



Level:	Intermediate Apprenticeship (Level 2)
Typical Duration:	24 Months
Delivery Model:	Block Release
Delivery Location:	Nationwide
Start Date:	November



Introduction to the Programme

This occupation is found in the construction, plant and tool hire industry as well as allied industries such as rail plant, demolition and quarrying that use construction-based equipment. The broad purpose of the occupation is to service, maintain and repair the wide range of construction-based equipment used within the construction and allied industries such as mobile cranes, excavators, disc cutters, crushers, demolition plant, road-rail equipment, water pumps, telescopic handlers etc. so that they function correctly, safely and efficiently, allowing construction and other projects to be carried out efficiently and on time. This occupation provides a vital support service that is crucial to the prosperity of the country through completion of vital infrastructure projects such as (nuclear) power generation, roads, rail, airports etc.

The construction equipment mechanic checks, services and undertakes basic fault finding activities and will either through their own fault-finding activities or through given instructions, remove, dismantle, repair, assemble and refit a plethora of components, and ensure that the item of plant is fully functional prior to handover to the operational side. A challenging but rewarding career working in all weathers!

Typical job titles include:

Plant mechanic, Plant fitter, Workshop fitter, Mobile engineer, Maintenance engineer



Duration

This apprenticeship training will typically take 24 months to complete. The length may be altered if the apprentice has already gained knowledge and skills working in the land-based engineering sector.



Entry requirements

Minimum of 4 GCSEs at grade D/3 including maths and English OR a Vocational qualification Level 1, plus GCSE grade D/3 in both maths and English. NB: English & maths Functional Skills Level 1 will be accepted as an alternative to GCSEs.

In addition, it is desirable that the apprentice has a basic understanding of Information and Communication Technology.



Costs

Costs will be dependent on several factors such as age of apprentice and size of employer. The cost may be altered if the apprentice has already gained knowledge and skills working in the land-based engineering sector. Please contact us for more information.



Delivery Location

Block release at Myerscough College with an additional 6 months to complete in workplace for Gateway and End Point Assessment



Topics Covered

Throughout the programme, apprentices will work towards learning the following practical skills, knowledge & behaviours.

Occupation Duties

Duty 1 Identify and prepare the working area and undertake a health, safety and environmental local risk assessment which including environmental aspects, checks the suitability for the type of work and sets out an exclusion zone in specific environments. These would include workshops and on-site locations such as live-traffic areas, quarries, underground locations, petro-chemical etc. to carry out maintenance and commissioning activities on relevant items of plant e.g. piling rigs, mobile cranes, water pumps etc.

Duty 2 Identify, procure and plan for all the required resources to undertake the planned work. This includes spares, ancillary equipment and specialist tooling and lifting equipment such as torque wrenches, metrological equipment, lifting and rigging gear, ensuring that all such equipment is in calibration and within a regime of routine inspections and in accordance with the Provision and Use of Work Equipment Regulations (PUWER) 1998 and the Lifting Operations and Lifting Equipment Regulations (LOLER) 1998

Duty 3 Configure, position, set, rig and prepare the plant or equipment within the work or maintenance environment in accordance to the safe system of work and exclusion zones (which may include neighbouring public access areas), complying with manufacturers' and customers' requirements so that critical components such as hydraulic pumps motors, cables, etc. can be removed or accessed as required.

Duty 4 Undertake visual and function tests and inspections of construction equipment prior to repairs being commenced in workshop and on-site locations to identify specific repair-critical and condition factors, and reporting of same, where relevant, to the employer, customer, end user and the work flow management.



Duty 5 Safely, efficiently and in a planned

manner disconnect, detach and remove a range of critical and non-critical components (engines, electronic modules, transmissions, wiring looms, hydraulic looms etc.) from construction plant and equipment to enable their individual repair or replacement or to access other components in accordance with manufacturers' guidelines and site specific and legislative requirements.

Duty 6 Dismantle, inspect, measure evaluate and report on construction equipment-based critical components and decide on a repair or replacement process, such as a faulty transfer gearbox on an earthmoving machine being removed and dismantled to decide whether it is repairable or not, and how most efficiently and economically to proceed.

Duty 7 Repair, refurbish, overhaul or renovate critical components (such as hydraulic valves, engines, associated components, transmissions, chassis and driveline components, electrical components etc.) and function and safety test according to legislative and manufacturers' requirements prior to recommissioning.

Duty 8 Assemble, connect, attach and refit new or repaired components and ancillary equipment such as alternators, track drives, pumps, accumulators, conveyers following manufacturer's assembly instructions.

Duty 9 Undertake function, static and operational checks on repaired construction equipment, (such as statutory Thorough Examination on lifting equipment, safety and functional checks on small tools and function tests on hydraulic, electrical, mechanical and pneumatic components) after completion of repairs and prior to recommissioning and, under the direction and/or guidance of a supervisor or other, final hand-over to customers and end users according to the given level of responsibility.

Duty 10 Produce bespoke components and tools such as brackets, pullers, spacers, guards and shields against given information and specifications that require fabrication, welding and chemical-jointing activities using materials such as steels, plastics and non-ferrous.

Duty 11 Remove, repair, modify and adapt components using hot-work techniques such as burning, brazing, welding (Mig, Tig, argon-arc, heating, plasma) to carry out repair or improvement activities such as using line boring and hard facing methods to build up ground-engaging components.

Duty 12 Install and set up, under the direction and/or guidance of a supervisor or other, construction plant and equipment in preparation for operational activities such as generators, screeners, water pumps etc. and inform or advise end-users on the specific functions and unique features of the equipment.

Duty 13 Carry out pre and post-delivery inspections and undertake pre and post-hire inspections on construction plant and equipment, or prior to it going on hire, reporting on same and evaluating the priority of issues and, under the direction or guidance of a supervisor, whether or not the equipment is fit for commissioning or hire.

Duty 14 Investigate reported and identified repair requirements involving the application of diagnostic tools and processes such as hydraulic, mechanical, electrical and digital protocols, and the use of bespoke software under the direction or guidance of a supervisor.

Duty 15 Convey reports of work activities using a range of methods to customers or employers and complete organisation-specific reports to confirm work completion, identifying aspects of the work undertaken, and advisory, environmental and safety information to be conveyed to customers or the employer

Duty 16 Source, extract, identify, interpret and apply technical information from manufacturers manuals, electronic information, given verbal information, good practice guidance, organisational and manufacturers' documentation - both on and off-line to carry out plant and equipment maintenance and servicing procedures to, under the direction or guidance of a supervisor, allow compliance with construction-based health and safety and environmental requirements.

Duty 17 Undertake routine and scheduled servicing and maintenance on construction plant and equipment, using the manufacturers' and organisational regimes as guidance ensuring that construction-based equipment is serviced and inspected and any non-scheduled items are reported on for further action or decision.

Duty 18 Identify, check and use health and safety control equipment (PPE) that needs to be worn during



maintenance activities in compliance with the risk assessment, regulations, manufacturers' instructions and organisational procedures and relevant to the work location and environmental conditions, ensuring that the PPE is maintained in good condition, replaced at the recommended expiry dates and stored correctly to prevent premature wear and damage.

Duty 19 Assist, under the direction and/or guidance of others in the delivery, retrieval, recovery or breakdown situations in high risk locations and environments such as highways, rail, quarries, demolition, tunnelling etc.,

Duty 20 To ensure continual personal and organisational, attainment, upkeep and maintenance of own knowledge of activities such as health, safety and environmental by actively engaging in a program of CPD, for example to keep abreast of changes to legislation, standards (e.g. quality), technology, processes etc and accredit these with industry-recognised certification such as CIS, CSCS, CPCSC etc.

Duty 21 Determine and use a range of communication methods to successfully convey and receive information and instructions, relevant to the construction environment including verbal, written, graphic and electronic in the course of their duties as a construction equipment mechanic

Duty 22 Work in compliance the Health and Safety at Work Act and relevant regulations such as PUWER 1998, LOLER 1998, Mines Act and Quarry Regulations, Construction Design Management Regulations as well as best practice guidance such as HSE INDG261 – Pressure systems, in compliance with organisational requirements in the construction and allied environments that negates health and safety hazards, major hazards, environmental aspects and risks associated with the various activities.

Knowledge, Skills & Behaviour gained

Throughout the programme, apprentices will work towards gaining the following knowledge, skills & behaviours:

Knowledge

- K1:** Types and appropriateness of information sources that would be used to provide repair and maintenance information on construction-based equipment
- K2:** Types, uses, core function and operation of construction-based equipment
- K3:** Principles, function, operation, application and limitation of energy sources and transmission methods e.g. IC power units, hydraulics, pneumatics, electrics
- K4:** Principles, function, application and types of components used on relevant equipment including those that provide direction, retardation, movement, power-transmission, heat, light and flow
- K5:** Types, applications and limitations of fluids used in construction-based plant including oils/lubricants, cooling/heating and for power/work transmission
- K6:** Mechanical principles and efforts that apply to construction-based plant that produce outcomes of work from an energy source
- K7:** Aims and compliance requirements of regulations and legislation that apply to the maintenance and repair of construction-based equipment, typically including Health and Safety at Work Act. LOLER, COSH, PUWER
- K8:** Company procedures and responsibilities in relation to working with the sector, customer and organisational requirements for working within construction and alongside other colleagues
- K9:** Fundamentals of health and safety control equipment, the principles of protection, how they should be used/worn and the different types that are available for specific activities or sectors
- K10:** Use of length/height, weight, area, volume, heat, pressure, electrical conductivity etc. for measuring and



calculating, what units are used and with what typical types of measuring equipment

K11: Environmental regulations and considerations for the containment and disposal of waste materials and equipment

K12: Methods of protecting work and working areas from damage, pollution, ingress of contaminants, inclement weather etc. and from controlling others entering or within the working area

K13: Working timetables/deadlines, behaviours, technical abilities and working practices effects on customer relations and why

K14: Methods and procedures for dealing with typical workplace and site-specific emergencies including fire, spillages, injuries and other task-related hazards

K15: Tools and equipment relevant to tasks on construction-based equipment and why they need to be fit-for-purpose, calibrated, checked before use, maintained, and stored correctly on completion of activities

K16: Safety requirements for dealing with pressurised systems, hot/cold systems, stored energy and electrical/electronic systems

K17: Principles of material forming, cutting, shaping, joining and fitting

K18: Techniques for checks and inspections, why typical components failures and causes of failure of relevant construction-based equipment

K19: Requirements and hazards of carrying out maintenance and servicing activities on construction and allied sector work environments, including how static and dynamic risk assessments, method statements, safe systems of work and permit to work systems are devised, implemented and used

K20: Machines, equipment and components handling, supporting, moving and isolation requirement and methods.

K21: Different communication and record-keeping methods, when they are used and the consequences of poor communication and record keeping.

K22: Additional training required for workplace activities typically including. manufacturer's specific, manual handling, COSHH and other environmental control requirements, working safely courses such as IOSH, CITB, PTS and the requirements of CSCS-badged certification

Skills

S1: Working area preparation including workshop, facility and construction site-based to carry out maintenance activities on construction-based equipment.

S2: Identify, handle and store required resources, tools and equipment necessary to maintain construction-based equipment, reporting shortages/incomplete stock as appropriate

S3: Configure, set, rig and prepare the plant or equipment safely and efficiently for the accessing, handling and removal of typical components, including the use of securing, jacking and lifting aids for supporting, securing and handling purposes.

S4: Disconnect, detach and/or remove a wide range of components and ancillary equipment Safely and efficiently from construction-based equipment, including using lifting, securing and handling aids.

S5: Dismantle worn, damaged or faulty parts, components and equipment

S6: Overhaul, repair, renovate or repair worn, damaged or faulty parts, components and equipment

S7: Replace and reinstate worn, damaged or faulty construction equipment parts

S8: Assemble, connect, attach and refit a comprehensive range of new or repaired construction-based equipment components and ancillary equipment

S9: Checks of static and operational performance on repaired construction-based equipment to ensure full safe functional activity prior to handover and re-commissioning to operation



- S10:** Basic visual inspections on construction-based equipment both in a workshop, facility and site-based environments to identify potential issues and problems
- S11:** Specified testing activities on construction-based equipment both in a workshop, facility and site-based environments that ensure correct and safe functional effectiveness
- S12:** Produce one-off components against given information and specifications that requires fabrication and welding activities
- S13:** Repair or modify existing components from construction-based equipment which requires heating, welding and brazing
- S14:** Install and commission construction-based equipment on site-based environments for operational activities
- S15:** Basic fault-finding and diagnostic activities on hydraulic, electric, mechanical and pneumatic systems to identify existing problems on construction-based equipment.
- S16:** Complete organisational reports to confirm and document the work activity that was undertaken and inform employer and clients of work progress and problems encountered.
- S17:** Source, extract, identify, interpret and apply technical information from workshop-type manuals, given verbal information, organisational and manufacturers' literature and documentation, both on and off-line
- S18:** Working activities in compliance with legislation, regulations, best practice and organisational requirements in the construction, industrial, quarrying, hire, port, mining and other allied environments

Behaviours

- B1:** Teamwork and independent working – working and engaging collaboratively and effectively with co-workers of different occupations to achieve requisite results safely and efficiently and safe working, and achieving those results through independence, resourcefulness and ability
- B2:** Forming and enhancing customer relationships – as a front-line facing role, creating and maintaining effective working and commercial relationships
- B3:** Time management – planning and delivering set tasks within specified targets and timescales
- B4:** Assertiveness, confidence and resilience – dealing with unexpected situations, pressure to complete work safely and on time, resolutely advising less-informed parties of realistic completion times and the rationales of the processes involved.
- B5:** Respect – dealing equally and fairly with for example, people of different genders, disabilities, backgrounds, races, cultures and creeds; taking care of the environment.



Assessment

The End Point Assessment will consist of 3 components:

- Practical Assessment with questions
- Interview (underpinned by a portfolio of evidence)
- Multiple Choice Test

There will be 2 levels of achievement: Pass & Distinction for each assessment component. These grades will be aggregated into one overall qualification grade of pass or distinction. The grading applies to the overall qualification and all elements must be passed to achieve the qualification.



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How to Apply

In order to start the enrolment process we need an **Online Application Form** to be completed & submitted. You can do this by contacting the Employer Services Team.

Telephone: 01995 642255, Email: employerenquiries@myerscough.ac.uk

Website: www.myerscough.ac.uk