Good Practice Guide for Supply of Replacement Parts for use on Heavy Vehicles

Purpose

This Guide provides advice to *Operators* of heavy vehicles and *Purchasers* of heavy vehicle parts for those vehicles, about the quality-assurance actions that *Suppliers* of replacement parts should take.

Under the Heavy Vehicle National Law those who are involved in heavy vehicle transport have a duty to ensure the safety of their transport activities, including to ensure their vehicles comply with vehicle standards and are appropriately maintained.

Operators should purchase good-value parts for heavy vehicles that will provide safe, reliable, and legal performance. The use of poor-quality parts leaves the *Operator* vulnerable to expensive breakdowns and reworks, enforcement attention and loss of insurance cover. It also increases the road safety risk, either as the result of part failure or because vehicles that are stopped on roads are a hazard. These risks can be mitigated if *Suppliers* of replacement parts implement the quality-assurance activities specified in this Guide.

Parts suppliers are in a unique position to support operators to meet their primary safety duty obligations through the provision of advice on the quality and compliance of parts they supply.

Suppliers of *Parts* who comply with this Guide; will identify appropriate technical standards, have validation test reports, keep supply records, review failure reports, and provide installation information. These actions will assist the *Supplier* to determine and monitor the quality of parts it markets.

The Guide is applicable to all *Suppliers*, be they original equipment suppliers or after-market suppliers. All *Suppliers of Parts* can and should comply with the

requirements of this Guide. Suppliers should strive to follow this Guide for parts they supply.

The Guide is applicable to replacement parts, which are used to replace an original part, and for parts that are used to modify a vehicle.

Purchasers should buy parts from *Suppliers** who declare that they supply their replacement parts according to this Guide, so they can be confident that practices are being followed that promote good part quality.

This Guide identifies good practices that will support suppliers, purchasers, operators, and others involved in the servicing or modification of heavy vehicles, to enhance the safety and reputation of the road transport sector.

* Terms in italic text are defined in Section H - Glossary.

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Guide Structure

The Guide is in seven sections:

Section A General Principles for the Safe Supply of Replacement Parts

General principles that *Suppliers* and *Purchasers* of parts should follow. This Guide identifies these principles and explains their application.

Section B Good Practice Guidance for Suppliers of Replacement Parts

Recommended actions to be taken by *Suppliers* that are specific to the safety level of the part.

Section C Good Practice Guidance for Purchasers of Replacement Parts

Matters to be considered by *Purchasers* of replacement parts when making purchasing decisions.

Section D Good Practice for Purchase Managers Who Make Policy

Recommended practices that are implemented by professional purchasers of *Replacement Parts*.

Section E Good Practice Guidance for Installers of Replacement Parts

Matters to be considered by *Installers* of *Replacement Parts*.

Section F Safety Level Classifications of Common Part Types

The safety classifications of a large range of parts is presented in this Section

Section G Glossary of Terms

Glossary of terms and acronyms that are relevant to this Guide.

SECTION A - General Principles for Safe Supply of Replacement Parts

A.1 Overview

This **Guide** identifies good practice advice for suppliers and purchase of Parts that are used on heavy vehicles.

This **Guide** is directed to part suppliers and to consumers of parts. It is intended to inform purchasers, installers and authorities about good practice when specifying, selecting, and supplying replacement parts for heavy vehicles.

The *Part* can be a single item or an assembly of parts that perform a function on a heavy vehicle.

Good practice should result in the installed *Part* meeting legal requirements, and providing acceptable safety, performance, traceability, serviceability, and longevity.

This **Guide** is not a regulation and it is not a technical standard.

If that advice given in this **Guide** is followed by all participants in the parts supply-chain, operators can expect to experience safe, reliable, and legal operation of vehicles.

Suppliers of Parts to the market should comply with all the applicable recommendations of this **Guide**. These recommendations are in Section A.4 and in Part B.

Suppliers of Parts who claim that *Parts* they market were supplied in accordance with this Guide, must have evidence that all recommendations that are described in Part B as mandatory (i.e. “shall”) were met.

A.2 Classification Of Replacement Parts

There are five classifications of Parts for use on heavy vehicles that are recognised in this **Guide:**

Original – Replacement of an original part by the same part or a later generation of the original part that is supplied or manufactured by the original supplier.

Alternative – Replacement with a part that the original equipment supplier markets as an alternative to the original part.

Approved – A Part (or assembly or parts) that has approval in the Australian Road Vehicle Certification System (RVCS) or its successor, the Road Vehicle Regulator System (ROVER).

Some vehicles may have plant equipment installed. Some parts or sub-assemblies that are used in plant equipment may require approval according to a regulation. Plant-item parts can be Approved parts, but generally, plant item equipment is outside the scope of this **Guide**.

Approved Parts may not be vehicle-model specific and so the part can usually be used on a range of similar vehicles to meet a requirement that is specified in a regulation.

Similar Part – Is a Part that is installed as original equipment on an OEM vehicle that has similar ratings and operational conditions compared to the vehicle that the Part will be installed into.

Substitute Part – Replacement of the original part with a substitute part that may have different performance or characteristics compared to the original part and that is not an Alternative part.

If price and supply considerations are set aside, the hierarchy of choices is:

Original Part

Maintains the original specification

Alternative Part

Is consistent with the original specification, according to the original part supplier

Approved Part

Has been proven to be acceptable because it has an Australian or International (ECE) approval issued by an authority

Similar Part

Is used as original equipment on a comparable vehicle

Substitute Part

Could be acceptable if part quality and performance are adequate

Modification Part

A part that is used to modify the vehicle and that does not replace any prior part.

A Modification Part is not an Original Part because it is used to change the vehicle specification. It could also fit into some of the other classifications.

All these levels could be acceptable if the *Supplier* can demonstrate that the *Part* supplied according to the recommendations in this **Guide**.

A.3 Activities Involving Parts

There are three activities that may require purchase and installation of *Parts*. These are: Service, Repair and Modification.

Service (S) – Routine action to keep the vehicle in an acceptable mechanical condition that may involve installation of replacement parts.

Repair (R) – Maintenance of functionality after failure that may involve installation of replacement parts.

Modification (M) – A change of functionality from the original specification that may involve installation of parts.

Parts used for all these activities should be purchased from a *Supplier* who declares that the *Part was* supplied according to the recommendations in this **Guide**.

A.4 Good Practice Principles

1. The **Guide** is mainly concerned with the performance and function of the *Part* and not the installation of the *Part*. However, installers and modifiers have a duty of care to ensure that the vehicle is safe with the *Part* installed. Note that road agencies require many types of modifications to be approved by an accredited person, such as an Approved Vehicle Examiner (*AVE*).

2. This **Guide** defines good practice for the supply of parts, whether they are used for Service, Repair or Modification. Part suppliers may not know what purpose the part has been purchased for. Therefore, this **Guide** should apply generally to the supply of parts for heavy vehicles into the Australian market, irrespective of the intended activity.

3. Replacement of an *Original Part* by the same part or an *Alternative Part* is safe practice for the operator, assuming no defect or safety recall has been identified for the *Replacement Part*.

4. Replacement of an *Original Part* by an *Approved Part* is safe practice, assuming that the rating of the *Approved Part* is suitable for the application and no safety recall has been identified for the Replacement part.

5. Replacement of an *Original Part* by a *Substitute Part* is only safe practice if the *Substitute Part* has a suitable rating and no safety recall is applicable for the *Part*. Assessment of the quality of the *Substitute Part* is the responsibility of the *Purchaser* after taking note of the claims made by the *Supplier*.

6. A *Part* that is a sub-part in an *Assembly* does not inherit the approval status of the *Assembly* unless it has been tested in the approved assembly.

7. Irrespective of the *Safety Level* of the Part, *Purchasers* should purchase parts for which the *Part Supplier* claims are supplied in accordance with this **Guide**.

8. It is the responsibility of the *Part Supplier* to be able to validate claims made about parts. Validation testing may be required, even if the *Supplier* has no legal obligation to do so.

9. Suppliers of *Original Equipment Parts* or *Alternative Parts* have no special status in this **Guide**. They should supply *Parts* according to the requirements of this **Guide**.

10. *Approved Parts* shall have current approval status with the applicable regulator.

11. The performance ratings of a part shall be public information.

12. Some of the **Guide** recommendations will involve business systems for design, quality assurance and record keeping that the *Part Supplier* has established and operates. These are necessary but not sufficient to ensure safety of the *Part*. The *Part* must also have an adequate and proven rating.

A.5 Safety Levels

This **Guide** graduates the advice according to *Safety Level*. The Guide adopts a risk approach. That is, the actions that suppliers should take before supplying a part depend upon the consequences of failure.

The safety levels are:

Safety Level 1 **Safety and compliance critical**

There is a significant risk that failure of the part could cause:

- A serious road incident.
- A serious risk of fire.
- Loss of driver/operator safety protections.

Make the vehicle illegal to use.

Safety Level 2 **Safety and compliance relevant**

There is a significant risk that failure of the part could:

- Cause a loss of function or degraded performance of the vehicle.
- Disable the vehicle.
- Create a hazard.

Make compliance with the design rules uncertain.

Safety Level 3 **Minor safety relevance**

Failure of the part:

- Could cause a loss of function that is unlikely to disable the vehicle but will be inconvenient.
- Does not make the vehicle illegal on the road.

Safety Level 4 **No evident safety or compliance concerns**

- Failure of the part is unlikely to affect the safety, function or legal status of the vehicle.

Safety Level X **The item is probably illegal to sell**

A further graduation risk exists according to the warning of pending failure that is likely to occur:

- **High:** Failure is likely to occur without warning.
- **Low:** Failure is likely to occur with warning.

If a part failure is likely to occur with warning, an alert driver could take action to reduce the consequence of the failure. Thereby the risk is lowered.

When there is doubt about the likely consequences of failure, these graduations should be used. If the graduation is High, then classify the Part into the higher safety level. If the graduation is Low, classify the part into the lower safety level.

A component within a part assembly inherits the *safety level* classification of the assembly unless a detailed analysis shows that the component has a lower *safety level*.

Safety Classification Guide:

Reasonably possible consequences of *Part* Failure

Serious crash or Injury. Vehicle is illegal.	Moderate injury. Incapacitated vehicle. Vehicle may be illegal.	Minor injury. Loss of function. Vehicle is probably legal.	No injury. Inconvenience. Vehicle is legal.
Safety 1	**Safety 2**	**Safety 3**	**Safety 4**
High	Low High	Low High	Low

A.6 Legal Requirements

Under Australian Consumer Law, suppliers of parts must only supply parts that are fit for purpose and are safe. The law requires that an unsafe part be formally recalled according to a public safety recall. A part that is safe but not fit for purpose must be corrected. Notwithstanding the preceding comments, this Guide does not present a comprehensive Guide to legal responsibilities of suppliers of parts. The reader is encouraged to consult the ACCC guidance documents.

This Guide recognises that a *Part Supplier* into the Australian market may not be the *Part Manufacturer*. However, the legal obligations arising under Australian consumer law may apply to the *Part Supplier* as if it was the physical manufacturer. Consequently, the *Part Supplier* has substantial responsibilities.

Part Suppliers should take note that defects in parts could result in a legal obligation to recall a part. Quality checks to ensure that parts are safe, and record keeping facilitating a safety recall should one be required, are legal obligations.

Installers and modifiers of vehicles should be aware of requirements in the Heavy Vehicle (Vehicle Standards) National Regulations and similar jurisdictional regulations that require a vehicle to comply with specified performance and design requirements; and in general to continue to comply with Australian Design Rule requirements that were applicable when the vehicle was made. There could also be technical standards that a *Part* should meet depending upon the application.

According to the National Heavy Vehicle Law and jurisdictional regulations, many modifications of heavy vehicles must be approved by an authorised person (an AVE). A modification is a (substantive) change of the Original Equipment Manufacturer's specification for the vehicle. One element of the approval assessment is that the *Parts* are suitably rated and meet mandated standards.

Part installers should be aware that legal requirements may exist under occupational health and safety regulations that are additional to those arising from vehicle standards regulations.

This Guide does not provide an alternative path to meeting the requirements specified in a regulation. Some types of parts (e.g. mechanical couplings and

seatbelts) usually have an individual approval that is either issued by, or is acceptable to the Federal regulator (the Vehicle Standards Section in Department of Infrastructure, Transport and Regional Development). Compliance with this Guide is not an alternative to obtaining the required approval.

Chain of Responsibility requirements apply to the road transport logistics industry.

The supply of unsafe parts renders the *Part Supplier* vulnerable to legal sanction.

SECTION B - Good Practice for *Part Supply*

The word "shall" identifies a mandatory aspect of compliance with the Guide. The word "should" identifies a recommended aspect of compliance with the Guide.

B.1 Requirements For Safety Levels 1, 2 & 3

B1.1 Technical Standards

1. The *Supplier* shall identify technical standards that apply to the type of part being marketed.

   Notes: i). It may be that no such technical standards will be identified.

   ii). There may be technical standards that are relevant to the material properties of the type of part, even though the type of part is not described in the technical standard.

2. The *Supplier* should determine whether the *Part* complies with one technical standard(s) identified in Item 1.

B1.2 Information Requirements

3. The ratings of the *Part* that are relevant to safe operation shall be publicly declared (e.g. output torque values or friction grading for brake friction lining, D-value of coupling, load limit and wheel rim specification for an axle, bearing load rating, etc.).

4. Fitting instructions including required torques, operating limits, checks to verify correct installation and key safety information, shall be made available to the public.

5. If there are multiple ways to use the *Part*, operating instructions shall be provided.

6. Individual part numbers and manufacturers/supplier's identification shall be clearly visible on the *Part* or its packaging.

   The Supplier should put a "QR Code" or similar web link onto the packaging that will allow the user to find the public information about the part.

B1.3 Design Procedure Requirements

8. *Parts* shall be manufactured to an engineering drawing or specification that shows dimensions, tolerances and material specifications. Material properties that are important for safety, performance, or longevity, shall also be specified.

9. *Suppliers* who are not *Manufacturers* shall verify the correct performance and installation information from the *Manufacturer*, or if this cannot be achieved, otherwise verify that the claims it makes for the part are valid.

10. When design or significant manufacturing changes are made to a part, the part number or its revision level shall be changed. The reason for the change shall be documented in the technical file.

11. The *Supplier* shall keep records that identify the date, quantity of supply and batch number of each part that it manufactures or receives from the manufacturer.

B1.4 Quality Assurance Procedures

12. The *Supplier* shall have quality assurance procedures in place that verify continuing compliance with the applicable standards or safety performance levels. This process is to be documented in the supplier's quality assurance procedures. The supplier can rely upon the QA procedures that the manufacturer asserts it follows.

13. The *Supplier* should follow ISO 9001 / AITF 16949 quality assurance principles and practices, or some other QA standard that has comparable requirements.

14. *Parts* that are subject to a safety recall shall be withdrawn from sale and quarantined at the earliest opportunity.

15. *Parts* that the *Supplier* assesses could be defective shall be withdrawn immediately from sale and quarantined. The supplier shall then resolve any doubt about the acceptability or otherwise of the part.

16. Not all parts that are defective need to be safety recalled. If a *Safety Recall* is unnecessary but the *Part* is defective, the supplier shall act to correct the *Part* that has been supplied into the market.

B1.5 Record Keeping

17. The *Supplier* shall keep records that identify the date, quantity of supply and batch number for the Part that it supplies to the market.

18. The supplier's records shall be retained for at least seven years unless another period is specified in a regulation.

19. The *Supplier* shall keep a *Technical File* with information substantiating any claim of compliance with this Guide. The technical file should at least:

- Identify legal requirements and provide evidence of compliance.
- Show typical markings that identify part numbers and standards (ECE markings, UL, DOT etc.).
- Identify the part-number history of the part (it is recognized that part numbers of a part can change for various reasons over time).

The *Technical File* need not be made public.

B1.6 Consumer Complaints and Warranties

20. The *Supplier* should establish a complaint-resolution procedure to deal with substantive complaints about poor performance, failure or significant installation problems. Complaints shall be documented, and the records shall describe the complaint or failure and show the resolution of each complaint. The complaint or its resolution need not be public information.

21. The *Supplier* should record reports of failure of the *Part* and attempt to determine the conditions under which the reported failure occurred. Periodically the *Supplier* should review the failure records and determine whether unexpected failure rates are occurring, and if so, determine the cause(s) of failure.

22 The *Supplier* shall have a written warranty policy that is made available to a *Purchaser* upon request. This policy shall take account of legal requirements in the Australian Consumer Law.

B.2 Additional Requirements For Safety Level 1 & Level 2 Parts

B2.1 Information Requirements for Safety Level 1 & 2 Parts

1. *Parts* (or the assembly if applicable) should have a durable serial number and/or a batch identification that is visible when the part is in service. This requirement is intended to assist with tracing of parts if part problems or performance problems are identified later.

B2.2 Record Keeping for Safety Level 1 & 2 Parts

2. The *Supplier* shall keep records that identify the date, quantity of supply and batch number for the part that it supplies to each sub-supplier. The information should be enough to allow a batch of parts to be traced should a safety recall be necessary.

3. The *Supplier* shall attempt to determine the cause of each failure of a *Part* that is reported to it and shall document whether the failure indicates that a safety recall or a *campaign* recall should be conducted.

B2.3 Additional Design Procedures for Safety Level 1 & 2 Parts

4. If the part number is revised so it carries the same base number, the revised parts shall be backward compatible. That is, can be installed into prior installations.

B2.4 Test Standards for Safety Level 1 & 2 Parts

5. The design, performance and dimensions specified in a regulation shall be proven by laboratory-level tests conducted on a typical part.

6. Where verification or certification tests are needed to fulfill legal requirements, these should be done by a laboratory that is accredited by an authority. For example, the laboratory either has a Technical Facility Number (TFN) or is accredited under a national laboratory accreditation program (e.g. AS, NATA, TIF, JIS, RVD,..).

7. The *Supplier* should publicly declare – where applicable - the technical standard that the part complies with.

8. If the *Supplier* is not the manufacturer, the Supplier shall obtain a copy of the test report or the approval certificate from the Manufacturer, or otherwise verify the performance of the Part by tests or assessments that are documented.

9. A copy of the test report or the approval certificate shall be kept by the *Supplier* in the Technical File for the part. This information need not be made public.

10. When the part number applicable to a Part is changed, an assessment shall be made by an appropriately qualified person to determine whether certification-level testing should be redone. The outcome of this assessment shall be noted in the technical file.

11. When comparison testing against an *Original Part* is conducted, the procedures and limits specified in UN Regulation 90 should be used as a Guide.

12. When comparison testing of brake friction material is conducted against an *Original Part*, the procedures and limits specified in UN Regulation 90 shall be followed.

13. At least every ten years the *Supplier* shall commission or perform tests on a representative *Part* or *Parts*, to verify that the *Part* meets the specification.

SECTION C - Good Practice Guide for Consumers of Replacement Parts

C.1 Questions That *Suppliers* Should Be Able To Answer

Purchasers should expect that a *Supplier* of parts could answer the following questions, which might influence the purchasing decision.

Questions Applicable to All Parts

Q1 *What is the Safety Level of the Part?*
(1 - High, 2 – Medium, 3 – Low, 4 - Negligible)

The activities that *Suppliers* of parts follow should depend upon the risk level and hence the Safety Level classification that exists. Some examples of *Safety Level* are:

Safety 1	Steering kingpin.
Safety 2	Load tiedown straps and mechanisms.
Safety 3	Grab rail for cab entry.
Safety 4	Bonnet emblem.

An extensive but not exhaustive list of *Safety Levels* for types of parts is in Section F of the Guide.

Q2 *What technical standard does the Part comply to?*

Suppliers should be able to identify technical standards that could be applied to the type of parts they market. However, specific technical standards may not exist.

Q3 *If the Part could have a grading, rating or performance level, is this level stated in the documentation?*

Rating levels such as strength, weight, amperage, maximum pressure, flow-rate, etc., are important performance levels that should be stated in the part information. The strength ratings of mechanical couplings (D-value and V-value if applicable) should be provided on the part.

Q4 *Are written installation and safety instructions provided with the part, or otherwise available?*

Instructions can be important to assist with safe installation.

Q5 *Are quality assurance checks conducted on at least some Parts from each batch?*

Suppliers should check that the quality of samples from each batch is OK, whether they are the manufacturer or not.

Q6 *Does the Supplier have a written warranty policy and a process of recording and then investigating failures?*

Suppliers should investigate written (or formal) complaints about premature failures and should have a warranty policy for replacing defective parts.

C1.1 Questions Relevant to Safety Level 1 & 2 Parts

Q7 *Could use of the part affect compliance with a design rule or vehicle-standards regulation?*

If so, proof that the vehicle will continue to comply is needed.

Note: If the *Part* is used at OEM level on a comparable vehicle model, then it may be acceptable even if it is not an *Original Part*. The Part might also have approved status that applies to many vehicle models.

Q8 *Does the Part have a clearly visible part number and manufacturer's identification (label, stamping,..)?*

This is needed to verify that the correct part was supplied.

Q9 *Does the batch that the Part came from have a batch number?*

This is necessary so that quality problems become apparent can be traced to a particular date range or batch.

Q10 Was the Part manufactured to an engineering drawing and does the material meet a specification? What is the material strength?
Good quality parts must have properly documented and specified designs so that the performance of the part can be verified by engineering analysis and so consistent quality can be achieved.

C1.2 Additional Questions for Safety Level 1 Parts

Q11 Does the part have a unique serial number?

A unique serial number is not mandatory, but it is recommended. To facilitates traceability.

Q12 Has the model of the Part been tested against a technical standard and if so what standard and who did the test?

There may be a suitable technical standard for a Safety 1 Part; such as an ADR, UN Regulation, Australian Standard or an overseas technical standard. The manufacturer of the *Part* should have the model of the *Part* certified by a capable laboratory against a suitable technical standard. This information should be publicly known so the *Purchaser* can be confident that the Part will perform adequately, and the installation is legal.

Q13 If there is no technical standard that can be tested against (as in Q12), has comparison testing been done against an original equipment part for your vehicle?

A Safety 1 part should have some accreditation that provides confidence that it will perform adequately.

C.2 Guide To Part Approval Types

Some types of parts or assemblies of parts can be ‘approved’. The approval is authorised by the Administrator of Motor Vehicle Standards, which is a

statutory position established by the Road Vehicle Standards Act 2018. The forms of approval are:

- *Component Type Approval (CTA).* This was previously called *Component Registration Number (CRN).*
- *Sub-Assembly Reference Number – SARN* - (which is applicable to some ADR relevant assemblies such as foundation brakes for trailers).
- Some parts can be 'approved' according to an UN ECE certificate.

Examples of part types for which a Component Type Approval (CTA) can be obtained by the supplier from the Federal Regulator are:

- Signal lamps, tail lamps, fog lamps and headlamps .
- Reflex reflectors.
- Filament globes.
- Tow couplings.
- Seat belts
- Bus passenger seating.
- Front Underrun protection bars – FUPS.

Approvals can be found at:

https://rvcs.infrastructure.gov.au/pls/wwws/pubrvcs.Notify_Search

Specify category CRN

Examples of part types for which a Sub-Assembly Registration Number (SARN) can be obtained by the supplier from the Federal Regulator are:

- Bus chassis. (category BC and BC_SO).
- Trailer foundation brake (category FB).
- Diesel engine (category DE).
- Brake control systems (category CS).
- Suspensions (category SS).

Approvals can be found at:

https://rvcs.infrastructure.gov.au/pls/wwws/pubrvcs.Notify_Search

Specify Category SARN

Examples of part types for which an ECE Registration Number can be obtained by the part supplier from an overseas authority are:

- Tyres (Regulations 30 or 52).
- Tyre pressure monitoring systems (Regulation 141)
- Couplings (Regulation 55).
- Seatbelts (Regulation 16).
- Signal lamps, tail lamps and headlamps (Master Regulation 48, Regulation 148, Regulation 149,…).
- Glazing materials (windscreen, rear and side screens (Regulation 43).
- Truck cabin strength (Regulation 29).
- Occupant protection airbags (Regulation 94).
- Autonomous Emergency Braking system (Regulation 152).
- Automated lane keeping systems (Regulation 157).

Such parts are marked with an (E) approval number. This approval is acceptable to the Administrator as if it was a CRN (where applicable).

The Federal regulator can issue an approval for a road friendly suspension based upon evidence of compliance with Vehicle Standards Bulletin No 11. The list of approved suspensions is at:
https://www.infrastructure.gov.au/vehicles/vehicle_regulation/suspension.aspx

SECTION D - Good Practice Guide for Installers of Parts

1. Determine the safety level of the part. The safety of the vehicle depends upon the Part being reliable and correctly installed. *Safety Level 1* parts are safety critical. When you think the installation is finished, check and mark.
2. A part should have a part number, either on the part or on the packaging. Determine the part number and if you have any doubt, check it is correct for the vehicle or application that you are putting it into.
3. If you are concerned that the part quality is unacceptable, or that the rating may be inadequate, do not install it. Direct your concern about the part to your manager or to the client, pointing out the problem.

4. Installation instructions may be important for *Safety Level 1, 2 & 3* parts. If they are not provided, ask the purchasing officer to get them from the Supplier.

5. The rating of the part should be stated on the installation literature or website.

6. Always check that the ratings of the part are adequate for the job.

7. You may be asked to install a part that seems to be defective or is not in serviceable condition. Ask the purchasing officer or the client for another. Parts shall be fit for purpose.

8. Don’t take the rap for installing a deficient part!

SECTION E - Good Practice Guide for Purchasing Managers Who Set Policy

1. Develop a policy that guides purchasing decisions based upon *Safety Level* and type of *Part*.

2. Ensure that the policy is known and understood in your organisation.

3. Determine the *Safety Levels* of the types of parts that you purchase or oversee. This provides a risk level guide. Suppliers should be able to provide the information specified in this Guide according to Safety Level.

4. Set clear guidelines for staff so that ad-hoc purchasing decisions are not made.

5. Put time into researching the quality of parts so that you are happy with the purchasing guidelines for the various types of parts.

6. Remember that safety and quality come before price. Sometimes the cheaper part will be adequate; but make this decision with a sceptical eye!

7. Insurance companies may not cover incidents due to failures that were reasonably foreseeable. Therefore, the cost of failure may be substantial.

8. Consider the warranty implications of parts purchasing decisions. Is the OEM warranty still valid with the replacement part installed? Is there a documented warranty on the replacement part?

9. Keep in touch with your installers and operators so that you are informed about the safety and reliability of parts that are purchased. Their feedback should influence your purchasing policy.

10. Purchase parts from a *Supplier* who confirms compliance with this Guide.

11. Selection of some types of parts could affect the legal status of the vehicle. Determine whether installation of the part could make the vehicle unroadworthy or illegal. Ensure the approval and ratings of the part is acceptable.

12. Consider legal requirements under Chain of Responsibility (COR) legislation. Note that part suppliers are not identified in COR legislation. However, fleet purchasers of parts may need to justify part selection under COR requirements that apply to fleet workshops.

SECTION F - Safety Level Classification of Common Part Types

(These lists are not exhaustive)

F.1 Level 1 Parts

Auxiliary – Safety 1		
Part Type	**Technical Requirements**	**Safety and Compliance Risk**
Vehicle jack	ACCC reference to AS 2615:2016, Hydraulic trolly jacks.	Vehicle drops when being maintained.
Burst valve protection for hydraulic lifting cylinders	(VSB6 Code R1).	Unexpected drop in the event of a hydraulic hoe bursting

(standards inside brackets are relevant to the system that the item is in)

Brake System Components – Safety 1		
Part Type	**Technical Requirements**	**Safety and Compliance Risk**
Spring-brake control valve on the truck	ADR 35 performance requirements exist, (VSB6 G4).	Unexpected release of parking brake
Spring-brake relay valves	No. (ADRs 35&38#, VSB6 G3 & G4).	Unexpected application of the parking brake
Service brake foot valve on the truck	No. (ADRs 35&38#, VSB6 G3).	Loss of service brake effect
Service brake relay valve	No. (ADRs 35&38#, VSB6 G3 & G4).	Loss of service brake effect
Vehicle Stability Control (VSC). Also called Electronic Stability Control (ESC).	Yes. ADR 35 and 38 design and functional requirements exist for VSC.	Loss of vehicle stability control protection

ADR s35 & 38 require brake parts to comply with a national or international standard {AS, SAE, BS, JIS, DIN, ISO, UNECE}, but are not specific about the standard.

(standards inside brackets are relevant to the system that the item is in).

No in the Technical Requirements column means there is no technical standard that is specified in an Australian vehicle standard regulation, and no technical standard has been identified here.

Mechanical Couplings and subcomponents – Safety 1		
Part Type	**Technical Requirements***	**Safety and Compliance Risk**

Automatic Pin Coupling	CRN or UNECE, ADR 62 (VSB6 P1).	Possible trailer separation
Ball coupling	CRN or UNECE, ADR 62, (VSG16, VS6 P1).	Possible trailer separation
Fifth Wheel	CRN or UNECE, ADR 62, (VSB6 P2).	Possible trailer separation
Fifth Wheel angle	Adequate strength, (VSB6 P2).	Possible trailer separation
Fifth wheel mounting plate	Adequate strength, (VSB6 P2).	Possible trailer separation
Trailer skid plate	Adequate strength, (VSB6 P2).	Loss of kingpin leading to trailer separation
Pintle hook coupling	CRN or ECE, ADR 62, (VSB6 P1).	Possible trailer separation
Towbar	CRN. ADR 62, (VSB6 P1).	Possible trailer separation
Towing kingpin	CRN or UNECE, ADR 62, (VSB6 P1).	Possible trailer separation
Turntable	Adequate strength. CRN is not issued for a turntable alone. (VSB6 P1).	Possible trailer separation

(standards inside brackets are relevant to the system that the item is in)

Rear Axle and Suspension – Safety 1		
Part Type	**Technical Requirements**	**Safety and Compliance Risk**
Rear axle beam	Adequate strength, (VSB6 D1).	Loss of directional control
Rear suspension structural elements including sway bars	Adequate strength, (VSB6 D1).	Loss of directional control
Rear differential	Adequate strength. (VSB6 D2, adequate gradeability and startablity).	Loss of directional control. Loss of drive capability.

(standards inside brackets are relevant to the system that the item is in)

Steering System and Front Axle – Safety 1		
Part Type	**Technical Requirements**	**Safety and Compliance Risk**
Front axle beam	Adequate strength, (VSB6 E1).	Loss of steering control
Front suspension spring (mechanical or airbag)	Adequate strength, (VSB6 E1).	Loss of directional control
Front suspension U-bolts	Adequate strength, (VSB6 E1).	Loss of directional control

Steering Arm, Pitman Arm and Draglink	Adequate strength and dimensions, (VSB6 E2).	Loss of directional control
Steering box	Adequate rating, (VSB6 E2).	Loss of directional control
Steering hoses	Adequate pressure rating, (VSB6 E2).	Loss of directional control
Steering kingpin	Adequate strength, (VSB6 E2).	Loss of steering control
Universal joints for steering column	Adequate strength, (VSB6 E2).	Loss of directional control

(standards inside brackets are relevant to the system that the item is in)

Tyres and Wheels – Safety 1		
Part Type	**Technical Requirements**	**Safety and Compliance Risk**
Steer Tyre	UNECE R24, (VSB E3).	Loss of steering control
Front wheel rims	DOT, (VSB6 E3).	Loss of steering control

(standards inside brackets are relevant to the system that the item is in)

F.2 Level 2 Parts

Brake System Components – Safety 2		
Part Type	**Technical Requirements**	**Safety and Compliance Risk**
Air brake valves generally	No / Trailer SARN (ADRs 35&38#, VSB6 G3 & G4 VSB6 G4).	Loss of braking performance
Antilock Brake System (ABS)	Design and performance standards exist in ADRs 35 and 38, (VSB6 G3, G4).	Loss of wheel lock-up protection. Loss of B-double prime mover legal status.
Brake Actuator	Refer to ATA/ITC TAP Compliant brake chambers V2.1, January 2017. ADRs 35 & 38 require parts to comply to a national or international standard but are not specific. Trailer SARN.	Loss of service brake or park brake action at one axle
Brake Air tank	Note that large volume tanks may be pressure vessels under OH&S	Loss of service brake or park brake action at multiple axles

	regulations. Capacity requirements exist in ADRs 35 & 38, Trailer SARN.	
Brake drum	No/Trailer SARN (ADRs 35&38#, VSB6 G3 & G4, ECE Reg 90).	Loss of service brake or park brake action at one axle
Brake warning lamps	No. ARR 35 specifies functionality and colour.	Loss of warning information
Disc brake calliper	No/Trailer SARN (ADRs 35&38#, VSB6 G3 & G4).	Loss of service brake or park brake action at one axle
Disc brake pad	No/Trailer SARN. (ADRs 35&38#, VSB6 G3 & G4, ECE Reg 90).	Loss of service brake or park brake action at one axle
Disc brake rotor	No/Trailer SARN. (ADRs 35&38#, VSB6 G3 & G4).	Loss of service brake or park brake action at one axle
Drum brake shoe	No/ Trailer SARN. (ADRs 35&38#, VSB6 G3 & G4).	Loss of service brake or park brake action at one axle
Exhaust brake	No. ADR 80 noise limits exist	Loss of some braking affect
Brake air hoses	No/Trailer SARN. (ADRs 35&38#, VSB6 G3 & G4).	Loss of brake function at multiple axles
S-cam mechanism for drum brakes	No/Trailer SARN. (ADRs 35&38#, VSB6 G3 & G4).	Degraded brake performance or wear performance at one axle.

(standards inside brackets are relevant to the system that the item is in)

ADRs 35 & 38 require brake parts to comply with a national or international standard {AS, SAE, BS, JIS, DIN, ISO, UNECE}, but are not specific about the standard.

No in the Technical Requirements column means there is no technical standard that is specified in an Australian vehicle standard regulation, and no technical standard has been identified here.

Cabin Components – Safety 2		
Part Type	**Technical Requirements**	**Safety and Compliance Risk**
Driver seat with integral seatbelt	Yes. ADRs 3, 4, 5 are applicable, (VSB6 K1, K2, K3).	Loss of driver seatbelt protection
Seatbelts	Yes. CRN or UNECE, (VSB6 K1, K2, K3).	Non-compliance. Loss of occupant safety protection
Side window glass	Yes. ADR 8. AS2080, UNECE R34, BS AU178, JIS 3211, (VSB6, K1, K2, K3).	Non-compliance. Loss of occupant safety protection
Speedometer	Yes. ADR 18 requirements to be met.	Loss of accurate speed indication results in safety vulnerability
Windscreen	Yes. ADR 8. AS2080, UNECE R34, BS AU178, JIS 3211, (VSB6, K1, K2, K3).	Non-compliance. Loss of occupant safety protection. Poor visibility of road

Windscreen wiper rubbers	No, (ADR 42).	Loss of windscreen wiping effectiveness as specified in ADR42. Premature wear
Steering wheel	No, (ADR 42).	Difficulty for driver to grip wheel. Some jurisdictions require steering wheel diameter to be at least 300mm irrespective of vehicle category. Inadequate spline hardness could result in loss of steering control.

(standards inside brackets are relevant to the system that the item is in)

Chassis Components – Safety 2		
Part Type	**Technical Requirements**	**Safety and Compliance Risk**
Chassis rail	No. Adequate strength. Match OEM chassis rail material grade, (VSB6 H4).	Cracking of a chassis rail could lead to poor road handling or loss of directional control.
Cross-members and cross-member brackets	No, match OEM cross-member strength, (VSB6 H4).	Cracking of cross-members could lead to poor road handling.
Front Underrun Protection (FUPS) bar	Yes. ADR 84, CRN, (VSB6 H6 & H7).	Non-compliance with ADR 84 under-run requirements
Bullbar	(ADR 42), (VSB6 H4, H7)	Headlights and direction indicator lights obscured. Protrusion risk to other road users.

(standards inside brackets are relevant to the system that the item is in)

Engine and Drivetrain Components – Safety 2		
Part Type	**Technical Requirements**	**Safety and Compliance Risk**
Driveshaft	(VSB6 C1)	Loss of traction. In extreme cases, mechanical damage to the chassis and/or loss of parts endangering other road users.
Universal joints in tailshaft	(VSB6 C1)	Loss of traction. Mechanical damage if driveshaft falls off. Debris on roadway.
Electric starter motor cables	No. Fire retardant properties desirable.	Fire risk
Exhaust Muffler	ADR 80 & 83 performance requirements, (VSB6 A4).	Non-compliance with ADR requirements.

Exhaust pipe	ADR 80 & 83 performance requirements, (VSB6 A4).	Non-compliance with ADR requirements.
Diesel Engine	SARN, ADR 80, (ADR 65 speed limiting requirements exist), (VSB6 A1, A5).	Emission compliance and speed limiting non-compliance.
Steering pump	No, (Force rating), (VSB6 E2).	Loss of steering system effect
Power steering hoses	SAE & DIN standards exist but are not mandated, (VSB6 E2).	Loss of steering performance
Transmission	No. (ADR 65 speed limiting requirements exist), (VSB6 B1).	Non-compliance with speed limiting requirements, and noise performance.
Turbocharger	No, (ADR 83), (VSB6 A3).	Non-compliance with ADR 83 emissions requirements.
Air compressor	ADR 64, (ADRs 35&38#, VSB6 G3 & G4).	Loss of braking performance. Non-compliance with Roadtrain air supply performance.
Hydraulic hoses	SAE & DIN standards exist but are not mandated, (VSB6 R1).	Fire risk. Risk of dropping body or load

(standards inside brackets are relevant to the system that the item is in)

Lighting – Safety 2		
Part Type	**Technical Requirements**	**Safety and Compliance Risk**
Headlamps and taillamps	Yes. CRN, ADR 46, or UNECE.	Non-compliant headlights. Loss of some visibility
Fog lights	Yes. CRN applicable to ADRs 50 & 52.	
Signal Lamps	Yes. CRN applicable to ADRs 1, 6, 45, 48, 49, 51, or UNECE.	Non-compliance. Loss of correct visibility to other road users.

(standards inside brackets are relevant to the system that the item is in)

Load carrying and Tiedown Components – Safety 2		
Part Type	**Technical Requirements**	**Safety and Compliance Risk**
Load tie-downs	No. Load Restraint Guide id relevant.	Breakage of tie-downs leading to moving loads.
Side curtains	Yes. Load Restraint Guide is relevant.	Loss of load
Side gates for trays	Yes. Load Restraint Guide is relevant.	Loss of load

(standards inside brackets are relevant to the system that the item is in)

Wheels, Axles and Suspensions – Safety 2		
Part Type	**Technical Requirements**	**Safety and Compliance Risk**
Wheel rims (Not front axle)	Yes, DOT marking	Cracking of wheel rims. Wheel detachment
Non-steering axle	No, (VSB6 D1)	Breakdown. Loss of directional control
Wheel bearing	No.	Loss of steering control. Fire risk.
Shock absorber	No. (Road Friendly Suspension status must be maintained), (VSB6 D1, D2, F1, F2).	Non-compliance with RFS requirements. Loss of suspension effectiveness.
Suspension Airbag	No. (Road Friendly Suspension status must be maintained), (VSB6 D1, D2).	Loss of suspension effect at one location. Poor road handling. Non-compliance with RFS requirements.

(standards inside brackets are relevant to the system that the item is in)

F.3 Level 3 Parts

Chassis Components – Safety 3		
Part Type	**Technical Requirements**	**Safety and Compliance Risk**
Brake hose clamps	No.	Loss of brake function, mainly at one axle.

No in the Technical Requirements column means there is no technical standard that is specified in an Australian vehicle standard regulation, and no technical standard has been identified here.

Cabin Components – Safety 3		
Part Type	**Technical Requirements**	**Safety and Compliance Risk**
Cabin structural members	No.	Cracking of the cabin
Sunvisor	Not for heavy vehicle categories.	Loss of occupant protection. Reduction in visibility in some circumstances.
Cabin steps	OH & S safety considerations.	Breakage causing loss of functionality.

Grab handles	OH&S safety considerations.	Breakage causing loss of functionality.

Electrical Components – Safety 3		
Part Type	**Technical Requirements**	**Safety and Compliance Risk**
Batteries	No, but cables need to be restrained.	Fire and explosion risk
Electric looms generally	No, but cables need to be restrained.	Fire risk
Electrical circuit breakers	No, (ADR 64), (Manual reset circuit breakers specified for B-double and Roadtrain circuits).	Fire risk.
Electrical fuses	No.	Fire risk
Electrical leads for trailers	No, (pin positions specified in ADR 42)	Fire risk. Loss of lighting functions on trailer.

(standards inside brackets are relevant to the system that the item is in)

Engine and Drivetrain Components – Safety 3		
Part Type	**Technical Requirements**	**Safety and Compliance Risk**
Air filter	No, (ADR 80, VSB6 A2).	Loss of emissions compliance because intake restriction if excessive. Engine dusting risk
Instrumentation generally (not speedometer)	No.	Loss of driving information. Inaccurate readings.
Radiator	No, (Engine manufacturer's cooling requirements exist).	Loss of engine performance
Retarder	No.	Loss of braking assistance
Oil filter	No.	Loss of engine safety
Engine-Brake	No, (ADR 80).	Loss of braking assistance
Bug Deflectors	No (ADR 42, TIC Code of Practice re Adequate Field of Vision).	Loss of road visibility on long-bonneted trucks
Hydraulic controls generally	No. (OH&S requirements exist).	Safety control performance
Fuel filter	No, (ADR 80).	Loss of filter performance. Fuel delivery restriction leading to loss of power
Thermal fan clutch	No, (ADR 83).	Loss of engine performance
Fuel tank addition	No.	Risk of fuel loss onto roadway
Starter motor	No.	Loss of starting function

Intercooler	No, (ADR 80, VSB6 A2).	Change of air intake restriction level could alter emissions status

(standards inside brackets are relevant to the system that the item is in)

Lighting – Safety 3		
Part Type	**Technical Requirements**	**Safety and Compliance Risk**
Reflectors	Yes. CRN - ADR47), or UNECE	Non-compliant visibility for other road users.
Beacon lightbar	Colour and visibility requirements exist in ADR 44	Loss of performance that is mandatory for some special-purpose vehicles.
Flashing amber warning lights	Colour and visibility requirements exist in ADR 44	Loss of performance that is mandatory for some special-purpose vehicles.

(standards inside brackets are relevant to the system that the item is in)

Wheels, Axles and Suspensions – Safety 3		
Part Type	**Technical Requirements**	**Safety and Compliance Risk**
Metal mudguards	No (ADR 42)	Non-compliance with ADR 42. Loss of mudguard.
Plastic mudguards	No (ADR 42)	Non-compliance with ADR 42. Loss of mudguard.
Rear-axle tyres	Yes, ECE R24	Poor tyre grip. May be relevant to Performance-Based Standards (PBS) status
Panhard Rods for Suspension	No	Inadequate strength could result in cracking of the axle.
Suspension bushes	No	Inadequate resilience could result in premature failure and loss of directional control.

(standards inside brackets are relevant to the system that the item is in)

F.4 Level 4 Parts

Part Type	Approval Applicable	Likely Failure Outcome
Radio Antenna	No. Height restrictions exist in ADR 43	In extreme cases, risk of touching power lines
Power Take Off (PTO)	No, (VSB6 B1).	Loss of function
Cooling fan	No, (VSB6 A1).	Loss of function. Change of noise compliance (ADR 83)
AdBlue tank	No	Loss of function. Engine derating. Non-compliance with ADR 80.
Bonnet emblems	No	Road debris risk.
Cabin trim	No	Safety risk inside the cabin.

(standards inside brackets are relevant to the system that the item is in)

F.5 Level X Parts

Part Type	Technical Requirements	Legal Situation
Re-webbed seatbelts	Re-webbing might be considered if the seatbelt is frayed or if the seatbelt has experienced a severe collision. Re-webbing is unacceptable to State and Territory road safety agencies.	It is illegal in most jurisdictions to sell used road-vehicle seatbelts that have been re-webbed.
Asbestos in Parts	Prior to the late 1970s Asbestos hoses, brake linings, clutch plates, gaskets, exhaust laggings, mufflers, valve rings etc. Technical standards either did not exist or have been withdrawn.	Asbestos is a prohibited import. Asbestos is prohibited in automotive parts by State and Territory Regulations
Refrigeration gases that are not acceptable in Australian vehicles	Propane has been used as a cheap and effective refrigeration gas. Propane presents a significant fire and explosion risk if it leaks out near to an exhaust.	

SECTION G - Glossary

Alternative Part – A part that the supplier of the *Original Part* markets as an alternative to the *Original Part*.

Approved Part – A part that has been approved by an authority for use at a stated performance level.

Campaign – a recall of a part that is not reported to the ACCC.

Chain of Responsibility – legal requirements in the Heavy Vehicle National Law applicable to defined parties who could affect the safety of heavy vehicles.

CRN - Component Registration Number – An approval issued via the *RVCS* for certain type of parts. See Part C for a list of types.

CTA – Component Type Approval – An approval for a part that is issued via ROVER for certain types of parts. See Part C for a list of the types.

Installer – The person or entity that installs the *Part* into the vehicle. This person may or may not be the *Supplier* or the *Purchaser*.

Manufacturer – The person or entity that manufactured the *Part*.

Modification Part – A part that is used to modify a heavy vehicle.

Original Part – A part that was originally supplied and installed by the vehicle manufacturer or its agent.

Part – A physical item intended to perform a function that could be used on a heavy-vehicle either as a replacement part or as a modification part.

Purchaser – The person or entity that purchases the *Part* from the *Supplier*.

Replacement Part – A *Part* that is used to replace a previously installed *Part*.

RVSA – Road Vehicle Standards Act (2018) – This Act of the Federal Parliament that supersedes the Federal Motor Vehicle Standards Act (1989).

RVCS – Road Vehicle Certification System. The system of administration of new road vehicles and certain types of parts for supply to the market in

Australia. The RVCS is established by the Federal Motor Vehicle Standards Act (1989).

ROVER – The system of administration of new vehicles and some types of parts that is established by the Road Vehicle Standards Act (2018).

SARN - Sub Assembly Reference Number – An approval issued by the RVCS for certain type of sub-assemblies of parts. See Part III for a list of types.

Safety Level – The safety classification based upon safety or compliance risk. This level is 1, 2, 3, 4 or X, as described in Section A5.

Safety Recall – a recall of a part that is reported to the ACCC.

Similar Part – A part that is an *Original Part* on a comparable vehicle and that could be used as a *Replacement Part* on an identified alternate vehicle.

Substitute Part – A part that could be used as a *Replacement Part* that is not an *Original, Alternative, Approved* or *Similar Part.*

Supplier / *Part Supplier* – The person or entity that markets the *Part* for use on heavy vehicles in Australia.

Technical File – A file of information either stored electronically or physically, that describes as dully as possible the design, manufacture and testing aspects of a *Part*. It should also include the part number history and information relating to failure investigations.

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