

Overview

This unit is about joining materials effectively using mechanical joining techniques.

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Performance criteria

- You must be able to:
- P1 use the appropriate personal protective equipment 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
 - P7.1 check suitability of joining technique
 - P7.2 check suitability of tooling
 - P7.3 check 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)

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 of 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

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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