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Submission to the Parliamentary Inquiry into Road Safety

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Introduction

I am a consulting engineer who works in the vehicle certification area. I am an agent in the Department of Transport and Regional Affairs road vehicle certification system and I am a vehicle engineering signatory recognized by VicRoads. Much of my career experience has been involved with testing and certification of heavy vehicles. I have completed four major investigative projects for the national Road Transport Commission. Of late I have also worked on light vehicle certification projects. My submission is mainly concerned with the setting of engineering standards for vehicles.

Background

States and territories have jurisdiction over road transport. They have agreed to administer new vehicle registrations in accordance with the Federal Motor Vehicle Standards Act. The engineering standards for registration are defined under this Act to be the Australian Design Rules (ADRs). These are the national standards for most new vehicles.

Manufacturers of vehicles are required to provide evidence of compliance with the ADRs to the Federal Department of Transport and Regional Services (DOTARS) and the design is subsequently approved after resolution of issues. New vehicles are accepted for registration by registering authorities if they carry a valid compliance plate (which is a claim of compliance by the manufacturer with the ADRs). This requirement applies when the vehicle is first used in transport, which as I understand is when it is first driven after registration. Thereafter the rules of the state and territory jurisdictions apply. In many cases vehicle dealers are accredited to administer the registrations and vehicles are not physically presented for inspection by a registering authority.

The administration of in-service vehicle standards is by the state and territory jurisdictions. The Federal Department of Transport and Regional Services (DOTARS) has no responsibility in this domain. As a result of proposals developed by the National Road Transport Commission, the Australian Vehicle Rules (AVRs) have been adopted by the jurisdictions. The AVRs have engineering standards that are in many respects less stringent than the ADRs. However, the AVRs do specify that a vehicle should not be modified to alter the compliance status with the original (or latter version) ADRs.

The Australian Design Rules need to be periodically altered in response to technology advances, changes in community expectations and for international standardization. For example, in the passenger car domain significant rule changes to do with occupant safety have been introduced. Curved driver side mirrors can now be used. The revision of the

Australian Design Rules (ADRs) is done by DOTARS in consultation with the jurisdictions and industry groups. An advisory group called the Technical Liaison Group to the National Road Transport Commission and the a jurisdictional group called the Australian Motor Vehicle Certification Board are also involved.

The Australian Design Rules have historically were influenced by North American rules (FMVSS rules). However, over the past decade there has been a substantial effort to align the ADRs with the UN Economic Commission for Europe rules (UNECE) where practical. Perhaps 40% of the ADRs are now based on ECE rules.

In some areas the ADRs are extremely specific (lighting requirements, seat belt requirements,..) whilst in others they are more performance based (e.g. braking).

Registering authorities require that vehicle modifications after registration be approved. Modifications that affect compliance status are to be signed-off by an accredited vehicle engineer. Standards for light vehicles vary somewhat from state to state. Some states require a 'modifiers plate' to be affixed, others do not. Standards for heavy vehicle modifications are stated in Vehicle Standards Bulletin No 6 "Heavy vehicle modifications". This provides a national standard.

There are no specific standards for after-market parts. The general requirement that vehicles not be altered in a way that invalidates the original ADR status exists but is not policed. DOTARS will issue Component Registration Numbers for parts for which specific ADR requirements exist that can be applied in isolation (e.g. fuel tanks, lights, seat belts). However, most ADR requirements are performance based and there are no specific part requirements (e.g. brake linings, structural elements).

Problems With These Arrangements

The arrangements that I have outlined above are mature and do provide a workable system. However there are some significant problems:

1 Design Rule Development is Stalled

The process of review of the Australian Design Rules is stalled. There has been some development of new 'environmental rules' (noise and emissions) over recent years however little else. About five years ago a project was initiated to develop 'Trans-Tasman Vehicle Rules' Existing rules were to be reviewed as part of this. Nothing has eventuated despite some drafts being produced for comment. It is frustrating to industry and to road safety campaigners alike that design rule development is on hold.

This situation exists I believe because firstly the Vehicle Safety Services section of DOTARS is stretched thin and secondly because of the inertia involved in having new proposals agreed to by all the various governments and interests. One

important area for road safety where design rule development is stalled is with heavy vehicle braking. I will elaborate in the following section.

2 Modifications are Made before Registration

Vehicles may be modified before they are registered. The modification may be relatively minor (fitting of a bull bar) or in the case of commercial vehicles significant modifications involving coupling fit, body fit, wheelbase changes etc.

Many of these modifications are not specifically approved. They slip through under the assumption that they are covered by the compliance plate.

There is confusion by some manufacturers about what modifications are acceptable and about when the jurisdictions take over the administration of vehicle standards.

3 No National Vehicle Engineers Scheme

There is no recognition of vehicle engineers status across state / territory borders. Work that is approved in one state may be unacceptable in another state.

4 No recognition of Secondary Manufacturers

There are secondary manufacturers who modify (commercial) vehicles on a one-off basis for specific applications. For example, fuel-haul, road making, ... The work is often done prior to registration but after a compliance plate is fitted. The work may be done in one state and the vehicle presented for registration elsewhere. There is no national accreditation for these manufacturers and the status of vehicles is somewhat uncertain. The secondary manufacturers have no workable arrangements to have their work approved in other jurisdictions.

5 Critical Replacement Parts Escape Standards

The ADRs do not set standards for replacement parts. Parts such as brake linings (and other brake components), suspension seats, steering boxes and wheel rims for example do not have specific ADR certification requirements. Rather they are components in systems for which ADR performance standards are prescribed. Replacement parts manufacturers are often unable to obtain certification for parts. In contrast both the UNECE rules and the FMVSS rules so have specific requirements for replacement parts.

6 Specialist Vehicles are Treated Differently in Different Places

There are specialist vehicles that need to be exempted from some ADR requirements. For example, heavy haulage trailers do not have load sharing suspensions. It is extremely difficult to have such exemptions accepted by

DOTARS. There is a reticence to use discretion and this is often frustrating to manufacturers. Consequently some specialist equipment is presented for registration inspection as non-complying equipment. Heavy haulage trailers for example may be registered in a state where the guidelines are easier and used in another state.

7 EU certificates are Unacceptable to DOTARS.

Vehicles manufactured in Europe must comply with the European Union Directives. Many of the ADRs list compliance with UNECE rules as acceptable alternate standards. This promotes international harmonization.

Virtually all of the EU rules are based verbatim on the appropriate UNECE rules. As a general statement DOTARS accepts UNECE compliance certificates but not EU compliance certificates. Manufacturers presenting evidence of compliance based on EU certificates and supporting test reports are required to state the test evidence on the Australian submissions. However, there are often substantial differences in approach and detail that make it hard if not impossible to prove compliance. Some manufacturers spend a lot of time and energy getting around this road block. Is frustrating when the evidence clearly indicates compliance with rules that are identical to UNECE however, the paperwork is not acceptable to DOTARS.

Heavy Vehicle Braking

I have a particular interest in and some expertise with heavy vehicle braking systems. Australia has very poor ADR braking rules (35 and 38) because we have not been able to specify adequate compatibility requirements between trucks and trailers. The vehicle fleet has a mix of Australian, North American, European and Japanese trucks pulling Australian made trailers. To achieve adequate brake compatibility the rules must specify compatibility requirements in all states of load.

The locking-up of wheels during braking is undesirable. A locked tyre cannot supply stabilizing forces and poor vehicle road handling or instability are likely to result. That Australian heavy trucks often have poor brake balance leading to wheel lock-up during braking is a matter of everyday observation. Trucks and trailers can be commonly observed locking wheels when they come to a stop at traffic lights; that is at modest deceleration levels. I contend that poor brake balance is a factor in a reasonable proportion of crashes involving heavy vehicles. I have investigated some of them! Braking performance of heavy vehicles could be improved with better design rules and that would improve road safety.

The ADR rules 35 (Commercial Vehicle Braking Systems) and 38 (trailer Braking Systems) have been under review for years. There is an urgent need to

make progress. We should require that heavy vehicles do not lock-up wheels when stopping in any state of load at 0.45g deceleration.

Large Vehicles Should Stay Left

Large vehicles are not permitted to travel in the over-taking lane(s) of many European highways and motorways. This is sensible because large vehicles restrict the vision of the road of other drivers. They are also inherently less maneuverable. The overtaking lane invariably has a higher average vehicle speed than other lanes. Vision down the road is a critical facility for road safety. Keeping large vehicles away from the higher speed lanes improves road vision and will probably improve road safety. I believe that heavy and large vehicles should keep left wherever possible. I contend that road authorities should study this European approach.

Variable Speed Limits on Motorways

The use of variable speed limits on motorways should be considered as a standard practice. Motorway traffic flow are now usually monitored from a central control point. The ability to reduce the speed limit during peak traffic or when dangerous conditions exist has the potential to reduce crashes because vehicles are effectively being warned of dangers ahead. Such a variable speed limit is being used on the western ring road in Melbourne. I contend that it has the potential to improve the safety performance of that road.

