IMICB05

Carry out non-complex fabrication/forming techniques for large commercial and passenger vehicles

Overview

This standard is about non-complex fabrication/forming techniques used in the process of large commercial and passenger vehicle body building. This includes calculating requirements, cutting and forming a variety of materials.

Performance criteria

You must be able to:

P1. use the appropriate personal protective equipment throughout all fabrication/forming activities

P2. support your fabrication/forming activities by reviewing

- P2.1. vehicle technical data, drawing and diagrams
- P2.2. fabrication/forming procedures and techniques
- P2.3. legal requirements

P3. select, prepare and use correctly all the **tools and equipment** required following manufacturers' instructions

P4. carry out all fabrication/forming activities following;

- P4.1. manufacturers' data and instructions
- P4.2. your workplace manuals and procedures
- P4.3. health, safety, environmental and legal requirements

P5. work in a way which minimises the risk of:

- P5.1. damage to other vehicle systems, units and components
- P5.2. contact with leakage and hazardous substances
- P5.3. damage to your working environment
- P5.4. injury to self and others

P6. ensure fabricated/formed body panels and components conform to acceptable tolerances for the vehicle specification, quality standards, manufacturer's warranties

P7. record and report any additional faults you notice during the course of your work promptly

P8. use suitable testing methods to evaluate the performance of fabricated/formed body panels and components for compliance to vehicle specification and legal requirements

P9. report any non-compliance of fabricated/formed body panels and components to the relevant person(s) promptly and in accordance with workplace procedures

P10. ensure your records are accurate, complete and passed to the relevant person(s) within the agreed timescale and in the format required

P11. complete all fabrication/forming activities within the agreed timescale

P12. report any anticipated delays in completion to the relevant person(s) promptly

Knowledge and understanding

You need to know and understand:

Legislative and organisational requirements and procedures

K1. the legal requirements relating to the vehicle (including road safety requirements)
K2. the implications on an Operator's Licence of not carrying out repairs and inspections correctly
K3. the legislation and workplace procedures relevant to:
  K3.1. health and safety
  K3.2. the environment (including waste disposal)
  K3.3. appropriate personal and vehicle protective equipment
K4. your workplace procedures for:
  K4.1. recording fabrication information
  K4.2. the referral of problems
  K4.3. reporting delays to the completion of work
K5. the work that needs to be done and the standard required
K6. the importance of documenting fabrication information
K7. the importance of working to agreed timescales and keeping others informed of progress
K8. the relationship between time and costs
K9. the importance of reporting anticipated delays to the relevant person(s) promptly
K10. The hazards associated with working on or near high voltage electric vehicle components

Use of technical information

K11. how to find, interpret and use sources of relevant information to establish the fabrication/forming method and work sequence for a range of vehicle body work activities
K12. the importance of using the correct sources of technical information

Tools and equipment

K13. how to select, prepare, check and use the correct **tools and equipment** used to cut materials prior to and during the fabrication/forming of vehicle body panels and components
K14. how to select, prepare, check and use the correct **tools and equipment** used during the fabrication/forming of vehicle body panels and components

Fabrication

K15. the advantages and limitations of the **materials** used in the fabrication/forming of vehicle body panels and components

K16. how to calculate the blank size of non-complex fabricated body panels and components including bending, folding, rolling and cutting allowances.
K17. how to calculate the material requirements of non-complex formed body panels and components including bending, folding, rolling and cutting allowances
K18. the techniques for cutting materials prior to and during the fabrication/forming of non-complex body panels and components
K19. the techniques for fabricating/forming non-complex body panels and components
K20. the purpose and applications of fabrication/forming and production aids
K21. the factors which influence the fabrication/forming sequence of noncomplex body panels and components
K22. the testing methods used to check fabricated/formed body panels and components for compliance including visual, measurement, operational and performance checks
K23. the factors which determine the acceptable tolerance of fabricated/formed vehicle body panels and components
K24. the procedures for reporting non-compliance of fabricated/formed body panels and components

Scope/range

1. **Materials** include:

1.1. aluminium and its alloys
1.2. carbon and stainless steels
1.3. GRP
1.4. timber and timber composites
1.5. trimming materials

2. **Tools and equipment** include:

2.1. cutting equipment
2.2. bending rolls
2.3. presses
2.4. folders
2.5. hand forming tools
2.6. hammers
2.7. mallets
2.8. dollies
2.9. spoons

3. **Aids** include:

3.1. jigs
3.2. fixtures
3.3. formers
3.4. stops
3.5. fences
3.6. guides
3.7. templates
3.8. patterns

4. **Testing methods** are:

4.1. sensory
4.2. functional
4.3. measurement

Additional information

Glossary

This section contains examples and explanations of some of the terms used but does not form part of the standard.

Agreed timescales:
Examples include: manufacturer's recommended work times, job times set by your company or a job time agreed with a specific customer

Cutting equipment:
Examples include: guillotines, saws, shears, drills, snips, nibblers, punches and thermal cutting equipment

Factors determining acceptable tolerance:
Examples include. quality standards, manufacturer's warranties, equipment capabilities and capacities, material properties and form, critical and non-critical dimensions, function of body panel or component

Factors influencing fabrication/forming sequence:
Examples include. material properties and form, curing time, equipment capability, capacity and availability, build sequence and designing against corrosion

Large Commercial and Passenger Vehicles:
These are medium and large goods vehicles, buses and coaches of 3500kgs gross vehicle mass (GVM) and above

Sources of technical information:
Examples include detail drawings and diagrams, workshop manuals, manufacturer’s manuals and data, company procedures

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