Correct as at 6th June 2026. It may be superseded at any time.

Extract taken from: Heavy vehicle specialist certification > Local manufacture and repair code of practice > Welding

11-4 Welding

Introduction

Welding is a specialised and skilled task. For example, some metals cannot be welded or can only be welded once without degradation of its properties. Others require the use of pre-heating or cooling, alternative grades of welding consumables and other specialised techniques. Only welders qualified to carry out the weld procedures appropriate to the particular task should be employed to weld items, whether for repair or the manufacture and fitting of components. Where there is doubt the repair or design must be referred to a HV engineer certifier with the appropriate category.

All welding shall follow the procedures specified by and comply with an appropriate standard:

Carbon Steel	AS/NZS 1554 Parts 1, 5 (Yield < 500 Mpa)
High strength quenched and tempered steel	AS/NZS 1554.4
Aluminium	AS/NZ 1665
Stainless Steel	AS/NZS 1554 Part 6, Industry Codes

All welders shall be currently qualified and certified in the appropriate position and technique being employed for the manufacture or repair of any structure or component.

Manufacturers' instructions and industry guidelines, including **Technical bulletin 10: Welding in the transport industry**, are to be followed at all times.

Welding repairs

Repair by welding may be required either during fabrication of a structure or component, or as a result of service failure. The following steps are important in developing a repair procedure:

- establish the cause of failure
- determine the material composition
- develop a repair procedure in accordance with the applicable code
- carry out the repair with the proper work instructions and weld procedure
    - carry out the required inspection/NDT
    - carry out post weld heat treatment (if specified/required)
- final inspection prior to certification.

Determining the material composition

While all materials in a new component or structure are specified this may not be the case with a repair and it is critical that all the materials involved in such a repair are identified. This identification is an essential first step in the

development of an appropriate welding procedure. Contacting the original manufacturer or their agent is the primary source of information. However, material identification may not be straightforward in the case of post fabrication failures if the original drawings or manufacturer's information is not available. In this instance advice must sought from materials specialists such as HERA. If there is doubt then the repair must be referred to an HV engineering certifier with the appropriate category.

Developing a welding procedure

A weld procedure needs to define:

- pre-weld treatment/preparation
- pre-and post-heat treatment
- the welding process and equipment
- the welding consumable
- the welding parameters
- monitoring and inspection techniques
- the required inspection/NDT
- the identity of the welder.

Pre-weld treatment for repair includes examination of the extent of the defect, removal of existing cracks, cleaning and checking for base metal soundness and material preparation for the welding procedure to be used.

Pre-weld treatment for manufacturing new structure or components includes:

- ensuring substrate materials and consumables are correct to drawing
- specified weld procedure is appropriate
- cleaning and material preparation for specified weld procedure.

Page added **9 December 2019** (see **amendment details**).