

Overview

This standard is about removing a variety of exterior and sub-structure body panels and panel sections, including permanently fixed panels, where these are damaged and replaced with new or repaired replacements.

The ability to join vehicle panels by welding, bonding and mechanical fastening (alone and combined) is required.

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Performance criteria

- You must be able to:
- P1 identify component materials involved in the construction of the vehicle in the areas that will be worked on during repair, prior to working on the vehicle
 - P2 wear suitable personal protective equipment (PPE) throughout all vehicle body panel removal and replacement activities
 - P3 inspect, prepare and use all the tools and equipment required, following manufacturers' instructions, prior to use
 - P4 remove, replace and/or refit all necessary vehicle body panels and assemblies following:
 - P4.1 the manufacturer's methods/instructions
 - P4.2 recognised researched repair methods
 - P4.3 your workplace procedures
 - P4.4 health, safety and legal requirements
 - P5 promptly seek guidance from the relevant person(s) where there is the potential for your work to disturb other vehicle systems
 - P6 use replacement body panels and assemblies which conform to the vehicle specifications for dimensions, materials and functional capability
 - P7 use and apply sealants and weld primers and anti-corrosion treatments conforming to the material or vehicle manufacturer's specification
 - P8 ensure all test weld pieces conform to the current British Standard for appearance and penetration
 - P9 ensure permanently fixed panels are replaced without incurring damage to the vehicle systems
 - P10 ensure all refitted body panels are aligned correctly with adjacent panels and fittings to manufacturers tolerances (panel gaps)
 - P11 complete all removal and replacement activities within the agreed timescale
 - P12 promptly report any anticipated delays in completion to the relevant person(s)

Knowledge and understanding

You need to know and understand:

- K1 the health and safety legislation and workplace procedures relevant to workshop practices, personal and vehicle protection when removing and replacing vehicle body panels
- K2 the dangers of cross contamination of material such as aluminium and steel
- K3 the requirements of manufacturer's warranty agreements
- K4 the vehicle work specification agreed
- K5 your workplace procedures for the referral of problems, reporting of delays to the completion of work and personal protection
- K6 the requirements for protecting the vehicle and contents from damage before, during and after removing and replacing vehicle body panels
- K7 the importance of working to agreed timescales and keeping others informed of progress
- K8 the relationship between time, cost and profitability
- K9 the importance of promptly reporting anticipated delays to the relevant person(s)
- K10 how to prepare, test and use the tools and equipment required for the removal and replacement of vehicle body panels and ancillary fittings
- K11 how to operate resistance spot welding and metal inert gas (MIG), metal active gas (MAG) welding equipment to achieve welds to the current British Standard
- K12 how to test Resistance Spot weld strength
- K13 how to carry out bonding/riveting cold repairs
- K14 the properties of component materials involved in the construction of the vehicle in the areas that will be worked on during repair
- K15 the properties of sealants, adhesives and anti-corrosion materials and the requirements for their safe use
- K16 the type of sealants and anti-corrosion materials to use and the manufacturer's recommended methods for their application and thickness
- K17 how to use adhesive bonding materials
- K18 how to select and apply sealants and anti-corrosion materials
- K19 the principles of chassis frame and monocoque vehicle construction

- K20 how to remove vehicle manufacturers original joining techniques
- K21 how to identify manufacturer's joining techniques and how they may differ to the repair method
- K22 the principles of thermal and non-thermal joining techniques ie spot welding, metal inert gas (MIG), metal active gas (MAG), bonding, hybrid joining etc
- K23 the different types of mechanical fixings for vehicle body panels and when and why they should be used
- K24 the repair and welding implications of working with galvanised coatings, mild steels, HSS, UHSS and aluminium alloys
- K25 how panel removal and refitting affects the overall body structure of the vehicle
- K26 the causes and rectification of distortion resulting from welding
- K27 how to find, interpret and use sources of information relevant to the removal and replacement of vehicle body panels and assemblies
- K28 how to remove and replace vehicle body panels and assemblies
- K29 how to remove and replace door skins
- K30 how to establish cut lines for partial panel replacement
- K31 how to prepare all edges to be joined
- K32 how to select the correct joints and joining processes to match the repair area
- K33 the importance and implications of panel clamping and alignment to match existing contours and gaps
- K34 34. how to work safely avoiding damage to the vehicle and its systems
- K35 the importance and implications of checking the accuracy of repair work
- K36 the types of quality control checks that can be used to ensure correct alignment and contour of panels and the operation of components to manufacturer's specification
- K37 the methods of storing removed components and the importance of storing them correctly and in accordance with legal requirements

Scope/range

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

1. Body panels are:

- 1.1. non-permanently fixed body panels
- 1.2. welded exterior
- 1.3. welded sub-structure panels (e.g. rear quarter panel, rear panel, roof, chassis legs, inner wheel housing, boot floors, complete sill, A post, B post, C post, D post and cross members)
- 1.4. bonded panels (e.g. any panel that is fixed by adhesive bonding as part of the original manufacturer's process or approved repair process)

2. Fitting methods are:

- 2.1. welding
- 2.2. mechanical fastening
- 2.3. adhesive bonding

3. Tools and Equipment are:

- 3.1. workshop equipment
- 3.2. generic hand tools
- 3.3. manufacturer's specified and specialist tools

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