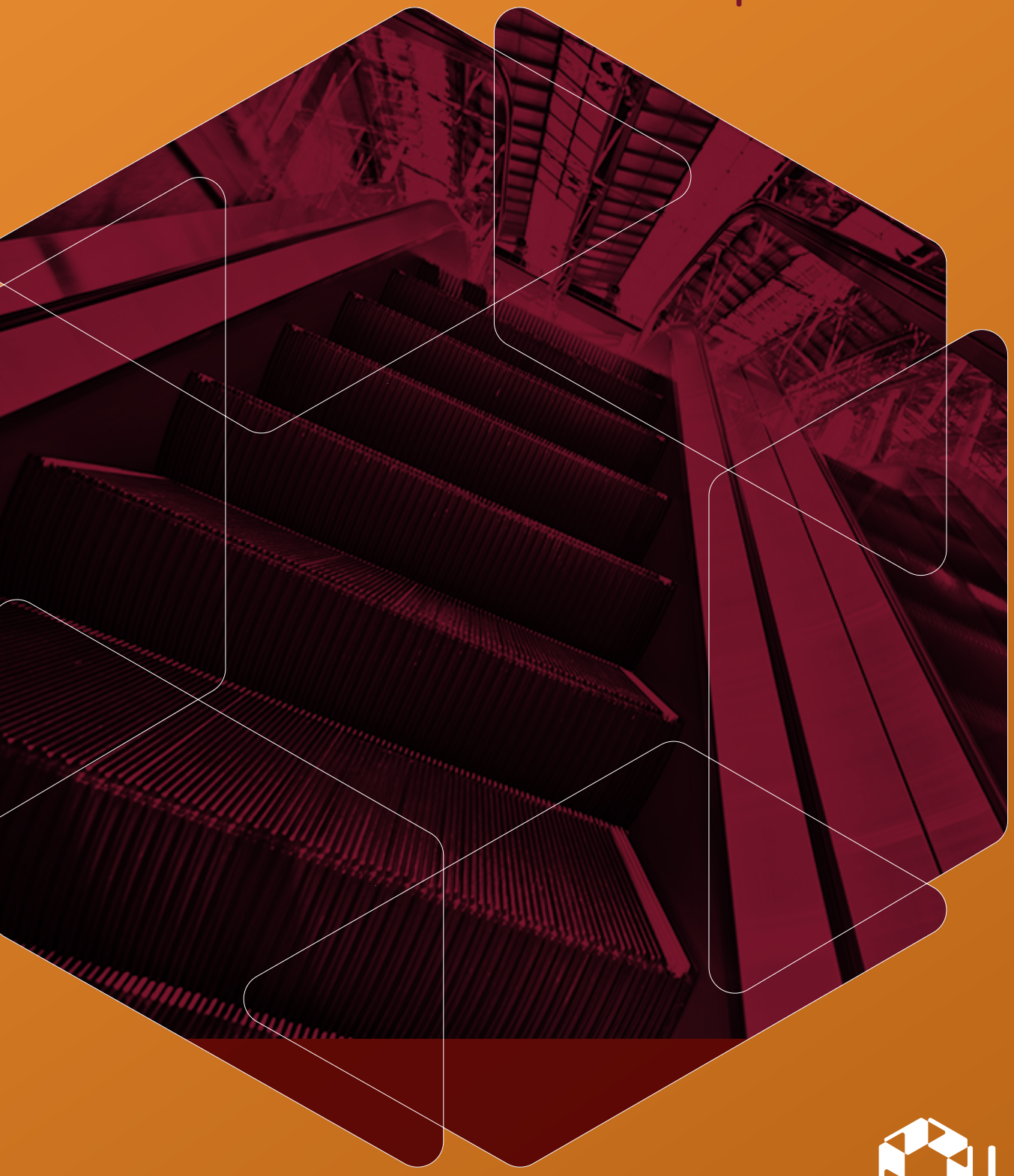
EPA78: ST0252

LEVEL 3

Lift & Escalator Electromechanic

End-Point Assessment Specification



LEIA ASSESSMENT

About the Apprenticeship Standard

Apprenticeship Standard	Lift/Escalator Electromechanic
Standard code (ST0xxx)	ST0252
Level	3
Date apprenticeship standard approved for delivery	29/01/2019
Date apprenticeship standard scheduled for review	29/01/2022
Typical Duration of apprenticeship (excluding EPA)	36 - 42 months
Pre-entry requirements for apprenticeship	For individual employers to decide

Knowledge, skills and behaviours

The knowledge, skills and behaviours of the apprenticeship standard that must be learnt during the apprenticeship prior to End-Point Assessment

Knowledge	Skills
Risk Assessment, method statements and manufacturer instructions in relation to either installation, or service and repair. Industry specific safety standards and legislation, such as working at height and electrical isolation methods in respect of one's own safety and of others. Environmental recycling/ disposal processes.	Apply risk assessments and implement risk control measures. Follow method statements in relation to specific work activities work responsibly in safety-critical environments.

Knowledge, skills and behaviours (cont.)

Knowledge	Skills
Operation of complex load bearing components making up a lift or escalator/ moving walk system. Each individual mechanical component, its location, function, correct operation and adjustment. How to analyse complex instructions from manufacturer manuals, layout, schematic and block diagrams. Incorrect operation, when and how to adjust for optimum/ safe performance at both complete unit and individual component level. Pre-emptive evaluation methods such as; correct measurement analysis to replace components at risk of failure. The correct principles of lifting, handling, hoisting and rigging methods to effectively manage loads. Mechanical forces present and how to safely contain and secure them such as, torque requirements of fixings on ropes/ chains. The use of tools and fixings, alignment equipment and measuring instrumentation.	Apply the principles, practices and operation of complex components making a lift or escalator system. Use tools, alignment equipment and measuring instrumentation such as installation techniques of chains with the designed termination methods. Apply the correct securing and fixing of components and lifting and handling methods.
The principles and operation of electrical, electronic and computer based control systems. Each individual electrical or electronic component, its location, function, correct operation and adjustment. The installation, adjustment and maintenance of complex wiring systems. How to correctly install, adjust and maintain control systems across a wide range of products, such as microprocessor systems, traditional relay/ contact or analogue panels. Reading electrical wiring diagrams from differing eras, straight-line diagrams and modern International Electrotechnical Commission diagrams. The use of electrical/ electronic tools, including computer software interrogation tools and apparatus, measuring instrumentation and systematic fault-finding processes.	Operate complex electrical and electronic control systems such as programmable logic control systems, electrical and electronic relay systems, and electronic drive systems. Use tools, fault finding processes, computer software and measuring instrumentation such as multi-meters and electronic diagnostic tools. Interpret electrical wiring diagrams.

Knowledge, skills and behaviours (cont.)

Knowledge	Skills
Engineering layout drawings, documentation, regulations, standards and manuals to allow safe and effective coordination of site activities. When and how to seek guidance where planning activities are beyond their individual scope of involvement. Planning, unloading and storage of materials, applying knowledge of manual handling and hoisting and rigging.	Use engineering drawings and documentation to meet current, regulations, standards and operating manuals. Apply the principles and practices of method statements and safe systems of working. Apply the practices of planning, unloading and storage of materials.
Pathway 1: Installation of traction and hydraulic lift systems	
The practices and legislation for the installation and testing of lift systems. The general arrangement and builders work drawings related to lift installations. Measuring and setting out lift equipment such as; installing lift guide rails, lift buffer systems, lift counterweight assemblies, lift machines of varying types and lift control systems of varying types. The roping systems used on lifts including, rope construction, and termination requirements. Hydraulic equipment installation requirements including; pipework, Hydraulic cylinders, pressure systems, and hydraulic tank systems.	Interpret schematic and block diagrams for hydraulic circuits and systems. Install and adjust hydraulic systems used on lifts for all duty ranges, from single nursing home applications through to heavy duty industrial goods applications. Examine hydraulic components for precise operation and be able to identify incorrect operation formulating a corrective response be that adjustment or replacement. Replace hydraulic components following the design criteria for the specific unit being worked upon. Conduct specific operational tests associated with hydraulic technology. Install roping systems and set up to lift industry specifications. Install traction machines of various types to lift industry specifications.

Knowledge, skills and behaviours (cont.)

Knowledge	Skills
Pathway 2: Installation of escalator/moving walk systems	
The practices and legislation for the installation and testing of escalator systems. General Arrangement/ Layout and builders work schematics, actions to be instigated to ensure a safe and efficient installation. The measuring and setting out processes for whole escalator installation and working to established tolerances for the specific unit being worked on. Complex instructions and references for the installation ensuring that the site actions correctly align themselves to the requirements of the installation. Complex software and microprocessor based equipment that requires programming and adjustment to ensure optimum performance of the components.	Install and set up escalator components including steps, pallets, handrails and chains and check the components for correct operation. Install and adjust mechanical and electrical systems used on units for all duty ranges, single shopping centre applications through to multiple heavy- duty public transport escalators. Examine escalator/ moving walk components for precise operation and be able to identify incorrect operation formulating a corrective response be that adjustment or replacement. Replace mechanical, electrical and electronic components used on escalators following the design criteria for the specific unit being worked upon. Conduct specific operational escalator tests associated with the technology.
Pathway 3: Servicing, repair and maintenance of lift systems	
The practices and legislation for the servicing, repair and maintenance of lift systems. Inspection of lift equipment The use of lubricants, hydraulic fluids and cleaning materials. Fault diagnosis on lifts, location and rectification. The maintenance requirements of roping systems on lifts including rope discard criteria, correct over-run requirements and rope termination requirements for lift installations. Hydraulic principles and the movement of masses utilising fluids, pumps, valve blocks, pistons and pipework in relation to lift applications.	Carry out service and repair on lifts including, checking lift hydraulic systems, including pressure systems (accumulators) for correct operation and integrity, ensuring the lift ride quality is smooth. Check lift positioning systems are setup such as incremental positioning systems, ultrasonic pulse systems and magnetic/ inductor systems, and that they are working to specification. Check, replace and setup lift door systems of varying types ensuring they operate to specification, and be able to check and setup door closing pressures, and clearances. Correct installation of door ropes and belts. Check lift travel requirements such as the correct set up of lift travel over- runs.

Knowledge, skills and behaviours (cont.)

Knowledge	Skills
Pathway 4: Servicing, repair and maintenance of escalators/moving walks	
The practices and legislation for the servicing, repair and maintenance of escalator systems. Inspection of escalator equipment including step/ pallet clearance and discard criteria. The use of lubricants for escalator chains, and rollers Fault diagnosis on escalators, location and rectification. The specific safe working practices on escalators, moving walks in relation to the working environment such as busy shopping centres, building sites, on existing and newly constructed buildings.	Carry out service and repair on escalators including, ensuring the quality of the escalator travel is smooth and escalator positioning systems are setup, such as hand rail sensors, pallet/ step sensors, and that they are working to specification. Check and set up safety systems such as safety comb plates, knurl guards, step sag switches, and photocell sensors ensuring they operate to specification. Maintain, setup and repair a variety of escalator/ moving walk electrical/ electronic control systems. Check/ adjust and repair tensioning systems used on escalators/ moving walks.

Behaviours	
Hazards and consequences of their working methods and environment; not only for themselves but colleagues and members of the public. Working safely and understanding the effects of their acts or omissions on others. Developing a 'safety-first' mentality. When to seek advice and guidance if a problem is beyond their scope of knowledge and competence. Treating others with dignity and respect. Different viewpoints and needs, actively listening and co-operating with others creating trust and team spirit. Eco-efficient values, respect of work place environment, others, property and their tools in the way they operate and work. Self-development and progression.	Making independent decisions concerning their work practices. Meeting goals and objectives with a positive approach, to their own needs. Communicating positively with managers, clients and members of the public and contributing to team meetings. Promoting two-way communication, actively listening, and seeking feedback to ensure communications is clear and understood. Working to company codes of practice for safe working and code of conduct. A high ethical and professional standard, treating others with respect and honesty. How to challenge any obviously unethical decisions or actions taken by others.

Gateway to End-Point Assessment (pre-entry requirements to End-Point Assessment)

Mandated qualifications during apprenticeship	The apprentice will achieve a Level 3 QCF NVQ Diploma in Engineering Maintenance following an appropriate pathway in Lift or Escalator Servicing or Repair; or a Level 3 QCF NVQ Diploma in Installation and Commissioning, following an appropriate pathway in lifts, or escalators.
Minimum time in learning prior to undertaking End-Point Assessment	12 months
Maths (level)	Level 2
English (level)	Level 2
Any other gateway requirements	n/a
The process for Reasonable adjustments	Application at least 3 months prior to EPA via Reasonable Adjustments and Special Considerations Policy (EPA21)

End-Point Assessment (EPA)

Name of End-Point Assessment organisation		LEIA
End-Point organisation code		EPA0269
About LEIA		Trade association for the Lift and Escalator industry
Contracting, planning and scheduling end-point assessment		Email **epa@leia.co.uk**
Duration of EPA		6 months
Assessment Plan version number that LEIA is operating to		Version 1
Objective of the End-Point Assessment		Apprenticeship completion
End-Point Assessment methods	**Assessment method 1:**	Knowledge Test
	Assessment method 2:	Project Report with presentation and Q&A
	Assessment method 3:	Structured Dialogue
Language of the End-Point Assessment		All components of the EPA will be conducted in English. The apprentice may be assessed in British Sign Language where it is permitted for the purpose of reasonable adjustment.
Mock materials provided		Knowledge Test / Structured Dialogue questions

End-Point Assessment methods

	1: Knowledge Test	2: Project Report with presentation and Q&A	3: Structured Dialogue
KSBs to be assessed	See assessment plan	See assessment plan	See assessment plan
Duration	90 minutes	2000 word report 10 minute presentation 10 questions	45 minutes
Delivery methods (face to face / remote)	Face to face / Remote	Face to face / Remote	Face to face / Remote
Location	To be decided per apprentice	To be decided per apprentice	To be decided per apprentice
Equipment or resources required	Computer and Paper based	Computer, Paper based or Paper and Electronic	Computer
Assessor apprentice ratio	10:1 face to face, 1:1 remote	1:1	1:1
Number of questions (if applicable)	30	10	16-19
Grading	Fail, Pass, Distinction	Fail, Pass, Distinction	Fail, Pass, Distinction

Results and grading

The process for Special Considerations	Application after assessment within 48 hours as per Reasonable Adjustments and Special Considerations Policy (EPA21)
End-Point Assessment final grading	Pass, Distinction
Re-sits and retakes	Within the EPA 6 months
Complaints and appeals	Formal request via Complaints and Appeals Policy (EPA06)
Certification process	Cerificate claimed directly from the Education Skills Funding Agency

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