



## Vehicle Technical Bulletin VTB-180A

# Gross Vehicle Mass Re-rating



### Summary

This Bulletin defines the Western Australian (WA) Department of Transport (DoT) standard for the re-rating of the Gross Vehicle Mass (GVM) of an eligible light vehicle with a current GVM rating that does not exceed 4,500 kg.

It is based on Queensland LS11 Modification Code, DoT WA's current internal practices and has been developed in conjunction with the Australian Automotive Aftermarket Association (AAAA).

The WA standard for re-rating of the Gross Combination Mass (GCM) of an eligible light vehicle is covered in VTB-181.

## Purpose of this Bulletin

This Vehicle Technical Bulletin (VTB) defines the Western Australian (WA) Department of Transport (DoT) standard which specifies requirements for re-rating of the Gross Vehicle Mass (GVM) rating of a light vehicle that is, a vehicle having current a GVM rating that does not exceed 4,500 kg.

This VTB is based upon

- Queensland's Vehicle Modifications Code LS11 Gross Vehicle Mass Re-rating.
- DoT WA's current internal practices.

and has been developed in conjunction with the Australian Automotive Aftermarket Association (AAAA).

## 1 Abbreviations & Definitions

**ADRs** means Australian Design Rules, which are national standards for vehicle safety, anti-theft and emissions.

**AC** means Automotive Consultant, an individual or business that has been recognised by DoT as being able to produce engineering evidence and/or reports. (refer to Information Bulletin IB-102 Automotive Consultants, available at [www.transport.wa.gov.au](http://www.transport.wa.gov.au))

**Light vehicle** means a motor vehicle that has a Gross Vehicle Mass (GVM) of 4.5 tonnes or less.

**RAV** means Register of Approved Vehicles, an online publicly searchable database of vehicles that have been approved to be provided to the Australian market.

**Regulations** means *Road Traffic (Vehicles) Regulations 2014* (WA legislation)

**ROVER** means the online portal for applications and approvals under the federal Road Vehicle Standards legislation.

**RVSA** means *Road Vehicle Standards Act 2018* (Federal legislation).

**VS14** means Vehicle Standards Bulletin 14 — National Code of Practice for Light Vehicle Construction and Modification.

## 2 Scope

Re-rating of GVM using VTB-180 is permitted only on the following type of light vehicles:

A light vehicle that is constructed on a ladder type chassis frame with a cabin and/or body mounted on it. Vehicles with integrated frame and body, commonly known as unitary or monocoque construction, are not eligible.

The Original Equipment Manufacturer (OEM) refers to the entity holding the First Stage Identification Plate Approval (IPA) or Vehicle Type Approval (VTA). An entity holding the Second Stage Manufacture (SSM) approval or Registered Automotive Workshop Scheme (RAWS) approval is not deemed as the OEM.

In cases where the OEM has not specified a GVM rating, the maximum laden mass at which the OEM has shown compliance with the ADR is to be taken as the original GVM rating. This information must be obtained from a reliable and traceable source. If no GVM is readily available, check with your transport agency before designing or performing the GVM modification.

The Road Vehicle Descriptor (RVD) continues to be valid under the *Road Vehicle Standards Act 2018* (Cwth) and is referenced in the ROVER system. Note that evidence of the design package for the SSM approval must be supplied to the CEO of DoT. Simply citing the SSM IPA or VTA is not deemed sufficient to provide the certification.

## 2.1 What is covered

Modifications that may be certified using VTB-180 are:

- Restoring the GVM rating to the OEM rating but only after ensuring that all vehicle components are also restored to the OEM specification.
- GVM increase over the rating given by the OEM in following cases:
  - GVM re-rating of an in-service vehicle that is of the same make/model/variant/chassis series as a vehicle having a DoT approval for GVM re-rating.
  - GVM re-rating of an in-service vehicle that is of the same make/model/variant/chassis series as a vehicle having an SSM approval for GVM re-rating.
  - Increase in GVM rating where an additional axle has been installed.
  - GVM re-rating to match the OEM's rating for another variant of the same make/model/chassis series.

## 2.2 What is not covered

Modifications that must not be certified using VTB-180 are:

- Modifications other than those described in Section 2.1.
- Reduction in GVM rating other than:
  - (a) the re-rating to OEM's optional GVM rating for that make/model; or
  - (b) GVM reduction required because of conversion to motorhome.

## 2.3 Towing Capacity and VTB-180

In WA, the *Road Traffic (Vehicles) Act 2012* prevents the towing capacity of a vehicle from being re-rated by anyone except the vehicle OEM. Therefore, as a result, the BTC of a vehicle cannot be re-rated.

VTB-180 must not be used for re-rating of the Gross Combination Mass (GCM) of a vehicle. Refer to VTB-181 GCM Re-rating.

## 3 General Requirements

The vehicle must be able to safely operate at the re-rated GVM. All affected components including the chassis frame, drivetrain, axles, suspension, brakes, steering, rims and tyres must be assessed individually to ensure that they can safely support the loads resulting from the re-rated GVM.

All work must also comply with the requirements contained in sub-section 2 General Requirements of Section LS of the Vehicle Standards Bulletin 14: National Code of Practice for Light Vehicle Construction and Modification (VSB-14).

Increased GVM may affect the warranty provided by the OEM. It is the responsibility of the vehicle operator and the certifying AC to consider any such effect on the warranty. Any effect this modification may have on the product warranty is outside the scope of this VTB. The certifying AC must clarify this point to the modifier and the vehicle operator.

### 3.1 Compliance with applicable vehicle standards

- 3.1.1 The modified vehicle must continue to comply with the ADRs that apply to it.
- 3.1.2 If different or additional ADRs apply to the modified vehicle, it must comply with those that apply to it.
- 3.1.3 A modified vehicle must also comply with the applicable in-service requirements of the *Road Traffic (Vehicles) Regulations 2014*.
- 3.1.4 A modified pre-ADR vehicle must continue to comply with the Regulations.
- 3.1.5 Outlined in Table 1, are areas of the vehicle that may be affected by the modifications and may require re-certification, testing and/or data to show compliance of the modified vehicle.

**Table 1: List of items and likely affected ADRs**

| DETAIL                                   | REQUIREMENTS                                    |
|--|---|
| Tyre and Rim Selection                   | ADR 42/...                                      |
| Braking Systems                          | ADR 31/...or ADR 35/...                         |
| Brake Performance (for non-ADR vehicles) | <i>Road Traffic (Vehicles) Regulations 2014</i> |

Note: This is not an exhaustive list and compliance to other ADRs may also be affected.

The ADRs applicability is according to the vehicle's category and date of manufacture. It is the responsibility of the certifying AC to verify compliance to the applicable ADRs. The certification must include the vehicle date of manufacture in addition to the date of modification.

Sections 2.2 to 2.5 relate to the general requirements applying to different pathways to re-rate a vehicle's GVM using VTB-180.

### **3.2 Pathway 1: Vehicle GVM re-rating based on WA DoT approval.**

- 3.2.1 The re-rated GVM must be no more than the DoT approved vehicle.
- 3.2.2 All upgraded components relevant to GVM re-rating (for example, brakes, tyres and rims, chassis frame reinforcements etc) must be fitted and identical to those specified on the DoT approved vehicle.
- 3.2.3 Aspects of the modification other than those directly related to GVM re-rating must be certified using the appropriate section of VSB-14 or specific approval issued by DoT.
- 3.2.4 Use of the DoT approval for this pathway must be permitted, guided and controlled by the entity holding the DoT approval. In addition to the physical modification replicating the DoT approval, all the administrative requirements specified under the DoT approval must also be met. These requirements may include, but are not limited to the following:
  - The vehicle's first IPA or VTA number must be identical to that mentioned in the DoT Approval.
  - The DoT approval must cover the variant of in-service vehicle that is being modified and certified.
- 3.2.5 The DoT approval number must be recorded on the modification certificate.
- 3.2.6 The written permission from the DoT approval holder must be retained by the certifying AC as evidence.

### **3.3 Pathway 2: Vehicle GVM re-rating based on Federal SSM approval.**

- 3.3.1 The re-rated GVM must be no more than the SSM approved vehicle.
- 3.3.2 All upgraded components relevant to GVM re-rating (for example, brakes, tyres and rims, chassis frame reinforcements etc) must be fitted and identical to those specified on the SSM approved vehicle.  
Despite the above, the modified vehicle must still meet the requirements of VSB-14 (Section LS) in regards to vehicle lifts/height increases, track, rims and tyres
- 3.3.3 Aspects of the modification other than those directly related to GVM re-rating must be certified using the appropriate section of VSB-14 or specific approval issued by DoT.
- 3.3.4 Use of the SSM approval for this pathway must be permitted, guided and controlled by the entity holding the SSM approval. In addition to the physical modification replicating the SSM approval, all the administrative requirements specified under the SSM approval must also be met. These requirements may include, but are not limited to the following:
  - The vehicle's first IPA or VTA number must be identical to that mentioned in the SSM Approval.
  - The SSM approval must cover the variant of in-service vehicle that is being modified and certified.
- 3.3.5 The Road Vehicle Descriptor (RVD) continues to be valid under Road Vehicle Standards Act 2018 (Cwth) and is referenced in the Road Vehicle Regulator (ROVER) system. Note that evidence of the design package for the SSM approval must be supplied to the CEO of DoT. Simply citing the SSM IPA or VTA is not deemed sufficient to provide the certification.
- 3.3.6 The SSM approval number must be recorded on the modification certificate.
- 3.3.7 The written permission from the SSM approval holder must be retained by the certifying AC as evidence.

### **3.4 Pathway 3: Vehicle GVM re-rating by installation of an additional axle.**

- 3.4.1 If an additional axle is fitted to a vehicle (i.e. lazy axle or additional drive axle) the vehicle's GVM rating may be increased.
- 3.4.2 The fitment of an additional rear axle must be certified using VSB-14 (Section LB2). Additional supporting evidence including brake testing and chassis strength analysis at the re-rated GVM must be provided.
- 3.4.3 If the additional axle does not have load-sharing suspension with adjacent axle or axle group, the re-rated GVM must not exceed 110% of the GVM rating by the OEM.

### **3.5 Pathway 4: Vehicle GVM re-rating based on OEM reference variant**

- 3.5.1 The GVM of a light vehicle may be re-rated to match the OEM's rating for another variant of the same make/model/chassis series.
- 3.5.2 All components, including chassis structure, suspension, transmission, engine, brakes, tyre and rims must be identical to those specified for the reference variant.

## **4 Specific Requirements**

The following specific requirements apply to all pathways.

### **4.1 Chassis**

- 4.1.1 A simplified way to look at the frame requirements for GVM re-rating, is to associate the bending strength of the chassis with the load carrying capacity (i.e. GVM).
- 4.1.2 Chassis modifications must be performed in accordance with VSB-14 (Section LH5). If the necessary information is not available in Section LH5, then the relevant sections of H code of the Vehicle Standards Bulletin 6: National Code of Practice for Heavy Vehicle Modifications (VSB-6) may be consulted, as appropriate.
- 4.1.3 When modifications such as fitting of additional or replacement axle(s) with higher load rating are carried out, the vehicle frame must be analysed to ensure that it has sufficient strength to support the re-rated GVM. For calculating chassis strength, VSB-6 may be consulted.
- 4.1.4 Finite Element Analysis (FEA) or physical testing will be required, and the results presented in a written report.

### **4.2 Engine/Transmission**

Where re-rating is by Pathway 4 (comparison with a manufacturer's reference variant), the engine and transmission fitted to the modified vehicle must replicate the reference variant.

### **4.3 Axle and suspension Ratings**

Axle loading at the re-rated GVM must be assessed to ensure that the axles are suitable for the increased loading and that the vehicle is safe to operate on road. It is expected that the certifying AC takes full responsibility for the assessment methodology and approval process, as well as ensuring that all requirements are met.

The assessment method must be robust and include combinations of testing, stress analysis, computer simulation and reinforcement or replacement of the axle. The resulting axle load assessment rating, if different and greater than the OEM rating, must be recorded on the Modification Certificate, the Load Capacity Label and updated in the Owner's Handbook.

ACs, in performing the assessment, must comply with the following:

- 4.3.1 The maximum suspension, axle and/or axle group mass limits must be obtained from either:
  - the OEM vehicle manufacturer; or
  - the axle and suspension manufacturer; or
  - by engineering analysis where the manufacturer's rating for a vehicle cannot be established; or
  - where the manufacturer's rating for a vehicle cannot be established, a comparison can be made with an OEM rating for a vehicle which has identical:
    - driveline components; and
    - axle ratio; and
    - suspension components.

- 4.3.2 Ensure the GVM rating assigned does not result in any axle, axle group or suspension rating being exceeded, unless all aspects of 3.3.3 below are complied with.
- 4.3.3 Where a manufacturer has published a reduced rating capacity for a component, ensure the reduced rating is applied, unless modified and/or strengthened according to the design package. For example - some vehicles have increased the axle rating over the life cycle of the vehicle. In this case, the relevant rating for the model year of the vehicle being modified must be used in the design package.

The vehicle must be suitable and continue to operate safely at the increased GVM:

- i. For the re-rating of axles, the components in the axle subsystem must be fit for purpose. The vehicle's subsystem and components must be analysed to ensure that the components handle the increased loading. If the components performance deteriorates, the axle subsystem will need to be re-engineered with components of a higher rating.
  - ii. If the baseline axle rating is exceeded, axle stresses must be analysed to identify maximum stress level and areas of critical stress with:
    - a) standard loading (baseline measurement), and
    - b) increased load condition. The maximum stress level with increased loading must be still within the yield stress limit of the material.
- 4.3.4 In all other cases, where the critical stress level exceeds the baseline performance the axle assembly must be replaced with a suitable alternative axle, or it must be reinforced. Where re-rating is by Pathway-4 (comparison with a manufacturer's reference variant), the axles fitted to the modified vehicle must replicate those fitted by the manufacturer to the reference variant.
- 4.3.5 Track changes must not exceed VSB-14 limits, even though they may have SSM approval. Fitment, capability and suitability of the replacement rear axle must comply with VSB-14 (Section LB2).
- 4.3.6 VTB-180 must not be used as a stand-alone method for certifying the re-rating of any individual components (for example axle, springs or chassis frame) and or vehicle systems (for example braking or drivetrain).

#### **4.4 Tail Shaft**

Changes associated with a re-rated GVM may place additional load on a vehicle's tail shaft. For example:

- changes to vehicle's ride height which may alter the tail shaft and pinion angles,
- alterations to a vehicle's wheelbase may result in change in tail shaft length,
- changes to engine and/or transmissions may impose increased torsional loading on the tail shaft.

The vehicle's tail shaft strength and its installation must be suitable at the vehicle's re-rated GVM.

#### **4.5 Suspension**

- 4.5.1 When loaded to re-rated GVM, additional loads are placed on the suspension. Vehicle suspension ratings must be adequate for the re-rated GVM. Suspension must be able to accommodate the axle loads resulting from the common and practical load distribution.
- 4.5.2 Effects of changes in ride height must be carefully considered. For example, jounce and rebound travel, hydraulic brake hose length, vehicle handling and roll stability.
- 4.5.3 If the change in ride height is such that it requires certification under another section of VSB-14, using VTB-180 does not exempt the need for such certification. Also see general requirements under Pathway-2 for the need to certify modifications related to ride height.
- 4.5.4 The modifications to the suspension must comply with VSB-14 (Sections LS7 and LS8), even when the re-rated GVM exceeds 3500 kg, including successful completion of an Lane Change Manoeuvre Test (Section LT2) if the total vehicle lift is above 50 mm. Suspension height increases above 75 mm will not be approved even though they may have SSM approval.

#### **4.6 Brakes**

- 4.6.1 A vehicle's braking performance is directly affected by changes to its GVM. Therefore, the vehicle's braking system must be assessed to determine if the performance of the original system is adequate for the re-rated GVM or the braking system requires to be modified.

- 4.6.2 The vehicle's braking system must also be recertified to the higher GVM complying with VSB14 (Section LG), an Abridged Brake Test must be carried out to include:
- Maximum laden speed.
  - Service Brake effectiveness.
  - Fade cycle.
  - Parking brake test.
  - Alternatively, successful completion of full ADR 35 testing will also be accepted.
- 4.6.3 If the vehicle is fitted with any form of Electronic Stability Control (ESC), and the height increase is above 50 mm, evidence will be required proving that the modifications will not detrimentally affect the operation of the ESC in any way. Physical testing or sine and dwell simulation will be required.
- 4.6.4 If a modified braking system is required, it must be designed, installed and certified appropriately.
- 4.6.5 Typically a light vehicle has an unbraked tow capacity of 750 kg, meaning the vehicle, when loaded to GVM, can safely tow an unbraked trailer with a maximum mass of 750 kg. Confirmation will be required that the OEM unbraked tow capacity is maintained at the uprated GVM, either by physical testing, test simulation or energy calculations (for example during fade testing).

## **4.7 Steering**

- 4.7.1 The entire steering system under Pathway-4 must be identical to that fitted by the vehicle manufacturer to the reference variant.
- 4.7.2 If the steering system is modified or a new steering system is fitted, it must be certified using VSB-14 (LS Section).

## **4.8 Tyres and Rims**

- 4.8.1 The tyres and rims must be selected to comply with the requirements of the relevant ADR at the re-rated GVM.
- 4.8.2 The load carrying capacity of all tyres and rims must not be exceeded when the vehicle is loaded to the re-rated GVM, and the load is distributed in a practical way.
- 4.8.3 The sum of the load carrying capacities of the tyres fitted must be at least equal to the re-rated GVM. The same applies to the load carrying capacities of the rims.
- 4.8.4 The load capacity of the tyres (and rims) on each axle must be adequate to support the potential maximum mass on that axle.
- 4.8.5 The revised tyre size and load ratings must not exceed VSB-14 diameter limits.
- 4.8.6 If re-rated GVM and axle masses require a different tyre and rim combination, a new tyre placard must be fitted to indicate the revised tyre and rim specifications for the vehicle at the re-rated GVM.
- 4.8.7 The revised tyre size and load rating must also appear on a modified tyre placard attached to the vehicle and in the owner's handbook. A tyre and rim assessment report must be provided to the CEO of DoT.
- 4.8.8 If different tyres and rims are specified, their size must be no more than necessary to support the re-rated GVM.
- 4.8.9 The effect of alternate tyres on speedometer/odometer accuracy must be considered.
- 4.8.10 It must be ensured that, with the alternate tyres, the vehicle's ESC performance, if ESC is fitted, is not affected.

## **5 Owner's Handbook and Load Capacity Label**

The vehicle operator must be adequately informed of the changes.

### **5.1 Owner's Handbook**

- 5.1.1 To inform the vehicle operator about the vehicle's load capacity and tyre & rim requirements, the vehicle's handbook must be updated. The update must provide specific details of the tyres, rims and the load capacity.
- 5.1.2 Of particular importance is any sliding reduction in legal towing mass as the tow vehicle is loaded to its re-rated GVM and/or vertical load on tow ball (ball weight).

- 5.1.3 If the vehicles handbook is not available, this information must be provided in written form to the owner of the vehicle.
- 5.1.4 A copy of all the information provided to the vehicle owner must retained as part of the evidence of this certification.
- 5.1.5 The re-rated GVM must be shown on the modification plate fitted.

## 5.2 Load Capacity Label

- 5.2.1 A Load Capacity Label must be fitted to display information as explained below (Figure 1). A sticker issued by Queensland in conformance with LS16 Modification code requirements will be deemed as an acceptable alternative.
- 5.2.2 The Load Capacity Label must be made of durable material and letter size and contrast should be similar to the tyre placard.
- 5.2.3 The Load Capacity Label must be fitted to the vehicle, as close as practicable, to the vehicle's tyre placard.

**Figure 1 - Load Capacity Label**

| Item  | Information |
|---|-------------|
| DoT Approval Number (if applicable) <sup>1</sup>  |             |
| SSM Approval Number (if applicable) <sup>1</sup>  |             |
| Re-rated GVM <sup>2</sup>   | kg          |
| GCM Rating by Original Vehicle Manufacturer (if available) <sup>3</sup>                                       | kg          |
| Maximum Allowed Front Axle Rating <sup>4</sup>  | kg          |
| Maximum Allowed Rear Axle/s Rating <sup>5</sup>   | kg          |
| For further information regarding towing capacity and operation please refer to the vehicle owner's handbook. |             |

### Explanatory Notes

- 1. Applicable only if GVM re-rating is based on DoT or SSM approval. If not applicable, indicate XXXX
- 2. Re-rated GVM certified under VTB-180.
- 3. GCM rating, if published by the OEM in owner's handbook or on OEM website. If not published, indicate XXXX
- 4. Front axle rating as published by the OEM in owner's handbook/OEM website, or if assessed by the AC, the re-rated axle load.
- 5. Rear axle rating as published by the OEM in owner's handbook/OEM website, or if assessed by the AC, the re-rated axle load.

## 6 Limitations

Section 2.2 of this VTB provides information about which types of modifications are not permitted to be certified using VTB-180. In addition, the following limitations apply.

### 6.1 Electronic Stability Control

If the vehicle is fitted with an Electronic Stability Control (ESC) system by the OEM, the following requirements must be met:

- 6.1.1 The ESC system must not be disabled.
- 6.1.2 It must be ensured that the modifications being certified do not reduce effectiveness of the ESC system.
- 6.1.3 If the height increase is above 50 mm, evidence will be required to prove that the modifications will not detrimentally affect the operation of the ESC in any way. Physical testing or sine and dwell simulation will be required, and the results presented in a written report.

## 7 Additional Modifications and Changes to Vehicle Category

- 7.1 Additional modifications that are not essential for GVM re-rating must be assessed separately and certified using appropriate sections of VSB-14 or specific approvals. For example, modifications to the exhaust system must comply with VSB-14 (Section LA, including a noise test).

- 7.2 If the vehicle's category has changed due to the GVM re-rating, the vehicle must maintain all OEM safety systems as well as complying with the vehicle standards applicable to the upgraded vehicle category. Certification of such compliance must be provided. For example, an NA category vehicle with a re-rated GVM over 3500 kg will be classified as NB1. Evidence will be required to show that the vehicle meets ADR 6/00, 13/00 and is fitted with CAT 6 side indicators.

## **8 Use of VTB-180 to provide Design Certification for GVM re-rating**

VTB-180 may now be used to provide design certification for GVM re-rating of vehicles of a particular make/model/variant/chassis series. Design certification may be provided for any of the re-rating pathways discussed in Section 3.2 to 3.5 of this VTB.

### **8.1 Design Package**

The Design Package is a set of documents that clearly and comprehensively address the following requirements:

#### **8.1.1 Scope of what is eligible**

The Design Package must clearly identify which make/model/variant/chassis series it applies to. If its applicability is restricted to specific build years that also must be mentioned. Reference must be made to IPA or VTA Number, eligible typical VIN(s), eligible variants/chassis series.

Since the certification using this VTB-180 is being provided on in-service vehicles, the condition of the vehicle is important when providing the certification. The design package must include instructions about what is to be inspected and the acceptance criteria to decide that the vehicle is in a safe and serviceable condition at the point of certification. Condition of the shock absorbers, suspension, frame, tow equipment and brakes are key areas to inspect. Absence of cracks, deformations, leaks and structural damage due to previous overloading, accidents or rust are critical.

The design and certification package must include a template checklist for use by the DoT approved modifier, to confirm that the vehicle was inspected and was found in safe and serviceable condition at the point of modification.

#### **8.1.2 Evidence package**

The design package must include all the test reports and engineering calculations that validate the re-rating, when modified as prescribed. Test reports must be from a recognised test laboratory and be signed and dated. All test reports must make unambiguous reference to the specific make/model/variants of the vehicle or component to which they apply. The test reports must contain the criteria or standard against which testing is performed and clear conclusion about pass or fail outcome according to the relevant criteria or standard.

The design package must also include a signed and completed Design Checklist (see Appendix 1).

Engineering calculations must be legible and must include assumptions, if any. They must be compiled under a unique identifier document that is dated and signed.

If any evidence is sourced from a third party, the evidence package must include a written permission from that party for use of its reports as evidence.

Any Intellectual Property provided to DoT as part of a type approval process will be held subject to the relevant DoT Standards for privacy and confidentiality, in accordance with the requirements of the DoT Code of Conduct.

#### **8.1.3 Work instructions for modification**

The design package must include clear and comprehensive work instructions on how to modify the vehicle, what parts to be used, the sequence of actions to be performed, precautions to be taken and what process controls to be applied.

The work instructions must include details of any (non-destructive) testing and inspections to be carried out to ensure that the modification standards are met.

The work instructions must be easy to understand, unambiguous and should include sufficient pictorials such as photos and graphics.



## **9 Vehicle Modification**

### **9.1 Approved Modifiers**

Only DoT approved modifiers or their preferred agents are authorised to install and verify an approved kit to re-rate the GVM of a vehicle.

Modifiers wishing to gain approval from DoT should contact the Vehicle Safety & Standards section for further information.

### **9.2 Installation Checklist.**

Once the vehicle has been modified, it must be presented for inspection.

The person presenting the vehicle must provide a copy of the Installation Checklist, completed and signed by the modifier (see Appendix 2).

A modification permit will be issued following a passed inspection. Modification and inspection fees are payable.

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## Appendix 1

### VTB-180: Design Checklist - Gross Vehicle Mass Re-rating

|  |   |   |   |
|--|---|---|---|
| Modification Certificate Number: _____ |   |   |   |
| <b>1</b>                               | <b>Design</b>   |   |   |
| 1.1                                    | DoT WA Approval Number ..... (the design)   |   |   |
| 1.2                                    | Is a comprehensive design package provided?   | Y | N |
| 1.3                                    | Does the design package have a unique identification number?  | Y | N |
| 1.4                                    | Does the design package clearly describe which make/ model/ variant/ chassis series is covered?   | Y | N |
| 1.5                                    | Does the design package include guidance on what to inspect and criteria to decide if the vehicle is in safe and serviceable condition for re-rating?   | Y | N |
| 1.6                                    | Does the design package include a complete Evidence Package that forms the basis of this certification?   | Y | N |
| 1.7                                    | Does the design package include comprehensive work instructions including work to be done, precautions to be taken, control of processes and tests to be conducted?                                 | Y | N |
| 1.8                                    | Does the design package include a checklist for the modifier of the vehicle?  | Y | N |
| 1.9                                    | Does the design package meet all the requirements of this VTB?  | Y | N |
| 1.10                                   | Have the new ratings been communicated by the AC?   | Y | N |
| <b>2</b>                               | <b>Suspension</b>   |   |   |
| 2.1                                    | Is the vehicle's suspension suitable for the re-rated GVM?  | Y | N |
| <b>3</b>                               | <b>Chassis</b>  |   |   |
| 3.1                                    | Is the chassis frame suitable for the re-rated GVM?   | Y | N |
| <b>4</b>                               | <b>Axles and Driveshafts</b>  |   |   |
| 4.1                                    | Are the axles and driveshafts suitable for the re-rated GVM?  | Y | N |
| <b>5</b>                               | <b>Engine / Transmission / and mountings</b>  |   |   |
| 5.1                                    | Are the engine/transmission and mountings suitable for the re-rated GVM?  | Y | N |
| <b>6</b>                               | <b>Braking System</b>   |   |   |
| 6.1                                    | Has a brake test been carried out on the modified vehicle to ensure compliance with ADR 31/... or 35/... whichever is applicable?<br>(If re-rating using Pathway-2 or Pathway-4, response can be Y) | Y | N |
| 6.2                                    | Is the vehicle brake system suitable for the re-rated GVM?  | Y | N |
| 6.3                                    | Is the OEM unbraked tow capacity still applicable for the vehicle with re-rated GVM?  | Y | N |
| <b>7</b>                               | <b>Tyres and Rims</b>   |   |   |
| 7.1                                    | Does the Modification Plate record the correct tyre and rim sizes and load ratings for the modified vehicle?  | Y | N |
| 7.2                                    | If a revised tyre placard is required, has it been fitted to the vehicle and a copy attached to this checklist?<br>Indicate Y if a revised tyre placard is NOT relevant.                            | Y | N |
| 7.3                                    | Do the tyres and rims fitted conform to the modification plate and the tyre placard?  | Y | N |
| 7.4                                    | Are load ratings of the tyres and rims adequate for the vehicle's re- rated GVM and the potential axle masses?  | Y | N |
| <b>8</b>                               | <b>Electronic Stability Control System (if fitted)</b>  |   |   |
| 8.1                                    | Is it ensured that the ESC system is not disabled?  | Y | N |
| 8.2                                    | Is it ensured that the ESC system is not made less effective due to modifications carried out for GVM re-rating?  | Y | N |
| 8.3                                    | If the GVM re-rating involves other modifications that require verification of the ESC operation, is such verification provided?  | Y | N |

|              |   |   |   |
|--------------|---|---|---|
| <b>9</b>     | <b>Load Capacity Information</b>  |   |   |
| 9.1          | Is the Load Capacity label attached to the vehicle?   | Y | N |
| 9.2          | Has the vehicle's handbook been amended, and a copy of the relevant modified content attached to this checklist?  | Y | N |
| <b>10</b>    | <b>Re-rating based on Manufacturer's Optional GVM (complete if applicable)</b>  |   |   |
| 10.1         | Does the re-rated GVM match an alternative option for the same make, model produced by the vehicle manufacturer?  | Y | N |
| 10.2         | Are all components relevant to the GVM re-rating (brake, engine, transmission, suspension, chassis, tyres and rims etc) identical to the original vehicle manufacturer's alternative specification? | Y | N |
| <b>11</b>    | <b>Re-rating based on SSM Approval (complete if applicable)</b>   |   |   |
| 11.1         | Has the SSM approval holder provided written approval to use that SSM design and a copy of the same attached to this checklist?   | Y | N |
| 11.2         | Does the re-rated GVM match that of the SSM approval?   | Y | N |
| 11.3         | Are all components relevant to the GVM re-rating (brake, suspension, tyres and rims, etc) identical to the SSM design?  | Y | N |
| 11.4         | Have you attached a copy of the SSM Road Vehicle Descriptor (RVD) to this checklist?  | Y | N |
| <b>12</b>    | <b>Re-rating based on fitment of an additional axle (complete if applicable)</b>  |   |   |
| 12.1         | If the re-rated is GVM more than 110% of the OEM rating, does the additional axle share load within its group?<br>(Respond Y if the re-rated GVM is within 110% limit)                              | Y | N |
| <b>Note:</b> | Y=Yes, N=No.<br>If the answer to any question is <b>N (No)</b> the design cannot be certified using this VTB.   |   |   |

| CERTIFICATION DETAILS                      |  |  |  |       |  |  |      |                        |  |  |  |  |  |  |
|--|--|--|--|-------|--|--|------|------------------------|--|--|--|--|--|--|
| Make                                       |  |  |  | Model |  |  |      | Year(s) of Manufacture |  |  |  |  |  |  |
| VIN*                                       |  |  |  |       |  |  |      |                        |  |  |  |  |  |  |
| Chassis Number (If applicable)             |  |  |  |       |  |  |      |                        |  |  |  |  |  |  |
| Brief Description of Modification/s        |  |  |  |       |  |  |      |                        |  |  |  |  |  |  |
| Vehicle Modified By (If applicable)        |  |  |  |       |  |  |      |                        |  |  |  |  |  |  |
| Certificate Number                         |  |  |  |       |  |  |      |                        |  |  |  |  |  |  |
| Vehicle/design Certified By (Print Name)   |  |  |  |       |  |  |      |                        |  |  |  |  |  |  |
| Approved Person's Employer (If applicable) |  |  |  |       |  |  |      |                        |  |  |  |  |  |  |
| Approved Person's Signature                |  |  |  |       |  |  | Date |                        |  |  |  |  |  |  |

\*Or the Unique Design Package Number, if providing design certification using this VTB-180.

## Appendix 2

### VTB-180: Installation Checklist - Gross Vehicle Mass Re-rating

|          |   |   |   |
|----------|---|---|---|
| <b>1</b> | <b>Design</b>   |   |   |
| 1.1      | DoT WA Approval Number ..... (the design)   |   |   |
| 1.2      | Has the vehicle been modified exactly in accordance with the plans and specifications detailed in the design installation instructions?   | Y | N |
| <b>2</b> | <b>Suspension</b>   |   |   |
| 2.1      | Is the vehicle's suspension in a serviceable condition and suitable for the re-rated GVM?   | Y | N |
| <b>3</b> | <b>Chassis</b>  |   |   |
| 3.1      | Is the chassis frame in a serviceable condition and suitable for the re-rated GVM?  | Y | N |
| <b>4</b> | <b>Axles and Driveshafts</b>  |   |   |
| 4.1      | Are the axles and driveshafts in a serviceable condition and suitable for the re-rated GVM?   | Y | N |
| <b>5</b> | <b>Engine / Transmission / and mountings</b>  |   |   |
| 5.1      | Are the engine/transmission and mountings in a serviceable condition and suitable for the re-rated GVM?   | Y | N |
| <b>6</b> | <b>Braking System</b>   |   |   |
| 6.1      | Has a brake test been carried out on the modified vehicle to ensure compliance with ADR 31/... or 35/... whichever is applicable?<br>(If re-rating using Pathway-2 or Pathway-4, response can be Y) | Y | N |
| 6.2      | Is the braking system in a serviceable condition and suitable for the re-rated GVM?   | Y | N |
| <b>7</b> | <b>Tyres and Rims</b>   |   |   |
| 7.1      | Does the Modification Plate record the correct tyre and rim sizes and load ratings for the modified vehicle?  | Y | N |
| 7.2      | If a revised tyre placard is required, has it been fitted to the vehicle and a copy attached to this checklist?<br>Indicate Y if a revised tyre placard is NOT relevant.                            | Y | N |
| 7.3      | Do the tyres and rims fitted conform to the modification plate and the tyre placard?  | Y | N |
| 7.4      | Are load ratings of the tyres and rims adequate for the vehicle's re-rated GVM and the potential axle masses?   | Y | N |
| <b>8</b> | <b>Workmanship</b>  |   |   |
| 8.1      | Is all work of satisfactory quality and has all work been performed in accordance with recognised engineering standards?  | Y | N |
| 8.2      | Do all new or replaced fasteners comply with the applicable requirements of Appendix A <i>Fasteners</i> in section LZ <i>Appendices</i> of VSB14?   | Y | N |
| <b>9</b> | <b>Electronic Stability Control System (if fitted)</b>  |   |   |
| 9.1      | Is it ensured that the ESC system is not disabled?  | Y | N |
| 9.2      | Is it ensured that the ESC system is not made less effective due to modifications carried out for GVM re-rating?  | Y | N |
| 9.3      | If the GVM re-rating involves other modifications that require verification of the ESC operation, is such verification provided?  | Y | N |

|              |  |   |   |
|--------------|--|---|---|
| <b>10</b>    | <b>Load Capacity Information</b>   |   |   |
| 10.1         | Is the Load Capacity label attached to the vehicle?  | Y | N |
| 10.2         | Has the vehicle's handbook been amended, and a copy of the relevant modified content attached to this checklist?   | Y | N |
| <b>11</b>    | <b>Additional work</b>   |   |   |
| 11.1         | Is any additional or replacement work certified (where necessary) under the appropriate sections of VSB14?         | Y | N |
| 11.2         | Has it been confirmed that this additional or replacement work has not affected the GVM re-rating design approval? | Y | N |
| <b>Note:</b> | Y=Yes, N=No.<br>If the answer to any question is <b>N (No)</b> the design cannot be certified using this VTB.      |   |   |

| <b>CERTIFICATION DETAILS</b>               |  |  |  |  |       |  |  |  |  |                     |  |  |  |  |  |
|--|--|--|--|--|-------|--|--|--|--|---------------------|--|--|--|--|--|
| Make                                       |  |  |  |  | Model |  |  |  |  | Year of Manufacture |  |  |  |  |  |
| VIN  |  |  |  |  |       |  |  |  |  |                     |  |  |  |  |  |
| Chassis Number (If applicable)             |  |  |  |  |       |  |  |  |  |                     |  |  |  |  |  |
| Brief Description of Modification/s        |  |  |  |  |       |  |  |  |  |                     |  |  |  |  |  |
| Vehicle Modified By (If applicable)        |  |  |  |  |       |  |  |  |  |                     |  |  |  |  |  |
| Design Approval Number                     |  |  |  |  |       |  |  |  |  |                     |  |  |  |  |  |
| Vehicle GVM kit installed by (Print name)  |  |  |  |  |       |  |  |  |  |                     |  |  |  |  |  |
| Approved Person's Employer (If applicable) |  |  |  |  |       |  |  |  |  |                     |  |  |  |  |  |
| Approved Person's Signature                |  |  |  |  |       |  |  |  |  | Date                |  |  |  |  |  |