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## Overview

This NOS is about removing and replacing units and components where dismantling and re-assembly of chassis systems is required. It is also about evaluating the performance of replaced units and components. The units and components concerned are not those replaced as part of normal routine, vehicle maintenance (servicing) activities.

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## Performance criteria

- You must be able to:*
- P1 use suitable personal and vehicle protective equipment throughout all removal and replacement activities
  - P2 support your removal and replacement activities by reviewing:
    - P2.1 vehicle technical data
    - P2.2 removal and replacement procedures
    - P2.3 legal requirements
  - P3 prepare, check and use all the **equipment** required following manufacturers' instructions
  - P4 prepare the vehicle systems and work area for safe working procedures (where appropriate)
  - P5 carry out all removal and replacement activities following;
    - P5.1 manufacturers' instructions
    - P5.2 recognised repair methods
    - P5.3 your workplace procedures
    - P5.4 health, safety and environmental requirements
  - P6 work in a way which minimises the risk of:
    - P6.1 damage to other vehicle systems
    - P6.2 damage to other vehicle components and units
    - P6.3 contact with leakage
    - P6.4 contact with hazardous substances
    - P6.5 damage to your working environment
  - P7 ensure replacement chassis **units and components** conform to the vehicle operating specification and any legal requirements
  - P8 record and report any additional faults you notice during the course of your work promptly
  - P9 use suitable **testing methods** to evaluate the performance of the reassembled system accurately
  - P10 ensure the reassembled chassis system performs to the vehicle operating specification and meets any legal requirements prior to returning it to the customer
  - P11 ensure your records are accurate, complete and passed to the relevant person(s) in the agreed timescale and in the format required
  - P12 complete all removal and replacement activities within the agreed timescale
  - P13 report any expected 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 legislation and workplace procedures relevant to:

K1.1 health and safety

K1.2 the environment (including waste disposal)

K1.3 personal and vehicle protective equipment

K2 the importance of documenting removal and replacement information

K3 the importance of working to agreed timescales and keeping others informed of progress

K4 the relationship between time and costs

K5 the importance of reporting anticipated delays to the relevant person(s) promptly

### **Use of technical information**

K6 how to find, interpret and use technical information applicable to unit and component removal and replacement within **chassis systems**

K7 the importance of using the correct sources of technical information

K8 the purpose of and how to use identification codes

### **Electrical and electronic principles**

K9 vehicle earthing principles and earthing methods

K10 electrical and electronic principles associated with **chassis systems**, including types of sensors and actuators, their application and operation

K11 types of circuit protection and why these are necessary

K12 electrical safety procedures

K13 electric symbols, units and terms

K14 electrical and electronic control system principles

K15 the hazards associated with working on or near high energy electrical vehicle components

## Chassis system operation and construction

K16 how **chassis systems** and their related **units and components** are constructed, removed and replaced for the classification of vehicle worked upon

K17 how chassis systems and their related units and components operate for classification of vehicle worked upon

## Equipment

K18 how to prepare, check and use all the removal and replacement **equipment** required

## Chassis system unit and component removal and replacement

K19 how to remove and replace chassis system mechanical, electrical and hydraulic **units and components** for the classification of vehicle worked upon

K20 how to select and use gaskets, sealants, seals, fittings and fasteners

K21 how to test and evaluate the performance of replacement chassis system **units and components** and the reassembled system against the vehicle operating specifications and any legal requirements

K22 the relationship between **testing methods** and the chassis system **units and components** replaced – the use of appropriate test methods

K23 when replacement **units and components** must meet the original **equipment** specification (OES) for warranty or other requirements

K24 how to work safely avoiding damage to other vehicle systems, components and units and contact with leakage and hazardous substances (any special arrangements or precautions when working with alternative fuel or hybrid vehicles must be covered)

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**Scope/range**

**1. Equipment is**

- 1.1. hand tools
- 1.2. special workshop tools
- 1.3. general workshop equipment
- 1.4. electrical testing equipment

**2. Testing methods are:**

- 2.1. visual
- 2.2. aural
- 2.3. functional
- 2.4. measurement

**3. Units and components are:**

- 3.1. mechanical
- 3.2. electrical
- 3.3. hydraulic/pneumatic

**4. Chassis systems are**

- 4.1. steering
- 4.2. suspension
- 4.3. braking

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## 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 customer.

### **Units and components:**

Any unit or component from the chassis systems defined in the Scoping Statement above.

### **Functional testing:**

Examples include: use of brake roller tester, chassis dynamometer, suspension activation, security activator.

### **Steering and suspension system:**

For the purposes of this NOS, this will also include wheels and tyres.

### **Vehicles:**

These can be any of the following – light vehicles. Additionally, these vehicles: may be SI, CI, Hybrid or Alternative fuel vehicles.

### **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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