

Carrying out fault location on stairlift equipment

Overview

This standard identifies the competences you need to carry out efficient and effective location of faults on stairlift equipment, in accordance with approved procedures. You will be required to investigate faults on a range of AC or DC powered stairlifts, including straight, curved and hinged. You will be expected to use a variety of fault location methods and procedures, such as gathering information from the person who reported the fault, using recognised fault finding techniques and diagnostic aids, measuring, inspecting and operating the equipment.

Your responsibilities will require you to comply with organisational policy and procedures for the fault location activities undertaken, and to report any problems with these activities, or with the tools and equipment used, that you cannot personally resolve or are outside your permitted authority, to the relevant people. You will be expected to work to instructions, alone or in conjunction with others, taking full responsibility for your own actions, and for the quality and accuracy of the work that you carry out.

Your underpinning knowledge will be sufficient to provide a sound basis for your work, and will provide an informed approach to applying fault location procedures to stairlift equipment. You will have an understanding of the basic fault location methods and techniques used, and their application. You will also know how to interpret the information obtained from fault finding aids and equipment, in adequate depth to provide a sound basis for carrying out the activities.

You will understand the safety precautions required when carrying out the fault location activities, especially those for isolating the equipment. You will also understand your responsibilities for safety, and the importance of taking the necessary safeguards to protect yourself and others in the workplace.

Performance criteria

You must be able to:

1. work safely at all times, complying with health and safety and other relevant regulations, directives and guidelines
2. review and use all relevant information on the symptoms and problems associated with the products or assets
3. investigate and establish the most likely causes of the faults
4. select, use and apply diagnostic techniques, tools and aids to locate faults
5. complete the fault diagnosis within the agreed time and inform the appropriate people when this cannot be achieved
6. determine the implications of the fault for other work and for safety considerations
7. use the evidence gained to draw valid conclusions about the nature and probable cause of the fault
8. 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:

1. the health and safety requirements of the area in which the fault location is to take place, and the responsibility these requirements place on you
2. the isolation procedures to be applied when installing or servicing stairlift equipment
3. what constitutes a hazardous voltage and how to recognise victims of electric shock
4. the importance of wearing protective clothing and other appropriate safety equipment (PPE) during fault location activities
5. the hazards associated with carrying out fault location activities on stairlift equipment (such as live electrical components, stored energy, misuse of tools), and how they can be minimised
6. how to reduce the risks of a phase to earth shock (such as insulated tools, rubber matting and isolating transformers)
7. how to use the various diagnostic aids to help identify the location of the fault
8. the various fault location techniques that can be used, and how they are applied (such as half-split, function testing, unit substitution, and equipment self-diagnostics)
9. how to evaluate sensory information (such as sight, sound, smell, touch)
10. how to assess evidence and evaluate the possible causes of faults/problems
11. how to use a range of fault diagnostic equipment to investigate the problem
12. the care, handling and application of measuring/test equipment (such as mechanical and electrical measuring instruments)
13. how to check that measuring/test equipment is within calibration, and that it is free from damage and defects
14. how to obtain and interpret information from job instructions, drawings, charts, specifications, manufacturers' manuals, history/maintenance reports, graphical symbols, and other documents needed in the fault location process
15. the basic principles of how stairlift equipment functions, its operating sequence, the purpose of individual units/components and how they interact
16. the problems that can occur during the fault location activity, and how they can be minimised
17. the importance of completing the correct documentation following the maintenance activity
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the extent of your own authority and to whom you should report if you have problems that you cannot resolve

Scope/range related to performance criteria

1. Carry out **all** of the following during the fault locating activity:
 1. undertake the fault location methods and procedures to cause minimal disruption to the customer
 2. obtain and use the correct issue of company and/or manufacturers' drawings and documentation
 3. adhere to procedures or systems in place for risk assessment, COSHH, personal protective equipment and other relevant safety regulations
 4. ensure the safe isolation of equipment (such as electricity, mechanical)
 5. provide safe access and working arrangements for the fault maintenance area
 6. carry out the fault location activities, using approved procedures
 7. identify the fault, and consider appropriate corrective action
 8. take actions to resolve the problem (in conjunction with others, where appropriate)
 9. dispose of waste items in a safe and environmentally acceptable manner
 10. leave the work area in a safe and tidy condition

2. Carry out fault location on **all** of the following AC or DC powered stairlifts:
 1. straight
 2. curved
 3. hinged

3. Use **four** of the following diagnostic techniques, tools and aids to assist in locating the fault:
 1. information gathered from the person who reported the fault, including the customer
 2. fault finding techniques (such as six point, half-split, input/output, unit substitution)
 3. diagnostic aids (such as manuals, flow charts, troubleshooting guides, maintenance records)
 4. inspecting (such as checking for breakages, wear/deterioration, overheating, missing parts, loose fittings)
 5. operating (such as manually switching off and on, running the equipment)

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4. Use **three** of the following types of instruments to aid fault location:
 1. mechanical measuring instruments/devices
 2. multimeter
 3. continuity tester
 4. insulation resistance tester
 5. self-diagnostic systems
 6. other specific test equipment

5. Locate faults that have resulted in **two** of the following breakdown categories:
 1. intermittent action or circuit failure
 2. partial failure/reduced performance
 3. complete breakdown

6. Provide a record of the outcomes of the fault location using **one** of the following:
 1. service record card
 2. job card/corrective action report
 3. company-specific documentation

