Guidelines for modifying vehicles for people with disability

Purpose

This Guidelines for modifying vehicles for people with disability (the Guidelines) is intended to provide advice about modifying a light vehicle to suit a person with a disability, either as a driver or a passenger. It outlines modifications that require certification in accordance with the Road Transport (Vehicle Registration) Regulation 2017 and the Vehicle Safety and Compliance Certification Scheme, and how to obtain the certification.

The Guidelines were developed by the Vehicle Safety Working Group. Members of the Working Group are:

- Australian Automotive Aftermarket Association
- Australian Confederation of Motor Clubs
- Confederation of Australian Motor Sports Ltd
- Institute of Automotive Mechanical Engineers
- Motor Traders Association NSW
- Motorcycle Council of NSW
- NRMA Motoring and Services
- NSW Police
- Transport for NSW (Chair)
- VSCCS certifiers

A dedicated Focus Group drafted the Guidelines. The members of the Focus Group are:

- Ageing, Disability & Home Care, Department of Family and Community Services
- Department of Education, Assisted School Travel Program
- EnableNSW
- Mobility Engineering
- NSW Taxi Council
- OT Solutions
- Problem Management Engineering
- Transport for NSW

The Guidelines is a live document and subject to change in response to feedback or updated standards and practices.
1.0 GENERAL

1.1 SCOPE

This Guidelines for modifying vehicles for people with disability (the Guidelines) applies to light vehicles. It is intended to guide and assist persons in modifying a vehicle for use by a person with disability. Modifications may be required to facilitate a person with disability to travel as vehicle passenger (e.g. seat modifications) and/or to be able to drive the vehicle (e.g. pedal extensions).

The Guidelines provides details about various modifications, including outlining modifications that require certification in accordance with the Road Transport (Vehicle Registration) Regulation 2017 (the Regulation) and the Vehicle Safety and Compliance Certification Scheme (VSCCS) and how to obtain the certification. The Guidelines have no legal status and only provides guidance on means to comply with the Regulation and associated standards.

The Guidelines apply to passenger vehicles for use by people with disability that are not public passenger vehicles. They may also assist in modifying taxis and hire vehicles designed to be wheelchair accessible, but these vehicles must also meet the design and performance requirements specified in the Point to Point Transport (Taxis and Hire Vehicles) Regulation 2017.

The Guidelines are not exhaustive, and will not cover every vehicle modification. A list of contacts that may provide further guidance and advice are included in Appendix A.

NOTE: The term ‘vehicle’ used in the Guidelines refers to light vehicles, being vehicle with a gross vehicle mass of 4.5 tonnes or less.

1.2 DEFINITION OF TERMS

Terms that are italicised in the Guidelines are defined in Appendix B. In addition, the terms may, must, should, and shall have distinct meaning within the context of the Guidelines and are also defined in Appendix B.

1.3 EXPLANATORY NOTE

The Guidelines provide guidance to persons who modify a vehicle for use by a person with disability, and to licensed certifiers who assess and certify vehicles modified for this purpose. The Guidelines provide advice on vehicle standards and the legal obligations on registered operators, and every attempt has been made to ensure the advice is accurate and current.

It must be emphasised that compliance with vehicle standards may not be sufficient to ensure a modified vehicle is safe to use on the road network.

The modified vehicle must be either assessed by the modifier to not require certification (see Section 2) or certified by a licensed certifier as appropriate to ensure it does not pose an unacceptable risk to its occupants or other road users.

The assessments detailed in the Guidelines apply to vehicles intended to be registered for use on the road, in normal driving operations and within posted speed limits. If it is intended to also use a vehicle for specialised activities, such as extreme off-road activities, more rigorous assessment and tests may be required to ensure the vehicle modifications are suitable for this use and do not pose an unacceptable risk to its occupants and other road users.

1.4 DISCLAIMER

The information contained in this Guideline is for information purposes only and is not intended to replace any requirements or obligations under any legislation.

TfNSW makes no representations or warranties in relation to this Guideline, including without limitation, as to the accuracy or completeness of the information in this Guideline.

TfNSW is not liable for any loss or damage, howsoever caused including but not limited to, by the negligence of TfNSW incurred in connection with this Guideline, or as a result of the use or reliance placed upon the information in this Guideline.

The information in this Guideline is subject to change without notice.
1.4 DOCUMENTS REFERENCED IN THE GUIDELINES

The following documents are referenced in the Guidelines:

**Commonwealth Legislation**

Disability Discrimination Act 1992
Radiocommunications Act 1992

**NSW Legislation**

Road Transport Act 2013
Point to Point Transport (Taxis and Hire Vehicles) Regulation 2017
Road Transport (Vehicle Registration) Regulation 2017

**Australian Design Rules (ADRs)**

ADR.14/-- Rear Vision Mirrors

**Vehicle Standards Bulletin (VSB)**

VSB.14 National Code of Practice for Light Vehicle Construction and Modification

**Vehicle Standards Information (VSI)**

VSI.06 Light Vehicle Modifications
VSI.49 Seat belt buckle covers
VIS.60 Carrying motorised mobility devices and motor cycles on vehicles

**Australian and New Zealand Standards**

AS/NZS 1754 Child restraint systems for use in motor vehicles
AS/NZS 1841.5 Portable fire extinguishers – specific requirements for powder type extinguishers
AS 2444 Portable fire extinguishers and fire blankets – selection and location
AS/NZS 3504 Fire blankets
AS/NZS 3696.19 Wheelchairs – wheeled mobility devices for use as seats in motor vehicles
AS/NZS 3856.1 Hoists and ramps for people with disabilities – vehicle mounted product requirements
AS/NZS 3856.2 Hoists and ramps for people with disabilities – vehicle mounted installation requirements
AS 3954.1 Vehicle controls – Adaptive systems for people with disabilities Part 1: General requirements
AS 3954.2 Vehicle controls – Adaptive systems for people with disabilities Part 2: Hand controls - Product requirements
AS 4535 Ancillary equipment storage
AS/NZS 10542.1 Technical systems and aids for people with disability – wheelchair tie-down and occupant-restraint systems – Requirements and test methods for all systems
AS/NZS ISO 16840.4 Wheelchair seating – seating systems for use in motor vehicles
2.0 PLANNING THE MODIFICATION

2.1 CONSULTATION WITH OCCUPATIONAL THERAPISTS

Vehicle modifications are carried out to facilitate people with disability use the vehicle as a passenger, and/or to drive the vehicle themselves.

To determine what equipment and/or modifications are necessary to enable a driver with disability to safely operate a vehicle, an individual driver assessment and training should be undertaken with an Occupational therapist (OT). The OT should be competent in the field of rehabilitation and driver assessment in order to provide an assurance that the person has been suitably trained and can safely operate the vehicle once it has been modified.

For modifications required for a passenger with disability, the OT should assess the specific needs of that person to determine the level of equipment or vehicle modification required to ensure that the person can safely access and be transported in the modified vehicle with consideration to the requirements of applicable legislation and the relevant Australian standards.

Suitably qualified OTs can be found by contacting Occupational Therapy Australia or using the search function on their website (see Appendix A).

2.2 LICENSING REQUIREMENTS

A person with a physical disability that requires special aids, appliances or vehicle modifications in order to safely drive, must contact TfNSW for a vehicle-specific disability driving test. TfNSW Form 1697 relates.

Additional conditions may be applied to the licence.


2.3 SEEKING AN EXEMPTION

People with certain disabilities may require a vehicle to be extensively modified to meet their needs. These modifications may be so extreme the vehicle can no longer comply with certain vehicle standards. In these situations, a person may apply to TfNSW for an exemption from the vehicle standards requirements made under Schedule 2 Light Vehicle Standards Rules to the Regulation, for a vehicle modified for a person with disability.

Further information, including details of how to apply for an exemption, is included in Appendix C.

2.4 INTERNAL VEHICLE DIMENSIONS

The modified vehicle should have sufficient space to allow all occupants to be seated and properly restrained at all times. This may involve modifying the vehicle structure to increase the space (e.g. raising the vehicle roof to increase head clearance).

Although there are no minimum clear zone requirements for privately registered vehicles under the ADRs or the Regulation, vehicles modified for a person with disability should meet the minimum clear zone requirements included in AS/NZS 10542.1. The allocated floor space should be level.

Doorways shall have an unobstructed clear vertical height and width sufficient for a wheelchair seat occupant to enter and exit the vehicle in their normal seated position.

Any storage facilities for ancillary equipment such as ventilators, crutches and trays that may be needed shall be secured in accordance with AS 4535.
3.0 TYPES OF MODIFICATIONS

3.1 GENERAL

The Regulation requires that:

- all registrable vehicles comply with the applicable vehicle standards for that vehicle
- modified vehicles continue to comply with those standards
- the vehicle and its parts and equipment are suitable for safe use, and are in a thoroughly serviceable condition.

To assist registered operators meet these obligations, the VSCCS has been created under the Regulation and is administered by TfNSW. This is a modification scheme that authorises persons with appropriate competence, known as 'licensed certifiers', to inspect and test a modified vehicle, and issue a compliance certificate if they are satisfied that it complies with the applicable vehicle standards. Except for purposes relating to compliance certification, a vehicle that has undergone a significant modification (i.e. one that requires a compliance certificate), must not be used on a road or road related area unless a compliance certificate has been issued for the vehicle. (For more information, refer to clauses 60, 64, 84, 85 and 87 of the Regulation and VSI.06.)

Modifications to vehicles for people with disability can range from the simple addition of an extension mirror, to structural modifications such as floor replacement.

Only a licensed certifier may be engaged in assessing and certifying vehicle modifications. The particular competencies required may vary depending on the specific modifications completed.

The TfNSW has assessed the competencies of licensed certifiers. Contact details and areas of competence for each licensed certifier are published under VSCCS Bulletin 01 Licensed certifiers on TfNSW’s website at: http://www.rms.nsw.gov.au/business-industry/examiners/VSCCS/index.html.

If the vehicle is found to comply with the applicable vehicle standards, then a VSCCS compliance certificate is issued for the vehicle. The licensed certifier will then submit the compliance certificate electronically to TfNSW. The registered operator or their representative must present the compliance certificate and the certificate of registration to a Service NSW Centre for amendment. Vehicle registration records will be updated and the amended certificate of registration provided.

The modification design process shall include provision for an able bodied person to drive or use the vehicle, except if the required modifications makes this impracticable.

If there is any doubt as to whether a modification requires certification or not, it is advised to contact TfNSW for clarification.
3.2 DEFINING THE SIGNIFICANCE OF THE MODIFICATION

Depending on the significance of the vehicle change, it may not require assessment or certification. Changes not classed as a modification and minor modifications will not require assessment, while changes classed a *significant modification* will.

This section provides an overview on the differences in these classifications.

For specific advice, it is recommended you contact TfNSW’s Vehicle Standards (see Appendix A).

3.2.1 Changes that do not require assessing or certification

Not classed as modifications:

The following are not considered to be modifications and do NOT require assessing or certification:

a. Replacement of parts or components by identical or equivalent parts or components.

b. Replacement of parts or components with parts or components of equivalent functional performance.

c. Optional parts or components as prescribed by the vehicle’s manufacturer. These include:
   - Installing a reverse activated rear view safety camera and dash mounted monitor, where it is optioned for that make and model and fitted in accordance with the vehicle manufacturer’s instructions.
   - Installation of Original Equipment Manufacturer (OEM) hand rail in location originally optioned by vehicle manufacturer.

*Minor modifications:*

In addition to the above, the following are not considered to be *significant modifications* and do NOT require assessing or certification:

a. Fitting an interior or exterior panoramic rear vision mirror to assist side vision profile that complies with *ADR.14*.

b. Fitting a seat belt buckle cover to ensure that people with behavioural issues cannot release their seat belt buckle while travelling in a vehicle (see *VSI.49*).

c. Installation of a steering wheel spinner knob that does not affect the operation of an SRS airbag system or compliance with an *ADR*.

d. Fitting a one-handed steering device to enable driver to access controls such as horn, wipers, and indicators.

e. Fitting a gear change extended linkage to motorcycles that retains the original shift pattern.

3.2.2 Significant modifications

Unless exempted by TfNSW (see Appendix C), any modification that affects an applicable *ADR* is considered a *significant modification* and will require certification. *VSI.06* provides a list of potential *significant modifications* that require certification. This list is not exhaustive, and it is recommended that before undertaking any modification/s to your vehicle, you seek advice regarding the impact they may have on your vehicle’s continuing compliance with *ADRs* and the *Regulation*. If you have any doubt about whether or not your intended vehicle modification/s may require certification, you should contact TfNSW’s Technical Enquiries unit for more information (see Appendix A).
3.3 COMMON MODIFICATION

The following sub-sections discuss common modifications required of vehicles for use by people with disability. Depending on the extent of these modifications, they may be classed as significant modifications.

3.3.1 Structural

Modifications that affect the vehicle’s structure (e.g. roof extensions or lowering of the floor) are classed as a significant modification and will require certification.

3.3.2 Access

Ramps and hoists

Ramps and hoists may be used to assist a person with disability ingress to and egress from a vehicle. Ramps are designed to remain in the inclined position during use, and can be deployed and stored manually by hand, or operated by a combination of power or hydraulic controls. Hoists are attached to the vehicle and are designed to raise or lower people into or out of the vehicle.

Ramps and hoists should comply with AS/NZS 3856.1 and be installed in accordance with manufacturer’s instructions. Where these instructions are insufficient or unavailable, then installation should be carried out in accordance with AS/NZS 3856.2.

Fitting hand or guard rails

Hand or guard rails may be fitted to a vehicle ramp or hoist to provide additional stability and safety for the appliance operator, and should comply with AS/NZS 3856.1.

Hand or guard rails fitted to a vehicle ramp or hoist must be fitted in accordance with manufacturer’s instructions and once fitted, not adversely affect the safe loading and unloading of a wheelchair occupant, or affect the operation of the appliance.

Hand rails should have no obstructions preventing free hand movement over the surface of the rail. When hand or guard rails are detached and stored, the following minimum requirements should apply:

a. When stowed, a folding rail shall be securely attached to the vehicle capable of withstanding a force in any direction of 20 times the weight of the rail.

b. Stored rails shall not protrude into the clear zone or allocated space of a wheelchair occupant.

c. Rails must not be stored where they could pose a hazard to a vehicle occupant in the event of a crash or sudden stop.

d. Stored anchored rails in a vehicle must not interfere with the function of any impact occupant protection or restraint system.

3.3.3 Controls

Some complex modifications to the driver’s controls will impact a number of ADRs and are deemed to be significant. However, most of these will be covered by the allowances for manufacturer’s certified aftermarket components, allowing for an easier certification process (see Section 4.3).

If driving controls have been modified, a warning label shall be prominently displayed in the vehicle (see Section 5.1).

Deactivation of an SRS airbag

If an SRS airbag needs to be deactivated when a modification is in use, an exemption from TfNSW must be obtained (see Appendix C).

Occupant restraints

A wheelchair occupant should be secured by the OEMs seatbelt system, with the frame of the wheelchair restrained separately.
People with disability or restricted mobility may be unable to use the original vehicle seat and/or occupant seatbelts, and would need to remain within a wheelchair in the vehicle. A wheelchair used for a seating position in a vehicle should be designed and manufactured to comply with the performance standards of AS/NZS 3696.19.

Drivers transporting occupants travelling in wheelchairs must ensure that the occupants are appropriately restrained in the wheelchair, and that the wheelchair is securely docked. Drivers should ensure familiarity with the requirements before transporting occupants in wheelchairs.

A Wheelchair Tie-down and Occupant Restraint System (WTORS) should comply with AS/NZS 10542.1 and be fitted in accordance with the manufacturer’s specifications.

Other WTORS requirements are:

a. OEM seatbelts incorporating pre-tensioners should be retained as part of a vehicle’s supplementary restraint system if the modification allows.

b. A lap-only seatbelt should not be fitted where the WTORS is replacing an occupant seat that was previously fitted with a lap-sash seatbelt.

c. Adequate space should be available for forward head excursion, that being:
   i. 650 mm when used with a lap-sash seatbelt
   ii. 950 mm when used with a lap-only seatbelt.

d. The wheelchair’s own postural support (see Figure 1) shall not be used unless certified as a wheelchair anchored belt restraint certified to AS/NZS 3696.19.

e. Seatbelts and restraints shall be kept clean and coiled within the retractor when not in use.

f. Seat belt and WTORS webbing shall be protected from sharp edges or protrusions.

g. WTORS sets shall be kept together as a complete kit.

h. A WTORS release mechanism should be within reach of the wheelchair occupant and marked or labelled to assist the user.

i. Seatbelts and WTORS should be able to be released using one hand.

FIGURE 1: EXAMPLE OF POSTURAL SUPPORT NOT SUITABLE AS A RESTRAINT.
3.3.4 Wheelchair docking

*Wheelchair docking systems* are specifically manufactured to suit various *wheelchair* models, and to allow the OEM seatbelt systems be used by the seat’s occupant.

*Wheelchair docking systems shall* comply with AS/NZS 10542.1, be compatible with the *wheelchair* and installed according to manufacturer’s instructions.

An exemption from TfNSW *must* be obtained if a seat incorporating an SRS airbag system has been removed to accommodate a *wheelchair docking system* (see Appendix C).

3.3.5 Dual purpose driver seating provision

A driver’s seating position *may* be modified to allow driving by a person with *disability* or an able bodied person. A vehicle with dual purpose driver seating *must* be constructed to be safely driven and controlled by both an able bodied person and a person with *disability*. The OEM seat *should* retain its adjustment functions in a vehicle with dual purpose driver seating.

An instruction label *shall* be affixed in a prominent position, readily visible to vehicle users, advising of the various seat operations available. This advice *shall* include information on how to engage and disengage the seat locking system. The label *must* also advise the driver of the type of modifications done to the vehicle.

3.3.6 Seating support

If it is intended to transport a person in a *wheelchair*, there *shall* be a headrest and *backrest* with sufficient strength to reduce the risk of injury in the event of a crash.

**Note:** A headrest/backrest combination device can be mounted to the interior frame of a vehicle for use by wheelchair seated occupants of differing stature (see Figure 2). This device supports the occupant’s torso regardless of the model of wheelchair they use and can pivot to the side of the vehicle when not in use.

**FIGURE 2:** HEADREST/BACKREST COMBINATION DEVICE.
4.0 Methods for certifying the modified vehicle

4.1 GENERAL
This section presents different methods to certify a significantly modified vehicle. Regardless of the means used to demonstrate compliance, evidence of the assessment process used and the results must be developed and maintained for each vehicle.

4.2 METHOD 1 – COMPLIANCE WITH THE ADRS AND OTHER STANDARDS
Each vehicle can be individually assessed by a licensed certifier for compliance with the ADRs and the other standards outlined in Section 2 above.

Prior to doing the verification tests, the licensed certifier must inspect the vehicle to ensure the components have been installed correctly in accordance with the manufacturer’s instructions.

Note: A checklist, like the one at Appendix D, can help the modifier ensure that the components have been installed to the manufacturers’ specifications and instructions. This should be provided to the licensed certifier to assist in the inspection.

Most ADRs specify tests or other methods for determining vehicle compliance. If a modification affects an ADR, the tests must be done unless TfNSW has allowed alternative means to demonstrate compliance; refer to VSSCS Bulletin 2 to see what alternatives are permitted for certain ADRs. VSSCS Bulletin 2 may be accessed at http://www.rms.nsw.gov.au/documents/business-industry/examiners/VSSCS-bulletin-02-modified-individually-constructed-vehicles.pdf.

Following the examination and verification tests, the licensed certifier may require other tests to ensure the overall safety of the vehicle prior to its registration. Finally, the performance of the vehicle should be checked by taking it for a test run, with the length of the run and the type of road depending on the nature and extent of the modification.

4.3 METHOD 2 – CERTIFIED AFTERMARKET COMPONENTS
A vehicle may be modified to incorporate manufacturer certified aftermarket components, without the need for detailed testing providing the conditions specified in the TfNSW Aftermarket Parts Guide are met.
5.0 OTHER ITEMS TO BE CONSIDERED

5.1 DRIVING CONTROLS MODIFICATION WARNING LABEL

If driving controls are modified for use by a person with disability, a warning label shall be securely attached to the dash in a prominent position, clearly visible to the driver. The label shall include bold black lettering at least 5 mm high on a yellow background, stating the following:

CAUTION
DRIVING CONTROLS HAVE BEEN MODIFIED. DO NOT OPERATE UNLESS FAMILIAR WITH CORRECT USE OF THIS VEHICLE.

CAUTION
This vehicle's driving controls have been modified to suit the particular requirements of the driver. Use of these replacement controls by a person not specifically trained in their use may render the vehicle unsafe.

5.2 EMERGENCY SEAT BELT CUTTING DEVICES

Some vehicle modifications may make it difficult for an emergency responder to unclasp a seatbelt. In these situations, a seat belt cutting device should be stored within easy access for emergency use. If there is a risk of inappropriate use, then an alternative storage area should be used. An instruction advice label shall be fitted near the device, or be readily visible in the cabin area of the vehicle.

5.3 FIRE SAFETY EQUIPMENT

Some vehicle users with disability may not be able to exit a vehicle quickly in the case of emergency and are at increased risk of serious injury or death if the vehicle catches fire. A vehicle modified for such a person should be fitted with a fire extinguisher with an extension hose.

Note: This type of extinguisher is preferred as it enables access to a fire source in a confined space.

A fire blanket complying with AS/NZS 3504 should be carried in a vehicle transporting a person at increased risk in a fire. Blanket should be at least 1.2 x 1.8 m.

5.4 CARRYING MOBILITY DEVICES

VSI.60 Carrying motorised mobility devices and motorcycles on vehicles provides advice on the safety and legal requirements that apply when carrying a wheelchair or motorised mobility devices on a rack fitted to the rear of a vehicle.


5.5 ELECTROMAGNETIC COMPATIBILITY OF EQUIPMENT FITTED IN A VEHICLE

Mobility devices may use electronic wireless transmission to assist a person with disability to drive and control a vehicle. A typical example is a wireless hand control pad mounted to a steering wheel spinner knob to reduce driver reach when operating controls such as washers, wipers and indicators. These types of wireless control devices generally emit and receive electrical energy that communicates with existing OEM vehicle electronic systems.

Testing of vehicles and vehicle components for electromagnetic compatibility (EMC) shall be done to prevent unpredictable equipment behaviour and electrical disturbances to vehicle safety systems.
To prevent inadvertent electrical disturbance from a non-OEM vehicle device, all electrical and electronic equipment fitted to a vehicle modified for a person with disability, including any systems outside the vehicle, shall be designed, manufactured, labelled, or electronically labelled to demonstrate compliance with at least one of the EMC performance standards defined under Section 162 of the Radiocommunications Act 1992.
Further information

NSW Legislation
- Road Transport (Vehicle Registration) Regulation 2017
  legislation.nsw.gov.au

Service NSW (SNSW)
To register a vehicle, apply for a permit and to apply for a driver or rider license
To locate your nearest SNSW office

Transport for NSW
For Information & advice related to vehicle registration, permits & driver/rider licenses
roads-waterways.transport.nsw.gov.au | T 13 22 13

TfNSW Technical Enquiries
For Information & advice related to vehicle construction, modification and registration requirements in NSW
PO Box 1120, Parramatta NSW 2124
E technical.enquiries@transport.nsw.gov.au | T 1300 137 302 | F (02) 8837 0037

TfNSW Vehicle Safety Compliance Certification Scheme (VSCCS)
For Information & advice related to VSCCS Licensed certifiers.
VSCCS | E VSCCS@transport.nsw.gov.au | T 1300 336 206

Department of Infrastructure, Transport, Regional Development and Communications
For information related to building or importing road vehicles for use in road transport within Australia; also for information on & to access Australian Design Rules (ADRs) & associated Circulars; Vehicle Standards Bulletins (VSBs)
GPO Box 594 Canberra ACT 2601
infrastructure.gov.au | T 1800 815 272 | F (02) 6274 6013

National Heavy Vehicle Regulator
For Information & advice related to the construction and modification of heavy vehicles (ie those with a GVM or ATM exceeding 4.5tonnes); requirements for heavy vehicle permits & exemptions.
PO Box 492, Fortitude Valley Q 4006
nhvr.gov.au E info@nhvr.gov.au | T 1300 696 487 | F (07) 3309 8777