
Overview

This standard is about diagnosing and rectifying faults occurring in the lift truck power source units, mechanical, electrical, hydraulic and fluid systems.

Performance criteria

You must be able to:

P1 wear suitable personal protective equipment and protect other systems when using **diagnostic methods** and carrying out rectification activities

P2 support the identification of **faults**, by reviewing lift truck:

P2.1 technical data

P2.2 diagnostic test procedures

P3 prepare, connect and test all the required equipment following manufacturers' instructions prior to use

P4 use diagnostic methods which are relevant to the symptoms presented

P5 collect sufficient diagnostic information in a systematic way to enable an accurate diagnosis of power source system **faults**

P6 accurately identify and record any system deviation from acceptable limits

P7 ensure your assessment of dismantled sub-assemblies, components and units accurately identifies their condition and suitability for repair or replacement,

P8 promptly inform the relevant person(s) where repairs are uneconomic or unsatisfactory to perform

P9 use the **equipment** required, correctly and safely throughout all rectification activities

P10 carry out all diagnostic and rectification activities following:

P10.1 manufacturers' instructions

P10.2 industry recognised researched repair methods

P10.3 your workplace procedures

P10.4 health and safety requirements

P11 work in a way which minimises the risk of:

P11.1 damage to other lift truck systems

P11.2 damage to other components and units

P11.3 injury to yourself or others

P11.4 contact with hazardous substances

P12 ensure all repaired and replaced components and units conform to the lift truck operating specification and any legal requirements

P13 adjust components and units correctly to ensure that they operate to meet system requirements, when necessary

P14 promptly record and report any additional **faults** you notice during the course of work

P15 use testing methods which are suitable for assessing the performance of the system rectified

P16 ensure the power source system rectified performs to the lift truck operating specification and any legal requirements prior to return to the customer

P17 ensure your records are accurate, complete and promptly passed to the relevant person(s) in the format required

P18 complete all system diagnostic activities within the agreed timescale

P19 report any anticipated delays in completion to the relevant person(s)

Knowledge and understanding

You need to know and understand:

Legislative and organisational requirements and procedures

K1 the health and safety legislation and workplace procedures relevant to workshop practices and personal and lift truck protection when diagnosing and rectifying power source system **faults**

K2 the legal requirements relating to the lift truck

K3 your workplace procedures for:

K3.1 recording fault location and correction activities

K3.2 reporting the results of tests

K3.3 the referral of problems

K3.4 reporting delays to the completion of work

K4 the importance of working to recognised diagnostic and rectification procedures and processes and obtaining the correct information for diagnostic and rectification activities to proceed

K5 the importance and purpose of recording diagnostic and rectification activities

K6 the importance of working to agreed timescales and keeping others informed of progress

K7 the relationship between time, costs and profitability

K8 the importance of promptly reporting anticipated delays to the relevant person(s) in authority

Electrical and electronic principles

K9 electrical and electronic principles associated with power source systems, including types of sensors and actuators, their application and operation

K10 how electrical and electronic systems operate, including electrical components, electrical inputs, outputs, voltages, digital and fibre optics principles

K11 the interaction between electrical, electronic and mechanical components within lift truck power source systems

K12 how power source electrical systems interlink and interact, including multiplexing

K13 electrical units, terms and schematics

K14 electrical safety procedures

Use of diagnostic and rectification equipment

K15 how to prepare and test the accuracy of diagnostic testing **equipment**

K16 how to use diagnostic and rectification **equipment** for mechanical, electrical, electronic, hydraulic and fluid systems; specialist repair tools and general workshop equipment

Power source electrical faults, their diagnosis and correction

K17 how power source mechanical, electrical, electronic, hydraulic and fluid and fuel systems are constructed, operate, dismantled and reassembled

K18 the types and causes of power source mechanical, electrical, electronic and

hydraulic and fluid system, component and unit **faults** and failures

K19 power source mechanical, electrical, electronic and hydraulic and fluid component and unit replacement procedures, the circumstances which will necessitate replacement and other possible courses of action

K20 how to find, interpret and use sources of information on power source electrical and electronic operating specifications, diagnostic test procedures, repair procedures and legal requirements

K21 lift truck operating specifications for limits, fits and tolerances relating to lift truck power source mechanical, electrical, electronic and hydraulic and fluid systems for the type/class of lift truck on which you work

K22 how to select the most appropriate diagnostic testing method for the symptoms presented

K23 how to carry out systematic diagnostic testing of power source mechanical, electrical and electronic, hydraulic and fluid systems using prescribed processes or formats

K24 how to assess the condition of mechanical, electrical, electronic, hydraulic and fluid components and units

K25 how to interpret test results and lift truck data in order to identify the location and cause of power source system **faults**

K26 how to carry out the rectification activities in order to correct **faults** in the power source mechanical, electrical, electronic and hydraulic and fluid systems

K27 the relationship between test methodology and the **faults** repaired – the use of appropriate testing methods

K28 how to make cost effective recommendations for rectification

Scope/range

1. **Faults** can occur within:

- 1.1. the power source mechanical system
- 1.2. the power source electrical and electronic systems
- 1.3. the power source hydraulic and fluid systems
- 1.4. the power source fuel systems

2. **Diagnostic methods** include:

- 2.1. measurement
- 2.2. functional testing
- 2.3. electrical and electronic systems testing

3. **Equipment** includes:

- 3.1. diagnostic and rectification equipment for mechanical systems
- 3.2. diagnostic and rectification equipment for electrical systems
- 3.3. diagnostic and rectification equipment for hydraulic and fluid systems
- 3.4. specialist repair tools
- 3.5. general workshop equipment

Glossary

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

Diagnostic Testing

****Defined as:**

- a. verify the fault
- b. collect further information
- c. evaluate the evidence
- d. carry out further tests in a logical sequence
- e. rectify the problem
- f. check all systems

Rectification activities

****A suitable repair, replacement, re-coding or re-programming that rectifies the fault(s) identified from the diagnostic activities carried out**

IMILT07

Diagnose and rectify lift truck power source units and component faults



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