
Overview

This standard is about removing and reinstalling 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:

1. use the appropriate personal protective equipment when removing, renewing and fitting **electromechanical and electronic components systems** and assemblies
2. protect the **vehicle** and its contents effectively when removing, renewing and fitting electromechanical and electronic components systems and assemblies
3. support your removal and replacement activities by referring to:
 - 3.1 vehicle technical data
 - 3.2 removal and replacement procedures
 - 3.3 legal requirements
4. prepare, test and use all the **equipment** required following manufacturers' instructions and to meet any legal requirements
5. carry out all removal, renewal and refitting activities following:
 - 5.1 recognised research methods
 - 5.2 manufacturers' instructions
 - 5.3 your workplace procedures
 - 5.4 health and safety requirements
6. work in a way which minimises the risk of:
 - 6.1 damage to other vehicle systems
 - 6.2 damage to other components and units
 - 6.3 leakage
 - 6.4 contact with hazardous substances
7. adapt your working practices and techniques safely to suit the needs of the job and vehicle
8. store all removed electromechanical and electronic units and components safely in the correct location
9. ensure all renewed electromechanical and electronic units and components conform to the vehicle operating specification and any legal requirements
10. use suitable **testing methods** to evaluate the performance of the reinstated system accurately
11. correct any component and system operational faults within the limits of your authority
12. ensure the reinstated electromechanical and electronic systems perform to the vehicle operating specification and meet any legal requirements prior to return to the customer
13. report any additional faults you find during the course of your work

- to the relevant person(s) promptly
14. ensure your records are accurate, complete and passed to the relevant person(s) promptly in the format required
 15. complete all removal and reinstatement activities within the agreed timescale
 16. 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**

1. the legal requirements relating to the vehicle (including road safety and refrigerant handling requirements)
2. how the vehicle is powered and the associated health and safety risks
3. the health and safety legislation and workplace procedures relevant to workshop practices and personal and vehicle protection when removing and reinstating vehicle electromechanical and electronic systems and assemblies
4. requirements of manufacturer's warranty agreements
5. the vehicle work specification
6. your workplace procedures for
 - 6.1 the referral of problems
 - 6.2 reporting of delays to the completion of work
 - 6.3 completion of work records
7. the health and safety risks associated with vehicle safety systems and the implications for work practices
8. the legal requirements for the storage of vehicle safety systems
9. the importance of working to agreed timescales and keeping others informed of progress
10. the relationship between time, cost and profitability
11. the importance of reporting anticipated delays to the relevant person(s) promptly

Equipment

12. how to select, prepare, check and use all the equipment required to remove and reinstall electromechanical and electronic systems and assemblies

Removal and reinstatement of electromechanical and electronic components systems and assemblies

13. how vehicle damage can affect the removal and replacement of units and components
14. how to find, interpret and use sources of information applicable to

- electromechanical and electronic components unit and component removal, renewal and refitting
15. the construction and operation of electromechanical, electrical and electronic vehicle systems and assemblies
 16. how electromechanical and electronic systems and components interact with other vehicle systems via multiplexing
 17. how to remove and rebuild electromechanical and electronic components systems and assemblies to meet the manufacturer's original specification
 18. the procedures necessary prior to carrying out removal and reinstatement of electromechanical and electronic systems
 19. types of contaminants associated with accident damaged vehicles and the dangers associated with them
 20. how to work in a logical sequence to remove damaged units and components within the electromechanical and electronic components systems
 21. the logical sequence of work for complete body changes
 22. the implications of an incorrect vehicle body structure on steering geometry
 23. how to refit electromechanical and electronic components systems to a repaired vehicle
 24. how to select, reinstall and check fluids
 25. how to work safely avoiding damage to other vehicle systems, components and units and contact with hazardous substances
 26. how and where to store removed items safely, including handling refrigerants, gases and vehicle safety system pyrotechnic devices
 27. 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
 28. the manufacturer's specification for the type and quality of units and components to be used within the vehicle's systems
 29. the relationship between test methods and the unit(s) renewed – the use of appropriate testing methods

IMIMET05

Remove and Reinstate Complete Vehicle Electromechanical and Electronic Systems and Assemblies Following Accident Damage



Scope/range

All of the items listed below form part of this 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 high voltage battery systems)
- 1.5 Advanced Driver Safety Systems (passive and active)

2. Equipment includes:

- 2.1 hand tools
- 2.2 special purpose tools
- 2.3 general workshop equipment
- 2.4 electrical multimeter
- 2.8 electronic testing equipment

3. Testing methods are:

- 3.1 visual
- 3.2 aural
- 3.3 use of diagnostic testing and measuring equipment

4. Electronic systems are:

- 4.1 exterior
- 4.2 interior
- 4.3 safety systems
- 4.5 security
- 4.6 body

Glossary

Contaminants

Examples include: high voltage; glass; gases; fuel; hydro-carbons

Vehicles

These can be light vehicles or commercial vehicles

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Developed by IMI

Version Number 2

Date Approved March 2018

Indicative Review Date March 2021

Validity Current

Status Original

Originating Organisation IMI

Original URN IMIMET05

Relevant Occupations Mechanical, Electrical and Trim Assistant Technician (Automotive);
Mechanical, Electrical and Trim Technician (Automotive)

Suite Accident Repair - Mechanical, Electrical and Trim

Keywords Remove, Reinstate, Complete Vehicle Electromechanical, Electronic Systems, Assemblies Following Accident Damage
