[Unique Reference Number]
Diagnose mechanical/electrical faults in ancillary systems and components in buses/coaches

Overview

This unit identifies the competencies you need to diagnose in accordance with approved procedures a range of mechanical/electrical faults in bus/coach ancillary systems and components. You will be required to interpret instructions, select the correct diagnostic procedure and tools, diagnose the fault and report your findings and recommended repair procedures to your supervisor.

Your knowledge and understanding will enable you to apply diagnostic principles and procedures to a bus/coach fault. You will understand the methods employed to select and prepare the diagnostic activity and carry forward its practical application. You will be able to analyse, interpret and report bus/coach faults in adequate depth to accurately report and present your findings.

Applying relevant safe working practices will be a key issue throughout.

This unit consists of one element:

1. Diagnose mechanical/electrical faults in bus/coach ancillary systems and components

This element is about diagnosing mechanical/electrical faults in bus/coach ancillary systems and components. You must comply with your organisation's relevant policy and procedures and statutory requirements for the complex diagnostic activities undertaken and to report any problems to the relevant authority. You will work to an agreed specification. If, in the course of the diagnosis, this specification requires changing or modifying, it is expected that you would use your knowledge, skills and experience to initiate an alternative route without compromising the quality of the diagnosis.

A diagnosis can be defined in this element as one which may involve interaction between two or more vehicle systems and components. The systems could include as appropriate:

1. security cameras, CCTV
2. digital recording systems
3. passenger facilities (safety comfort & convenience)
4. audio/visual equipment
5. two way radio
6. air conditioning units
7. intelligent bus systems
8. ticketing machines and cash vaults
9. route information systems as appropriate

10. GPS (Global Position System)

You must be able to extract and interpret diagnostic information on continual and intermittent faults and breakdowns.

Report and record to your supervisor or mentor the results of your diagnostic conclusions in the relevant way.

This unit is for all those who work in a bus/coach engineering and maintenance workshop or environment.

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Performance criteria

You must be able to:

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P1 work safely at all times, complying with health and safety and other relevant regulations and guidelines

P2 review and use all relevant information on the symptoms and problems associated with the products or assets

P3 investigate and establish the most likely causes of the faults

P4 select, use and apply diagnostic techniques, tools and aids to locate faults including, as appropriate: visual, aural, odour, measuring instruments, analysers, computer lap tops, logic probe, brake tester, multi-meters, manufacturers' specialized equipment, vehicle management system built in diagnostic equipment

P5 complete the fault diagnosis within the agreed time and inform the appropriate people when this cannot be achieved

P6 determine the implications of the fault for other work and for safety considerations

P7 use the evidence gained to draw valid conclusions about the nature and probable cause of the fault

P8 record details on the extent and location of the faults in an appropriate format

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Knowledge and understanding

You need to know and understand:

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K1 the relevant safe working procedures covered by:
- K1.1 HASWA
- K1.2 your organisation's health and safety policy and procedures
- K1.3 COSHH regulations
- K1.4 PPE regulations
- K1.5 tool and equipment instructions and safety guidance for their use maintenance and storage

K2 the diagnostic aids available to diagnose a range of faults based on an accurate interpretation of work instructions including:
- K2.1 technical data
- K2.2 test procedures
- K2.3 repair procedures
- K2.4 troubleshooting charts and tables

K3 how to source and use relevant information for planning and progressing your work, including as appropriate:
- K3.1 data sheets
- K3.2 inspection sheets
- K3.3 specifications
- K3.4 manufacturers' manuals and bulletins
- K3.5 vehicle records
- K3.6 workshop manuals
- K3.7 wiring and circuit diagrams
- K3.8 computer readouts
- K3.9 vehicle management systems
- K3.10 blink code tables
- K3.11 vehicle plate details
- K3.12 trouble shooting charts

K4 the possible causes of faults in bus/coach ancillary systems and their relationship to the most logical method of fault diagnosis

K5 the preparation procedures required to ensure accuracy of the diagnosis, including as appropriate:
- K5.1 checking the accuracy of test instruments
- K5.2 calibration
- K5.3 operating temperature
- K5.4 component or system access

K6 the diagnostic methods and techniques employed to diagnose faults including the use of systematic testing using visual, aural, measurement based readings and simulations

K7 how to analyse and determine diagnostic results: this should include

understanding the implications of the fault for other work and safety implications

K8 the operation and care of workshop test equipment used to diagnose faults and to leave it after use in a clean and workable condition and to know the control procedures for reporting defects

K9 the risk assessment procedures that have to be adopted when undertaking a diagnostic task

K10 the importance of completing the fault diagnosis within the agreed time and the accurate reporting of your diagnostic conclusions, including as appropriate:

- K10.1 safety implications
- K10.2 potential follow up work
- K10.3 purchase requests
- K10.4 time and cost implications
- K10.5 good customer service

K11 the way different forms of diagnostic information is reported and presented to ensure clarity of detail and understanding, including as appropriate, the following methods:

- K11.1 comparative results
- K11.2 written reports
- K11.3 oral reports
- K11.4 visual evidence
- K11.5 printouts
- K11.6 faults cleared

K12 the extent of your own responsibility and to whom you should report if you have problems you cannot solve

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Additional information

Glossary

Your organisation
This is the company you work for or, if you are self employed, the rules you have set for yourself to ensure that you comply with relevant legal and licensing requirements

Manufacturers of ancillary equipment
This would be the companies that supply the ancillary equipment and the rules they have set for yourself and your organisation to ensure that you comply with all relevant legal and licensing requirements

HASWA
Health and Safety at Work Act

COSHH
Control of Substances Hazardous to Health

PPE
Personal Protective Equipment

Component
Includes any parts, assemblies, sub-assemblies, panels, framework, furniture, hardware or trim, glazing or door units

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