IMIMET05

Remove and reinstate complete vehicle electromechanical and electronic systems and assemblies following accident damage

Overview

This standard is about removing and reinstating complete vehicle electromechanical and electronic systems and assemblies following accident damage. The removal process may be complicated as the units and assemblies involved could be damaged and within damaged areas of a vehicle. The reinstatement process may involve working within any restrictions caused by the repaired vehicle. Ensuring that renewed and refitted units, assemblies and components operate to manufacturers' and legal requirements is included.

Performance criteria

You must be able to

P1. use the appropriate personal protective equipment when removing, renewing and fitting electromechanical and electronic components systems and assemblies

P2. protect the vehicle and its contents effectively when removing, renewing and fitting electromechanical and electronic components systems and assemblies

P3. support your removal and replacement activities by referring to:

- P3.1. vehicle technical data
- P3.2. removal and replacement procedures
- P3.3. legal requirements

P4. prepare, test and use all the equipment required following manufacturers' instructions and to meet any legal requirements

P5. carry out all removal, renewal and refitting activities following:

- P5.1. recognised research methods
- P5.2. manufacturers' instructions
- P5.3. your workplace procedures
- P5.4. health and safety requirements

P6. work in a way which minimises the risk of:

- P6.1. damage to other vehicle systems, units and components
- P6.2. damage to ~~other components and units~~the environment
- P6.3. leakage
- P6.4. contact with hazardous substances

P7. adapt your working practices and techniques safely to suit the needs of the job and vehicle

P8. store all removed electromechanical and electronic units and components safely in the correct location

P9. ensure all renewed electromechanical and electronic units and components conform to the vehicle operating specification and any legal requirements

P10. use suitable testing methods to evaluate the performance of the reinstated system accurately

P11. correct any component and system operational faults within the limits of your authority

P12. ensure the reinstated electromechanical and electronic systems perform to the vehicle operating specification and meet any legal requirements prior to return to the customer

P13. promptly report any additional faults you find during the course of your work to the relevant person(s) ~~promptly~~

P14. ensure your records are accurate, complete and promptly passed to the relevant person(s) ~~promptly~~ in the format required

P15. complete all removal and reinstatement activities within the agreed timescale

P16. promptly report any expected delays in completing your work 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 and refrigerant handling requirements)

K2 how the vehicle is powered and the associated health and safety risks

K3 the health, ~~and~~ safety and environmental legislation and workplace procedures relevant to workshop practices and personal and vehicle protection when removing and reinstating vehicle electromechanical and electronic systems and assemblies

K4 requirements of manufacturer's warranty agreements

K5 the vehicle work specification

K6 your workplace procedures for

- K6.1 the referral of problems
- K6.2 reporting of delays to the completion of work
- K6.3 completion of work records

K7 the health and safety risks associated with vehicle safety systems and the implications for work practices

K8 the legal requirements for the storage of vehicle safety systems

K9 the importance of working to agreed timescales and keeping others informed of progress

K10 the relationship between time, cost and profitability

K11 the importance of reporting anticipated delays to the relevant person(s) promptly

Equipment

K12 how to select, check and use all the tools and equipment required to remove and reinstate electromechanical and electronic systems and assemblies

Removal and reinstatement of electromechanical and electronic components systems and assemblies

K13 how vehicle damage can affect the removal and replacement of units and components

K14 how to find, interpret and use sources of information applicable to electromechanical and electronic components unit and component removal, renewal and refitting

K15 the construction and operation of electromechanical, electrical and electronic vehicle systems and assemblies

K16 how electromechanical and electronic systems and components interact with other vehicle systems via multiplexing

K17 how to remove and rebuild electromechanical and electronic components systems and assemblies to meet the manufacturer's original specification

K18 the procedures necessary prior to carrying out removal and reinstatement of electromechanical and electronic systems

K19 types of contaminants associated with accident damaged vehicles and the dangers associated with them

K20 how to work in a logical sequence to remove damaged units and components within the electromechanical and electronic components systems

K21 the logical sequence of work for complete body changes

K22 the implications of an incorrect vehicle body structure on steering geometry

K23 how to refit electromechanical and electronic components systems to a repaired vehicle

K24 how to select, reinstate and check fluids

K25 how to work safely avoiding damage to other vehicle systems, components and units and contact with hazardous substances

K26 how and where to store removed items safely, including handling refrigerants, gases and vehicle safety system pyrotechnic devices

K27 how to test and evaluate the performance of renewed and refitted electromechanical and electronic systems and assemblies against vehicle operating specifications and any legal requirements

K28 the manufacturer's specification for the type and quality of units and components to be used within the vehicle's systems

K29 the relationship between test methods and the unit(s) renewed – the use of appropriate testing methods

Scope/range

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

1. **Electromechanical systems** are:
   - 1.1. engine (air, fuel and exhaust)
   - 1.2. transmission
   - 1.3. chassis (covers steering, suspension and brakes)
   - 1.4. electrical/electronic (~~excluding~~ including high voltage ~~battery~~ integrated systems)
   - 1.5. Advanced Driver Assistance Systems (passive and active)
   - ~~1.5.~~1.6. electronically controlled exterior lighting

2. **Equipment** includes :
   - 2.1. hand tools
   - 2.2. special purpose tools
   - 2.3. general workshop equipment
   - 2.4. electrical multimeter
   - 2.5. electronic testing equipment

3. **Testing methods** are:
   - 3.1. ~~visual~~ sensory
   - 3.2. ~~aural~~ functional
   - 3.3. ~~use of diagnostic testing and measuring equipment~~measurement

4. **Electronic systems** are:
   - 4.1. exterior
   - 4.2. interior
   - 4.3. safety systems
   - 4.4. security
   - 4.5. body
   - 4.6. lighting
   - ~~4.5.~~

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Additional Information

Glossary

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

Alternative Fuel

This is defined as any type of fuel that may be used to power an internal combustion engine; examples would include LPG, bio ethanol etc.

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Contaminants~~:~~

Examples include: high voltage batteries and electrolyte, plastics, glass, gases, fuel and hydrocarbons~~high voltage; glass; gases; fuel; hydro-carbons~~

Vehicles~~:~~

These can be light vehicles or commercial vehicles. In addition they may be SI, CI, Hybrid, Electric or Alternative fuel vehicles.

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