



Vehicle Standard (Australian Design Rule 14/01 – Rear Vision Mirrors) 2006

Compilation: 1 (up to and including Amendment 1)

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Compiled by: Vehicle Safety Standards, Department of Transport and Regional Services.

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0. LEGISLATIVE PROVISIONS

0.1. NAME OF STANDARD

- 0.1.1. This Standard is the Vehicle Standard (Australian Design Rule 14/01 – Rear Vision Mirrors) 2006.
- 0.1.2. This Standard may also be cited as Australian Design Rule 14/01 — Rear Vision Mirrors.

0.2. COMMENCEMENT

- 0.2.1. This Standard commences on the day after it is registered.

0.3. REPEAL

- 0.3.1. This Standard repeals each vehicle standard with the name Australian Design Rule 14/01 — Rear Vision Mirrors that is:
 - (a) made under section 7 of the Motor Vehicle Standards Act 1989; and
 - (b) in force at the commencement of this Standard.
- 0.3.2. This Standard also repeals each instrument made under section 7 of the Motor Vehicle Standards Act 1989 that creates a vehicle standard with the name Australian Design Rule 14/01 — Rear Vision Mirrors, if there are no other vehicle standards created by that instrument, or amendments to vehicle standards made by that instrument, that are still in force at the commencement of this Standard.

SCOPE

This Australian Design Rule (ADR) is part of the Australian motor vehicle standards system and is a national standard for the purposes of the Motor Vehicle Standards Act 1989.

The function of this Australian Design Rule is to specify requirements for rear vision mirrors to provide the driver with a clear and reasonably unobstructed view to the rear.

APPLICABILITY AND IMPLEMENTATION

This ADR applies to the design and construction of vehicles as set out in the table hereunder.

The /00 Rule differs from the /00 Rule in that it permits '*Convex Mirrors*' on the passenger's side and an additional '*Convex Mirror*' on the driver's side of all vehicles. It also updates the SAE Test Procedure J964 to the J964a August 1974 version.

The Package 17 amends Appendix A S12.5 by deleting the table and replacing with a formula.

Provided that they were tested to the updated SAE test procedure; and meet the curvature specifications, vehicles certified to the requirements of any of the '*Acceptable Prior Rules*' as shown below in the Applicability Table are deemed to comply with this Rule.

Vehicle Category	ADR Category Code*	UNECE Category Code*	Manufactured on or After	Acceptable Prior Rules
Moped 2 wheels	LA	L1	1 March 1991	/00
Moped 3 wheels	LB	L2	1 March 1991	/00
Motor cycle	LC	L3	1 March 1991	/00
Motor cycle and sidecar	LD	L4	1 March 1991	/00
Motor tricycle	LE	L5	1 March 1991	/00
Passenger car	MA	M1	1 Jan 1991	/00
Forward-control passenger vehicle	MB	M1	1 Jan 1991	/00
Off-road passenger vehicle	MC	M1	1 Jan 1991	/00
Light omnibus	MD	M2		
up to 3.5 tonnes 'GVM' and up to 12 seats	MD1		1 July 1990	/00
up to 3.5 tonnes 'GVM' and more than 12 seats	MD2		1 July 1990	/00
over 3.5 tonnes and up to 4.5 tonnes 'GVM'	MD3		1 July 1990	/00
over 4.5 tonnes and up to 5 tonnes 'GVM'	MD4		1 July 1990	/00
Heavy omnibus	ME	M3	1 July 1990	/00
Light goods vehicle	NA	N1	1 July 1990	/00
Medium goods vehicle	NB	N2		
over 3.5 tonnes up to 4.5 tonnes 'GVM'	NB1		1 July 1990	/00
over 4.5 tonnes up to 12 tonnes 'GVM'	NB2		1 July 1990	/00
Heavy goods vehicle	NC	N3	1 July 1990	/00
Very light trailer	TA	O1	Not Applicable	
Light trailer	TB	O2	Not Applicable	
Medium trailer	TC	O3	Not Applicable	
Heavy trailer	TD	O4	Not Applicable	

* The category code may also be in the format L₁, L_A etc.

14.1. DEFINITIONS

14.1.1. Refer to Vehicle Standard (Australian Design Rule Definitions and Vehicle Categories) 2005.

14.2. REQUIREMENTS FOR MA; MB; MC; AND MD1 VEHICLES ONLY

142.0 Any internal rear vision mirror fitted to a vehicle and intended to provide the driver with a view of following or overtaking vehicles shall have a flat reflecting surface i.e. of unit magnification.

14.2.1. An external mirror complying with the requirement of Clause 14.2.3 shall be fitted on the driver's side of the vehicle. An internal rear vision mirror shall also be provided except where the design of the motor vehicle does not provide for internal rear vision. In any case where the field of view requirements of Clause 14.2.2.1 are not met the vehicle shall be equipped with a passenger's side external rear vision mirror complying with Clause 14.2.3.

14.2.2. Internal Rear Vision Mirrors

14.2.2.1. Field of View - An internal mirror shall be installed that provides all drivers (with eyes located by the *'95th Percentile Eye Ellipses'* tangent contours) with a view to the rear, with an included horizontal angle of at least 20 degrees and sufficient vertical angle to provide a view of a level road surface extending to the horizon beginning at a point not greater than 61 metres to the rear of the vehicle when the vehicle is occupied by the driver and 4 passengers or the designated *'Seating Capacity'*, if less, based on 68 kg average occupant mass. The line of sight may be partially obscured by seated occupants or by *'Head Restraints'*.

14.2.2.2. Mounting

14.2.2.2.1. The mirror mounting shall provide a stable support for the mirror, and shall provide for adjustment by tilting in both horizontal and vertical directions.

14.2.2.2.2. If the mirror is in the *'Head Impact Area'*, the mounting shall deflect, collapse or break away without leaving sharp edges when the reflective surface of the mirror is subjected to a force of not more than 400 N in any *'Forward'* direction that is not more than 45 degrees from the *'Forward'* longitudinal direction.

14.2.3. External Rear Vision Mirrors

14.2.3.1. Driver's Side

14.2.3.1.1. Field of View - A flat external mirror shall be installed that provides all drivers (with eyes located by the *'95th Percentile Eye Ellipses'* tangent contours) with a view of a level road surface extending to the horizon from a line perpendicular to a plane tangential to the driver's side of the vehicle at the widest point and parallel to the longitudinal axis of the vehicle, extending 2.4 metres out from the tangential plane 11 metres behind the driver's eyes, with the *'Seat'* in the rearmost position. The line of sight may be partially obscured by rear body or wheel guard contours.

- 14.2.3.1.2. Mounting - The mirror mounting shall provide a stable support for the mirror and neither the mirror nor the mounting shall protrude further than the widest part of the vehicle body, except to the extent necessary to produce a field of view meeting the requirements of Clause 14.2.3.1.1. The mirror shall not be obscured by the unwiped portion of the windscreen, and shall be adjustable from the driver's seating position. The mirror and mounting shall be free of sharp points or edges that could contribute to pedestrian injury.
- 14.2.3.2. Passenger's Side
- 14.2.3.2.1. Where a left-hand external mirror is provided in compliance with Clause 14.2.1 its mounting shall provide a stable support for the mirror. The mirror and mounting shall be free of sharp points or edges that could contribute to pedestrian injury. The mirror need not be adjustable from the driver's seating position, but shall be capable of adjustment by tilting in both horizontal and vertical directions.
- 14.2.3.2.2. The mirror shall be flat or convex.
- 14.2.3.2.3. For '*Convex Mirrors*' the reflective surface area is to be equal to or greater than that of a flat mirror required to meet the field of view requirements set out in Clause 14.2.3.1.1.
- 14.2.4. Mirror Construction
- 14.2.4.1. Reflectance
- The reflectance value of the reflective film employed shall be at least 35 percent. If a mirror is of the selective position prismatic type, the reflectance value in the night driving position shall be at least 4 percent.
- 14.2.4.2. '*Convex Mirrors*'
- Each motor vehicle using a '*Convex Mirror*' to meet the requirements of Clause 14.2.3.2 shall comply with the following requirements
- 14.2.4.2.1. the radii of curvature shall not deviate by more than plus or minus 15 percent from the average radius of curvature when measured in accordance with the procedures specified in Appendix A.
- 14.2.4.2.2. the average radius of curvature is not to be less than 1,200 mm.
- 14.2.5. Test Procedure
- 14.2.5.1. Reflectance shall be determined in accordance with SAE document J964a "Test Procedure for Determining Reflectivity of Rearview Mirror", August, 1974.
- 14.2.5.2. The horizontal angle is measured from the projected eye point rather than the plane of the mirror.
- 14.3. REQUIREMENTS FOR VEHICLES OF CATEGORY NA AND MD2 ONLY**
- Vehicles of category NA and MD2 shall have mirrors which comply with Clauses 14.2 or 14.4.

14.4. REQUIREMENTS FOR MD3; MD4; ME; NB; AND NC VEHICLES ONLY

- 14.4.1. There shall be affixed to every vehicle a mirror or mirrors so designed and fitted and of such dimensions as to be capable of reflecting to the driver as far as practicable a clear view of the road to the rear of the driver and of any following or overtaking vehicle.
- 14.4.2. At least one such mirror shall be affixed to each side of the vehicle and may project 150 mm beyond the point of '*Overall Width*' of the vehicle or the '*Overall Width*' of any trailer it may be drawing
- 14.4.2.1. if the vehicle is a goods vehicle or an omnibus
- 14.4.2.2. if the trailer be of greater width than the drawing vehicle; or
- 14.4.2.3. in any case where, because of the manner in which the vehicle is constructed or equipped, or the fact that it is drawing a trailer or for any other reason, the driver could not, by means of a mirror affixed to the inside of the vehicle, have reflected to the driver as far as practicable a clear view of the road to the rear of the driver and of any following or overtaking vehicle.
- 14.4.3. The mirrors may project 230 mm on each side beyond the point of '*Overall Width*' of the vehicle provided that the mirror is capable of collapsing to 150 mm.
- 14.4.4. All such mirrors fitted to vehicles shall be at least 150 square centimetres in area
- 14.4.5. Mirrors on the driver's side shall be flat, and mirrors on the passenger's side may be flat or convex.
- 14.4.5.1. '*Convex mirrors*', if fitted, shall meet the requirements of Clauses 14.2.4.2.1 and 14.2.4.2.2.

14.5. REQUIREMENTS FOR L-GROUP VEHICLES ONLY

- All vehicles shall be equipped with 2 rear vision mirrors having the same curvature (including flatness), symmetrically placed relative to the centre of the steering control and of such dimensions as to be capable of reflecting to the driver as far as practicable a clear view of the road to the rear of the driver and of any following or overtaking vehicle.
- 14.5.1.1. Flat mirrors shall have not less than 80 square centimetres of reflective surface.
- 14.5.1.2. '*Convex Mirrors*' shall have not less than 64.5 square centimetres of reflective surface and an average radius of curvature that is not less than 1,200 mm.

14.6. ADDITIONAL EXTERNAL REAR VISION MIRRORS

- 14.6.1. Mirrors in addition to those required by this Rule may also be fitted, provided that
- 14.6.1.1. they do not protrude or project beyond the vehicle more than allowed for other mirrors required by this Rule.

- 14.6.1.2. they do not obstruct or interfere with the field of view requirements provided by mirrors fitted to meet the specified requirements of this Rule.
- 14.6.1.3. if the mirror is the only minor on the left-hand side it shall be flat or convex with an average radius of curvature of at least 1,200 mm.
- 14.6.2. Additional mirrors need not meet the requirements of Clause 14.2.4.2.2 except as specified in Clause 14.6.1.3 above.

14.7. ALTERNATIVE STANDARDS

- 14.7.1. The technical requirements of ECE R 46/00 or 46/01 – ‘Rear View Mirrors’ - shall be deemed to be equivalent to the technical requirements of this Rule for mirrors other than additional mirrors, except that for LE, M-group and N-group vehicles the reflecting surface of the internal mirror and the mirror on the driver's side shall be flat
- 14.7.2. The technical requirements relating to the component aspect of ECE R81/00 shall be deemed to meet the requirements of Clause 14.5.1.2.
- 14.7.3. In addition, the technical requirements relevant to two-wheeled vehicles of ECE R81/00, 'UNIFORM PROVISIONS CONCERNING THE APPROVAL OF REAR-VIEW MIRRORS AND OF TWO-WHEELED POWER-DRIVEN VEHICLES WITH OR WITHOUT SIDE CAR, WITH REGARD TO THE INSTALLATION OF REAR-VIEW MIRRORS ON HANDLEBARS.', shall be deemed equivalent to those of clause 14.5.1.2 of this regulation.

APPENDIX A

(EXTRACTED FROM FMVSS 111 "REAR VIEW MIRRORS", SECTION 12)

- S 12 Determination of Radius of Curvature.
- S 12.1 To determine the average radius of curvature of a convex mirror, use a 3-point linear spherometer, which meets the requirements of S 12.2, at the 10 test positions shown in Figure 1 and record the readings for each position.
- S 12.2 The 3-point linear spherometer has two outer fixed legs 1.5 inches apart and one inner movable leg at the midpoint. The spherometer has a dial indicator with a scale that can be read accurately to 0.0001 inches, with the zero reading being a flat surface.
- S 12.3 The 10 test positions on the image display consist of two positions at right angles to each other at each of five locations as shown in Figure 1. The locations are at the centre of the mirror, at the left and right ends of a horizontal line that bisects the mirror and at the top and bottom ends of a vertical line that bisects the mirror. None of the readings are within a 0.25 inch border on the edge of the image display.
- S 12.4 At each position, the spherometer is held perpendicular to the convex mirror-surface and a record is made of the reading on the dial indicator to the nearest 0.0001 inch.
- S 12.5 Convert the dial reading data for each of the 10 test positions to radius of curvature calculations using the following formula.

$$R \text{ inches} = \frac{C^2}{8H} + \frac{H}{2}$$

where R = Radius of curvature
H = Linear displacement of the centre probe
C = Chord Length = 13 inches

- S 12.6 Calculate the average radius of curvature by adding all 10 radius of curvature calculations and dividing by ten.
- S 12.7 Determine the numerical difference between the average radius of curvature and each of the 10 individual radius of curvature calculations determined in S 12.5.
- S 12.8 Calculate the greatest percentage deviation by dividing the greatest numerical difference determined in S 12.7 by the average radius of curvature and multiply by 100.

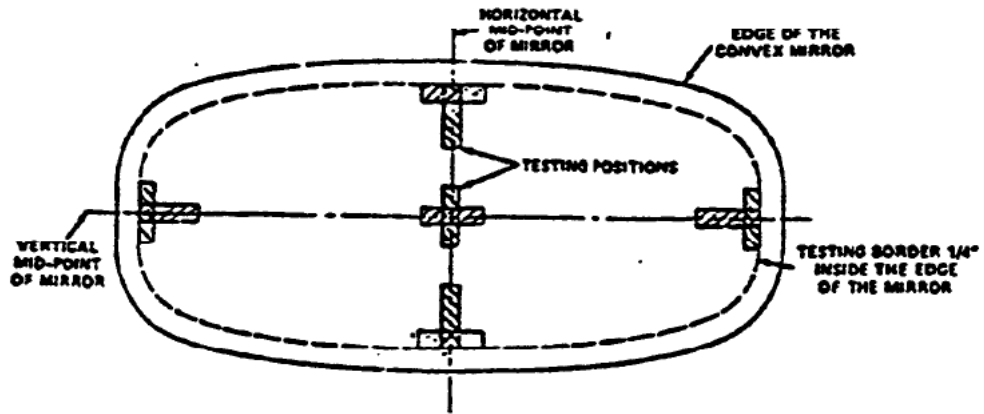


Figure 1 LOCATION OF TEN CONVEX MIRROR TESTING POSITIONS

NOTES

This compilation of Vehicle Standard (Australian Design Rule 14/01 - Rear Vision Mirrors) 2006 includes all the instruments set out in the Table of Instruments. The Table of Amendments provides a history of clauses that have been amended, inserted or deleted.

Table of Instruments

Name of Instrument	Registration Date	Commencement Date
Vehicle Standard (Australian Design Rule 14/01 - Rear Vision Mirrors) 2006	16/08/2006	17/08/2006
Vehicle Standard (Australian Design Rule 14/01 - Rear Vision Mirrors) 2006 Amendment 1	13/12/2006	14/12/2006

Table of Amendments

Clause affected	How affected	Amending instrument
14.4.1	am	Vehicle Standard (Australian Design Rule 14/01 - Rear Vision Mirrors) 2006 Amendment 1
14.4.2.2	am	Vehicle Standard (Australian Design Rule 14/01 - Rear Vision Mirrors) 2006 Amendment 1
14.4.2.3	am	Vehicle Standard (Australian Design Rule 14/01 - Rear Vision Mirrors) 2006 Amendment 1
14.6.1	am	Vehicle Standard (Australian Design Rule 14/01 - Rear Vision Mirrors) 2006 Amendment 1
14.4.1.3	am	Vehicle Standard (Australian Design Rule 14/01 - Rear Vision Mirrors) 2006 Amendment 1

ad = added or inserted

am = amended

del = deleted or removed

rr = removed and replaced

→ = clause renumbered. This takes the format of old no. → new no.