

**Overview**

This standard is about repairing non-structural aluminium panels correctly and effectively using appropriate welding techniques, materials and procedures.

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## Performance criteria

- You must be able to:
- P1 use the appropriate personal protective equipment (PPE) and check that it is fit for purpose before carrying out non-structural aluminium welding operations
  - P2 protect the vehicle and its contents effectively when carrying out non-structural aluminium welding operations
  - P3 prepare material and align to enable suitable joint to be achieved, ensuring mating flanges are treated following manufacturers' procedures before joining
  - P4 select, set up and use the correct tools and equipment in order to correctly carry out non-structural aluminium welding operations
  - P5 ensure that the tools, equipment and personal protective equipment (PPE) you require are in a safe working condition and are correct for the joining operation that you are to be completing
  - P6 set up your equipment to carry out non-structural aluminium welding operations checking:
    - P6.1 suitability of gas/filler wire and size for material to be joined
    - P6.2 the parameters are set correctly
    - P6.3 the consumables are correct
    - P6.4 feed rollers and welding tip
    - P6.5 test kit
  - P7 carry out non-structural aluminium welding operations following:
    - P7.1 recognised researched repair methods
    - P7.2 test procedures and provide test coupons on equivalent material in accordance with recognised standards
    - P7.3 manufacturers' processes, methods and procedures,
    - P7.4 your workplace procedures
    - P7.5 health, safety and legal requirements
  - P8 avoid damaging other components, units, panels and surfaces on the vehicle and the surrounding work area
  - P9 recognise when your weld is not forming correctly and what action needs to be taken
  - P10 inspect and assess non-structural aluminium weld quality in accordance with recognised standards

- P11 dress the joint area without reducing material thickness and protect the repaired area to inhibit corrosion where applicable
- P12 clean and store personal protective equipment (PPE) and other relevant equipment in the appropriate manner
- P13 promptly report any additional faults you notice during the course of your work to the relevant person(s)
- P14 promptly report any delays in completing your work to the relevant person(s)
- P15 carry out non-structural aluminium welding operations within the agreed timescale
- P16 complete work records accurately, in the format required and promptly pass them to the relevant person(s)

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## Knowledge and understanding

You need to know and understand:

- K1 the health, safety and legal requirements relating to the non-structural welding of materials using non-structural aluminium welding operations
- K2 your workplace procedures for carrying out appropriate risk assessment(s), the referral of problems, reporting of delays to the completion of work and completion of work records
- K3 the work that needs to be done and the standard required
- K4 the requirements for protecting the vehicle and contents from damage before, during and after the joining of materials using non-structural aluminium welding operations
- K5 the importance of selecting, using and maintaining the appropriate personal protective equipment when the joining of materials using non-structural aluminium welding operations
- K6 how to find, interpret and use sources of information applicable to the non-structural welding of materials using non-structural aluminium welding operations
- K7 how to select, check, maintain and set up all of the tools and equipment required to correctly join materials using non-structural aluminium welding operations
- K8 the different types of welding processes, techniques, materials and joints used for the joining of materials when using non-structural aluminium welding operations
- K9 the correct surface preparation methods to ensure a good non-structural aluminium weld is achieved and the reasons why surface preparation is important
- K10 the faults and defects that can occur when carrying out non-structural aluminium welding and the common causes of these faults
- K11 the need for correct alignment of materials and the methods used to achieve this
- K12 the different types of joint that can be used to join materials using aluminium welding, including:

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- K12.1 plug
  - K12.2 lap joint
  - K12.3 butt joint
  - K13 when non-structural aluminium welding operations should be used
  - K14 how to ensure cross contamination does not occur and the effect of cross contamination on non-structural aluminium and the environment

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**Scope/range**

*All of the items listed below form part of this National Occupational Standard.*

1. **Personal protective equipment (PPE)** for metal inert gas (MIG) brazing operations includes:
  - 1.1. face mask with appropriate eye protection
  - 1.2. protective/flame retardant coveralls
  - 1.3. protective/flame retardant gauntlets
  - 1.4. steel toe cap boots
  - 1.5. appropriate vehicle protection
  - 1.6. appropriate protection for others in the workshop
  - 1.7. appropriate fume mask
  
2. **Tools and Equipment** are:
  - 2.1. anti-static extraction
  - 2.2. designated aluminium environment
  - 2.3. designated aluminium tooling
  - 2.4. fume extraction

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