Offshore manufacturing and fabrication: guidelines for heavy trailers (class TC and TD)

1. INTRODUCTION

This guideline has been prepared to alleviate confusion regarding the difference in Rule requirements between powered and unpowered vehicles. This guideline is also intended to enable the import and sale in New Zealand of offshore manufactured class TC and TD trailers while maintaining compliance with the relevant Land Transport Rules and without adversely affecting road safety or equity with the New Zealand heavy trailer manufacturing industry. This guideline does not replace the statutory requirements placed on the manufacture of trailers in any Land Transport Rules, including:

- Land Transport Rule: Vehicle Dimensions and Mass 2016 (Rule 41001)
- Land Transport Rule: Heavy Vehicles 2004 (Rule 31002)

Some Land Transport Rules outline the requirements for the fabrication and manufacture of vehicles and their structural components which are not specifically met by overseas manufacture. This guideline clarifies the requirements on the offshore manufacture of heavy trailers and structural components without overriding any relevant Land Transport Rules.

This guideline applies to all imported TC and TD trailers, both new and used, whether imported for personal use, resale or as a component part of a New Zealand built trailer, as well as other welded components such as drawbeams or towbars fitted to imported new or used heavy vehicles.

2. SCOPE

This guideline covers a number of specific areas where the Rules identify New Zealand standards (NZS), Australian/New Zealand standards (AS/NZS), Australian standards (AS) and for brakes, a number of other international standards. These areas include:

- welding
- other certifications incorporating welding requirements
- braking.
2.1 Welding

Land Transport Rule: Heavy Vehicles 2004 only requires that modifications to heavy vehicle structures are welded to the applicable AS/NZS 1554 or AS/NZS 1665 standard. These standards require welders to be certified to specific weld procedures of AS/NZS 2980 or one of the AS/NZS 1554 or AS/NZS 1665 series of standards. Many New Zealand standards require that all welding is carried out to the applicable AS/NZS 1554 or AS/NZS 1665 standards.

Many New Zealand standards require that all welding is carried out to the applicable AS/NZS 1554 or AS/NZS 1665 standards. This means heavy trailer components such as load anchor points and drawbars manufactured overseas for import into New Zealand must be designed to comply with New Zealand standards and fabricated using New Zealand welding standards by welders qualified to those standards to enable a local heavy vehicle specialist certifier (HVSC) to certify these components.

These requirements can be achieved by having the vehicles or components designed with reference to the New Zealand Rules or having their overseas designs reviewed, and if necessary altered, to comply with New Zealand requirements, including weld procedures. Welds can be verified and signed off at the source of manufacture by a Transport Agency-appointed heavy vehicle specialist certifier with the chassis category (HVEC or HVDC).

2.1.1 Materials and consumables

Both the parent material and the welding consumables are critical to the structural integrity of any vehicle. For heavy trailers or heavy trailer welded components manufactured overseas for import into New Zealand the availability of steel mill certificates and weld consumable documentation is desirable. The Weld Procedure Specification (WPS) and the conformity of any weld should be authenticated and be traceable to source. This requires a system that confirms the materials ordered and purchased for the job meet the design requirements and/or the WPS and are marked and stored in such a way as to provide certainty that the correct materials are processed for manufacture. This system must be available for audit at any time by the Transport Agency or its nominated representative and the Transport Agency reserves the right to require additional information or proof of compliance.

2.1.2 Design requirements

While there are no specific design requirements for trailers or their components, the modification section of Land Transport Rule: Heavy Vehicles 2004 requires that modifications to the chassis of a vehicle must be designed to stress levels:

- as specified by the vehicle manufacturer, or
- in accordance with AS 3990-1993 Mechanical Equipment – Steelwork, or
• in accordance with BS 7608:1993 *Fatigue Design and Assessment of Steel Structures*, or
• that are not higher, when the vehicle is loaded to its proposed new gross vehicle mass, than those of the chassis of the unmodified vehicle loaded to its current gross vehicle mass.

When using these standards the maximum loading must not exceed 60% of the yield strength of the material. The Transport Agency strongly recommends that this requirement is adhered to when designing trailers and their components.

The suspension must also be of adequate strength and performance for all conditions of loading and operation in New Zealand for which the vehicle is designed and constructed. All complete trailers must be fitted with a manufacturer’s vehicle plate containing, at least:

• the manufacturer’s name
• the identification of the chassis (make/model/VIN)
• the number of axles, the maximum axle mass, the axle set mass, gross vehicle mass, gross combination mass (where applicable), and maximum towed mass (manufacturer).

Additionally, maintenance and service instructions must be written in English.

The Transport Agency has the legal authority for setting GVMs for heavy vehicles operated in New Zealand. It reserves the right to review the manufacturer’s stated GVM and make whatever adjustments it deems necessary. This means the Transport Agency can override the manufacturer’s GVM.

**Note 1:** Whether the trailers or their components are designed in New Zealand or overseas, the designs must comply with all New Zealand dimensional requirements such as width, length, rear overhang, etc. Drawings and specifications must be available for audit by the Transport Agency or its representative. It is the responsibility of the importer to ensure that these requirements are met.

**Note 2:** Axles and suspension systems are considered proprietary items and are not considered as part of these guidelines unless they are modified as part of the trailer manufacturing process

### 2.2 Other certifications

There are other compliance requirements for trailers and their components in New Zealand that must be met by the certification by a New Zealand HVSC with the appropriate category.

#### 2.2.1 Towing

For towing connections, as well as meeting the welding requirements, the following standards must be observed:
- For a simple trailer, a full trailer or a pole trailer, the drawbar must be certified by a Transport Agency-appointed HVSC with the towing category (HVET) to NZS 5446:2007 *Heavy Vehicle Towing Connections – Drawbars and Drawbeams*.
- Semi-trailers must have kingpin/skid-plate assemblies certified by a HVSC category HVET to either:
  - NZS 5451:1989 *Specification for Coupling Devices for Articulated Vehicles*, or
  - both of AS 2175-1995 *Articulated Vehicles – Kingpins* and AS 2174-1978 *Recommendations for Positions and Heights of Fifth Wheels for Articulated Vehicles*, or
  - all of:
    - Australian/New Zealand Standard 4968.1-2003: *Heavy-road vehicles – Mechanical coupling between articulated vehicle combinations – Design criteria and selection requirements for fifth wheel, kingpin and associated equipment*, and
    - Australian/New Zealand Standard 4968.2-2003: *Heavy-road vehicles – Mechanical coupling between articulated vehicle combinations – Testing and installation of fifth wheel and associated equipment*, and

Australian built trailers are likely to be manufactured to the relevant local (Australian) standards - but that must be verified by New Zealand certification. Similarly, a trailer with an EU (other than a semi-trailer) or United States of America (US) whole of vehicle approval plate (WVAP) will not comply with specific towing aspects of Land Transport Rule: Heavy Vehicles 2004 and must have towing connections certified (including any welding). No blanket exemption is available.

### 2.2.2 Load anchorages

Any load anchorages, including stock crate anchorage points, as well as meeting the welding requirements, must be certified to NZS 5444:2005 *Load Anchor Points for Vehicles* by a New Zealand HVSC with the load anchorages category (HVEA).

### 2.2.3 Log bolster

For logging trailers designed to transport round logs supported by bolsters: as well as meeting the welding requirements, these must be certified by a HVSC with the bolster attachment category (HVEL) and must comply and be certified to the *Bolster Attachment Code* (Schedule 4 of Land Transport Rule: Heavy Vehicles 2004).

### 2.3 Braking systems

The Transport Agency does not accept overseas braking standards for heavy trailers, such as ADR38 or FMVSS 121, and all heavy trailers (class TC and TD) being imported into New Zealand, whether
new or used, must be certified to the requirements of Land Transport Rule: Heavy-vehicle Brakes 2006. Even where the trailer is certified by the manufacturer to ECE R13, its certification must be confirmed to the *New Zealand Heavy Vehicle Brake Specification* (Schedule 5) and the ‘tramlines’ of their current brake certification superimposed on the ‘tramlines’ in Schedule 5 of Land Transport Rule: Heavy-vehicle Brakes 2006.

2.3.1 Trailer braking system (air and hydraulic)

Air and hydraulic braking system may require modification to ensure compliance and must certified by a Transport Agency-appointed HVSC with the brakes category (HVEK). Where the trailer is being manufactured to a New Zealand design, the braking system may be installed during manufacture overseas to the New Zealand design and the braking system then confirmed and certified at the point of manufacture or on arrival in New Zealand.

2.3.2 Trailer braking systems (electric)

The Transport Agency has investigated electric braking systems fitted to imported class TC trailers and their connection to the vehicles used to tow them. It has found that these systems do not comply with Land Transport Rule: Heavy-vehicle Brakes 2006 in a number of significant areas, including:

- The driver is able to adjust the brake force distribution between the vehicles that are being used in combination.
- They do not qualify as direct acting braking systems in that they are applied by an electrical impulse from the brake light circuit or an inertia switch activated by the slowing of the towing vehicle.
- They do not meet the requirement, whether or not they are being operated as a combination vehicle, to have only one driver operated control.

As these systems cannot be certified to Schedule 5 of Land Transport Rule: Heavy-vehicle Brakes 2006, the Transport Agency has developed a certification programme for these vehicles published in the *VIRM: Heavy vehicle specialist certification*. While much of the work required to comply with the VIRM can be completed during manufacture, the certification cannot be carried out until the trailer has been matched to its towing vehicle in New Zealand as a dedicated combination. An exemption is also required to complete the certification.

3. ADDITIONAL FACTORS

The Transport Agency has the responsibility to set a chassis rating at entry for all imported heavy vehicles including class TC and TD trailers and must be provided with sufficient information to fulfil that role. A chassis rating is the agreed vehicle GVM, maximum towed mass and other data issues
by the Transport Agency. Trailer chassis rating request forms (CR3) are available from Transport Agency vehicle entry certifying agent heavy vehicle testing stations or from the Transport Agency at: http://vehicleinspection.nzta.govt.nz/resources/content/chassis-rating-procedure.

It is important to note that the receipt of a chassis rating does not signify that a vehicle is compliant nor does it guarantee that the vehicle may be used legally on the road in New Zealand. A chassis rating is not a guarantee of registration nor is it a licence to operate.

There are additional Land Transport Rules and other legislation that will affect the legality of trailers being imported including:

- Land Transport Rule: Vehicle Lighting 2004
- HSNOCOP 39 version 2.0 Toxic, Corrosive and Ecotoxic Liquids Tank Wagons.

4. IMPORTED TRAILERS AND COMPONENTS TO ALTERNATIVE STANDARDS

4.1 Exemptions

The Transport Agency may consider an application for an exemption issued in accordance with s166 of the Land Transport Act 1998 for the use of alternative welding standards for offshore manufacture or fabrication of heavy trailer components including load anchor points, drawbeams, drawbars or towbars used on heavy vehicles, provided the following conditions are met:

- The proposed international standard is accepted by the Heavy Engineering Research Association (HERA) as being acceptable for the proposed task (ie broadly equivalent to AS/NZS 1554 or AS/NZS1665 as applicable). It is the responsibility of the importer to liaise with the manufacturer and HERA to have this task completed.

- All welding processes used in the offshore manufacture and fabrication of class TC and TD heavy trailer components must have a qualifying Welding Procedure Specification (WPS) relevant to the task to be carried out. These procedures to be signed off by HERA as equivalent to an AS/NZS 1554 or AS/NZS 1665 procedure for a similar task.

- All offshore welders used to build trailer components for use in New Zealand must be qualified (certified) to the appropriate WPS validated by HERA.

- The welder must, in a traceable and transparent manner, sign off the welds against the relevant WPS and confirm they are qualified to carry out such welds.
For Australian built trailers and components where the manufacturer uses AS/NZS 1554, they must meet the requirement to have a qualified WPS for the task, have welders certified to that WPS and meet the requirements above.

If a new vehicle carries an EU whole of vehicle approval plate (WVAP), this confirms all welding requirements with regard to welder qualifications. However, this plate can only be accepted if it can be demonstrated that a third party audit (TUV, SGS, etc) has been carried out within the previous twelve months. This plate only affects the welder qualifications and processes, HERA must still validate the welding standard used.

The HERA validation must be formally ratified by the Transport Agency with the issuing of an exemption from the welding standards requirements of the Rule. The granting of such an exemption is not automatic but must be applied for by the importer with the appropriate fee and supported by all the relevant documentation.

Exemptions are limited in scope and those limitations are included in the conditions of any exemption that may be granted. The granting of an exemption from the welding standards does not preclude the necessity for applying for other exemptions if appropriate.

When considering any exemption application the Transport Agency will require details of the OEM quality management system (QMS).

Note that additional certification to NZS5446, AS/NZS4968, Land Transport Rule: Heavy-vehicle Brakes 2006, etc, may still be required.

**4.2 New Zealand manufacturer/importer**

Any exemption granted would only be valid for vehicles or components fabricated for the importer by the offshore manufacturing entity identified in the exemption. This includes the HERA approval of the welding standards and processes used.

**4.3 Audit requirements**

To ensure compliance, irrespective of whether the units are being manufactured or fabricated to the applicable New Zealand welding standards or to overseas standards by exemption, the Transport Agency reserves the right, at the importer’s expense, to require an audit of the design documentation, build documents and/or build processes including material traceability and welder certification either by the submission of appropriate documentation or by way of a site audit of the manufacturing facility. Such audits are to be carried out by someone appointed by the Transport Agency or a Transport Agency-approved independent auditor appointed by the importer.
4.4 Corrective action

Where a fault or non-conformance is identified (whether through an audit process, at entry or in service) the New Zealand importer will advise the Transport Agency in writing within seven days of the identification of the fault or non-conformance, of the extent of the non-conformance and the steps being taken to correct it. These steps are the responsibility of the importer must be completed within thirty days of the date the non-conformance was first identified and include the initiation of rectification of any vehicles or components already in New Zealand.

4.5 Revocation

The NZ Transport Agency may set conditions to grant exemptions, in specified circumstances, under clause 166 of the Land Transport Act. The Transport Agency may also revoke any exemption granted under this clause if those conditions are no longer being met. The Transport Agency will not revoke an exemption granted under this guideline without reasonable cause and without first giving the applicant the opportunity to resolve any issues.