12 Additional topics

12-1 Welding

Certifier categories: **All**

Reasons for rejection

1. A welding procedure compliant to the appropriate part of AS/NZS 1554 has not been specified.

2. The specified welding procedure has not been followed.

3. The wrong class of weld has been used.

4. The required NDT has not been performed for Class SP and GP welds, or for other welds, as required, by an appropriately qualified person.

5. The welding quality does not comply with AS/NZS 1554 or another appropriate standard.

6. The welder is unknown or unqualified in either process or position to AS/NZS ISO9606: 2017, AS/NZS 2980:2018 or an alternative approved standard.

7. For load anchorages, the welder is unknown or unqualified in either process or position to AS/NZS 2980-2018 or an alternative approved standard and the calculated weld stress is greater than 75% of the allowable stress stated in the applicable standard if the allowance is appropriate.

8. Appropriate notice has not been taken of the NZTA publication *Welding in the Transport Industry* (Note 1).

Note 1

See ‘Welding in the Transport Industry, 28 February 2013’ **Technical bulletin 10**

Summary of legislation

Applicable references

- AS/NZS 1554 Welding
- AS/NZS 2980-2018: Qualification of welders for fusion welding of steels - Additional requirements for Australia and New Zealand
- AS/NZS ISO9606.1: 2017 Qualification testing of welders – Fusion Welding.

12-2 Conversion to RH drive

Certifier categories: **HVEC** | **HVCD**

Reasons for rejection

1. A steering system on a motor vehicle, and associated systems and components that could directly or indirectly affect the directional control of the vehicle are not:

    a) sound and in good condition or provide the vehicle with safe, efficient, convenient and sensitive control,

    b) strong, durable and fit for their purpose, taking into account whether adverse effects have resulted from a loss of integrity of any protective system used by a relevant component.

2. A motor vehicle capable of a speed more than 50km/h and equipped with a steering system with no direct mechanical connection between the driver's means of control and the wheels or other means of changing the vehicle's direction does not have at least one additional means of steering that complies with requirement 1.

3. A modification to a steering system or to a system or component that could affect the directional control of a motor vehicle means the vehicle does not comply with requirement 1.

4. A modification to a steering system or to a system or component that could affect the directional control of a motor vehicle is not certified

5. A steering system or a system component that could affect the directional control is modified and:

    a) the steering system is not compatible with the performance and component specifications of the manufacturer of the vehicle or steering system for the original steering system, or

    b) the loads and stresses on the steering system and its components are not demonstrably within the design and performance criteria established by their manufacturer for the specific application in which they were originally used.

6. A repair to a steering system, or a repair to a motor vehicle that affects its steering system does not comply with all other requirements in this section.

7. A left-hand drive vehicle has been certified for entry into service, or operation in service, in New Zealand and it is not:

    a) vehicles of the categories specified in *Schedule 1*, subject to the conditions specified in relation to each category, or

    b) an individual left-hand drive vehicle that was certified for entry into service in New Zealand before 1 April 2010.

8. A vehicle has been converted from left-hand drive to right-hand drive and:

    a) if practicable, original equipment has not been used, or

    b) non-original equipment has been used without approval by the vehicle manufacturer or a vehicle inspector or inspecting organisation appointed to carry out specialist inspection and certification activities, or

    c) the steering column has been transferred and the transfer has altered the integrity of the column or its collapse mechanism, or

    d) except when fixing mountings to the chassis or body of the vehicle, steering components have been welded, and:

        i. the welding is not designed by the vehicle manufacturer or a vehicle inspector or inspecting organisation appointed to carry out specialist inspection and certification activities, and

        ii. no appropriate non-destructive testing has been carried out by a qualified person, or

    e) steering performance and characteristics have not been maintained, and

f) the parking brake, auxiliary brake, accelerator or clutch controls have not been transferred to the right-hand side of the vehicle; or

g) new mounting points for the parking brake, accelerator and clutch controls are not of equivalent strength to the original mounting points.

9. A vehicle is converted from left-hand drive to right-hand drive and:

a) the service brake control assembly has not been transferred to the right-hand side of the vehicle, or

b) the service brake pedal assembly have not been transferred to the right-hand side of the vehicle and the motion of the brake pedal is not transmitted to the master cylinder or treadle valve by:

i. a torque shaft, or

ii. levers and rods.

10. For a vehicle to which requirement 9 applies, the master cylinder or the treadle valve and the mechanism that transfers the braking effort from the right-hand side to the left-hand side are not protected to ensure that the service brake can be activated only by the driver.

11. A conversion to dual steering has been carried out on a vehicle other than a special purpose vehicle.

12. A special purpose vehicle has been converted to dual steering and:

a) if practicable, original equipment is not used, or

b) non-original equipment has been used without the approved by the vehicle manufacturer or a vehicle inspector or inspecting organisation appointed to carry out specialist inspection and certification activities, or

c) except when fixing mountings to the chassis or body of the vehicle, steering components have been welded, unless:

i. the welding is designed by the vehicle manufacturer or a vehicle inspector or inspecting organisation appointed to carry out specialist inspection and certification activities, and

ii. appropriate non-destructive testing has been carried out, or

d) steering performance and characteristics have not been maintained, and

e) new mounting points for the parking brake, accelerator and clutch controls are not of equivalent strength to the original mounting points.

13. A special purpose vehicle is converted to dual steering and:

a) the service brake control assembly has not been replicated on the other side of the vehicle in a way that prevents the hydraulic or pneumatic line pressure from acting on the non-operating master cylinder or treadle valve, or

b) the motion of the brake pedal is not transmitted to the master cylinder or treadle valve by:

i. a torque shaft, or

ii. levers and rods.

14. The steering motion on a special purpose vehicle that has been converted to dual steering and is transmitted by chain and sprocket or bevel gear boxes, does not have proper means provided to eliminate backlash.

Note 1

Notwithstanding requirement 1 of this section any person may operate any motor vehicle having the steering column to the left of the longitudinal centre line of the body of the vehicle if the vehicle:

a) was purchased from the crown by the owner or any former owner, or

b) is for the time being exempt from subclause 1 of this regulation by virtue of an exemption granted under regulation 90 of these regulations.

Note 2

Gazette 21/8/80, p2457

Pursuant to subclause 1 of reg 90 of the traffic regulations 1976 the Secretary of transport hereby exempts from the requirements of reg 70 of the said regulations any heavy motor vehicle which is designed and constructed exclusively for road sweeping operations provided that for any vehicle fitted with dual steering the left-hand driving position is only used for the operation of the vehicle during road sweeping operations.

Note 3

A modification to a steering system or to a system or component that could affect the directional control of a motor vehicle must be certified.

Note 4

Dual steering conversions may only be carried out on special purpose vehicles such as street sweepers, weed sprayers, road markers, refuse collection and the like.

All of the relevant requirements also apply to dual steering conversions except where the left-hand steer position is being added, i.e. the vehicle is originally right-hand steer. The steering motion may be transferred by way of chain and sprocket or bevel boxes.

Summary of legislation

Applicable references

- AS 3990: 1993 Mechanical Equipment — Steelwork
- AS/NZS 1554 Welding
- AS/NZS 2980 Qualification of welders for fusion welding of steel
- BS 5400
- BS 7608.

Applicable legislation

- **Land Transport Rule: Heavy Vehicles 2004**
- **Land Transport Rule: Vehicle Dimensions and Mass 2002**

Steering systems 2001 (Sections 2 and 3)

1. A steering system on a motor vehicle, and associated systems and components that could directly or indirectly affect the directional control of the vehicle must be:

a) sound and in good condition and must provide the vehicle with safe, efficient, convenient and sensitive control,

b) strong, durable and fit for their purpose, taking into account whether adverse effects have resulted from a loss of integrity of any protective system used by a relevant component.

2. A motor vehicle capable of a speed more than 50 km/h and equipped with a steering system with no direct mechanical connection between the driver's means of control and the wheels or other means of changing the vehicle's direction must have at least one additional means of steering that complies with requirement 1.

3. A modification to a steering system or to a system or component that could affect the directional control of a motor vehicle must not prevent the vehicle from complying with requirement 1.

4. A modification to a steering system or to a system or component that could affect the directional control of a motor vehicle must be certified

5. If a steering system or a system component that could affect the directional control is modified:

a) the steering system must be compatible with the performance and component specifications of the manufacturer of the vehicle or steering system for the original steering system, and

b) the loads and stresses on the steering system and its components must be demonstrably within the design and performance criteria established by their manufacturer for the specific application in which they were originally used.

6. A repair to a steering system, or a repair to a motor vehicle that affects its steering system must comply with all other requirements in this section.

7. No left-hand drive vehicle may be certified for entry into service, or operation in service, in New Zealand except:

a) vehicles of the categories specified in *Schedule 1*, subject to the conditions specified in relation to each category, or

b) an individual left-hand drive vehicle that was certified for entry into service in New Zealand before 1 April 2010.

Heavy Vehicles Rule

Section 6.5

8. If a vehicle is converted from left-hand drive to right-hand drive:

a) if practicable, original equipment must be used, and

b) non-original equipment must not be used unless approved by the vehicle manufacturer or a vehicle inspector or inspecting organisation appointed to carry out specialist inspection and certification activities, and

c) the steering column must be transferred without altering the integrity of the column or its collapse mechanism, and

d) except when fixing mountings to the chassis or body of the vehicle, steering components must not be welded, unless:

i. the welding is designed by the vehicle manufacturer or a vehicle inspector or inspecting organisation appointed to carry out specialist inspection and certification activities, and

ii. appropriate non-destructive testing is carried out by a qualified person, and

e) steering performance and characteristics must be maintained, and

f) the parking brake, auxiliary brake, accelerator and clutch controls must be transferred to the right-hand side of the vehicle, and

g) new mounting points for the parking brake, accelerator and clutch controls must be of equivalent strength to the original mounting points.

9. If a vehicle is converted from left-hand drive to right-hand drive:

a) the service brake control assembly must be transferred to the right-hand side of the vehicle, or

b) the service brake pedal assembly must be transferred to the right-hand side of the vehicle and the motion of the brake pedal must be transmitted to the master cylinder or treadle valve by:

i. a torque shaft, or

ii. levers and rods.

10. For a vehicle to which requirement 9 applies, the master cylinder or the treadle valve and the mechanism that transfers the braking effort from the right-hand side to the left-hand side must be protected to ensure that the service brake can be activated only by the driver.

Conversion of a vehicle to dual steering (section 6.6)

11. A conversion to dual steering may be carried out only on a special purpose vehicle.

12. If a special purpose vehicle is converted to dual steering:

a) if practicable, original equipment must be used, and

b) non-original equipment must not be used unless approved by the vehicle manufacturer or a vehicle inspector or inspecting organisation appointed to carry out specialist inspection and certification activities, and

c) except when fixing mountings to the chassis or body of the vehicle, steering components must not be welded, unless:

i. the welding is designed by the vehicle manufacturer or a vehicle inspector or inspecting organisation appointed to carry out specialist inspection and certification activities, and

ii. appropriate non-destructive testing is carried out, and

d) steering performance and characteristics must be maintained, and

e) new mounting points for the parking brake, accelerator and clutch controls must be of equivalent strength to the original mounting points.

13. If a special purpose vehicle is converted to dual steering:

a) the service brake control assembly must be replicated on the other side of the vehicle in a way that prevents the hydraulic or pneumatic line pressure from acting on the non-operating master cylinder or treadle valve, or

b) the motion of the brake pedal must be transmitted to the master cylinder or treadle valve by:

i. a torque shaft, or

ii. levers and rods.

14. The steering motion on a special purpose vehicle that has been converted to dual steering may be transmitted by chain and sprocket or bevel gear boxes, if proper means are provided to eliminate backlash.

12-3 Recertification of drawbeams and drawbars of known identity

Certifier categories: **HVET** | **HMTD**

Flow diagram

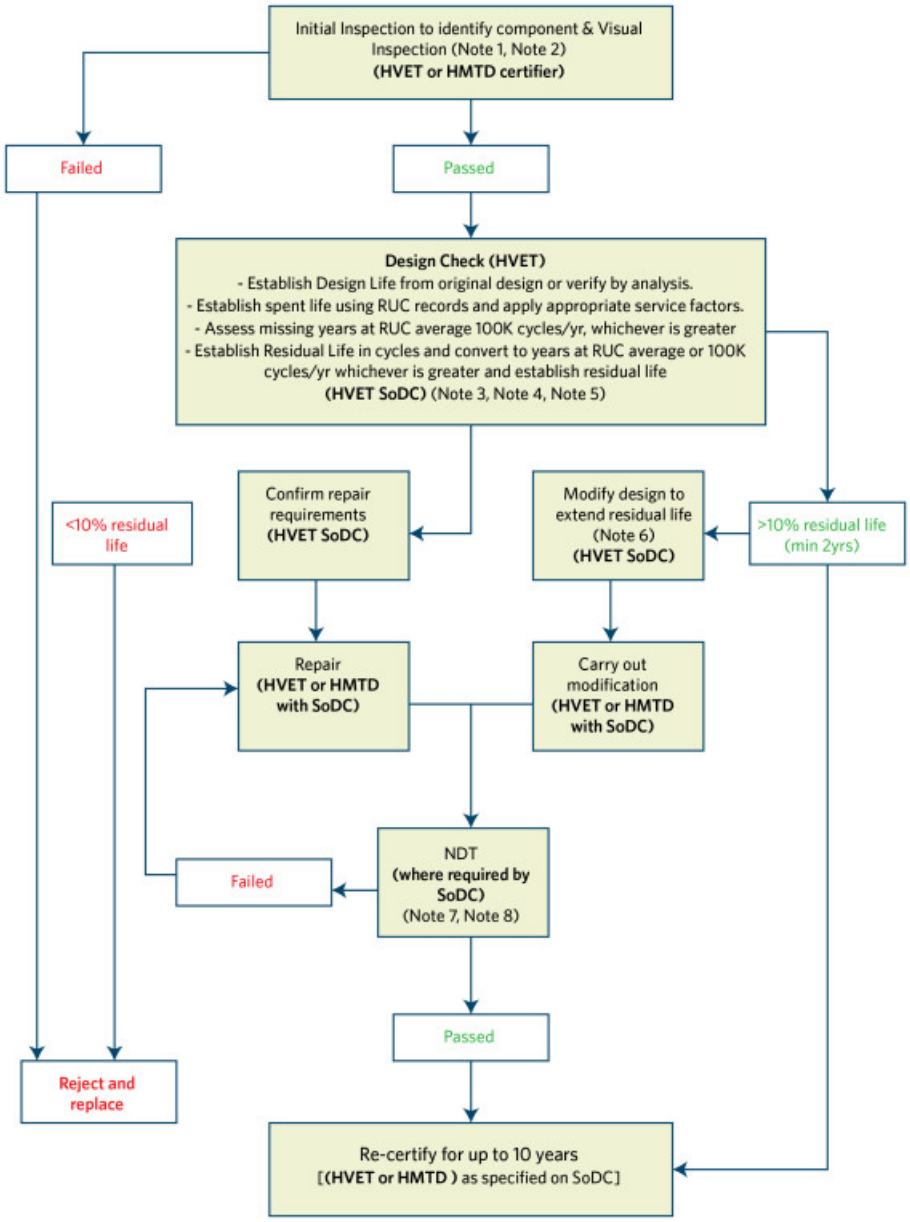
Re-certification of drawbars and drawbeams with unknown identity

If the original date of manufacture and attachment to the vehicle of a drawbar/beam/towbar **cannot be determined**, the component **must not be re-certified**.

If the identity of a drawbar or drawbeam cannot be established, then the design details and fatigue history of the components cannot be reliably ascertained. This means re-certification according to the current version of the re-certification process cannot be carried out.

Figure 12-3-1. Re-certification of drawbars and drawbeams of known identity

- For easy reference, download **Re-certification of drawbars & drawbeams of known identity**



Note 1

A complete visual inspection of the components must be carried out, either by a specialist engineering certifier (HVET) or a manufacturing certifier (HMTD) to identify the component and its original certifier. This must include the assessment of all welding details and must establish or verify the dimensions and material sections that are relevant to the re-certification. It must also include the details of any repairs or modifications carried out. All findings of the inspection must be recorded as part of the re-certification and must be sent to the specialist engineering certifier so those findings can be taken into account.

Note 2

Re-certification by an HMTD manufacturing certifier can only be carried out with reference to the original manufacturing drawings for that component. The HMTD must have a SoDC from an HVET engineering certifier that references the original manufacturing drawings, confirming the residual life and repair requirements (if necessary). There must be a separate SoDC for each recertification by an HMTD and the SoDC must be VIN specific. The SoDC must be produced specifically for the recertification, it is not acceptable to rely on the SoDC under which the component was originally certified. The HMTD is responsible for confirming that the component complies with the drawings, and isn't modified, worn, cracked or damaged.

Note 3

The design check (full stress analysis) must always be carried out unless the re-certification is carried out by the HVET who originally designed/certified the item. In such cases, the HVET must have full records of the original calculations and must be able to demonstrate, when requested, that those calculations are correct. If repair or modification has been carried out then the HVET must carry out a full stress analysis unless they were both the original certifier and the certifier of the repair and/or modification.

Note 4

Where the flowchart requires the fatigue load history of a component to be determined, it must be based on the distance traveled, supported by documented evidence such as RUC or CoF records, etc. When assessing the fatigue load cycles for vehicles with low annual road mileage but considerable off highway or extreme highway mileage (such as loggers, bulk tippers, fertiliser spreaders etc.), the HVET must take into account, for example by using suitable dynamic factors such as the higher dynamic loads or higher fatigue frequencies, the higher stresses that are associated with the operational circumstances.

Note 5

A drawbar or drawbeam may be re-certified for up to 10 years. When doing so, the HVET must not consider the current operational circumstances (which may mean relatively lower annual mileage). The fatigue-based approach of NZS 5446, which considers 2 million cycles during an expected life of 20 years, must be followed, with appropriate adjustments made for arduous conditions.

Note 6

Where a drawbar or drawbeam was originally manufactured under a previous version of the Standard it may be recertified under that same Standard, however, if it is modified it is to be upgraded to meet the requirements of the latest version of the Standard.

Note 7

The HVET must make a decision, as to the type of NDT required and the specific points and areas of the component that must be tested. Where the repair is the result of fatigue type failure then NDT inspection MUST be specified to ensure all fatigue induced imperfections have been removed. All stress risers must be addressed by appropriate strengthening, reinforcement or finishing. When selecting the type of NDT to be carried out, and when the test results, including the imperfections and weld quality are evaluated, AS/NZS 1554 must be taken into account.

Note 8

Where NDT is specified, all relevant details of the NDT, such as the recommendation of the Inspector, the decision of the HVET and the test report of the Inspector must be recorded as part of the re-certification.

Summary of legislation

Applicable references

- AS 3990: , Mechanical Equipment – Steelwork
- AS/NZS 1554 Welding
- AS/NZS 2980, Qualification of welders for fusion welding of steels
- NZS5446, Code of Practice for Heavy Motor Vehicle Towing Connections: Drawbar Trailers
- NZS5467: Code of Practice for Light Trailers.

Applicable legislation

- Land Transport Rule: Heavy Vehicles 2004

Page amended **9 December 2019** (see amendment details)

12-4 Electrical

Certifier categories: **HVEC** | **HVEK** | **HMKD** | **HMCD**

Reasons for rejection

1. The voltage of the electrical systems and components in a vehicle are not suitable for all conditions of operation for which the vehicle was constructed.

2. The current ratings of electrical wires in a vehicle have been exceeded.

3. Electrical wires in a vehicle are not:

    a) insulated and protected from damage that could be caused by water, fuel, oil, other fluids, dirt or heat, or

    b) if practicable, clipped or otherwise gathered into looms with an insulated material.

4. Electrical wires and looms in a vehicle have not:

    a) been appropriately and securely fastened to the vehicle to protect them from damage, or

    b) where they pass through holes in the vehicle structure, been protected from damage.

5. Electronic control devices of safety systems fitted to a vehicle have not been protected from electrical interference that could adversely affect their operation.

6. Electrical or electronic systems operating specific functions such as ABS/EBS or SRS systems have been tapped into to operate other functions without the written consent of the manufacturer of the primary function.

Summary of legislation

Applicable legislation

- Land Transport Rule: Heavy Vehicles 2004

Electrical requirements (section 3.8)

1. The voltage of the electrical systems and components in a vehicle must be suitable for all conditions of operation for which the vehicle was constructed.

2. The current ratings of electrical wires in a vehicle must not be exceeded.

3. Electrical wires in a vehicle must:

    a) be insulated and protected from damage that could be caused by water, fuel, oil, other fluids, dirt or heat, and

    b) if practicable, be clipped or otherwise gathered into looms with an insulated material.

4. Electrical wires and looms in a vehicle must:

    a) be appropriately and securely fastened to the vehicle to protect them from damage, and

b) where they pass through holes in the vehicle structure, be protected from damage.

5. Electronic control devices of safety systems fitted to a vehicle must be protected from electrical interference that could adversely affect their operation.