

Re-issue of 13 Amended Low Volume Vehicle Standards

Introduction:

This Information Sheet is intended to summarise a number of changes made to 13 low volume vehicle standards (standards) which have recently undergone an amendment process. There is little in the way of new information or requirements contained within the amended standards, as the focus of the amendment process has been to incorporate any existing requirements that have been introduced over recent years within other documents (such as LVV Newsletters and LVV Information Sheets) into the standards in order to ensure that the standards themselves incorporate all current requirements.

An overview is provided below of the changes to each standard. You will note that each standard has been updated in terms of formatting and standardised headings and sub-headings, so as to be consistent with the current look and content of the latest standards.

There are also some standardised note-boxes included (which have been incorporated within more recent standards) which apply to all standards, along with a Terms and Definitions section, and an Associated Information section which provides guidance to users about where other relevant information can be found.

Standardised changes to all amended Low Volume Vehicle Standards:

A number of changes have been made that are common to all, or most, of the standards, which are explained as follows.

Amendment Record table

You will notice on the cover page of each amended standard, that a table has been provided to record the amendment dates and version numbers that have been applied to the standard. This is for the purpose of maintaining clear records of the amendment history of each standard.

One of the ways in which this could be helpful to LVV Certifiers and the public is to show which version of a standard was in force at the time that a vehicle was modified; - because the requirements change from version to version, the requirements that apply to a vehicle may vary dependent on modification date.

Associated Information table

On page 2 of each standard, a table is provided that identifies any associated reference material that should be read in conjunction with the standard. This is in the interests of ensuring that users of the standards are aware of, and have access to, any other information that may be useful in gaining a full understanding of the subject matter relating to the particular standard, and how it might apply to their project.

Tracking of amendments

LVV Certifiers should note that all changes that have been made to each standard during the amendment process have been highlighted (this will show up as grey shade in the hard copies mailed to LVV Certifiers as part of their LVV Certification Manual updates, and they will show as yellow highlight when viewed on-line).

You will notice that some amendments have a grey vertical stroke in the adjacent left-side margin, and that some amendments do not have this grey stroke. The difference is this; - those amendments which are more of a minor correction or formatting nature will not have the grey stroke, whereas those amendments which

are of a technical or reference nature, or are considered important for LVV Certifiers to be aware of will have the grey vertical stroke.

These more minor amendments (without the grey vertical stroke) will have no fundamental impact on the LVV Certifiers' inspection and assessment processes.

Scope and application section:

All standards have been amended to bring the arrangement of the scope and application section into line with current thinking on how this should be presented. There is more change to older standards than more recent ones.

Application note-box:

A standardised note-box is provided at the end of the application section of each standard to make it clear that an LVV Certifier must consider and apply what is relevant, dependent on the relationship between the effect date of the standard and the date of the modifications. This has been applied more to older standards.

General Safety Requirement note-box:

An addition is made at the end of the note-box after 2.1(1) (General Safety Requirements) to reinforce that the LVV Code specifies that every vehicle certified to the Code must be fit for its purpose and safe, regardless of what technical requirements are in place.

Vehicles not covered by this standard:

In all standards, sub-section 4.1 'vehicles not covered by this standard' details that vehicles used for law enforcement or emergency services are not required to be certified to the Low Volume Vehicle Code.

Vehicles that pre-date legal requirements:

For most of the amended standards, within sub-section 4.2 'vehicles that pre-date legal requirements', explanation is provided that the allowance for certification not being necessary is dependent on the modifications not having been further changed.

Modifications that do not require certification:

For most of the amended standards, additions have been made to sub-section 4.3 'modifications that do not require certification' to clarify the various situations where vehicles are not required to be certified, and aligns those situations with the LVVTA Modification Threshold Schedule and the relevant Modification Tables within the NZTA Vehicle Inspection Requirements Manual.

Specific changes to individual Low Volume Vehicle Standards:

A number of changes and updates have been made to each of the standards, specific to each standard, and these are summarised as follows:

LVV Standard 185-40(01) Head Restraints:

1.1(1): Where the standard notes that head restraints are not required, an amendment confirms that this is the case unless LVV Standard 185-00 (Seats and Seat Anchorage) or LVV Standard 155-40 (Interior Impact) requires otherwise.

2.3(1): A carry-over from the Land Transport Frontal Impact Rule which requires that a head restraint (fitted to certain vehicles) must either comply with an approved standard in the Rule, or with the technical requirements in the LVV standard.

3.1(1): A clarification (previously detailed in LVV News Issue # 50) that head restraints aren't required to be retro-fitted to vehicles not originally equipped with head restraints when non-OEM seats are retro-fitted to the vehicle.

LVV Standard 155-40(01) Interior Impact:

2.2(1): The two figures of 60 mm and 80 mm on the H-point template have been changed to one figure of 70 mm, so as to align with the Seatbelt Anchorage Standard, and the NZCCM. The h-point template diagram has been changed to align with the latest illustration, as found in other standards and documents.

2.4(3): The reference to steering column-mounted switches has been removed, as this is covered elsewhere.

3.3: Wordsmithing to correct an old mistake and make the requirement read correctly.

LVV Standard 155-20 (02) Door Retention Systems:

2.6(4) and 2.6(5): These paragraphs, which deal with remotely-operated and electronically-operated door unlatching systems specify in more detail what sort of safety systems must be in place, specifically for automatic transmission-equipped and manual transmission-equipped vehicles.

3.5: This Design Criteria exclusion previously applied to only vehicles that don't have a permanent roof structure, however now (with the removal of the words "...that does not have a permanent roof structure...") the exclusion applies to all vehicles whether open, closed, or convertible.

3.5(c): The h-point template diagram referred to in 3.5(c) has been changed to align with the latest illustration, as found in other standards and documents.

LVV Standard 100-30 (01) External Projections:

2.3(5)(c): Clarifies that '...surrounding body panels...' are to be considered also when assessing contactable edges on functional items.

2.3(5)(d): Clarifies that '...surrounding body panels...' are to be considered when assessing exposed moving mechanical objects in regard to protection being provided.

2.4(1): Details of the cosmetic modifications that can be made to a windscreen is clarified, by referring to the relevant requirements of the Vehicle Inspection Requirements Manual.

LVV Standard 205-00 (01) Wheels and Tyres:

2.1(8): This change reflects the way in which NZTA require tread depth to be assessed.

2.2(3): Adds 'axle load' into paragraph.

2.2(4): A note-box is positioned so as to inform readers that information exists about the 'Supreme'-brand aftermarket wheels.

2.2(5)(b): LE-class vehicles have been included.

2.2(8): Changes have been made to allowance of acceptable wheel offset limits, and to reduce confusion; - now just requiring no greater offset than 35% positive or negative.

2.2(8)(b)(iii): Does away with cumbersome calculation process for extreme offsets that is never used, and requires TAC review if outside of normal limits.

2.3(9): Requires that hand-built or custom-manufactured wheels be pre-approved in writing by LVVTA TAC.

2.4(4)(b)(iv): Provides number of required turns (for assessing adequate thread engagement) for 3/8" stubs or bolts (not previously provided for).

2.4(4)(c): Specifies that for an unmodified hub assembly, thread engagement must be not less than that provided for the fitment by the original vehicle manufacturer.

2.4(5): States that aftermarket wheel nuts cannot be made from aluminium.

2.5(1)(a): Clarification around wheel spacers needing to be made by a recognised manufacturer or a person in whom the LVV Certifier has confidence.

2.5(3): Clarifies that (in relation to spacer requirements for pressed steel wheels) item (a) applies only where the design of the hub assembly allows.

2.5(4): Clarifies that wheel adaptor requirements apply where a change in pitch circle diameter takes place (as well as wheel stud pattern).

2.5(4)(a): Clarification around wheel adaptors needing to be made by a recognised manufacturer or a person in whom the LVV Certifier has confidence.

2.5(4)(c)(i): Details that the maximum allowable thickness for wheel adaptors has increased from 27 mm to 30 mm.

2.5(7): Specifies that a wheel adaptor cannot be used in conjunction with a spacer or another wheel adaptor.

2.6(1): A note-box is positioned so as to inform readers that information exists about appropriate tyre to rim compatibility.

LVV Standard 190-70 (02) Right-hand Drive Conversions:

1.1(1): Provides alignment and clarification with NZTA VIRM in respect to application dates, and ensures that unsafe conversions such as chain & sprocket systems imported from overseas can't be put on the road regardless of modification date.

1.3(3): Clarifies that the standard does not apply to conversions which incorporate major structural modifications or complete steering system configuration changes.

2.3(3): Reference to NZ Car Construction Manual instead of redundant 'relevant Member Association Manual'.

2.4: Provides various references to 'rack and pinion' so as to clarify that a R&P system is included under section 2.4 (as well as a steering box).

2.4(9): Clarifies that the requirement for steering stops applies where a vehicle uses a steering box (as opposed to a R&P).

2.5(4): References the F008 NDT Form and associated process that is now in place.

2.5(5)(c): References the more relevant requirements that now exist within Chapter 7 of the NZ Car Construction Manual in relation to welding of steering system or other critical function components.

2.6(2): References the more relevant requirements that now exist within Chapter 5 of the NZ Car Construction Manual in relation to chassis modifications.

2.7(5): Provides a requirement for flexibility to be present within a brake pipe in the case of a vehicle with rubber mounts separating the body from the chassis.

2.7(6): References 'Chartered Automotive Engineer' (for engineering report and calculations) instead of the redundant 'LTSA cc-engineer' previously referred to.

2.9(2): Introduces from the NZ Car Construction Manual a requirement for a gear selection indicator for automatic transmission-equipped vehicles.

2.9(5): Requires that critical fasteners used in a RHD conversion are either equal or greater spec to OEM, or meet requirements specified in Chapter 18 Attachment Systems in NZ Car Construction Manual.

2.9(6): Makes reference to compliance with any relevant parts of 2.3 of the Seat & Seat Anchorage Standard.

2.9(7): Requires that an engine repositioned as a consequence of a RHD conversion meets the relevant requirements of LVV Standard 85-40, or Chapter 9 of the NZ Car Construction Manual.

LVV Standard 155-30 (01) Frontal impact:

2.2(1): Existing paragraph (which precludes any modifications to OEM frontal impact protection systems) is limited to vehicles newer than 14 years old.

2.2(2): Associated with 2.2(1), this new paragraph allows minor modifications to OEM frontal impact protection systems on vehicles older than 14 years old, provided certain limitations are adhered to.

2.2(2): Note-box clarifies intention of changes to 2.2(1) and new 2.2(2), and explains relation of requirements.

2.2(4): Amends requirement to apply to all vehicle classes rather than just MA-class as specified in original version.

2.2(4): Note-box clarifies which vehicles are required to meet a frontal impact occupant protection standard.

2.2(5): Reference to NZ Car Construction Manual instead of redundant 'relevant Member Association Manual'.

2.3(2): Specifies that when an airbag is removed, all other airbags, and associated systems, are left in operable condition.

2.3(2): Note-box explains what types of seatbelts may be used when a seatbelt is replaced as a result of an airbag removal.

2.3(3): Details have been added about how a temporary airbag disablement is controlled.

2.3(4): Specifies that when an airbag is removed, all other airbags, and associated systems, are left in operable condition.

2.3(4): Note-box explains that the letter from a health professional or medical expert is not required in the instance of a knee airbag being removed as a result of a hand control being fitted.

LVV Standard 90-10 (01) Exhaust Gas Emissions:

2.4(1)(a): Terminology correction in relation to MAF sensors and MAP sensors.

2.4(1)(g): Makes provision for the fact that it can be difficult to have an engine warning light when fitting a modern engine into an older car, so this is only required when it can be provided for by the ECU.

2.4(3): Change of wording from 'air quality emissions' to 'exhaust gas emissions'.

2.4(3): Note-box includes a reference to 'reprogramming of an OEM ECU' (as well as installing an aftermarket ECU).

2.5(1): Note-box references new Appendix 1 'Catalytic Converter Requirement Flowchart for Modified Production Vehicles' which is a flowchart to provide guidance in the circumstances in which catalytic converters are required.

2.5(6)(b): Clarification to show that vehicle in discussion is vehicle 'being replicated', not original vehicle.

2.5(6)(c): Clarification to show that vehicle in discussion is vehicle 'being replicated', not original vehicle.

2.5(9): Grammatical correction.

2.6(8): Numbering and number referencing correction.

3.1(1): The inclusion of this new exclusion means that in-service vehicles are not required to undergo an exhaust gas emissions test, creating consistency between in-service standard vehicles and in-service low volume vehicles.

Introduction of Appendix 1 'Catalytic Converter Requirement Flowchart for Modified Production Vehicles' which is a flowchart to provide guidance in the circumstances in which catalytic converters are required.

LVV Standard 90-20 (01) Exhaust Noise Emissions:

No changes to standard other than addition of 'Associated Information' table on page 2, and sub-section 4.1 'vehicles not covered by this standard' on page 20, that records that vehicles used for law enforcement or emergency services are not required to be certified.

LVV Standard 45-30 (04) Disability Adaptive Control Systems:

Purpose: Removed lengthy explanatory paragraph regarding Occupational Therapists.

2.4(5): Note-box requires any replacement accelerator return springs to be sufficiently durable and reliable that accelerator will return to idle when released.

2.7(1): In relation to adaptive foot controls, allowance for the option for drive-by-wire pedals to be switched electronically.

4.2(1)(b): When referring to the installation of a mechanical or electrical means of engaging or disengaging the parking brake system, wording has been added to clarify that this relates to unmodified original equipment.

Appendix A: Updates have been made to the Appendix.

LVV Standard 45-60(01) Disability Transportation Systems:

2.2(1): Include the rear passenger area as an area in which a wheelchair crane and winch system may be installed (in addition to a rear cargo area).

2.3(1): Clarify wording in note-box that a goods hoist may only be used for lifting an unoccupied wheelchair.

2.3(4): Change requirement to allow a wheelchair hoist to have (as an alternative to information 'written in English') 'clear and comprehensive illustrations' so as to allow original instructions written in a foreign language provided that good illustrations make operation easily understood.

2.3(11): Change wording to ensure that the platform of a wheelchair hoist has markings that are visible to 'all other motorists', rather than 'oncoming vehicles'.

2.3(11): Note-box clarifies that 'perimeter' (of a wheelchair hoist) includes the area occupied by the rear door opening.

2.3(12): Note-box clarifies that a vehicle's interior lights may be suitable to illuminate an extended wheelchair hoist in certain conditions.

2.3(15): Note-box allows a door-open warning light as a means of warning the driver that a hoist is not fully stowed.

- 2.4(1): Note-box clarifies that a goods ramp may only be used for lifting an unoccupied wheelchair.
- 2.5(4): Allows, as an alternative to 50 mm edge barriers on a wheelchair ramp, the same requirements as specified within the NZTA Passenger Service Vehicle Rule.
- 2.5(7): Clarifies that the requirement for the safe stowage of a folding wheelchair ramp.
- 2.5(7): Note-box clarifies that a ramp can be detachable provided that it is light enough to be easily moved.
- 2.5(10): The requirement that a vehicle cannot be operated whilst a wheelchair ramp is deployed has been limited to just those ramps that deploy to the side of the vehicle.
- 2.5(10): Note-box specifies common methods of 'safety devices' to prevent vehicle operation whilst a ramp is deployed.
- 2.7(5): Note-box specifies a vehicle make and model that has been given approval by LVVTA to incorporate an anchorage for a wheelchair directly into a wheelchair hoist.
- 2.7(11): Specifies that positioning of wheelchair restraint straps must be 'symmetrically' arranged, in addition to existing requirement.
- 2.8(3): Change requirement to allow for wheelchair restraint straps to have (as an alternative to information 'written in English') 'clear and comprehensive illustrations' so as to allow original instructions written in a foreign language provided that good illustrations make operation easily understood.
- 2.8(3): Note-box specifies that wheelchair restraint straps must be arranged in 'sets', not 'pairs' as previously required, to ensure that the same restraints are used.
- 3.1(1)(f): Allows a special restraint to be fitted 'as part of a specialist disability restraint system' as an alternative to meeting the requirements of LVV Standard 175-00 (Seatbelt Anchorages).

LVV Standard 35-00 (01) Braking Systems:

- 2.2(2): Provide reference to the specifications in Chapter 8 NZ Car Construction Manual for disc swept area.
- 2.2(3): Add 'heating or bending' to disallowed modifications for cast or forged uprights (in relation to disc brake adaptations).
- 2.2(4): Note-box specifies that a twin single-circuit master cylinder system is allowed as an alternative to a 'dual-circuit' system, provided requirements in Chapter 8 of NZ Car Construction Manual are met.
- 2.2(5): Addition to require master cylinder reservoirs to be easily accessible for inspecting and filling of fluid.
- 2.2(6): Addition to require a master cylinder to be positioned at least 50 mm away from any part of the exhaust system.
- 2.2(7): A requirement, for adjustable balance bar systems, to be restricted in its angular movement to ensure against loss of operation of either circuit, and to meet requirements in Chapter 8 of NZ Car Construction Manual.
- 2.2(13): Requirement for any modified brake components, including a pedal or pedal push-rod, to meet all applicable requirements in Chapter 8 of NZ Car Construction Manual.
- 2.2(14): Specifies that not only a brake pipe, but also 'its attachment system' must be designed for automotive applications, so as to rule out cable ties and the like.
- 2.2(16): Specifies distances required (unless protected by a heat-shield) between a brake pipe and any part of an exhaust system and specifically a catalytic converter.

2.2(18): Specifies that not only a brake hose, but also 'its attachment system' must be designed for automotive applications, so as to rule out cable ties and the like.

2.2(19): Specifies distances required (unless protected by a heat-shield) between a brake hose and any part of an exhaust system and specifically a catalytic converter.

2.2(21): Clarifies that a stainless steel braided hose cannot be used to replace a rigid brake pipe, unless vehicle is motorsport vehicle with LVV Authority Card.

2.2(22): Provides criteria that must be met if a stainless braided steel brake hose is used to replace a rigid brake pipe, for quality, installation, and securing.

2.2(25)(b): Where an ABS system has been removed, the words 'decals or badges' to be removed is added to the requirement for a 'warning light' to be removed (that indicate the presence of an ABS system).

2.2(25)(c): Where an ABS system has been removed, and all ABS parts must be removed, this clarifies that the parts to be removed are limited to just the parts that 'are relevant to the safe operation of the braking system without ABS'.

2.2(28): The requirement that says a hydraulic park brake can't be fitted to a vehicle has the motorsport vehicle (with LVV Authority Card) allowance included as part of the requirement rather than a separate exclusion elsewhere in the standard.

2.2(32): Note-box provides explanation on the situation regarding cardan-shaft park-brakes, and how they cannot be regarded as an 'emergency brake'.

2.2(33): Disallows a hand-operated park-brake that doesn't have a ratcheting engagement system.

2.2(34): Provides criteria under which an electrically-operated park brake can be fitted.

2.2(36): Addition of the year by which vehicles must have a speedometer fitted.

2.3(36): Note-box clarifies 'accurate indication of speed' and provides guidance on over-reading.

2.2(37): Clarifies requirements for (critical location) fasteners, and references the Attachment section of the NZ Car Construction Manual.

2.3(2): The requirement for brake test performance has been broken out from one requirement to two separate requirements. 2.3(2) is a new requirement that deals with the way in which the test is required to be conducted, but without the actual performance parameters. The performance parameters are covered in 2.3(3). This is to make the requirements around performance testing easier to follow.

2.3(2): Note-box provides some explanation to the often-misunderstood background to cyclic brake-fade testing.

2.3(3): This requirement now focusses on just the performance parameters for the cyclic brake testing process.

2.3(5): Introduces a requirement for a single emergency stop in addition to the cyclic test process.

2.3(5): Note-box explains reason for single emergency stop requirement.

2.4(1): A general reference to the relevant requirements of the NZ Car Construction Manual for any other modifications present on the vehicle.

3.1(1): New exclusion for cyclic brake testing; - intended to apply to commonly-imported modern vehicles with adjustable suspension that is set to a height that is similar to original, with no other modifications aside from aftermarket alloy wheels that are under the certification threshold. This exclusion allows a one-off test instead of the 3-cycle test, provided that the criteria specified in 3.1(1) is met.

3.1(1): Note-box explains the intention of the exclusion, and why the exclusion has been created.

3.1(2): New exclusion for brake testing; - intended to apply to a vehicle such as a van with seats added, but which also has aftermarket wheels fitted that are under the certification threshold (without the seats added, this vehicle would not need LVV certification for the changed wheels, and would just be subject to a WoF/CoF inspection) and so now can avoid the requirement for a brake-test, provided that the criteria specified in 3.1(2) is met.

3.1(2): Note-box explains the intention of the exclusion, and why the exclusion has been created.

3.1(3): New exclusion for brake-testing; - intended to apply to a production run such as a series of vans with high roofs for a camper conversion, which can now avoid the requirement for brake-testing, provided that the criteria specified in 3.1(3) is met.

3.1(3): Note-box explains the intention of the exclusion, and why the exclusion has been created.

3.2(1): Note-box references new deceleration tables in Appendix 1 as they relate to the (existing) low-performance vehicle exclusion.

3.3(1): A new exclusion from the specified brake-testing performance parameters is applied for vintage vehicles which feature a non-hydraulic system (old cable brake or rod brake systems), or single-axle brakes (as many veteran vehicles have).

3.3(2): A new exclusion from the requirement to have a dual-circuit master cylinder (if the cylinder is changed or retro-fitted) for vehicles that were originally equipped with a cable or rod braking system but have been upgraded to a hydraulic braking system (such as post-1938 Ford hydraulic brakes on a pre-1938 Ford).

3.3(2): Note-box explains the intention of the exclusion, and why the exclusion has been created.

3.5(1): Note-box references new deceleration tables in Appendix 1 as they relate to the (existing) wet road exclusion.

3.6(1): Clarification on Table-A classes and dates for existing parking brake exclusion to align with existing legislation.

Appendix 1: An Appendix has been added to the back of the standard containing conversion tables, to provide time and distances from various speeds, for 0.6g, and 0.55g.

LVV Standard 85-40 (01) Engine & Drive-train Conversions:

2.1(2): The general safety requirements have been changed to align with the current GSRs from the Land Transport Rule, rather than from the earlier GSRs copied in from the Vehicle (Transport Regulations) 1990 in the original version of the standard.

2.2(5): References the relevant section of the Car Construction Manual to ensure correct design of a non-OE engine cross-member.

2.2(9): Clarification to ensure that sufficient clearance is always provided between an engine and the axle under full suspension compression.

2.2(12): References the relevant section of the Car Construction Manual to ensure that engine mounting fasteners meet all requirements.

2.2(14): Wording added to ensure that other rotating components in an engine bay (as well as the cooling fan) are shielded.

- 2.2(16): Requirement for sealing openings between engine compartment and passenger compartment is expanded to include floor and transmission tunnel.
- 2.3(3): Note-box is added to recommend labelling of vehicles fitted with nitrous oxide injection in order to warn emergency services of the presence of nitrous oxide.
- 2.3(5): References the relevant section of the Car Construction Manual to ensure that fuel systems meet all requirements.
- 2.3(7): Requirement added for an effective end stop for accelerator pedals to prevent cable stretch when the cable is at maximum travel.
- 2.3(8): Note-box provides more detailed guidance on the correct method of setting up an accelerator return spring.
- 2.3(9): Additional requirements have been added for exhaust systems, including attachment to the vehicle, sealing of gases from passenger compartment, and preventing interference.
- 2.3(10): Sets minimum distances for exhaust system (if not shielded) to key components such as pipes and hoses, catalytic converters, steering universals, and rubber or fabric steering components.
- 2.3(11): References the relevant section of the Car Construction Manual to ensure that braking systems meet all requirements.
- 2.3(13): Introduces requirements for a battery, in relation to being secured, sealed from the passenger compartment, vented to the exterior, and being correctly wired.
- 2.3(16): Sets requirements for electrical systems to isolate key components from the fuel system.
- 2.3(18): References the relevant section of the Car Construction Manual to ensure that steering systems meet all requirements.
- 2.4(1): References the relevant section of the Car Construction Manual to ensure correct design of a non-OE gearbox cross-member.
- 2.4(6): References the relevant section of the Car Construction Manual to ensure that gearbox mounting fasteners meet all requirements.
- 2.4(8): Adds wording detail around the need for a gear selection indicator.
- 2.4(8): Note-box adds emphasis and clarity by providing explanation that a gear pattern indicator is not sufficient to meet gear selection indicator requirement.
- 2.5(1): Note-box explains considerations around drive-shaft tubing strength when converting from a two-piece drive-shaft to single drive-shaft.
- 2.5(2): adds requirement for increased outside diameter of drive-shaft tubing where increase in drive-shaft length, or power output, occurs.
- 2.5(3) & 2.5(4): Clarifies situation where an LVV Certifier is presented with a vehicle which has a modified or custom-built drive-shaft, for which no information is available. A tiered system now exist which enables, where no evidence exists, for drive-shafts to be assessed by visual inspection.
- 2.5(4): Note-box provides scenarios where visual assessment can be applied to a non-OE drive-shaft instead of documented evidence.
- 2.5(7): References the relevant section of the Car Construction Manual to ensure that drive-shaft attachment fasteners meet all requirements.

2.5(8): Added requirement around appropriate size of drive-shaft universals.

2.5(8): Note-box provides drive-shaft manufacturer guidance on operating angles for drive-shaft universals, and caution on complexity associated with drive-shaft universal phasing.

2.5(9): Provides upgraded requirements around the circumstances in which a drive-shaft safety loop is required, providing alignment with Car Construction Manual requirements.

2.5(9): Note-box provides clarification around a number of specific situations in which the circumstances (where drive-shaft safety loops must be fitted) specified in 2.5(9) can be relaxed.

2.5(10): Sets out basic principles of correct design and attachment of a drive-shaft safety-loop [when it is required to be fitted, as per 2.5(9)] and references the relevant section of the Car Construction Manual to ensure that a modifier understands the exact technical requirements that must be met.

2.5(10): Note-box also references LVV Information Sheet # 09-2011 for additional information on drive-shaft safety-loops, and reinforces the importance of doing this work correctly.

2.5(11): References the relevant section of the Car Construction Manual to ensure that axle housing modifications meet all requirements.

2.5(12): References allowance for locked differentials (or spools or mini-spools) in the case of a valid LVV Authority Card.

2.5(13): New requirement for appropriate axle strength in cases where an axle failure could lead to loss of a wheel.

2.5(14): References the relevant section of the Car Construction Manual to ensure that axle housing attachment fasteners meet all requirements.

2.6(1): References the relevant section of the Car Construction Manual to ensure that any welding carried out in relation to any engine or gearbox mounts or cross-members, or diff housings, meet all prescribed welding requirements.

2.6(2): Specifies circumstances in which a vehicle converted from four-wheel drive to permanent two-wheel drive must meet prescribed technical requirements.

2.6(3): Provides technical requirements for vehicles that have been converted from four-wheel drive to permanent two-wheel drive, particularly in relation to CV joints and drive-couplings.

2.6(4): Sets out additional requirements and inspection processes that must be applied to a vehicle that has been converted from four-wheel drive to permanent two-wheel drive.

2.6(5): References various other LVV standards and Car Construction Manual chapters that may also need to be complied with.

Finally:

The amended and updated content of the standards will be explained during a series of LVV Certifier training sessions held throughout the country during August. In the meantime, if you require any explanation or clarification on the changes within the standards, please contact an LVVTA Technical Team member at the LVVTA office on (04) 238-4343.