

Overview

This standard is about removing and replacing electrical units and components previously identified as faulty or damaged or where the customer has requested replacements. It is also about evaluating the performance of replaced units and components.

The units and components concerned are those ~~outside those~~not replaced as part of normal routine ~~vehicle-lift truck~~ maintenance (servicing) activities.

DRAFT

Performance

criteria

- You must be able to:
- P1 wear suitable personal protective equipment throughout all removal and replacement activities
 - P2 2. support your removal and replacement activities by reviewing:
 - P2.1 lift truck technical data
 - P2.2 removal and replacement procedures
 - P2.3 legal requirements
 - P3 prepare, test and use all the equipment required following manufacturers' instructions
 - P4 carry out all removal and replacement activities following;
 - P4.1 manufacturers' instructions
 - P4.2 your workplace procedures
 - P4.3 health and safety requirements
 - P5 work in a way which minimises the risk of:
 - P5.1 damage to other lift truck systems
 - P5.2 damage to other lift truck components and units
 - P5.3 injury to yourself and others
 - P5.4 contact with hazardous substances
 - P5.5 instability when working on the lift truck
 - P6 ensure replaced electrical units and components conform to the lift truck operating specification and any legal requirements
 - P7 promptly 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 the reassembled system
 - P9 ensure the reassembled system performs to the lift truck operating specification and meets any legal requirements prior to return to the customer
 - P10 ensure your records are accurate, complete and promptly passed to the relevant person(s) ~~promptly~~ in the format required
 - P11 complete all removal and replacement activities within the agreed timescale
 - P12 promptly report any expected delays in completion to the relevant person(s) in authority ~~promptly~~

Knowledge and understanding

You need to know and understand:

Legislative and organisational requirements and procedures

- K1 the legal requirements relating to lift trucks
- K2 the health and safety legislation and workplace procedures relevant to lift truck maintenance and repair activities including PPE
- K3 your workplace procedures for:
 - K3.1 recording removal and replacement information
 - K3.2 the referral of problems
 - K3.3 reporting delays to the completion of work
- K4 the importance and purpose of recording removal and replacement activities
- K5 the importance of working to agreed timescales and keeping others informed of progress
- K6 the relationship between time and costs
- K7 the importance of promptly reporting anticipated delays to the relevant person(s) in authority promptly

Use of technical information

- K8 how to find, interpret and use sources of information applicable to electrical unit and component removal and replacement
- K9 the importance of using the correct sources of technical information
- K10 the purpose of and how to use identification codes

Electrical auxiliary system operation and construction

- K11 how electrical auxiliary units and components are constructed, removed and replaced for the classification of lift truck worked upon
- K12 how electrical auxiliary units and components operate for the classification of lift truck worked upon

Equipment

- K13 how to prepare, test and use all the removal and replacement equipment required

Electrical and electronic principles

- K14 lift truck earthing methods

- K15 electrical and electronic principles associated with electrical systems, including types of sensors and actuators, their application and operation
- K16 types of circuit protection and why these are necessary
- K17 electrical safety procedures
- K18 how warning and charging and starter circuits work
- K19 electrical units, terms and schematics
- K20 electronic control system principles
- K21 battery principles and safety working practices

Electrical unit and component removal and replacement

- K22 how to remove and replace electrical units and components for the lift truck worked upon
- K23 how to test and evaluate the performance of replacement electrical units and components and the reassembled system against the lift truck operating specifications and any legal requirements
- K24 the relationship between testing methods and the electrical units and components replaced – the use of appropriate test methods
- K25 the manufacturer's specification for the type and quality of electrical units and components to be used
- K26 how to work safely avoiding damage to other lift truck systems, components and units and contact with leakage and hazardous substances relating to yourself and the environment

Scope/range

1. **Equipment** includes:
 - 1.1. hand tools
 - 1.2. special workshop tools
 - 1.3. general workshop equipment
 - 1.4. electrical meters
 - 1.5. electronic diagnostic tools
 - 1.6. on board diagnostic tools
2. **Testing methods** include:
 - ~~2.1. visual~~
 - ~~2.2.2.1. aural~~2.2.2.1. sensory
 - ~~2.3.2.2.~~ functional
 - ~~2.4.2.3.~~ measurements
3. **3. Electrical units and components** are for:
 - 3.1. lighting systems
 - 3.2. accelerator systems
 - 3.3. electric warning devices
 - 3.4. direction control devices
 - 3.5. hydraulic systems
 - 3.6. speed governing devices
 - 3.7. starting and generator systems
 - 3.8. charging systems
 - 3.9. traction control systems
 - ~~3.10. axle stability systems~~
 - ~~3.11.3.10.~~ electric drive, hydraulic and steering motors
 - ~~3.12.3.11.~~ monitoring and instrumentation systems
 - ~~3.13.3.12.~~ traction battery systems

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Suite	Lift Truck
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