

# Light Vehicle Inspection Manual

## Section 9 Engine Compartment and Driveline

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### Australian Design Rules relevant to this section

ADR 42/...	General safety requirements
ADR 79/...	Emission control for light vehicles
ADR 80/...	Emission control for heavy vehicles (greater than 3.5t GVM)
ADR 83/...	External noise
More information	Appendix C – Modified Vehicles Appendix Q – Stationary Noise Test

**OBJECTIVE:** To ensure that engine and driveline components are compliant with the regulations and operate in a safe manner.

### 9.1. Visually inspect the engine, transmission and driveline for oil/fluid leaks.

#### Reasons for rejection

- a) Oil is leaking from the engine, gearbox, differential, or from any joint or seal onto any of the following:
  - i. Brake friction surfaces.
  - ii. The exhaust system.
- b) Oil or fluid dripping onto the road surface, at a rate of more than one drop every 30 seconds.
- c) Evidence of oil or fluid leaking from any brake or power steering component.

### 9.2. Visually inspect engine, transmission and driveline components

#### Reason for rejection

- a) Any engine or transmission mounting is cracked or not secured.
- b) Rubber components are severely perished, broken or deteriorated.
- c) Fasteners on couplings in the driveline are cracked, loose or missing.
- d) Any transmission drive shaft is bent, damaged, loose or noticeably misaligned.
- e) Any universal or constant velocity joint has excessive wear, is misaligned, seized, is not securely attached, or has a damaged or missing boot.
- f) Where an automatic transmission is fitted, the engine can be started in any gear position other than neutral or park (ensure that brakes are applied during this test).
- g) Any modifications to engine, transmission and driveline components that does not have a modification plate.

### 9.3. Visually inspect the electrical system

#### Reasons for rejection:

- a) Battery or batteries are not secured in a cradle or carrier using hold down clamps, is cracked, leaking or has missing caps.
- b) A battery mounted in the interior of a vehicle is mounted to allow acid or fumes to come into contact with passengers or goods.
- c) Electrical wiring is not securely mounted and insulated.
- d) Wiring not supported at 600 mm or less intervals.
- e) Chafing or located in such a way that would cause danger to the operation of the vehicle.
- f) Electrical wiring hinders driver or passenger movement.
- g) Any electrical wiring or connector that is corroded damaged, not insulated or securely fastened so that it could be damaged.
- h) Electrical wiring is unprotected from abrasion.
- i) Wiring is exposed to excessive heat.
- j) Wiring is in contact, or can contact moving parts.

### 9.4. Visually inspect the exhaust system

#### Reasons for rejection

- a) Any component of the exhaust system that is cracked, or not securely mounted.
- b) The exhaust system is not fitted with an effective silencing device through which all of the vehicles exhaust pass.
- c) Exhaust pipe outlet is not rearward of all side passenger doors and opening windows and more than 40 mm beyond any floor joint that is not continuously sealed or welded.
- d) Exhaust pipe outlet discharges to the left-hand side of the vehicle.

<p><b>Note:</b> i. For passenger car derivatives (MA, MB, MC, NA, NB categories) built to comply with ADR 42/04 onwards (from 1/1/2005), exhaust position may not apply due to compliance with more stringent emission control standards.</p>
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- e) There is any leak in the exhaust system, excluding manufacturers' drain holes in the mufflers.
- f) Exhaust outlet does not extend to the outline of the vehicle body.
- g) The exhaust system fouls any part of the steering, suspension, brake or fuel system.
- h) The exhaust does not have a ground clearance equal to or more than 100 mm.
- i) Emission control equipment (as applicable to the vehicle) missing or not operative.
- j) The engine lets out sparks, flames, excessive gases, and oil or fuel residue.
- k) Where fitted, a waste gate is vented to the atmosphere.
- l) For a vehicle manufactured after 1930 and propelled by an internal combustion engine, the vehicle emits visible emissions for a continuous period of more than 10 seconds.

- m) Exhaust outlets applicable to a bus:
- 1) For a vertical exhaust outlet:
    - i. The outlet is not located behind the rearmost part of the passenger compartment.
    - ii. Does not discharge the exhaust rearward or vertical.
  - 2) All other bus exhaust systems:
    - i. The exhaust outlet extends beyond the perimeter of the bus.
    - ii. The exhaust outlet does not discharge to the rear or right of the bus.
    - iii. The outlet does not discharge the main exhaust flow; horizontally or downward at an angle more than 45 degrees below horizontal.

<p><b>Note:</b> ii. <i>A vehicle should not be rejected for emissions that are visible only because of heat or the condensation of water vapour.</i></p> <p>iii. <i>Motor cycles and motor trikes information - see Section 12 Motorcycles</i></p>
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## 9.5. Visually inspect the fuel system

### Reason for rejection

- a) There is any leakage from the fuel system.
- b) Any part of the fuel system is insecure or damaged so that there is a risk of a fuel leak.
- c) The fuel cap is missing, insecure, or of the incorrect type.
- d) The air cleaner is not fitted.
- e) Engine speed does not return to normal idle position upon release of the accelerator pedal or throttle control.
- f) Multiple and/or replacement carburettors fitted to any motor vehicle do not continue to comply with the emission requirements of the Australian Design Rules applicable at the time of the vehicle's manufacture.

## 9.6. Where it is evident that a vehicle is emitting significantly higher exhaust noise than normal, conduct a stationary noise test

<p><b>Note:</b> iv. <i>Car type vehicle means a light motor vehicle with at least 4 wheels and a seating capacity of 9 or less including the driver. It includes a passenger car, passenger car derivative, station wagon, utility and panel vans.</i></p> <p>v. <i>Appendix Q is the national stationary exhaust noise test procedures for in-service motor vehicles.</i></p>
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### ADR 83/... Applicability

In the following, a 'new model' means - a model of vehicle first produced and not that model during production.

The following describes when ADR 83/... became applicable to vehicles with different fuel systems.

#### Petrol

- 1 Jan 2005 for new model vehicles and vehicles with a GVM  $\leq$  3.5t
- 1 Jan 2007 for new model vehicles with a GVM  $>$  3.5t
- 1 Jan 2007 for all other vehicles.

#### LPG and natural gas

- 1 Jan 2005 for new model vehicles and vehicles with a GVM  $\leq$  3.5t
- 1 Jan 2007 for new model vehicles with a GVM  $>$  3.5t
- 1 Jan 2007 for all vehicles with a GVM  $\leq$  3.5t
- 29 Feb 2008 for all vehicles with a GVM  $>$  3.5t

#### Diesel

- 1 Jan 2006 for new model vehicles and vehicles with a GVM  $\leq$  3.5t
- 1 Jan 2007 for new model vehicles and vehicles with a GVM  $>$  3.5t
- 1 Jan 2007 for all vehicles with a GVM  $\leq$  3.5t
- 29 Feb 2008 for all vehicles with a GVM  $>$  3.5t

#### Other

- 1 Jan 2014 for all other vehicles.

### Reason for rejection

- a) For a car type vehicle, motor bike or motor trike where ADR 83/... is not applicable. The measured noise level when measured in accordance with the specified stationary noise test procedure exceeds the limit shown in the table below.

Date of manufacture on compliance plate	Noise value
Car type vehicle manufactured prior to 1 January 1983	96dB(A)
Car type vehicle manufactured from 1 January 1983	90dB(A)
Motor bike or motor trike built before 1 February 1985	100dB(A)
Motor bike or motor trike built from 1 February 1985	94dB(A)