NZ VEHICLE STANDARDS AND COMPLIANCE WHERE NEXT ?

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Vehicle Standards: Where Now?

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Introduction

1. The purpose of this paper is to summarise the current state of vehicle standards, their historical development, and possible future.

2. It is more than fifty years since the New Zealand schemes for periodic inspection were introduced, to become the Warrant of Fitness and Certificate of Fitness as we know them today. In that time, there have been further regulatory changes, but the present requirements now lag behind the major motorised countries.

3. New Zealand has benefitted from improvements in vehicle design which have stemmed not only from manufacturers' own research, but also from the actions of overseas governments or pressure groups. However, the benefits to New Zealand depend principally on market forces, which generally recognises safety features only when they are obvious as such. For example, a seatbelt has a clear safety function, which is reinforced by Ministry campaigns. On the other hand, laminated windscreens are an important safety feature, but are only detectable as such by a close inspection. This is an area where the local regulatory requirements can have a vital role to play.

4. Since the 1989 IRTE Heavy Vehicle seminar in Christchurch there have been some noteworthy changes;

a) Criticism of lack of consistency in MoT heavy vehicle inspection standards has decreased markedly, presumably a tribute to the training programmes carried out by the Vehicle Testing Section.

b) The introduction of an "interim" Braking Test Specification for vehicle combinations exceeding 39 tonnes appeared to raise the general level of braking awareness in the transport industry, according to most reports.

c) The Truck Trailer Manufacturers' Federation have made considerable progress towards a sector Quality Assurance scheme.

5. Abbreviations

Various regulations are referred to in this paper as follows
GSV = The Goods Service Vehicle (Constructional) Regulations 1936

HMV = The Heavy Motor Vehicle Regulations 1974

TR = The Traffic Regulations 1976

PSV = The Passenger Service Vehicle Construction Regulations 1978

VSR = The Transport (Vehicle Standards) Regulations 1990

Historical Development of New Zealand Requirements

6. Compulsory inspection was introduced in 1931 for most passenger service vehicles, extended to goods vehicles and school buses in 1936, and extended to other vehicles in 1937. The original scheme covered the most obvious basic items, and other items have been added over the years, as well as requiring higher performance standards on items such as brakes. The requirements were fairly simple, and there seem to have been underlying assumptions that the original design and construction could be left to manufacturers, and that the inspections were principally intended to detect deterioration in the listed items.

The first significant departure from this philosophy was the requirement for rear reflectors to be manufactured in accordance with specified standards. Similar requirements were then applied to tyres for heavy vehicles, seatbelts, and high mounted stop lights for cars, and glazing and alternative fuel (LPG & CNG) systems for all vehicles.

Recent Developments

7. Over the last five years, a number of new requirements have been introduced, either as new regulations or as new interpretations of existing regulations. These are listed in Table 1.

8. The recent round of de-regulation has led, indirectly, to some challenges for the Ministry. The introduction of the VSRs more or less coincided with the growth in second-hand imported cars from Japan, giving rise to an erroneous but wide-spread belief that the regulations were in response to the imports. The importers have had to adjust to their own challenge of being responsible for some technical aspects of their stock. De-regulation of passenger services has resulted in the use of vehicles which are quite suitable for their purpose, but which were not in vogue in 1978, and which, therefore, are not properly catered for in the PSV Regulations. They have been fitted into the system, but have given rise to serious distortions in the process.

1985 Truck Loading code published

1988 Heavy vehicle drawbars and drawbeams to comply with standard.

1989 Increased weight limits, new size limits.

1989 Mandatory certification of light towbars on vehicles subject to Certificate of Fitness inspection.

1989 Mandatory compliance with standards for fifth wheels, kingpins, load anchorages, and braking, for vehicles in combination exceeding 39,000 kg.

1989 Transport Act amended, requiring;
a) vehicles over 3,500 kg to have a Certificate of Fitness.
b) transport licensing and log-books for vehicles over 3,500 kg.

1990 Cars registered after 1 January to have High Mounted Stoplights.

1990 First stage VSR, 1 November. Vehicle classification as Australian Design Rules. Regulations applicable to cars (Class MA only). No technical changes from existing regulatory requirements but a change in responsibility from "operator" to "certifier".

1991 Second stage VSR, 1 January. Still only applicable to cars of Class MA, but extended number of items required to comply.

1991 Heavy Vehicle Brake Code published and Gazetted as alternative under HMV regs for combinations exceeding 39 tonnes.

1992 Third stage VSR, 1 January. Now apply to all normal road vehicles except light trailers (Classes TA, TB).

1992 Low Volume Vehicle Code came into effect.

1992 All load anchorages to comply with standard.

1993 Fourth stage VSR, 1 January. Extends range of items which must comply with a standard.

1994 Projected implementation of new regulations for light trailers.

1995 All fifth wheels and kingpins to comply with standards.
Projected implementation of consolidated equipment and construction regulations.

Table 1. Recent changes to requirements for vehicle design and construction

9. The basis for all action on trailers and towing connections is the continuing occurrence of injuries and fatalities attributable to them, with an identifiable cost in excess of $4 million per year for light trailers alone.

Requiring vehicles over 3,500 kg rating to have a Certificate of Fitness is part of a rationalising process, whereby vehicles are inspected in a manner appropriate to their design and construction rather than according to the occupation of the owner.

Improved load anchorages were considered necessary because of the frequency with which loads (including stock crates) were being lost from trucks.

Present Situation

10. All road vehicles are required to have a current Warrant of Fitness (WoF) or Certificate of Fitness (CoF). CoFs are issued by Ministry of Transport Vehicle Testing Stations and to a very limited extent by some other authorities. WoFs are issued by authorised inspection agencies, mostly local garages. Until recently CoFs were required for passenger service vehicles, goods service vehicles, and rental vehicles. All other vehicles were subject to a WoF. This meant that the requirement for WoF or CoF was dependent not just on the type of vehicle but on its use. The Transport Amendment Act of 1989 partially corrected this by requiring most vehicles with a rating (capacity) of more than 3.5 tonnes to have a CoF, and a proposal to correct some consequent anomalies is currently under consideration.

11. The basic inspection requirements for WoF and CoF are identical, but the inspection techniques depend on the size and type of vehicle. Additionally the CoF inspection is also used as an opportunity to verify continuing compliance with the GSV, PSV, and HMV Regulations. These regulations include items that are not appropriate for other vehicles; such as the performance of air-brake systems, and aisle width and height.

Current Projects and the Immediate Future

Costs and Benefits

12. All vehicles today are manufactured to standards of some sort, as a simple result of the manufacturing process. Any discussion about imposing standards really means higher (or sometimes different) standards. A change of this sort has accompanying costs and benefits, which must be considered when deciding whether or not to adopt or impose a new standard.

13. It is very easy to say that costs and benefits must be assessed, but not so easy to carry this out. The costs of adopting a new standard can be established relatively easily by examining the manufacturing or assembly process, and multiplying the per unit cost by the number of that type of vehicle produced (or imported) per year.

The benefits are more difficult to assess in advance of a change, and must include factors such as the social cost.

14. Despite the difficulties of assessing benefit-cost ratios, the Ministry is obliged to make as realistic an assessment as possible. It would otherwise be tempting to impose a rule where the cost far outweighed any benefits.

Vehicle Standards Regulations (VSR)

15. The VSRs are in the process of being phased in. These regulations go part of the way towards closing the gap between regulatory requirements in New Zealand, and those in force overseas. The regulations initially applied only to cars, since they represent some 80% of the national fleet, and are responsible for the majority of road deaths and injuries. However, the regulations are being extended to cover all classes of vehicle.

16. A major principle of the VSRs is that, for the specified items (eg safety glass), compliance with any of the standards in the major overseas systems is deemed acceptable in New Zealand.

17. During the consultative phase, it was found that the items proposed for consideration could be readily divided into two groups. Group 1 items were either current requirements in New Zealand, or were the subject of standards in each of the main overseas systems. They were thus "easy" from the technical point of view. On the other hand, Group 2 items do not feature in all of the overseas systems, for various reasons. The two groups are set out in Table 2. An early decision was taken to concentrate on the "easy" items, so that the establishment of a suitable certification and auditing regime could proceed smoothly with industry co-operation.

Group 1

Seatbelts	(Strength, Durability)
High Stop Lamps	(Colour, Light Distrbution)
Glazing	(Safety Glass, Laminated Windsreen)
Side/rear and Stop Lamps	(Colour, Light Distrbution)
Reflectors	(Colour, Reflectance)
Seat Anchorages	(Strength)
Seatbelt Anchorages	(Strength)
Headlamps	(Light Distribution)
Side/rear and Stop Lamps	(Colour, Light Distrbution)
Direction Indicators	(Colour, Flashing Rate, Light Distribution)
Steering Column Impact	(Energy Absorption)
Door Locks and Hinges	(Strength, Burst-proof)
Windscreen Wipe/Wash	(Effectiveness)
Rear View Mirrors	(Field of View)
Tyres	(Load and Speed Ratings)
Brakes	(Balance, Fade, Etc)
Interior Impact	(Occupant-friendly)
Reversing Lamps	(Switching mechanism, Light Distribution)
Brake Hose	(Compatibility with Fluid)

Group 2

Frontal Impact
Head Restraints
Windscreen Demist
Child restraint Anchorage
Tyre Selection
Registration Illumination
Side Door Impact Strength
Fuel System Integrity
Speedometer
Flammability
External Projections

Table 2, Classification of Standards Items.

Recovery Vehicles (Tow Trucks)

18. A Code of Practice for Recovery Vehicles will provide guidelines for the design and construction of salvage vehicles. It is currently in draft form, with a final version planned for June 1992. With some notable exceptions, there has been very little interest shown by the industry. Progress on this Code has been slow, because of other Ministry commitments.

19. The design criteria for hoists and winching equipment is based on existing British, Australian, and other overseas standards. Other features, such as axle loads and dimensions, are based on the current New Zealand regulations for other types of vehicle. Certification will be required for original design and construction, and continuing compliance will be checked at Ministry Testing Stations. This will include inspection of the hoisting and winching equipment, by agreement with the Ministry's Marine Division, who otherwise inspect lifting equipment.

20. The Code will include rules for ballasting and stability, especially while towing, and will require the designed salvage capacity to be prominently displayed.

Low Volume Vehicles.

21. The Low Volume Vehicle Code was released in December 1991. It is an alternative standard under the Transport (Vehicle Standards) Regulations 1990 and is a concession that may be used by constructors and modifiers of vehicles. "Low Volume" means the construction or modification of fewer than 200 units per year by a manufacturer or constructor whose total production of any type of motor vehicle does not exceed that number. The Code is primarily directed towards home constructors, kit car manufacturers, and small scale specialist car manufacturers and modifiers. These last two groups have blossomed in recent years, particularly with respect to replicas of "classic" cars, a term which is used very elastically.

22. Under the VSRs, all new vehicles must be certified as complying with the regulations. Where a vehicle is subsequently modified and the modification affects one of the items specified in the regulations, the VSRs require that the modification complies with the regulations. In principle, this would mean a set of proving tests, as undertaken by the original manufacturer. In most cases, this is impractical because of the cost or destructive nature of the testing, and is the precise situation for which the Low Volume Vehicle Code was developed.

23. The original concept for the Low Volume Vehicle Code included technical criteria, and would have made it analogous to a design manual. This approach was seen as having several faults, principally:

a) The Ministry would have some responsibility for the design and construction, instead of placing this all on the constructor.

b) Although the Ministry has some in-house expertise, and can draw on

the expertise elsewhere in the country, there was still a likelihood of the Code containing errors.

c) Representative groups would have a perception of "ownership" of any construction codes developed by themselves, and would thus have a greater commitment to making them work.

24. The final format of the Code therefore only describes the framework for approval of organisations, which then must be responsible for scrutineering the vehicles which their members, and others, construct or modify. The approved organisations have developed Codes of Practice to suit their own fields of interest.

20 Metre Truck and Trailer Combinations

25. Special permits are now being issued to allow some three axle tandem drive trucks towing four axle trailers to operate at 44 tonnes and 20 metres. Applications must be strictly in accordance with Road and Traffic Standards Information Sheet 22 (RTS Info 22)(Ref 3). Three axle truck and three axle trailer combinations will not be allowed to exceed 42 tonnes.

26. Prerequisites for a permit are;

- The combination must have axle spacings that meet the HMV Regulations for combinations exceeding 39 tonnes, in accordance with RTS Info 22.

- The vehicles are to be constructed and maintained in accordance with the application plan.

- The vehicles must have an initial compliance check at a Ministry Testing Station once the permit is drafted.

- Dimensional limitations, such as inter-vehicle spacing and maximum truck forward distance.

- The draw bar must have only one operating position.

- The vehicles must have single or tandem axle sets, and no other configuration.

- 40 mm towing couplings are not prohibited, but if there is evidence of deterioration, they must be replaced by a 50mm type.

- Stock Crates must comply with the revised standard when it is published later this year. RTS Info 22 details the requirements for use until then.

Consolidated Equipment and Construction Regulations.

27. Equipment and safety requirements for motor vehicles are contained in various Acts and Regulations which have been introduced, amended, and redrafted from time to time to meet particular circumstances. This

fragmented legislation is concerned with vehicle safety, passenger safety and comfort, the efficient use and protection of the roads, and road user taxation. For many years, it has been realised that this area of vehicle legislation has needed attention.

28. All vehicle equipment requirements, with the exception of those relating to taxation, have now been brought together into one set of draft regulations. They are currently entitled The Transport (Vehicle Equipment and Construction) Regulations 1994, reflecting their content, and the fact that they are not likely to pass through the development stage and be submitted for approval until 1994.

29. A preliminary draft has been submitted to the Vehicle Standards Advisory Committee for perusal and comment. A draft for public comment is expected to be available in April of this year. The bulk of the draft contains no changes from the various requirements of existing regulations.

30. The Traffic Regulations are principally concerned with the manner in which a vehicle is used, but in many cases the requirements and restrictions on the use of a vehicle are difficult to separate from its construction requirements. An example is the requirements for vehicle dimensions and loading, where the ruling dimension may pertain either to the vehicle or to its load. It would be possible to solve this problem by including the requirements in both the new consolidated regulations and the Traffic Regulations. This, however would entail duplication, and the consequent probability of the two sets of regulations getting out of step. At the time of preparing this paper, this philosophical issue has not been resolved.

31. The format of the draft regulations is also still fluid. For example, some requirements do not apply to all classes of vehicle, but may apply to two or more classes. For the present, a requirement which applies to more than one class of vehicle has been included in the general section.

MoT Vehicle Manual

32. As stated above, the requirements for vehicles are to be found in several separate sets of Acts and Regulations. The average person, even if involved in the transport industry, has great trouble following and understanding these requirements. Even those who are familiar with the legislation sometimes have difficulty understanding or interpreting it. This is exacerbated by the need to be aware of third and fourth level requirements in the form of Gazette Notices and Ministry official interpretations of the regulations.

33. The solution is seen as a "Plain Person's Guide", and lack of such a document is a frequent embarassment. The Ministry has been trying to produce a Vehicle Manual for several years, and has now recognised that the task is too much to be done alongside other work. A firm of consultants has therefore been engaged, and they have produced one chapter as a trial. This chapter has been well received by the people who were used to evaluate it, and work has now started on the remainder

of the manual. It is hoped that it will be available in the second half of this year. Distribution and servicing will probably be done by an agent.

The Heavy Vehicle Brake Code

34. The Code was gazetted as an alternative standard under the HMV Regulations in June 1991. It is estimated that 56 vehicles, (21 trucks and 35 trailers) have so far been certified as complying with the Code. Reports indicate that operators are generally pleased with the improvement in their braking performance, although, as expected, some teething problems have been experienced. Common problems appear to be associated with:

- Brake performance compatibility between the towing vehicle and the attached trailers (which was one of the main problems being addressed).

- The necessity for accuracy in the associated vehicle documentation.

These are put down to the lack of experience amongst certifiers, and the incidence of such problems should fall as the level of expertise rises.

35. In principle, verification of initial compliance at Vehicle Testing Stations is by checking the documentation required by the Code. In practice there is some checking of the vehicle, and this has led to the discovery of errors. For example, in one case the air chamber sizes were not the same as those on the certificate.

36. Methods of checking continuing compliance are still being developed. One of the criteria being used is that the checks must be be carried out in conjunction with a normal Certificate of Fitness inspection, and the limited time frame imposes its own constraints. It would be unreasonable to expect an operator to be detained for a lengthy period every six months whilst a vehicle is being checked for compliance with the Brake Code. On the other hand, a more detailed check carried out less frequently should be satisfactory. It is currently envisaged that such a check will not be necessary more than once every two years. As experience is accumulated, the format of the compliance checks will be reviewed, and modified if necessary. Where there is any doubt about a vehicle's compliance with the Code, Vehicle Testing Station staff will refer the matter to the certifier.

37. Because of the complexity of vehicle braking systems, it would be possible to pervert the intent of the Code. This can only be countered by a more detailed inspection than is possible at Certificate of Fitness inspections. A form of external auditing is currently under investigation, and will be introduced when the details are finalised.

38. There are indications that, in some quarters of the transport industry, the full responsibility of the certification process is not fully appreciated. Already, the Ministry has been asked to issue a temporary exemption for a non-complying vehicle "just until the linings

are replaced". This sort of attitude is unfortunately too common, and is not only applicable to the Brake Code.

39. It was always the Ministry's intention to make the "interim" Brake Specification available for a transition period, in case there were implementation problems with the Code. It now transpires that many operators still want to use testing to the "interim" Specification, despite its limited applicability. There is, apparently, a significant cost difference between bringing a vehicle up to the Code, and the cost of a 44 tonne test. This has been given as the reason for the trend, although there are conflicting stories. Nevertheless, a proposal has now been prepared to reverse the roles of the Code and the Specification, ie to cite the Code in the HMV Regulations, and to Gazette the Specification as an alternative for a limited period. It is tentatively proposed to withdraw the Specification at the end of 1992.

Suitable Friction Materials.

40. Friction material is one of the components of a brake system that can alter the performance but it is the one which is hardest to specify and check. It is well known that substandard linings are available, but there is not yet a way of preventing their use without specifying Original Equipment Manufacturer's (OEM) linings.

41. It has been suggested that a list of "Approved Friction Materials" is the answer. If an industry based committee were able to draw up a list acceptable to all of the representative industry groups, the Ministry would support such a list. In this case, the importers of linings would need to to ensure that the information on their linings was consistent and reliable. It is pertinent to remind importers that the Ministry has known cases of fraudulent information being supplied by overseas manufacturers of other products.

42. Strictly speaking, full compatibility of linings can only be ensured by extensive testing on a prototype vehicle. However, the performance of a lining on different models can be used as a good guide, provided that the brakes are of the same type (eg S-cam), and the axle loading on the tested vehicle was the same as, or higher than the vehicle under consideration. If such data is not available, or is suspect, there is no reason why tests should not be carried out in New Zealand. This need not be particularly expensive if the test is restricted to ECE Regulation 13 annex 4.

The Road Transport Engineer.

43. In 1987 the Ministry first published a list of "Engineers from whom Certificates are acceptable". It had been intended to screen applicants, but this proved too big a job in the time available. It soon became clear that there were faults in the system, and the Ministry has been seeking acceptable alternatives ever since. Some form of committee is obviously necessary, with appropriate secretarial backup. Every organisation approached, including the IRTE, declined for various reasons, with the exception of the Mechanical Engineering

Advisory Committee (MEAC) of the Institution of Professional Engineers of New Zealand (IPENZ). MEAC are already the approving body for engineers wishing to certify drawbars and drawbeams to NZS 5446, and an extension of their activity into other fields seems natural. A sub-committee of MEAC has been created, with representatives from the IRTE, MoT, and the Road Transport Association; so that those groups and others can be assured that their interests will be taken into account.

44. A "person specification" for each of the current categories, has been developed, which will be the main focus of the vetting process. Emphasis has been placed more on the technical competence of a candidate in a specific category, than on general technical qualifications. All applicants, whether professional or non professional will undergo the same degree of scrutiny, and, as with certification to NZS 5446, a degree in engineering will not be a prerequisite. There are some engineers on the current MoT list who are cause for concern, and therefore there will be no "grandfather" rights. All of the engineers on the list should, by now, have received notification to this effect.

45. Approved engineers will be issued with a practising certificate, stating his or her areas of competence. The certificate will remain the property of the Ministry and will be valid for three years, after which time it will be reviewed.

Light Trailers

46. The Code of Practice developed by the Towing Code Committee was published last year as a draft standard by the Standards Association of New Zealand (SANZ). It attracted considerable interest and many submissions. A SANZ committee has been formed to evaluate the submissions, and a final standard should be published later this year.

Future Directions.

47. In terms of future directions the setting of standards is probably the most significant activity, and it must be pointed out that the introduction of new standards is the Government's prerogative. The Ministry can interpret current regulations, but cannot impose standards unless the regulations provide the scope for doing so. Therefore the ability to predict directions in a paper such as this, is limited.

48. Some of the future requirements are already in regulation form. Other possible requirements are the subject of current discussion papers, or tentative discussions between the Ministry and the transport industry.

49. Various problems have been mentioned in this paper, and they obviously represent areas where changes might be made.

Extensions to the Vehicle Standards Regulations

50. When the regulations were in draft form, some of the items were not assigned start dates, and were marked TBA (To be advised). They could

not be promulgated without dates, so were assigned 1 January 1992, but with the understanding that the date was negotiable with the industry. Agreement was reached on a set of dates, and an amendment prepared. This has still not been approved, but its effect was actioned by a Gazette Notice that deferred some items to January 1993.

51. When the regulations were approved by Cabinet, it was on the understanding that any proposals to extend them into Group 2 items would have to be supported by a benefit-cost analysis. Furthermore, any extension into items that are not featured in each of the overseas systems will almost certainly meet with strong resistance, and may impose additional major costs on vehicles from a source that did not have that item as a requirement. For example, side impact protection is not mandatory in Japan, and is not included in some cars imported. It is required for other markets, for instance Australia, but it is not known what additional cost is involved in incorporating this standard.

Alternatives to the Current Certificates of Fitness Scheme.

52. The current trend in regulatory agencies is towards self-certification and the Safety Audit. In terms of vehicle inspection, this would ultimately mean that transport operators instituted Quality Assurance (QA) systems, and the resources put into the Certificate of Fitness (CoF) scheme would be redirected into random audits of vehicles and transport organisations. A recent report on QA in the transport industry (Ref 1) concluded that there would be net benefits in moving that way, but that the cost benefit would be relatively small. Furthermore, it reported that transport operators were generally happy with the present system. The general conclusion was thus that the voluntary adoption of a QA scheme should be encouraged, and recognised by reducing or eliminating CoF inspections; but that the adoption of QA should not be made mandatory. Industry groups have been asked for comment on this report; after which the Ministry will make a recommendation to the Minister.

53. Another Government policy that impinges on vehicle inspection, is the trend for regulatory agencies to move away from "service delivery". Restructuring of the Ministry has already separated its regulatory and service delivery functions. What used to be a single Automotive Engineering and Surveying section has now been separated into two sections, Vehicle Standards and Vehicle Testing.

Occupant restraint

54. A recently published Ministry discussion paper (2) contains a number of recommendations on seatbelts, including the mandatory fitment to trucks and the "exposed" seats on buses. This was also sent to industry groups for comment, and the comments are now being collated.

Speed Limiters

55. There have been discussions between the Ministry and the Road Transport Association on the fitment of speed limiters. The scheme in Australia has been a starting point in those discussions, particularly

on the aspect of the trade-off of a higher permitted speed for trucks with speed limiters fitted.

Passenger Service Vehicle Regulations - Comfort and Convenience

56. The PSV Regulations include many items that are soley related to safety. They also include items that relate solely to passenger comfort and convenience, and others again that appear to be concerned with comfort and convenience, but which, if abandoned, might give rise to safety problems. The current climate is market oriented, and the continuing application of regulations that relate to comfort and convenience has been questioned. In fact the Ministry has been directed to review those regulations which are not clearly safety related.

Noise

57. Heavy vehicle noise is a nagging problem in some communities. The Ministry has received a number of complaints about the use of "Jake Brakes", and anyone who has heard a Jake Brake from less than 100 metres would probably agree that they are very intrusive. The Ministry is seeking the co-operation of the Road Transport Association and other organisations in order to reduce this problem.

58. Noisy cars and motor-bikes can also be a source of annoyance.

59. Reducing problems caused by noisy vehicles is not made easier by the fact that the established test methods need a large open space and a lot of time. In order to have an effective enforcement tool, the Ministry needs to devise or discover a simple but reliable test method that can be used in almost any location. There have been reports of a method which can be used on a stationary vehicle, with the meter pick-up close to the vehicle so that the direct vehicle noise dominates, and environmental effects, such as echo, can be ignored. The Ministry will monitor developments in this and other test methods which may be suitable for New Zealand.

Emissions

60. The Government has a declared intention to reduce atmospheric pollution. The Ministry is currently exploring ways in which it can contribute to this objective, particularly in relation to carbon dioxide.

Anti-Lock Braking Systems

61. This must be one of the technical advances that needs to be encouraged. It is already available on many vehicles as standard or as an option. A reservation that has been expressed many times is that it must not be used as a panacea for braking problems.

Registration, Licensing, and Inspection

62. Work continues on the reform of registration and licensing system,

which are outside the scope of this paper; except that it is intended to link the new system to vehicle identification and roadworthiness.

Other Potential Projects

63. There are many possibilities for further investigation, a few of which are:

Under-run Prevention

Spray Suppression

Rules for vehicles for the disabled

Pedestrian-friendly front ends

64. Despite the enumeration of all the possible future projects, the next few years are seen as a period of consolidation for vehicle standards. The Ministry will continue to monitor progress overseas in the areas mentioned above, and will use the Vehicle Standards Advisory Committee as the primary consultation forum when contemplating new initiatives.

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2. Review of Vehicle Occupant Restraint Laws, Land Transport Discussion Document No 2, July 1991.
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