

# Queensland Code of Practice: Vehicle Modifications (QCOP)

Section LC: Vehicle Controls

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# Section LC

## Vehicle Controls

### 1.0 Scope

This section of the QCOP outlines the minimum design, fabrication and installation requirements for the following light vehicle modifications used in special applications.

#### 1.1 Basic Modifications Not Requiring Certification

The following modifications may be performed without certification:

- Fitting of a steering wheel spinner knob for a person with a disability;
- Fitting of a Wheelchair/mobility scooter carrier to the rear of a suitable vehicle;
- Fitting of a restraint system in conjunction with the vehicle's original manufacturer's seatbelt;
- Fitting of additional grab handles to aid entry to and exit from the vehicle.

#### 1.2 Modifications Requiring Certification under LC Codes

The following is a summary of modifications that may be performed under LC codes:

- Fitting dual-controls for driver training vehicles;
- Fitting modified driving controls for persons with a disability.

**NOTE:** The main design installation and fabrications requirements for all of the above modifications are contained in sub-section 2.0 "General Requirements".

#### 1.3 Definitions

Generally the terms used in the LC section have the meaning given by the *Transport Operations (Road Use Management) Act 1995* or the *Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2021* (the VSS Regulation). Specific technical terms used in this section and corresponding codes have the following meanings:

**Dual-controls** mean additional controls fitted for the exclusive use for an accredited driver trainer.

**Driving control** mean any device, including hand controls, fitted to or intended to be fitted to a vehicle to enable the vehicle to be driven by a person with a disability.

**Hand Control** means a control which enables controls of a vehicle, which are normally operated by foot to be operated by hand.

**May** indicates the existence of an option.

**Restraint System** means fixed restraints which may be required in addition to original manufacturer's seatbelts for trunk support

**Shall** indicates that a requirement is mandatory.

**Should** indicates a recommendation.

**Vehicle**, to removal all doubt, for this section means a motor vehicle.

## 2.0 General Requirements

This sub-section applies to all light vehicles and should be read in conjunction with the other sub-sections of the LC Code and the specific Approval Code for the modification or conversion.

The installation of dual-controls under this code can only be performed on a Queensland vehicle registered for the purpose of driver training.

All decisions to modify a vehicle for the use of a person with a disability will be made in conjunction with the intended driver/operator, Approved Person and a qualified Occupational Therapist.

It is recommended that modifications be carried out using production components which themselves do not require modification.

### 2.1 Fabrication

All work must be performed in accordance with recognised engineering standards. Cutting, heating, welding or bending of components should be avoided by choosing unmodified production components wherever possible.

### 2.2 Welding

All Welding must be performed in accordance with the relevant Australian Standard. For example – mild steel must be welded in accordance with Australian Standard 1554 Part 1 “*Welding of Steel Structures*”, Category SP.

### 2.3 Fasteners

All fasteners in highly stressed locations must be high tensile ISO Grade 8.8 (mm sizes), SAE Grade 5 (inch sizes) or equivalent as a minimum specification. All other fasteners are to be at least of similar strength and number to those in the original installation. Self-locking nuts should be used in preference to spring washers. Locking nuts with plastic inserts (“Nyloc”) must not be used in high temperature applications.

## 2.4 Electroplating

To prevent cracks forming in brittle chromium plating or from hydrogen embrittlement of steel components, electroplating of brake control components including bolts is not permitted.

## 3.0 Australian Design Rules

Modified vehicles must continue to comply with the ADRs to which they were originally constructed except as allowed for in the VSS Regulation. These modified vehicles must also comply with the applicable in-service requirements of the VSS Regulation.

Modified pre-ADR vehicles must continue to comply with the VSS Regulation.

Outlined in Table LC-1 are areas of the vehicle that may be affected by the modifications and that may require re-certification, testing and/or data to show compliance for the modified vehicle. This is not an exhaustive list and other modifications may also affect ADR compliance.

**Table LC-1 ADRs that may be affected by modifications under this section**

<b>ADR</b>	<b>Title and Comments</b>
ADR 3	Seat Anchorages
ADR 4	Seatbelts
ADR 5	Anchorage for Seatbelts
ADR 10	Steering Columns
ADR 13	Installation of Lighting and Light Signalling Devices
ADR 21	Instrument Panel
ADR 28	Motor Vehicle Noise
ADR 31	Hydraulic Braking Systems
ADR 42	Demisting of Windscreens
ADR 69	Full Frontal Impact Occupant Protection
ADR 72	Dynamic Side Impact Occupant Protection
ADR 73	Offset Frontal Impact Protection
ADR 83	External Noise

The ADRs apply according to the vehicle's category and date of manufacture. It is the responsibility of the signatory to refer to the appropriate ADR applicable to the vehicle.

The modified vehicle must continue to comply with all ADRs applicable at the date of its manufacture. Where any system governed by an Australian Design Rule is altered, it is necessary to show that the original requirements of the rule are still met.

#### 4.0 Non-certified modifications

The following modifications may be carried out after consultation with a qualified health practitioner and provided they do not affect compliance with ADRs and they meet the following general safety requirements.

##### 4.1 Steering wheel spinner knobs

The spinner must be robustly built and operate smoothly. The handle (gripped component) should be designed to be easily removable without affecting the security of the mounting block which can remain affixed to the wheel. The assembly must not have any dangerous or sharp projections which may increase the risk of injury or accident. The spinner knob must be mounted in a position which is comfortable to the driver and must not restrict access to or the operation of other controls such as the indicator stalk.

Seek advice from an Approved Person (Engineer) if the knob affects vehicle compliance to the ADRs, eg; ADR 21/00, ADR 42/.. and ADR 10/...

##### 4.2 Rear mounted wheelchair/mobility scooter carrier

The installation of a rear mounted wheelchair/mobility scooter carrier to a vehicle is considered to be a modification that does not require certification, provided the following requirements are met:

- Use of the wheelchair/mobility scooter carrier is restricted to the carriage of a wheelchair/mobility scooter (only) for a person with a disability.
- The weight of the loaded wheelchair/mobility scooter carrier must not exceed 200kg, or the manufacturers' rear axle mass limit or the towbar's ball weight, whichever is the lesser.

**NOTE:** While the mass of the loaded wheelchair/mobility carrier may be within the above limits, additional consideration must be given to the higher loads imposed due to the overhanging mass of the carrier.

- Any wheelchair/mobility scooter carried on the scooter carrier must be adequately restrained and meet requirements of the National Transport Commission "Load Restraint Guide" available at: <https://www.ntc.gov.au/codes-and-guidelines/load-restraint-guide>.
- The wheelchair/mobility scooter carrier and associated towbar components must be removed from the vehicle when not in use. Alternatively, if the wheelchair/mobility

scooter carrier is transported in a folded position it may remain attached to the vehicle provided no dangerous projections exist and rear overhang requirements are complied with.

- The vehicle's rear overhang with the wheelchair/mobility scooter attached must not exceed 80% of the wheelbase or 3.70m, whichever is the lesser.
- The wheelchair/mobility scooter carrier must not be more than 2.5m wide or the maximum width of the vehicle to which it is attached, excluding side rear view mirrors.
- An adequately rated safety chain between the wheelchair/mobility scooter carrier and the vehicle must be attached.
- Reflectors must be fitted to each corner of the wheelchair/mobility scooter with yellow reflectors visible to the sides and red reflectors visible to the rear
- If the wheelchair/mobility scooter carrier obscures the vehicle's number plate or any compulsory lighting, additional lamps complying with the VSS Regulation, and an accessories number plate must be attached.

#### **4.3 Additional grab handles**

The installation of additional grab handles to a vehicle is considered to be a modification that does not require certification, provided the following requirements are met:

- Additional grab handles must not be fitted in an airbag deployment area.
- Grab handles must be mounted a sufficient distance from seatbelt anchorage points as to not weaken the structural integrity of the seatbelt anchorage. The Department of Transport and Main Roads (TMR) recommends speaking to an Approved Person (Engineer) if you have any concerns.
- The position of any additional grab handles must not impede on the driver's normal operating position or restrict the driver's field of view in any way.

#### **4.4 Additional Restraint System**

The installation of an additional restraint system to a vehicle is considered to be a modification that does not require certification, provided the following requirements are met:

- The additional restraint system must be fitted in addition to the vehicle's original manufacturers' seatbelts.
- The mounting points of the additional restraint system must be mounted a sufficient distance from seatbelt anchorage points as to not weaken the structural integrity of the seatbelt anchorage. TMR recommends speaking to an Approved Person (Engineer) if you have any concerns.

- If any part of the additional restraint system impedes on another seating position (generally the rear seats) the impeded seating position is not to be used until the additional restraint system has been removed.

**Note:** The above non-certified modifications should only be fitted after consultation with an installer and occupational therapist, doctor or other medical professional.

## 5.0 Certified Modifications (LC Codes)

This section specifies particular requirements and covers limitations on certifications carried out under individual LC Approval Codes.

Table LC-2 outlines the individual LC approval codes. Each code is supplemented with a checklist.

**Table LC-2 LC Approval Codes**

LC Codes	
LC1	Dual-controls for Driver Trainer Vehicles (Design)
LC2	Dual-controls for Driver Trainer Vehicles (Modification)
LC3	Vehicle controls for persons with a disability (Design)
LC4	Vehicle controls for persons with a disability (Modification)