

## Carry out motor vehicle body mechanical fastening operations

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### Overview

This unit is about joining materials safely, correctly and effectively using mechanical joining techniques, including riveting, clinching, screwing, and bolting. It also includes hybrid joining.

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### Performance criteria

*You must be able to:*

- P1** use the appropriate **personal protective equipment (PPE)** *\*when carrying out \*mechanical joining operations \**
- P2** *protect the vehicle and its contents effectively when carrying out \*mechanical joining operations \**
- P3** *prepare material and align to enable suitable join to be achieved*
- P4** *ensure mating flanges are treated before joining*
- P5** *select and use the correct tools and equipment for carrying out \*mechanical joining operations \**
- P6** *ensure that the tools, equipment and \*PPE* you require are in a safe working condition
- P7** set up your equipment to carry out **mechanical joining operations** checking:

P7.1 suitability of joining technique

P7.2 suitability of tooling

P7.3 consumables are correct

**P8** carry out **mechanical joining operations** following:

P8.1 manufacturers' processes, methods and procedures

P8.2 your workplace procedures

P8.3 health, safety and legal requirements

**P9** avoid damaging other components, units and panels on the vehicle

**P10** recognise when your joint is not forming correctly and what action needs to be taken

**P11** check integrity of the join

**P12** dress and protect the repaired area to inhibit corrosion where applicable

**P13** clean and store **PPE** and equipment in appropriate manner

**P14** promptly report any additional faults you notice during the course of your work to the relevant person(s)

**P15** promptly report any delays in completing your work to the relevant person(s)

**P16** carry out **mechanical joining operations** within the agreed timescale

**P17** 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 joining of materials using mechanical joining techniques and processes

K2 your workplace procedures for:

K2.1 the referral of problems

K2.2 reporting of delays to the completion of work

K2.3 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 mechanical joining techniques

K5 the importance of selecting, using and maintaining the appropriate **personal protective equipment** when joining materials using mechanical joining techniques

K6 how to find, interpret and use sources of information applicable to the joining of materials using mechanical joining techniques

K7 how to select, check and use all the tools and equipment required to join materials using mechanical joining techniques

K8 how to select and use the correct mechanical fastener considering the materials used, strength required, anticipated loading, grip range, maintenance, appearance and cost

K9 the different types of techniques and joints used for the joining of different types of materials when using mechanical joining techniques

K10 the faults that can occur when mechanical joining and the causes of these faults

K11 the need for correct alignment of materials and the methods used to achieve this

K12 the types of quality control checks that can be used to ensure correct joining of materials

K13 how to carry out and assess mechanical joining

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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 mechanical fastening operations includes:

- 1.1. face mask with appropriate eye shield
- 1.2. gloves (anti-vibration gloves if appropriate)
- 1.3. ear defenders
- 1.4. steel toe cap boots
- 1.5. appropriate vehicle protection

**2. Mechanical joining operations** include:

- 2.1. riveting, (single sided, double sided, self-piercing)
- 2.2. clinching
- 2.3. bolts and fasteners
- 2.4. screwing, (self-threading, self-piercing)
- 2.5. hybrid joining, (combinations of techniques listed that may also include adhesives)

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