

Light Vehicle Inspection Manual

Section 4 Steering and Suspension

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Australian Design Rules relevant to this section

ADR 10/...	Steering column
ADR 42/...	General safety requirements
ADR 43/...	Vehicle configuration and dimensions
ADR 69/...	Full frontal occupant protection
More information	Appendix C – Modified vehicles Appendix D – Ground clearance

OBJECTIVE: To ensure that the steering and suspension is in good working order and allows the driver effective control of the vehicle.

- Note:**
- i. *There are vehicles where the SRS light will only illuminate when a fault is detected e.g. Peugeot*
 - ii. *To be registered in Australia a vehicle must usually have a steering control (right hand drive) to the right of, or in line with, the centreline of the vehicle. Vehicles at least 25 years old may have left-hand-drive subject to compliance with certain conditions. Contact the MVR Vehicle Standards area regarding the steering requirements for Personal Imported vehicles.*
 - iii. *For more information on imported vehicles, refer to Information Bulletin V48 Imported Vehicles – refer to weblink <https://nt.gov.au/driving/industry/vehicle-information-bulletins-and-forms>*

4.1. With the engine running, check the operation of the steering by moving the steering wheel, or, on cycle type vehicles, the handle bars

Reasons for rejection

- a) Where a steering wheel is fitted, there is more than 50mm rotational free play.
- b) The steering wheel is not free from structural damage or other damage that affects the ability to use the steering wheel to control the vehicle (i.e. broken hand grips).
- c) Accessories fitted to steering wheels (padded hubs, covers etc.) are loose.
- d) Steering wheels fitted to light passenger vehicles manufactured on or after 1 January 1971 are not replaced by a steering wheel which complies with ADR 10/...
- e) The steering wheel is not securely attached to the steering column.
- f) Where steering linkages are fitted to cycle type vehicles, the rotational free play exceeds 10mm measured at the end of the handle bars.
- g) Where ADR 69/... applies, the steering wheel is not of the same specification as the one provided by the vehicle manufacturer.

- h) Where a supplementary restraint system (SRS) airbag is fitted, there is any evidence that an airbag or other SRS system is inoperative (check the indicator light, where fitted - this usually illuminates when the ignition is first switched 'on' and extinguishes after the system passes a self-test).

Note: i. *The minimum diameter of any replacement steering wheel must not be less than 330mm. The replacement wheel must be designed in a similar manner to the original (e.g. padded centre hub and dished spokes).*

4.2. Visually inspect all steering components under the bonnet and under the vehicle

Note: ii. *Take care with spring-loaded and rubber-bush joints. These components might be designed to have a certain amount of allowable movement.*

Reasons for rejection

- a) Any steering component is missing, cracked or broken or is worn beyond manufacturer's limits.
- b) Any steering component can be seen to have been repaired or modified by bending, heating or welding.

Note: iii. *Does not apply where an original component has been fitted by the manufacturer or repairs have been conducted to manufacturer's specifications.*

- c) Any nut, bolt or locking device is missing or insecure.
- d) Tie rod and drag link ends are not secured in both the rod and taper with fasteners suitably locked (e.g. split pins, lock-wire, tabs or self-locking nuts).
- e) There is any movement on the spline joining the Pitman arm and the steering box or between any thread or tapered joint.
- f) Free play due to wear in any steering component exceeds manufacturer's specification (if that specification is not known, free play exceeds 3mm).
- g) Any power steering component is leaking, damaged or inoperative.
- h) Any steering componentry that is not securely mounted and free from excessive side or end play, roughness, or binding.
- i) Any steering component fouls another component under any combination of steering and/or suspension travel.
- j) Any power steering belts are loose, broken, frayed, missing, or cracked through to reinforcing plies.

4.3. Examine the idler arm

If fitted, attempt to move the idler arm in the direction of the pivot axis.

Reason for rejection

- a) The play at the end of the idler arm exceeds the manufacturer's wear limits or 8mm (where the manufacturer's limit is not known).

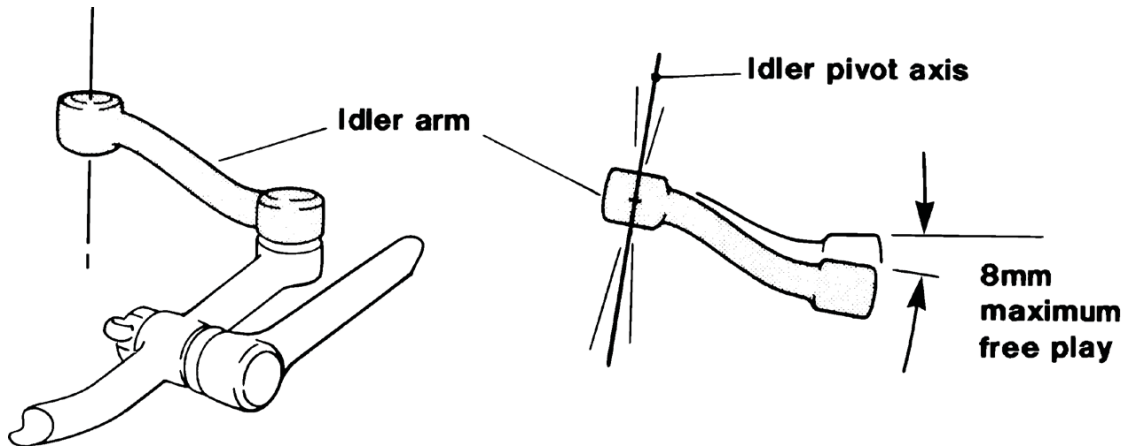


Figure 4.1 Idler arm free play

4.4. Visually inspect the suspension

Reasons for rejection

- a) Any suspension component is broken, damaged, misaligned, insecure, cracked, cut, missing, oil soaked, or can be seen to have been repaired or modified by heating bending or welding or is worn beyond manufacturers' limits.
- b) Any shock absorber or strut is inoperative; or is leaking fluid.
- c) Any shock absorber or strut is not securely mounted.
- d) Any nut, bolt or locking device is missing or not secure.
- e) With the wheels raised, the vertical free play of any wheel exceeds 3mm.

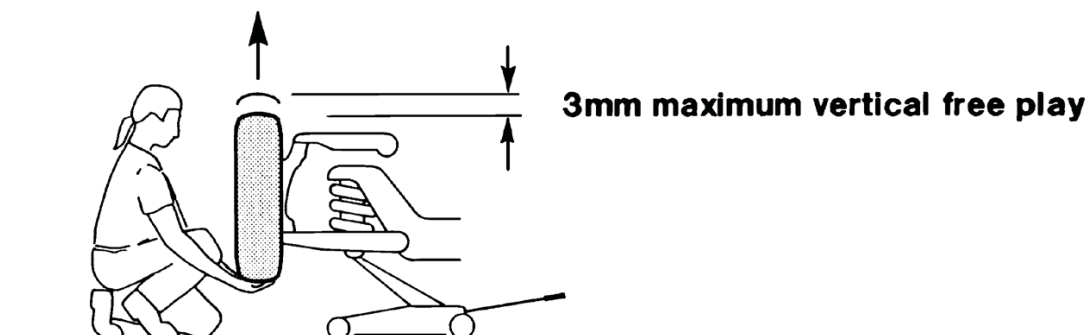


Figure 4.2 Vertical free play

Note: iv. Manufacturers' tolerances take precedence over specified free play measurements when performing these checks.

- f) With the wheels raised, the free play of the wheel measured at the rim exceeds 6mm in total or 3mm from any component.

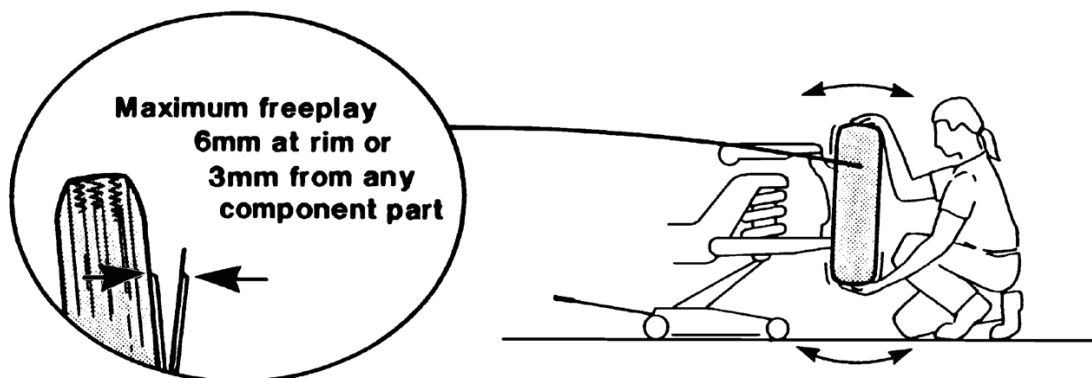


Figure 4.3 Horizontal free play

Note: v. *Manufacturers' tolerances take precedence over specified free play measurements when performing these checks.*

- g) Any axle component, U-Bolt, spring hangers, centre bolt etc associated with the axle installation or performance is cracked, loose, broken, missing or worn outside of manufacturers safe working limits.
- h) Nuts do not have a thread engagement length at least equal to the U Bolt thread diameter.
- i) Any springs are cracked, broken, missing, displaced more than 10% of their width or in contact with wheels, brakes or the frame.
- j) Air bags leak.
- k) Suspension heights are lowered or raised by more than one-third of the original suspension travel.
- l) A vehicle does not have a ground clearance equal to or more than:
- 100 mm within one metre of an axle, and
 - One thirtieth of the distance between the centres of adjacent axles at a midway point between them.

Note: vi. *Any suspension height modifications must comply with conditions set out in the [National Code of Practice for Light vehicle Construction and Modification](#) – Section LS Tyres, Rims, Suspension and Steering.*

vii. *Where the overall lift of a vehicle exceeds 75mm above original height without department modification approval, contact the nearest department inspection facility for further advice.*

viii. *Superficial crazing is acceptable on rubber bushes. This is often present on rubber suspension components even when new.*

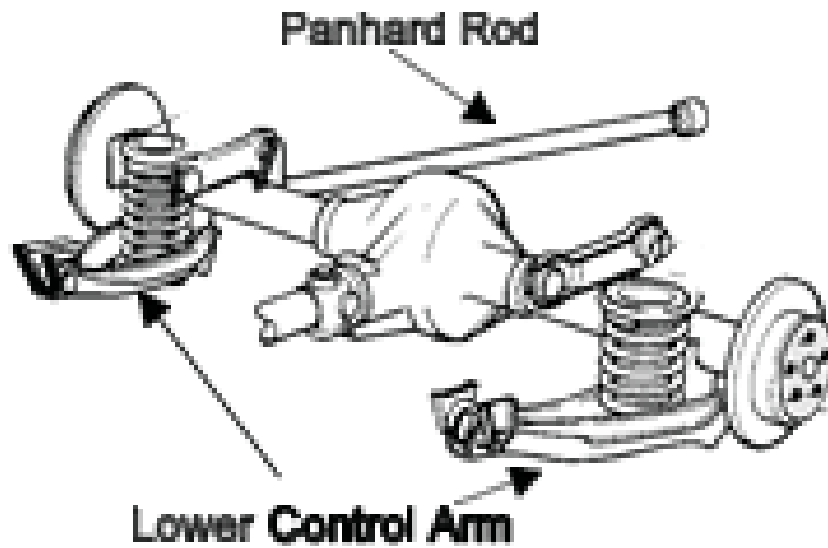


Figure 4.4: Axle locating devices