.

The AVSRs have preserved the general principle of continuing compliance with the ADRs but also make particular provisions in areas not covered by the ADRs. There are also particular provisions relating to some areas that are covered by ADRs, in recognition that as vehicles age, continued compliance with the ADRs is not practicable. Some areas where departure from the general principle is allowed is to accommodate established practices such as window tinting and alternative tyre selection. In case of mechanical couplings, the AVSRs require continued compliance with ADR 62/01.

3 OPTIONS

3.1 REGULATORY OPTIONS

The five most relevant options for future legislation are:

- Option 1: Retain the existing ADR as it is,
- Option 2: Retain the existing ADR, with amendments and allow UNECE R 55/01 as an alternative standard,
- Option 3: Retain the ADR but include a range of other national standards in addition to the UNECE R 55/01,
- Option 4: Adopt a mandatory industry code of practice under the Trade Practices Act.1974.

Option 1 Retain the existing ADR

This Option represents maintenance of the existing ADR. This has been in force under various arrangements for approximately fifteen years and so is part of a mature system.

Retaining the existing ADR would cause difficulties because it is not consistent with Australia's obligations under the GATT agreement. Although it is mostly consistent with ISO standards and the UNECE Regulation, it stops short of accepting the UNECE Regulation as an alternative standard.

Also, certain deficiencies are acknowledged, which need to be addressed to retain its currency and effectiveness. These are:

- The obsolescence of referenced standards.
- The common use of 75 mm fifth wheels and kingpins, light duty fifth wheels and 127 mm towballs, which are not covered by the requirements.
- The development of international standards which could be considered as equivalent.

These deficiencies are further detailed in Attachment A Part 2.

For these reasons and despite the highlighted disadvantages, this option is considered feasible and will be analysed further.

Option 2 Retain the existing ADR, with amendments and allow UNECE R 55/01 as an alternative standard

This option is worthy of further consideration, as it would satisfy international harmonisation objectives and provide a cost-effective means of regulating mechanical couplings while allowing sufficient flexibility.

In allowing amendments and the adoption of international standards, this option could be used to resolve the issues raised in Option 1 above. This is discussed further in Section 4 Impact Analysis.

For these reasons, this option is considered feasible and will be analysed further.

Option 3 Retain the ADR but include a range of other national standards in addition to the UNECE R 55/01

While allowing the standards applying in the United States of America and Japan may seem like viable alternatives, closer examination proves otherwise. The allowance of alternative standards is only of real benefit where compliance with those standards can be easily verified by the issue of authoritative certificates of compliance or the standards are materially different and vehicles would need to be modified to comply with the chosen standard. In the case of mechanical coupling elements, neither of these conditions applies.

In the USA, mechanical coupling operational requirements are in CFM Rule 393 Subpart F. These are requirements applied to operators of motor vehicles and concern the strength of attachment and placement requirements. There appear to be no requirements placed on vehicle or mechanical coupling manufacturers in the United States of America through the Federal Motor Vehicle Safety Standards (FMVSS) with respect to coupling requirements and manufacturers are not obliged to certify couplings. This approach is consistent with the US government's principle of not getting involved in pre-market approval of vehicles or components.

Japan is a contracting party to the UN ECE (as is Australia) and if it decides to adopt UNECE R 55/01, any approvals issued by Japan against this regulation will be accepted in Australia without the need for additional approval activities. Presently the Japanese domestic standard applies to vehicles destined for domestic and export markets.

The Japanese government does not issue certificates of approval for vehicles built for export markets and it will be up to the Australian vehicle safety regulator to confirm compliance with a standard.

Maintenance of alternative standards is another issue that seriously erodes the regulator's efficiency to mange the administrative functions as a result of the need to continuously examine ADR amendment proposals to maintain the currency of the ADRs in relation to the alternative standards. The process for amending an ADR to allow compliance with an amended alternative standard typically involves assessment of the technical differences and preparation of a proposal for consideration by the advisory group[1] responsible for ADR development. Following this stage, depending on the nature of the change, the proposal may need to be submitted to the Chief Executives of the State/Territory Departments of Transport for their consideration. If they agree with the proposal, the amendment needs to be approved by the Australian Transport Council (ATC) and finally the amendment needs to be determined by the

[1] known as the Technical Liaison Group and comprises of suppliers associations (Federal Chamber of Automotive Industries and others), state and territory governments, National Road Transport Commission and consumer associations (Australian Automobile Association and others)

Parliamentary Secretary to the Minister for Transport and Regional Services under section 7 of the Motor Vehicle Standards Act 1989.

The above process could take up to 3 months if all goes well. However, priorities of the day may not allow immediate processing of requests so the actual time taken could be up to 6 months. In the mean time, manufacturers would not be able to progress compliance of components and vehicles certified to the amended alternative standard. The total cost of this activity is difficult to determine as it involves people from many different organisations.

For these reasons and despite the highlighted disadvantages, this option is considered feasible and will be analysed further.

Option 4 Adopt a mandatory industry code of practice under the Trade Practices Act.1974

The option of a mandatory industry code of practice is discussed under Option 6, within the non-regulatory option section. Option 6 looks at codes of practice generally.

3.2 NON-REGULATORY OPTIONS

Two non-regulatory options are most obvious, namely:

- Option 5: Delete the ADR and leave it to the market place, and
- Option 6: Adopt a Voluntary Code of Practice.

Non-regulatory options form an important part of the compensatory arrangements for consumer protection in addition to the preventative part provided by a design rule. Options 5 and 6 fall into the category of non-regulatory options.

Option 5 Delete the ADR and leave it to the market place

Manufacturers delivering unsafe products into markets in the absence of mandatory standards would suffer a loss of sales and reputation if the market has well-developed market information systems to advise consumers if particular products were unsafe. Such information systems may be operated by competing manufacturers, motoring associations and insurance companies who would have an incentive to draw this information to the attention of consumers. The information asymmetries arising from manufacturer and consumer organisations providing information are discussed below and under Option 6.

ADR 62 is a vital part of the mechanical connection system for a motor vehicles and trailers that is acceptable to the market and meets consumer expectations. The absence of ADR 62 could result in loss of assurance for consumers that mechanical coupling elements supplied to the market provide an appropriate and adequate level of vehicle safety.

A significant number of manufacturers operate in the aftermarket and the absence of a mandatory standard could lead to the supply of couplings of inadequate strength and poor dimensional standards. The spill over costs of non-intervention by the

government in the market could potentially be an increase in road trauma, property damage and community anxiety from a less safe road environment.

The following points are worth noting in relation to the *Trade Practices Act 1974 (TPA)*:

- Recourse under Section 65F – Compulsory product recall and Part VA – Liability of manufacturers and importers for defective goods of the Trade Practices Act has a compensatory effect for consumer protection. The ADR or mandatory or voluntary code prescribed under the TPA has a preventative effect as it prevents a supplier from placing unsafe vehicles on the market. Given the high-risk nature of road travel and the community costs when fatalities or injuries occur, it may not be appropriate to rely solely on a compensatory measure but rather to have a preventative measure such as an ADR or code prescribed under the TPA.

- Part VA of the Trade Practices Act provides a well-defined right for consumers to sue for damages, which places pressure on vehicle manufacturers to avoid large compensation payouts by making their vehicles safer.

- Part IV B – Industry Codes of the Trade Practices Act allows for the development of mandatory and voluntary industry codes. Under section 51AE of the TPA, regulations may prescribe an industry code or specified provisions of the code and the industry code may be declared mandatory or voluntary. Prescriptions will apply to those who contravene such codes. These remedies include: injunctions, damages, orders for corrective advertising and refusing enforcement of contractual terms. Further discussion is provided in section 3.2.3.

- The use of codes prescribed under the TPA is an effective means of regulation in areas where government agencies do not have the expertise or resources to monitor compliance. In case of regulating the design and construction of motor vehicles, the responsible government agency has the expertise and resources to administer a cost effective compliance regime and a mandatory code of practice is unnecessary. The report of the Commonwealth Interdepartmental Committee on Quasi Regulation titled ‘Grey-Letter Law” recommended the use of prescribed codes if there are significant deficiencies in any existing regulatory regime which cannot be remedied.

In considering full reliance on the consumer protection provisions of the TPA and non government information programs without the use of legally binding preventative provisions of the MVSA or TPA are likely to result in the following issues arise:

- It is unlikely that consumers will be able to assess the suitability of mechanical connection elements by casual inspection. The only way to assess system performance is by a full-scale test of a representative system to be marketed.
- Lack of a definitive regulation could still result in costs to manufacturers as responsible sections of the industry would still incur the overall cost of design, development, styling and testing whether or not there was a regulation. In the absence of regulation in such a technically complex area market pressures may cause a shift in focus away from safety,

- In the absence of regulation, states may introduce their own standards, potentially leading to lack of uniformity and undue jurisdictional requirements for consumer standards. This could result in additional testing and assurance procedures and hence additional costs to industry and eventually the consumer.

While allocation of safer vehicles could be achieved by market forces acting together with information programs, and the compensatory provisions of the TPA, of paramount importance is the need to prevent unsafe products from entering the market. This can be achieved most efficiently by the use of regulatory options such as the use of an ADR, or prescribed codes under the TPA.

Relying on market forces alone may be a viable option if the public was properly informed of the relevant issues. Public education campaigns are effective when the information disseminated is simple to comprehend and unambiguous. In this case, if public information campaigns based purely on the ADR requirements were freely available, a bystander would be unable to comprehend the technical content, and make decisions about the safety aspects of a specific products. In such situations, consumers leave the decision either to the manufacturer if they trust the manufacturer or to a government nominated regulatory authority (if the requirement is regulated). The information asymmetry and principal-agent relationships (manufacturer-consumer) arising from the situation just described would indicate that consumers would be better off by leaving the 'safety' decision to the regulatory authority.

A summary of observations in relation to the issue of public education campaigns are:

- The issue is highly technical and not conducive to simple explanation in a way that will equip the public with the means to make informed choice,
- In the absence of a definitive regulation, in time there could be a number of different standards resulting in confusion,

The secondary market for automotive consumer information exists in the form of vehicle magazines, vehicle road tests featured on television networks and publicity material prepared by motoring associations.

For consumer information programs to substitute the ADRs as a market based instrument to allocate safer vehicles to consumers, existing information suppliers need to be able to obtain information from manufacturers identical to that collected by the regulator to provide consumers with meaningful comparisons. Such a situation is hardly likely to emerge in the near future as most information collected by the regulator is 'information in confidence'

One possibility is for organisations with a vested interest, such as insurance companies, to conduct their own testing and publish the results. This is currently taking place in relation to occupant protection of passenger vehicles where a consortium of insurance companies and State regulators crash test new vehicles and publish the results, hoping to encourage consumers to consider safety as a high priority in their purchasing decisions. However, this program is run as an adjunct to existing mandatory regulations on occupant protection and the proponents of this program would be at the forefront of protesters, were there any suggestion of withdrawing the mandatory regulations and relying solely on their program. It is unlikely that such as program would be extended to address details such as mechanical connection elements as there is not the same public interest.

For these reasons and despite the highlighted disadvantages, this option is considered feasible and will be analysed further.

Option 6 Adopt a Voluntary Code of Practice

Another alternative to direct government intervention for delivering safety outcomes is via a Code of Practice. These can be either mandatory or voluntary as provided for under the Trade Practices Act. As noted previously, this section looks at both mandatory and voluntary options, and so is applicable to Option 4 as well.

Of course a mandatory code of practice is hardly a non-regulatory option because participation and compliance are mandatory and the TPA provides for prescriptions and remedies including injunctions, damages and orders for corrective advertising for those who contravene such codes. Mandatory codes can be enforced under the TPA against all businesses in the automotive sector regardless of whether they are signatories to the code. A mandatory code is an effective means of regulating in areas where government agencies do not have the expertise or resources to monitor compliance. A feature of such prescribed codes is that they retain a high degree of industry involvement while providing the enforceability and coverage that can be ensured only through legislative means. However, breaches can only be revealed by failures in the field or by third party reporting and any savings through avoiding government intervention need to be balanced against the consequences of failures.

In the case of regulating design and construction of road vehicle components, the responsible government agency has the expertise and the resources to administer a cost effective compliance regime and a mandatory code of practice is not appropriate. The arrangements for administering the compliance regime have recently been reviewed and endorsed as part of the review[2] of the *Motor Vehicle Standards Act 1989 (MVSA)*. Among the options examined was that in place in the United States of America (USA) which involves the regulator purchasing vehicles in the open market and conducting its own testing program. The task force noted that:

- This activity involves high costs. In the U.S.A. for example a budget of approximately USD 25.0 million is provided, and
- In the event that vehicles are found not to comply with mandatory standards, action is taken by the regulatory authorities either in courts or through mandatory recall. Resolution in the courts can be a lengthy process during which potentially unsafe vehicles can remain in the market.

With voluntary codes of practice, given that there is no compulsion to participate or comply with the nominated standards, there needs to be some incentive to encourage operators to take part. A voluntary code would only apply to those agents who are willing to be bound by it. Industry associations could assume a supervisory role and persuade their members that participation and compliance is preferable to the more

[2] Review of Motor Vehicle Standards Act 1989, Department of Transport and Regional Services, August 1999. The review analysed the use of self regulation and self-certification as alternatives to the current system and concluded that the costs of the new proposals outweighed the benefits.

onerous alternative of direct government intervention, both in relation to setting mandatory standards and enforcing them.

Also, the associations would be in a position to negotiate special status for their members in recognition of their voluntary compliance with the code. This could include access to schemes to maximise productivity gains such as in the case of driving hours regulation, where bus operators complying with the code for sleeper berths can operate on longer routes and share the driving between two drivers.

The same arguments that rule against adopting mandatory codes for regulating vehicle safety apply in the case of voluntary codes of practice. Despite the inappropriateness of codes of practice as a form for enforcement of standards, the possibilities of using a code of practice are explored further in the discussions below.

The motor vehicle industry delivers new vehicles and used vehicles to automotive consumers. New vehicles are delivered from domestic production as well as from foreign production carried out in overseas plants. Imported used vehicles are mainly sourced from Japan. There are two industry associations, which represent a large collection of economic agents in the new vehicle manufacturing industry; the Federation of Automotive Product Manufacturers (FAPM) and the grouping of the Truck Industry Council (TIC) and the Federal Chamber of Automotive Industries (FCAI). Membership coverage by FAPM would approximate 40% while that of the FCAI and TIC would be around 99%[3], which also includes importers.

For a voluntary code of practice to succeed, the relationship between business, government and consumer representatives should be collaborative so that all parties have ownership of, and commitment to, the arrangements (Grey Letter Law, 1997)[4]. In considering a code of practice, it is useful to note the following conditions, which exist in the automotive industry. These include:

- Universal application of standards is relatively difficult as numerous sectors exist and which in turn are represented by their own industry associations,
- It is not clear whether the industry associations can apply effective sanctions,
- Effective operation of a voluntary code of practice would require an enforcement system identical or similar to the one currently operated by the government regulator. This requires the members of the associations to provide evidence to their associations as currently required for obtaining an approval. It is quite difficult to envisage an environment where profit maximising economic agents would share leading or even trailing edge information with their industry associations to enable the system to deliver certainty to consumers and governments.

[3] Membership base of the FCAI includes vehicle manufacturers and the FAPM. It does not include sectors such as tyre manufacturing, vehicle distribution, transport logistics and after market supplies. TIC represents truck manufacturers and importers.

[4] Grey Letter Law, Report to the Commonwealth Interdepartmental Committee on Quasi Regulation, 1997

An example of a code of practice applying in the automotive industry is the FCAI's Code of Practice for Electromagnetic Compatibility (EMC). This code of practice applies exclusively to FCAI members and while compliance with the nominated standards is mandatory, as prescribed by the Australian Communications Authority (ACA) for electromagnetic emissions from electronic devices under the Radio Communications Act, the Authority relies on the FCAI to ensure that its members comply. In this case it is understandable that the ACA has opted for a code, given the vast scope of its sphere of responsibility, as it covers all electronic equipment producers and the costs of direct Government supervision over all sectors would have been prohibitive.

Although it is called a Voluntary Code of Practice, there is no option but to comply with the nominated mandatory standards and while the ACA is willing to rely on the FCAI to enforce compliance by its members, the full weight of the law would come down on those who fail to comply. Therefore it would appear that this code fits in with the concept of a mandatory code of practice.

Since the issue of providing safe mechanical coupling components is high risk-high impact in nature, there does not appear to be any scope for adopting a voluntary code of practice. In relation to a mandatory code of practice, the standards setting component is no different to what is being examined in this RIS, while the enforcement component is beyond the scope of this RIS, having been previously determined under the review of the Motor Vehicle Standards Act 1989. The presence of mandatory standards is one of the main reasons why codes of practice do not operate and there would be great incentive for their development in the absence of standards.

For these reasons, this option (including Option 4) is not considered feasible and will not be analysed further.

4 IMPACT ANALYSIS

4.1 Availability of Information

As noted previously, ADR 62 has been in force under various arrangements for approximately fifteen years and so is part of a mature system. This presents some difficulties with producing quantitative economic data in support of alternative options as there is no possibility of comparing the pre and post regulatory environments. As such only a qualitative analysis can be carried out. Given this limitation, the type of benefits from maintaining the existing regulations have already been identified in Section 1.3 above (in terms of the extent of the problem that the ADR attempts to mitigate). In the broadest sense, this relates to the reduction of costs due to road crashes from inferior design and performance features of mechanical connections between vehicles.

A search among authorities who gather statistics and enquiry in the industry failed to find any statistics that expressly describe the supply of mechanical couplings.

For large vehicles, most couplings are imported. There are about 3000 prime movers registered annually, and the cost of couplings for those would be in the order of $6m.

Small couplings are mostly made in Australia, by small firms. There are no statistics available on which to assess the volume of smaller couplings sold, or the annual value of sales. However, the range of couplings that are offered for sale could increase because the draft ADR 62 provides an approval path for ‘light-duty’ fifth wheels (which have ratings less than 100 kN).

To resolve the uncertainty would be a major research task that is beyond the scope of this RIS. Consequently, most of the information used in the evaluation was obtained from consultation with industry.

4.2 Identification of Affected Parties

The parties affected by ADR 62 are:

Groups affected by the problem

Consumers

- Operators of vehicles.
- The wider community who bear the cost of road trauma.

Groups affected by the options

Business

- Vehicle manufacturers, vehicle importers, manufacturers and importers of vehicle mechanical connections.
- Parties providing services for the design and testing of mechanical connections.
- Parties providing vehicle and mechanical connection certification and compliance services to vehicle manufacturers and importers.

Government

- State and territory transport agencies performing a review or oversight function.
- State and territory law enforcement authorities who have a monitoring function.
- Road safety research institutions.

The affected parties are represented by several interest groups and these include:

- The Federal Chamber of Automotive Industries (FCAI) which is an all encompassing interest group represents the interests of passenger vehicle manufacturers, vehicle importers and component manufacturers/importers.
- The Truck Industry Council (TIC) which represents heavy commercial vehicle manufacturers/importers.
- The Commercial Vehicle Industry Association of Australia (CVIAA), which also represents commercial vehicle manufacturers.
- The Federation of Automotive Products Manufacturers (FAPM), which represents component manufacturers specifically. The FAPM is itself a member of the FCAI.
- The Australian Road Transport Suppliers Association (ARTSA) which represents trailer and component manufacturers.
- The Australian Automobile Association (AAA), a peak motoring organisation is considered representative of vehicle owners and vehicle occupants (passenger cars and derivatives).
- The Australian Trucking Association (ATA), which represents the owners and operators of commercial vehicles.
- The Australian Automobile Aftermarket Association (AAAA) which represent economic agents operating largely in the after market.

4.3 Effect of Existing Regulations

This regulation forms part of a set of regulations designed to enhance road safety and needs to be viewed in terms of a diversification of risk that the complete package brings about in the 'global' safety portfolio. While it is expected that there would be some degree of interdependence between the different regulations, this is difficult to quantify. One way to examine this relationship is in relation to the recently introduced passenger car crash standards. These can only address impacts with vehicles of similar mass and dimensional characteristics and to some extent, collisions with stationary objects that form part of the road environment. On the other hand, collisions between passenger cars and runaway trailers would be well outside the scope of the protection inherent in these crash standards, both in terms of mass and dimensional considerations. One of the effects of a lack of a regulation for mechanical couplings could be that the benefits of passenger vehicle crash standards may not be fully realised

The net result of retaining ADR 62 therefore is to diversify the risk and produce a lower risk than would be possible if the regulations had an individual additive effect.

4.4 Benefits and Costs for Options

Attributing the proportion of road trauma, and therefore the benefit of the existing regulations, is difficult. The benefits and costs of each remaining option have been discussed mostly in descriptive terms, relative to retaining the existing ADR (Option 1). The trends were then given a relative ranking.

During the public comment phase, no further information was provided towards quantifying the benefits or costs.

Option 1 Retain the existing ADR

Costs

None, Option 1 does not alter the cost of compliance or the cost of road trauma.

Incremental Benefits

None, Option 1 does not alter the cost of compliance or the cost of road trauma.

Option 2 Retain the existing ADR, with amendments and allow UNECE R 55/01 as an alternative standard

Costs

Option 2 does not increase the cost of compliance as it is simply providing an optional path of certification. The optional path would lower the costs significantly as couplings would not have to be retested to be supplied to the Australian market. Using this optional path would also facilitate exporting product from Australia.

Figures supplied by local testing facilities indicate that the regulation costs per vehicle model are of the order of $10,000 for a car model, $20,000 for a truck model and $18,000 for a heavy trailer model. These figures are based on the total cost, so the costs per vehicle are lower.

It costs about $25,000 towards laboratory costs to test a coupling in Australia. If ancillary costs are included it is estimated that the testing and certification cost for one coupling type is about $50,000. By allowing ECE recognised couplings into Australia there is likely to be a reduction in the number of tests that need be conducted in Australia.

As taken from a February 2006 Communiqué from the Council of Australian Government's meeting, estimation tools such as the costing model provided by the Commonwealth Office of Small Business are now available to assist with estimating costs. However, the estimates were originally provided directly by industry and were accepted through the public comment stage. Therefore, the tools were only used to note that categories of Education (training with the requirements of new standards), Purchase (purchase of test equipment and hire/purchase of test facilities), Record Keeping (test data recording and compiling), Procedural (test procedures) and Publications (purchase/obtaining of new standards) would all be factors included in the above estimates.

Given access to imports, the truck and trailer manufacturing sectors will be able to use off-the-shelf complying couplings and therefore compliance expenditure need not be incurred for every coupling type or vehicle model.

Hence the per-vehicle costs are higher for large vehicles than small ones, because the volumes are lower by perhaps two orders of magnitude.

Incremental Benefits

Generally, none as Option 2 does not alter the cost of road trauma. The dimensional requirements of UNECE R55/01 are similar to the existing ADR and so there would not be any compatibility issues within the fleet.

However, as noted previously, any amendment to the ADR would also give the opportunity to correct acknowledged deficiencies within the existing requirements. The amendments would consist of:

- The updating of obsolete referenced standards. This would benefit Business, Government and the Consumer in allowing the use of the latest standards. It would increase the benefits and reduce the costs.
- The recognition of the use of 75 mm fifth wheels and kingpins, light duty fifth wheels and 127 mm towballs, which are not otherwise covered by the requirements. This would benefit Business and the Consumer in allowing certification of these commonly used couplings as standard couplings. It would reduce the costs of administering these as non-standard couplings and in the case of the light duty fifth wheels, increase the benefits from application of the appropriate requirements.
- The allowance of couplings that meet international standards, which could be considered as equivalent. This would benefit Business and the Consumer in allowing certification of these available couplings. It would reduce the costs of recertifying these as non-standard couplings, or of having to source alternative standard couplings.

Option 3 Retain the ADR but include a range of other national standards in addition to the UNECE R 55/01

Costs

Option 3 does not alter the cost of the basic testing cost of couplings, as many couplings would be accepted in Australia without modification. However, significant increases in time and costs would be incurred by business (manufacturers and testing agencies) and government in terms of the added complexity of developing and maintaining a suite of national and international standards, as well as certifying to those standards.

To expand on this further, as Australia would have no input in to the development of other countries' national standards, it could find itself in the position of having to choose between accepting unsuitable updated requirements or rejecting the entire standard. All of this would create uncertainty for business and an increased administrative burden.

It is an indication of the inefficiency of such a system that many of the major vehicle producing countries, such as in the European Union but also Japan, have signed up or are considering signing up to the internationally based United Nations regulatory system.

There is a related issue to managing a certification system that relies on other countries' national standards. There may be an expectation by business that approvals issued by other countries to the standards would be acceptable on face value as proof of compliance to the Australian requirements. A current example of this is certificates of compliance issued by European Union (EU) countries against European Economic Community (EEC) directives. Although the technical requirements of some directives are identical to corresponding United Nations Economic Commission for Europe (UNECE) regulations, Australia has no access to the testing and approval process and no recourse to query a test result. The ability to have access to the test process is fundamental to the integrity of the Australian type approval system, as approval is based on a sample coupling using limited test information only, followed by rigorous audit of the entire testing process.

Given the above, although at first glance it would seem convenient to allow a suite of standards from different sources to be available to the coupling manufacturer, there are substantial inefficiencies and therefore costs in maintaining this suite.

Incremental Benefits

Option 3 would result in a slight decrease in benefits from road trauma reduction. By allowing other national standards as well as ECE R55/01, there is likely to be compatibility problems within the fleet due to mismatching of coupling design. Coupling standards are a type of standard where one certified component must function with another separately certified component (when individually fitted to a tow vehicle and trailer).

Option 5 Delete the ADR and leave it to the market place

Costs

Option 5 would generally reduce the cost of compliance as it relies instead on the market to provide sufficient information to the consumer to make an informed choice. It is assumed that some sort of testing would be carried out by the more responsible manufacturers but it is not clear what cost these "in-house" requirements would incur.

Incremental Benefits

Option 5 would result in a significant decrease in benefits from road trauma reduction. By opening up to any other standard, or no standard at all, there is likely to be compatibility problems within the fleet due to mismatching of coupling design and interchangeability, as well as concerns over strength suitability.

The Bureau of Transport Economics has estimated the costs of road crashes in 1996. These figures are published in "Road Crash Costs in Australia – Report 102 – May 2000" which puts the average cost of a road fatality crash at $1.7 million and that of a serious injury at $408,000. It can be seen that even though the costs of regulating ADR 62 may be significant from a coupling manufacturer's perspective, they are small compared with the cost of even one fatality.

A summary of the relative benefits and costs is shown in the Table on the next page.

Summary of Relative Benefits and Costs of the remaining options

	Option 1 **Retain the ADR**	**Option 2** **Amend the ADR plus allow Alternative compliance with ECE R 55/01**	**Option 3** **Amend the ADR plus allow Alternative compliance with ECE R 55/01 and other national standards**	**Option 5** **Delete the ADR**
Benefits				
• level of benefits resulting from the presence of safer mechanical connections	High and certain and similar to Option 2	High and certain and similar to Option 1	Moderate and certain but less than all options other than Option 5	Uncertain and if occurring would be much lower than Options 1, 2 or 5
• level of benefits accruing to road user and community welfare	High and certain and similar to Option 2	High and certain and similar to Option 1	Moderate and certain but less than all options other than Option 5	Road users and community benefits uncertain
• Total benefits	Marginally lower than option 2	Marginally greater than option 1	Less than all options other than Option 5	Reduction in level as compared to Options 1 and 2
Costs				
• industry test costs	Moderate	Lower than Option 1	Lower than Option 1	Lower than Option 1
• industry compliance costs	Moderate	Lower than Option 1	Higher than Option 1	Nil
• government compliance costs	Moderate	Lower than Option 1	Higher than Option 1	Nil
• total compliance costs	Moderate	Lower than Option 1	Higher than Option 1	Low
Net benefits	Marginally lower than Option 2	Marginally greater than Option 1	Less than all options other than Option 5	Less than Options 1 and 2

4.5 Comparison of Benefits and Costs for Options

Option 1 would not change the existing arrangements and therefore the incremental costs and benefits would both be zero. There would be no cost impact on the Consumer, Business or Government, while compatibility of couplings within the fleet and the general level of performance would remain the same. However, as Option 1 results in a very low level of harmonisation with national or international standards, as compared with Options 2 or 3, additional costs will continue to be incurred by Business for couplings, with local manufacturers no closer to accessing export markets. This Option would not meet Council of Australian Governments (COAG) principles for setting national standards.

Option 2 would give the same benefits when compared to Option 1 as the existing ADR and UNECE 55/01 are compatible. However, the cost to Business of compliance would be reduced as couplings would not have to be retested. As noted in Section 4.1, the origin of manufacture or type of coupling was not available. This meant that it was not possible to identify particular costs based on these factors. However, the need to do this became less important in relative ranking terms and this is discussed later in this section.

This option would meet COAG principles for setting national standards.

Option 3 would lead to a reduction in benefits when compared to Option 1 as it would potentially introduce a range of incompatible standards. There would be a reduction in the basic cost of testing for Business but this would be countered by and increase in costs to Business and Government for maintaining a suite of national and international standards, as well as certifying to those standards.

This Option could meet COAG principles for setting national standards where some international standards are included in the suite. On the other hand, it would be difficult to meet the COAG requirement of flexibility in standards, where a number of standards must be administered. In the case of national standards from other countries, Australia would have no input to their further development.

Option 5 would lead to a significant decrease in benefits when compared to the other options, as it would introduce a number of possible different configurations of couplings with subsequent compatibility issues. Although it would offer reductions in testing costs, the savings would be little compared to the cost of even one fatality.

In ranking the options relative to Option 1, Option 2 gives the same benefits but with lower costs. Option 3 gives less benefits and higher costs. Option 5 gives unknown benefits (but likely to be much less than Option 1, 2 or 5) and much lower costs. However, in considering Option 5, it has also been noted that the costs in general terms are small compared to that of even one fatality (the benefits).

Overall, Option 2 is the highest ranked option and so is the preferred option.

4.6 Effect on competition

The introduction of the proposed changes (see Part 7 – Conclusion and Recommendation) to ADR 62/01 would not increase barriers to entry by new entities interested in participating in the market for supply of mechanical couplings. On the same note the changes would be unlikely to lead to existing entities leaving the industry as the proposed changes would assist existing entities to access overseas markets and help improve economies of scale in an industry used to operating in a protected environment.

It was intended that the public comment would obtain information on the impact of the proposed changes to competition in the industry from manufacturers and suppliers of mechanical couplings as well as operators of heavy vehicles. Section 6 discusses the consultation process but it is worth mentioning here that there was general support for Option 2 and most comment was confined to technical issues with the proposed standards.

4.7 Effect on small business

The existing regulations affect suppliers of mechanical couplings as well as owners and operators of heavy vehicles. The proposed changes will provide a high degree of flexibility to a wide range of industry participants namely suppliers of couplings and vehicle operators who are contemplating the purchase of new heavy vehicles, installers of couplings, engineers who provide design and certification services and state and territory governments. These organisations could be classified into four groups, i.e. suppliers, installers, owner/operators, and engineers and some of them could be considered small businesses on the basis that they generate revenues of less than $5million.

Repairers are required to keep abreast of the latest developments in technology and this is done through service bulletins and workshop manuals both of which are available from vehicle manufacturers and component manufacturers and suppliers. The owner/operators of heavy vehicles are unlikely to face any negative impacts as the proposed changes provide a high degree of flexibility for their operational. Engineers like repairers are required to keep abreast of the latest developments in technology as part of the continuing professional development demanded by their professional associations. Those engineers who provide testing and certification services are unlikely to incur any additional expenditure for testing equipment or facilities as testing requirements are unlikely to change. Local manufacturers of mechanical couplings stand to benefit as they would have a potential to access overseas markets which accept ECE Regulations.

5 DATA SOURCES

At the start of the Review, a Consultant was provided with the results of considerations by a Single Issue Working Group (SWIG) chaired by the FORS and comprising other representatives from:

- Federal, State and Territory Governments
- National Transport Commission
- New Zealand Land Transport Safety Authority
- Federal Chamber of Automotive Industries
- CVIAA
- Road Transport Forum
- Australian Road Transport Suppliers' Association
- Society of Automotive Engineers

A consultant, Nelson English, Loxton and Andrews Pty Ltd, prepared a report for the then Federal Office of Road Safety, addressing the technical, economic and social impacts of regulating mechanical couplings between vehicles, which was used as the basis for this RIS

Bureau of Transport Communications Report No 105

6 CONSULTATION

The draft ADR was developed in consultation with the Single Issue Working Group comprised of representative from the groups mentioned above.

The proposal was circulated for 90 days public comment from September 2004 to November 2004. Key industry associations such as Australian Trucking Association, Commercial Vehicle Industry Association of Australia, Federal Chamber of Automotive Industries and the Truck Industry Council supported Option 2, the recommended option. The peak consumer group the Australian Automobile Association also supported option 2. Support for Option 2 was also obtained from a consortium of truck operators, truck assemblers and component suppliers led by the Australian Trucking Association the peak body representing a large number of economic interests across the trucking industry.

Despite overwhelming support for option 2 industry groups had some concerns and they approached these concerns jointly with the ATA consolidating comments on behalf of the CVIAA, TIC and ARTSA. These are listed in Attachment B. The main concerns relate to use of ADR 62/01 as acceptable prior rules.

Bartlett Transport Improvements raised concerns about the need to retain safety chain size table for ADR 62/01 as industry has standardised on these sizes and ratings. Refer Attachment B for DOTARS comments.

They also felt that pintle hooks should conform to the ADR marking requirements. Pintle hooks according to Bartlett should not be treated as being the same as automatic pin couplings with respect to dynamic test loads. Design slack and backlash should be a component in determining dynamic test loads. Refer Attachment B for DOTARS comments.

A meeting held with industry groups to resolve concerns raised during the public comment stage resulted in support for the final form of ADR 62 and its submission to the Transport Agencies Chief Executives (TACE). The final draft was completed and submitted in June 2006.

The submission to TACE was further discussed during a routine meeting of the Technical Liaison Group (TLG) in June 2006. The group identified that there remained some minor issues still to be resolved for the efficient working of the standard. The most significant of these was the placarding requirements for the coupling components. These issues were resolved at a special meeting of a sub-group to the Heavy Vehicle Working Group in July 2006. As TACE members were represented at TLG, it was possible for TACE to support the proposal in the interim, the agreed work still to be done to be included through the sub-group prior to the proposal going to the Australian Transport Council (ATC).

A further period of 2 months consultation with the ATC is the final stage in the consultative process. This is the decision making stage and a 2/3rds majority support from Ministers is required before the proposal can be gazetted as a national standard under section 7 of the *Motor Vehicle Standards Act 1989*.

Also, the National Transport Commission and the Office of Regulation Review have been consulted throughout the development of the proposal and the RIS.

Approval from the ATC for the proposal will enable the Minister for Transport and Regional Services to issue a determination for ADR 62/02.

7. CONCLUSION AND RECOMMENDATION

Quantifying the costs and particularly the benefits of regulating mechanical couplings between vehicles has been difficult. Mechanical couplings have been regulated in one way or another since about 1972 for light vehicles, by referencing Australian Standards dating back to 1968 and for heavy vehicles, coupling regulations referencing Australian Standards from 1975 onwards. Given that mechanical couplings have been regulated for between 27 and 30 years, it is doubtful whether comparing pre and post regulatory road safety outcomes would yield a clear case for or against continuing to regulate. The main difficulty is that the road environment and the road freight transport task have changed quite markedly over these years. It is therefore unlikely that a direct comparison of pre to post regulatory statistics would be helpful in providing a clear indication of whether the regulation has played a significant role in reducing road trauma.

On the other hand, it is not unreasonable to expect that failures between mechanical couplings could have dire consequences and the modest costs involved in regulating this aspect would be far outweighed by the cost of just one fatality. Also, for the reasons mentioned in Section 3.2 above, the non regulatory options detailed against Options 4 and 5 would be less likely to deliver significant benefits compared with Options 1 and 2.

The differences between Options 1 and 2 are small and either of these would meet the objectives of a cost-effective regulation. However, Option 1 has fallen behind the developments in the UNECE as well as current practices in Australia. Also, local interests have identified a need for a more flexible approach to regulating non-standard couplings and merely retaining Option 1 would not meet these different objectives.

The most viable option appears to be Option 2 which meets the desirable objectives of international harmonisation which will also deliver the flexibility to effectively regulate non-standard couplings.

Therefore it is recommended that Option 2 be adopted as the future national standard for mechanical couplings between vehicles.

8 IMPLEMENTATION AND REVIEW

The proposed regulation will be given force in law in Australia by making it a National Standard (an ADR) under the *Motor Vehicle Standards Act 1989.* It will be implemented under the type approval arrangements for new vehicles administered by the Vehicle Safety Standards Branch of the Department of Transport and Regional Services.

In New Zealand it will be adopted in any Land Transport rules made under the Land Transport Act 1998 and administered by the New Zealand Land Transport Safety Authority.

Also, there are arrangements for on-going development of the ADR. Development of ADRs is the joint responsibility of the Vehicle Safety Standards Branch of the Department of Transport and Regional Services and the National Transport Commission and is carried out in consultation with representatives of Commonwealth, State and Territory Governments, representatives of the manufacturing and operating industries, road user groups and experts in the field of road safety.

The lead-time for application of the ADR will be the normal 18 months for new vehicles and 24 months for existing vehicles. There was no need to negotiate any change to this as the revised ADR does not represent any increase in stringency. This will give a seamless transition from the existing ADR to the revised ADR.

BIBLIOGRAPHY

1. *Principles and Guidelines for National Standard Setting and Regulatory Action by Ministerial Councils and Standard-Setting Bodies.*
2. BTCE (1992), Social Cost of Transport Accidents in Australia, Bureau of Transport and Communications Economics, AGPS.
3. Australian Vehicle Standards Code (1999), National Road Transport Commission.

ATTACHMENT A

PART 1 - RELEVANT RELATED STANDARDS

Established motor vehicle standards from Australia and overseas are relevant to the content and administration of ADR62.

1.1 AUSTRALIAN AND ISO STANDARDS

The following Australian Standards are cited in ADR62/01:

- AS 1773-1996, "Articulated Vehicles –Fifth Wheel Assemblies"
- AS 4968.1 - 2003, "Heavy-road vehicles - Mechanical coupling between articulated vehicle combinations - Design criteria and selection requirements for fifth wheel, kingpin and associated equipment",
- AS 4968.2 - 2003, "Heavy-road vehicles - Mechanical coupling between articulated vehicle combinations – Testing and installation of fifth wheel and associated equipment",
- AS 4968.3 - 2003, "Heavy-road vehicles - Mechanical coupling between articulated vehicle combinations – Kingpins and associated equipment",
- AS 2175 – 1995, "Articulated Vehicles - Kingpins",
- AS 4235 – 1994, "Articulated Vehicles – Design criteria for fifth wheel skid plates",
- AS 2213 – 1984, "50 mm Pin-Type Couplings and Drawbar Rings for Trailers",
- AS 4177.1 – 2004, "Towballs and towing brackets",
- AS 4177.2 – 2004, "50mm Towballs",
- AS 4177.3 – 2004, "Coupling Body for Ball Couplings",
- AS 2321 – 2001 "Short Link Chain for Lifting Purposes (non-calibrated)"

AS 1771 has subsequently been revised as AS1771-1996 and AS 1773-1990 has been subsequently revised as AS 1773-1996. These revisions are applicable to ADR 62/01 because the ADR includes the words "or as amended from time to time" after each reference.

In addition to the above-mentioned Australian Standards, ADR 62/01 specifically references the following ISO standards:

- ISO 8755 – 1986 "Mechanical Connections between Towing Vehicles and Trailers",
- ISO 8718 – 1988 "Commercial Road Vehicles – Drawbar Couplings and Eyes For Hinged Drawbars – Strength Tests".

1.2 MOTOR VEHICLE STANDARDS APPLICABLE IN OTHER COUNTRIES

Four standards applicable to other countries and relevant to this Review were identified, namely:

- Existing ECE Regulation 55/01 (dated 16/9/01);

- EEC Directive 94/20/EC (dated 30 May 1994) ; and
- US CFM Rules Part393 Subpart F

The ECE R55 and EEC Directive have the form of ‘stand – alone’ technical standards that have minimal or no reference to other standards (such as ISO). The US rule is an in-service rule.

For the purposes of this Review, ECE regulations are regarded as the applicable "international" standard. There is no necessary correlation between the EEC and ECE rules although there is a harmonisation process under way. Substantive differences can exist and in other cases the differences are only matters of nomenclature, classification, and marking requirements.

There are significant differences between EEC 55 / ECE Directive 94/20/EC and FMVSS, not the least of which are that the first two are expressed in metric units, and the FMVSS in imperial units. For similar equipment, the metric/imperial equivalence is not exact and, for mechanical couplings, this can produce mis-matches that have safety connotations.

Vehicles with couplings that are manufactured within the EU are required to comply with EEC Directive 94/20/EC (dated 30th May 1994). This Review established that there are substantial compatibilities between EEC Directive 94/20/EC and ‘ECE R55/01. ECE R55/01 has additional coupling classes to those in EEC Directive 94/20/EC.

In the USA, mechanical coupling operational requirements are in CFM Rule 393 Subpart F. These are requirements applied to operators of motor vehicles and concern the strength of attachment and placement requirements. There appear to be no requirements placed on vehicle or mechanical coupling manufacturers in the Federal Motor Vehicle Safety Standards (FMVSS) with respect to coupling requirements and manufacturers are not obliged to certify couplings. There are Society of Automotive Engineers (SAE) standards for various coupling types but these are not presented here but they have been referred to.

1.3 UNECE/ EUROPEAN STANDARDS

Vehicle manufacturers selling into the European Union are required to submit vehicles with couplings attached for test by a recognised test laboratory. When satisfied with the test report the authority issues a vehicle approval. That is, the testing is independent of the manufacturer. It is noted that the EEC Directives are mainly concerned with approval of vehicles.

European standards are important to this Review because there is close similarity between them and UN/ECE standards, and the latter represent the only real ‘international’ standard as opposed to a country standard. However the provisions of country standards where applicable have been considered in other sections as appropriate.

ECE R 55/01 provides an international standard for mechanical couplings that is consistent with current ADR 62 requirements and would provide suitable standards for the safe application of most coupling types in Australia. This development offers the prospect of increasing the range of standard coupling types that are available in Australia and of providing alternate certification paths.

The recently issued revision to ECE R55 dated 16/9/01 is broader in scope than that of the earlier version as it includes passenger car vehicles. It also addresses articulated combinations for which the vertical imposed load on the motor vehicle does not exceed 200 kN.

Vehicles with couplings that are manufactured within the EU are required to comply with EEC Directive 94/20/EC (dated 30th May 1994). This Directive is consistent in its technical requirements with ECE R55/01.

Directive 94/20/EC specifically references ECE 55/01 and states that it is desirable to follow its technical requirements relating to uniform provisions concerning mechanical coupling components of combination of vehicles. This indicates European agreement on the technical requirements for mechanical couplings.

ISO standards for mechanical couplings seem to have consistent technical requirements to those in ECE R55/01, however, they are not referenced in ECE R55/01.

1.4 ECE R 55/01/EUROPEAN CLASSIFICATIONS

ECE R55/01 and EEC Directive 94/20/EC both have the following standard coupling types:

- 50mm diameter tow ball couplings;
- 50mm diameter automatic pin couplings;
- 50mm diameter pin fifth wheel couplings.

Additionally ECE R55/01 has standard 'toroidal-eye' hook couplings (with 76mm holes) as are also in ADR 62/01.

Note that 90mm diameter pin fifth wheel couplings and 40mm automatic pin couplings are not standard coupling types as they are in ADR 62/01.

Within the classification of standard coupling types, ECE R55/01 identifies classes of each standard coupling type. A type of coupling is classified distinctly from other types on the basis that two different types cannot be physically interconnected. A class within a type is compatible with other classes of that type because it can be reliably interconnected. The differences between classes are in the strength rating and fixing requirements. The strength of an interconnection between different classes of a type is determined by the weaker coupling class.

1.5 DIFFERENCES IN CLASSIFICATION AND COMPLIANCE

There are classes of couplings that are common to both ECE R55 /01 and Directive 94/20/EC. ECE R55/01 has additional categories of couplings. ECE R55/01 and 94/20/EC have identical classes A-J and S. Classes K, L and T (non-standard couplings) are only in ECE R55/01.

These classifications are not in the Australian or ISO Standards; nor are they in the old ECE R55 or SAE standards. Their consideration is relevant to the review of ADR 62/01 because it may be unwise to approve non-standard coupling types in Australia if a risk of unreliable interconnection could occur.

Both ECE R55/01 and EEC Directive 94/20/EC have requirements for Class S ('Devices and components which do not conform to any of the Classes A to L or T

above and which are used, for example, for special heavy transport or are devices unique to some countries and covered by existing national standards'). Class S couplings that are approved to ECE 55/01 could potentially be approved via the 'Section 12 path' in ADR 62 with minimal effort because the test requirements in ECE R55/01 are compatible with those in Section 12.

Both rules distinguish between standard and non-standard couplings. Standard couplings comply with the dimensional, strength and testing requirements in the rules. Non-standard couplings do not comply with the stated requirements but may comply with national standards that are not referenced.

PART 2 - ISSUES FOR REVIEW OF ADR 62/01

A significant issue is that Australia features use of very large and heavy vehicle combinations that are not used in some of the countries that are signatories to the ECE regulations. Specifically, there are issues such as volume loading and application requirements that are not addressed in international standards such as ECE Regulation 55/01. Compliance tests, although specified to ISO requirements, do not address the issue of fitment of couplings to particular vehicles.

1.6 ACCEPTANCE OF INTERNATIONAL STANDARDS

To some extent, ADR 62/01 has correctly anticipated international developments (with European standards and with the ISO). However, it does not allow mechanical couplings that comply with suitable national and international standards to be approved.

The recent revision of the ECE Regulation paves the way for consideration of accepting alternate international standards for mechanical couplings. If amended appropriately, the rule would allow international standards without creating incompatibilities between existing standard Australian coupling types and standard ECE coupling types.

1.7 DIMENSIONAL TOLERANCES

Without international standards such as ECE 55/01 and ADR 62, there is a possibility that the interconnection of vehicle parts in a combination would be unreliable. In certain circumstances, this could lead to crashes and would bring road transport into disrepute.

The inclusion of strict dimensional tolerances and minimum strength requirements is a feature of all national standards for mechanical couplings. Because of differences in approach and sometimes minor differences in dimensions between some national standards for generally similar coupling types, there is the prospect that a coupling part manufactured to one standard cannot reliably interconnect to a coupling part manufactured to another standard.

A comparison of ECE R 55/01 and the Australian Standards referenced in ADR 62/01 shows that dimensional compatibility will be maintained if the ECE Regulation is allowed as an alternative. Initially it was noted that the tolerance for 50mm kingpins was incompatible; however, when brought to the attention of the UNECE working group responsible for mechanical couplings, it was acknowledged there was a mistake in the ECE Regulation which has since been rectified.

1.8 STRENGTH OF COUPLINGS

The various ISO standards that exist do not specify the minimum coupling strength required for a particular vehicle application. The Australian Standards for couplings, many of which are referenced in ADR 62, are generally consistent with the relevant ISO standards. Both the Australian and ISO Standards specify how the strength of a coupling can be tested and how the minimum strength required for a generic vehicle application can be calculated. The standards do not impose strength requirements on a particular vehicle application because they are concerned with coupling standards rather than vehicle standards.

Australia has extensive experience with the application of multiple combination heavy vehicles such as B-Doubles and Road Trains. Arguably the strength levels required for couplings on heavy trucks in Australia are the equal of those anywhere in the world. European prime movers typically pull single trailers and are rated to less than 60 tonnes Gross Combination Mass (GCM). Road Trains in Australia are often rated to 200 tonnes and higher. Consequently couplings are available in the marketplace that have adequate strength for single-trailer applications but not for multiple trailers.

The current review of mass limits that is being conducted by the NTC has resulted in higher legal load limits being approved for all heavy vehicle combination types. Consequently there is a need to review application-specific coupling strength requirements where they exist to ensure that they are adequate.

ADR 63/00: Trailers Designed for use in Road Trains currently specifies a minimum strength requirement for couplings used on B-Double combinations and Road Trains. Some state jurisdictions (South Australia and Queensland) impose a higher strength rating for Road Trains.

Western Australia has a history of accepting 75mm diameter fifth wheel couplings that are inherently stronger. ADR 62 does not explicitly stipulate a minimum strength for single semi-trailer applications but it does for ‘pig-trailer’ applications.

To an extent this situation has arisen because State jurisdictions have often limited the mass of combination vehicles as a registration requirement and the strength required for the couplings has been determined as a consequence of this. For example, ADR 62 limits the maximum strength of a 50mm towball coupling to 3.5 tonnes pulled mass. State jurisdictions may however, limit the weight that a class of vehicles can pull to a lower value. Victoria for example, limits the towed weight of a passenger car with trailer to no more than twice the unladen weight of the car. This weight is usually less than 3.5 tonnes.

1.9 FATIGUE STRENGTH

Since couplings are subjected to oscillating and buffeting forces there is a concern that fatigue failure could occur. This concern resulted in the oscillating force strength tests being introduced into ISO standards and subsequently in ADR 62/01. The old ECE 55 had no requirement for fatigue testing of couplings; nor do the various SAE standards.

Oscillating force strength tests are in the EEC Directive 94/20/EC, dated 30 May 1994, which is the governing directive for mechanical couplings applied within the European Union and ECE R 55/01.

1.10 ACCESS FOR STANDARD COUPLINGS

It is now clear that standard coupling types will be compatible between ECE R55/01 and EEC Directive 94/20/EC. These standard coupling types will also be compatible with the standard types in ADR 62/01 if they are comparable types.

These other national and international standards have similar dimensional and strength requirements to the proposed change to ECE Regulation 55/01. The US couplings requirements are based on Society of Automotive Engineers (SAE) standards. These have similar or identical dimensional requirements to ECE R55/01 but have different testing and marking requirements and are therefore nor to be regarded as suitable alternatives.

1.11 ACCESS FOR NON-STANDARD COUPLINGS

The choice of standard coupling types should accord with existing Australian, and UNECE/European practice. However, there are non-standard coupling types that are used successfully in Australia, such as the 127mm towball and a need to provide a method for accommodating these and others was identified in discussions within the Single Issue Working Group that developed the draft proposal for ADR 62/01.

It was agreed to canvass this issue during public comment, to determine if there was sufficient support for this approach. Therefore Section 12 of ADR 62/01 has been amended to reflect this proposal.

1.12 TEST SPECIFICATIONS

The ADR 62/01 test specification is compatible with the test standards that are used in the various ISO standards, in AS 1773-1990 “Articulated Vehicles – Fifth wheel assemblies and in AS 2175-1995 “Articulated Vehicles – Kingpins”. These Australian Standards are the basic requirement in ADR 62/01 Sections 6 and 7.

When ADR 62/00 was drafted there was no test facility in Australia that could perform the specified oscillating force strength tests. A new test facility was established at the Sydney University of Technology with the assistance of both government and industry funding. Subsequently a second facility has been established at the Queensland University.

There were no oscillating strength (fatigue) tests in either the old ECE Regulation 55 or in the relevant SAE (US) standards for mechanical couplings. This is one reason why these standards are not recognised in the current ADR 62/01.

The revised ECE R55/01 does require standard couplings to be tested to the ISO oscillating force strength test and this removes a major impediment to referencing this standard as an alternative in ADR 62/01.

1.12.1 Fifth Wheel Couplings

It is also noted that ADR 63 “Trailers Designed for use in Road Trains” has a clause that specifies a minimum fifth wheel coupling rating of 166 kN for Road Train vehicles.

There are at least two types of fifth wheel couplings that currently cannot be approved under ADR 62/01. These are:

- ‘Light-duty’ fifth wheels which are intended for light-truck applications; and
- 75mm pin diameter fifth wheels.

Light Duty Fifth Wheels

There is a market for 'light-duty' fifth wheel couplings on small tray trucks or pick-up trucks to pull horse trailers and the like. Such couplings are widely used in North America. They have 50mm diameter pins with dimensional requirements as specified in SAE J848 and typically are rated at less than 90 kN D-value. They cannot be strength tested according to the procedures specified in AS 1773-1990 because the test forces are excessive and will damage the fifth wheel. That is, AS 1773-1990 does not recognise light-duty applications. The Single Issue Working Group discussed the need to consider including these couplings because they are not rated for semi-trailer applications and there is little risk that a tray truck vehicle would be presented for coupling to a heavy trailer.

The Standards Australia Committee responsible for mechanical couplings has undertaken a review of the Australian Standard to include this class of fifth wheels and is working on a draft standard AS 4968 which will address this aspect. It was agreed to reference this standard in the draft ADR 62/0X, although there is a risk that the draft standard could be changed before final publication. The Department nevertheless, is seeking in-principle agreement to including light duty fifth wheels and will determine how best to deal with the publication aspects as the consultative process develops.

75mm Diameter Fifth Wheels

75mm pin diameter fifth wheels have been commonly used in Western Australia but not elsewhere. Some are made in Western Australia; they are also available from the USA. ADR 62/01 excludes these couplings because firstly, there are no national or international standards for them; and secondly because there could be a risk that a 50mm diameter kin pin could be inserted into a 75mm fifth wheel jaw and that the connection could stay together up to some indeterminate force level. That is, the interconnection with a standard coupling type is possible and likely to be unreliable. The size differences between '50mm pin' and '75mm pin' hardware are not large and it may not be apparent to an inattentive operator that this situation has occurred.

It might also be argued that an inadvertent connection could be made between a 50mm diameter kingpin and a '90mm jaw'. However, the risks are minor because the size difference is such that any such interconnection is likely to be incapable of allowing the trailer to be pulled at any but the slowest speed.

Because 75mm pin hardware continues to be used in Western Australia and is apparently acceptable in that jurisdiction, the NRTC made provision for 75mm kingpin fifth wheel hardware in the Australian Vehicle Safety Code (1999). The Code has a diagram that shows the dimensional requirements for a 75mm kingpin together with specified wear limits.

There are however, no strength test requirements. The Single Issue Working Group agreed to ask the question during public comment and determine whether there was sufficient support for inclusion.

The draft AS 4968 also addresses this class of coupling and the Department is seeking validation as to whether those requirements would be supported.

1.13 MARKINGS

It is noted that there are differences in the information marking requirements between the ECE, EEC and ADR 62/01 rules. Information marking requirements do not affect

the reliability of a coupling interconnection. However, they are important in providing the user with information about strength and about the manufacturer. Fortunately, the strength rating definitions (D-values and V-values') that are in ADR 62/01 are consistent with those in the ISO standards, in the EEC Directive 94/20/EC and in ECE R55/01. The standards all require that the couplings be marked with the D-value and where applicable the V-value.

1.14 REQUIREMENTS IDENTIFIED BY CONSULTATION

Specific issues and desires that arose from the consultation program include:

- The strength testing requirements in ADR 62 are in line with those in the ISO standards, ECE R 55/01 and the European rule. The strength testing requirements should be kept;
- ADR 62 should continue to provide a certification path for 'non-standard' coupling types for which national or international standards do not exist;
- There is an application-specific coupling strength requirement in ADR 63/00: "Trailers Designed for use in Road Trains" ('Road Train and B-Double Requirements') and these should be moved into ADR 62.
- Particular technical issues were raised concerning the acceptability of non-standard fifth wheel coupling types and with the minimum strengths required for automatic pin couplings.
- The need for recognition of couplings that comply with the ECE Regulation 55.

ATTACHMENT B

ADR 62/0X			
ADR Clause	**Comment**	**Received from**	**DOTARS Comment**
Clause 2.3.4 Applicability Table	1) ADR 62/01 must be specified as an "acceptable prior Rule"	ATA CVIAA TIC	Agreed. The acceptance of 62/01 as a prior rule will not entail additional manufacturing lead time as the amendments represent relaxations of previously restrictive requirements.
	(2) Note 2 to be revised to "The applicability date to be set as the date of gazettal of this design rule"	ATA CVIAA TIC	Agreed. Corrects a drafting error and actions consensus viewpoints reached at an industry working group meeting for heavy vehicle braking. Further revised to the standard 18/24 month applicability date after a special meeting of a sub-group to the Heavy Vehicle Working Group in July 2006
6.1.2	Amend to: Fifth wheel assemblies that have a *'D-value'* rating 40 kN or less must satisfy the strength and marking requirements of either:	ATA CVIAA TIC	Agreed. Light duty 5th wheel requirements to be extended to 40kN D-value to cover single axle prime mover/single axle tag trailer car carrier combinations. Option provided for either dynamic or static tests. Further revised for workability purposes only, after a special meeting of a sub-group to the Heavy Vehicle Working Group in July 2006
6.1.2.1	clauses 12.3.3 and 12.4 or	ATA CVIAA TIC	Agreed. See above. Dynamic test previously included in 6.1.2 but overturning moment test requirement deleted.
6.1.2.2	when installed in the design configuration must withstand the test requirements as per Clause 12.3.2.1 without incurring any residual deformation that would interfere or degrade the function of the assembly or any breaks, cracks or	ATA CVIAA TIC	Agreed. See above. Option of static test consistent with other light duty couplings.

	separation of components, and 12.4		

ADR 62/0X			
ADR Clause	**Comment**	**Received from**	**DOTARS Comment**
6.1.2.3	Marking requirements of AS/NZS 4968.1:2003 and AS/NZS 4968.2:2003 can be used in place of clause 12.4	ATA CVIAA TIC	Agreed. See above. Previously included in 6.1.2
7.2	Amend to: In case of 'Kingpins' which are rated at 40 kN or less, either	ATA CVIAA TIC	Agreed. See above. Applicable rating reduced to 40kN to provide parallel requirements to 6.1.2
7.2.1	The 'Kingpin' must comply with Clauses 12.3.3 and shall be installed onto the 'Semi-Trailer' so that the installation will withstand a static longitudinally applied force equal to the 'D Value' for 60 seconds duration without separation. This requirement can be demonstrated using 'approved computations' and 12.4 or	ATA CVIAA TIC	Agreed. See above. Previous 7.2.1 but with marking requirement added
7.2.2	The 'Kingpin' when installed in the design configuration must withstand the test requirements as per Clause 12.3.2.1 without incurring any residual deformation that would interfere or degrade the function of the assembly or any breaks, cracks or separation of components, and 12.4	ATA CVIAA TIC	Agreed. See above. Static test requirement as for 6.1.2.2
7.2.3	The marking requirements of AS/NZS 4968.1:2003 and AS/NZS 4968.2:2003 can be used in place of clause 12.4.	ATA CVIAA TIC	Agreed. See above. Parallel marking requirements to 6.1.2.3
8	Amend section heading to : 40mm and 50mm pin couplings	ATA CVIAA	Agreed. Required to allow 57mm pin coupling which is not covered by AS 2213:1 - 2001 to be

		TIC	certified as “Other couplings”
ADR 62/0X			
ADR Clause	**Comment**	**Received from**	**DOTARS Comment**
8.1	40mm and 50mm Pin Couplings must comply with either	ATA CVIAA TIC	Agreed. Changed to reflect revision to 8. Further revised for workability purposes only, after a special meeting of a sub-group to the Heavy Vehicle Working Group in July 2006
11.3	For rigid ‘Drawbar’ ‘Pig Trailer’ with an ‘ATM’ over 3.5 tonnes using ‘Hook Couplings’, the coupling shall have a ‘D-value’ rating and a ‘V-value’ rating which exceed the values calculated for the ‘Pig Trailer’ as follows: Minimum coupling ‘V-value’ in kN = 2.4 (X/L)2 C (from AS 2213.1 2001 part 6) for towing vehicles with other than air suspension on the rear axle group; and, Minimum coupling ‘V-value’ in kN = 1.8 (X/L)2 C (from AS2213.1:2001 part 6) for towing vehicles with air suspension on the rear axle group;	ATA CVIAA TIC	V-value formulae revised to conform with AS2213:1 2001 requirements. The option of using these clauses was removed for workability purposes only, after a special meeting of a sub-group to the Heavy Vehicle Working Group in July 2006.
14.2.2	***‘****Drawbars’* are to withstand a static test:	ATA CVIAA TIC	Agreed. Drawbar test section reconfigured to provide realistic test loads for drawbars on rotationally unconstrained dollies. Further revised for workability purposes only, after a special meeting of a sub-group to the Heavy Vehicle Working Group in July 2006
14.2.2.1	For trailers up to 23.5 tonnes *‘ATM’* other than ‘*Converter Dollies’* or *‘Dog Trailers’* without dolly locking devices, the following minimum static forces separately applied at the intended ‘Coupling’ centreline:	ATA CVIAA TIC	Agreed. See above.
14.2.2.1.1	Longitudinal tension and compression (N) = 1.5 x 9.81 x ‘ATM’ (kg); and	ATA CVIAA, TIC	Agreed. See above.

ADR 62/0X			
ADR Clause	**Comment**	**Received from**	**DOTARS Comment**
14.2.2.1.2	*Transverse thrust (N) = 0.5 x 9.81 x 'ATM' (kg) and*	ATA, CVIAA TIC	Agreed. See above.
14.2.2.1.3	Except for hinged '*Drawbars'* trailers vertical tension and compression (N) = 0.5 x 9.81 x *'ATM'* (kg);	ATA, CVIAA TIC	Agreed. See above.
14.2.2.2	For trailers over 23.5 tonnes 'ATM', 'Converter Dollies' and 'Dog Trailers' without dolly locking devices, the following minimum static forces separately applied at the intended 'Coupling' centreline:	ATA, CVIAA TIC	Agreed. See above.
14.2.2.2.1	Longitudinal tension and compression of:	ATA, CVIAA TIC	Agreed. See above.
14.2.2.2.1.1	Trailers over 23.5 tonnes 'ATM' and 'Converter Dollies' , 350 kN;	ATA, CVIAA TIC	Agreed. See above.
14.2.2.2.1.2	'Dog Trailers' without dolly locking devices, (N) = 1.5 x 9.81 x 'ATM' (kg);	ATA, CVIAA TIC	Agreed. See above.
14.2.2.2.2	Transverse thrust For:	ATA, CVIAA TIC	Agreed. See above.
14.2.2.2.2.1	Single axle dolly or trailer $11xGAM/D_L$	ATA, CVIAA TIC	Agreed. See above.
14.2.2.2.2.2	Tandem axle dolly or trailer $18xGAM/(D_L-1)$	ATA, CVIAA TIC	Agreed. See above.
14.2.2.2.2.3	Triaxle axle dolly or trailer $24xGAM/(D_L-1.6)$ *Where D_L= theoretical drawbar length (metres) and GAM is the gross axle mass (tonnes)*	ATA, CVIAA TIC	Agreed. See above.

14.2.3	Except for hinged drawbar trailers or converter dollies vertical tension and compression equal to V Value as defined in Clause 7 – AS 2213.1 Methods for determining V Value	ATA CVIAA TIC	Agreed. See above. Also revised to include a factor of 2.25 on the V value as this was recognised as an error.

ADR 62/0X

ADR Clause	Comment	Received from	DOTARS Comment
14.5	The inclusion of this clause is not supported	ATA CVIAA TIC	Agreed. The clause has been removed. Many converter dollies, particularly those with air suspension, are unable to counterbalance the mass of the drawbar and will not comply with this requirement when not connected to a semitrailer. The restriction in vertical downward articulation to as little as 6° may cause operating problems in sites with severe gradient transitions.
14.6	As drafted, the clause conflicts with clause 14.2.2.1.3. One of these clauses should be withdrawn or the ambiguity resolved. The word “of” in the final sentence should be replaced by “or”.	ATA CVIAA TIC	Agreed. The clause has been removed.

Comments from Bartlett Transport Improvements

1. ADR 62 should be singled out and made available as a free download due to the huge and seemingly unstoppable “DIY” towbar, drawbar and safety chain attachment manufacturing base in Australia. The realisation of the ADR strength requirements might scare the backyarder into not making the towbar.
2. Since static vertical coupling load (SVL) is the only practical method for authorities and operators to measure coupling vertical loads it should be mentioned and a limit for SVL be an expected marking criteria for all coupling types.
3. The DOTARS should consider posting a formulae “solver” web page similar to Ringfeder. http://www.ringfeder.de/e/index_main.htm
4. Manufacturers who produce/import couplings with higher than typical vertical load ratings should be able to supply both halves of the coupling equally rated. For example one importer of 50 mm automatic pin couplings sells a coupling (truck half) with a static vertical load rating of 2 500 kg but does not list or sell an appropriately rated eye to match. Most 50 mm automatic pin couplings have a static vertical load SVL rating of 1000 kg.
5. Wind up Parking Leg Jacks or Landing Legs are a “lost” product closely associated with ADR 62. It seems negligent to not at least discuss this important safety topic given the high focus on OH&S in industry. The market appears to import what ever is available from overseas at the cheapest price and the ratings, if any, are often not expressed in metric. Design strength and marking should be advised.
6. Non- genuine coupling replacement parts should be required to be stamped to identify the origin and batch.
7. All ADR62 references to **AS4177** should refer to issue year 2004 <u>not</u> 1994 since this standard has just been revised.
8. As per our comments leading into ADR 62/01 we continue to contend that couplings with inherent design slack receive a dangerous dynamic testing advantage over “slack free” coupling types. Manufacturers must spend tens of thousands of dollars on a scientific “looking” test that has no relationship to the in service shock loading of various coupling types. We believe the dynamic test forces are cut and pasted from European test requirements for automatic pin couplings and adjustments for other coupling types should be made.
   - **Automatic Pin** Test force status quo - (slack removed with packing)
   - **Pintle hooks** and other large slack couplings should be tested at higher forces (slack removed with packing)
   - **Zero slack** couplings eg. Ball type test at lower force (with **no** protection).

This makes scientific sense and is sound engineering practice.
Impediments to discovery of real formulae such as cost should not interfere with a true test regime.

DOTARS Comment. The above items (Nos. 1-8) were discussed at a meeting of the Heavy Vehicle Working Group in April 2005. It was agreed that the concerns would be better addressed in the shorter term by Standards Australia through their referenced standards. Other tabulated items from Bartlett Transport Improvements are listed below.

ADR 62/0X			
ADR Clause	**Comment**	**Received from**	**DOTARS Comment**
1	This standard prescribes the requirements which mechanical coupling devices fitted between vehicles shall meet in order to **a)** Ensure positive mechanical engagement for the vehicle combination and, **b)** Ensure that mechanical engagement shall not open or disengage under the action of any forces to which the coupling may be subject to during normal use.	Bartlett	Agreed.
3.2	Applicability Table Whilst this is obviously not drafted properly, Category NA, NB, NC vehicles certainly should not be marked “not applicable” and since couplings for all? classes of vehicles here are mentioned, then perhaps all need a date.	Bartlett	Agreed.
4.1 and 5.1	**Suggest Re-Word** In deliberations in AS4177 drafting, the reference to couplings intended to separate in normal service was changed dramatically, and the whole object of the ADR is to prevent separation.	Bartlett	Agreed.

ADR 62/0X			
ADR Clause	**Comment**	**Received from**	**DOTARS Comment**
6.1.2	Strength requirement appears to be 1/3 or less than that for other couplings. If the towing vehicle and the trailer are of equal mass, then they can be both marginally over 6 tonnes for a *D – value* of 30 kN. For "other coupling types" used for exactly the same towing task, a longitudinal force of 88.29 kN. would have to be satisfied, for a trailer of 6 tonnes ATM.	Bartlett	Item held over. See DOTARS Comment above.
12.1	"manufacturer's" should presumably have an apostrophe. As a manufacturer of such couplings, we haven't got a clue what is meant by "manufacturer's location specification".	Bartlett	Agreed. Re-worded.
12.4	**1.** Critical marking improvements for hooks & eyes required It is apparently impossible to indelibly mark many imported pintle hooks and eyes, they are the poorest marked of all coupling types. Some importers resort to the grossly inadequate issue of paper stickers with the couplings. Any physical marks on the product are barely legible and then with imperial units for ratings (USA origin) .This issue requires urgent attention and importers should provide better marking. **Suggestion:** Laser cut metal ID plates could be sandwiched between the hook and the towbar with the rating left exposed. See diagram attached. 2. **Fitting instructions** must be emphasised within the ADR not the CRN Licence agreement.	Bartlett	Item held over. See DOTARS Comment above.

ADR 62/0X			
ADR Clause	**Comment**	**Received from**	**DOTARS Comment**
13.3.1	Clause13.3.1 - when describing the relevant vehicles "For vehicles TOWING TRAILERS up to 23.5 tonnes ATM"	Bartlett	Agreed. Re-worded
13.3.2	Clause 13.3.2 – when describing the relevant vehicles "or for vehicles TOWING TRAILERS over 23.5 tonnes ATM"	Bartlett	Agreed. Re-worded
13.3.4	It is quite likely that a truck or trailer capable of being used in a *Road Train* may tow a rigid drawbar or *Pig* trailer, and thus their towbars should not be exempted from safety chain attachments, which can then be used in conjunction with the safety chains fitted to those trailers. The cost is fairly insignificant in the overall vehicle cost. Safety chain attachment size has been stated as an issue, but as the towbar only has to satisfy 23.5 tonne test criteria, then 30.0 tonne rated safety chain attachments would be adequate, modern, compact attachment design deletes dimensional embargo with respect to vehicle articulation.	Bartlett	Item held over. See DOTARS Comment above.
14.2.2.1.3	See comment on Clause 14.6, Page 8 regarding ambiguity and inadequate variation for vastly varying trailer configurations.	Bartlett	Item held over. See DOTARS Comment above.

ADR 62/0X			
ADR Clause	**Comment**	**Received from**	**DOTARS Comment**
14.4.1	The wording implies that every trailer with an *"Emergency Brake System"* is exempt from safety chains. This clause should be deleted, and renumbering of subsequent clauses.	Bartlett	This clause is the same as the current ADR and so has not been changed.
14.4.2	All ADR references to AS4177 should refer to issue 2004 not 1994 since this has just been revised.	Bartlett	Agreed.
14.4.3	Critical Examination Required – Attachments for drawbars deleted **a)** Method of attachment must be defined as per ADR62/01 – Use attachments and prohibit welding of the AS2321 chain (which is not weldable) **b)** Trailer attachments must not be releasable without tools **c)** The Chain size table in ADR 62/01 has zero correlation with the Breaking strains in AS2321. I.e. Under 62/0X A 16 mm chain currently rated to 21.5 tonnes will become applicable to trailers exceeding 30 tonnes. The ADR62/01 chain size table must be retained. Industry has standardised on these sizes and any shift will create chaos.	Bartlett	Item held over. See DOTARS Comment above.
14.4.4	Steel cables should be sheathed to restrict fraying which can weaken the cable and the broken strands can cause stab injuries. Fixing method to trailer and taluruting should be defined as the attachment method in AS4177 is by welding.	Bartlett	Item held over. See DOTARS Comment above.