



As of 1 August 2022, the English and maths requirements for on-programme and new apprentices undertaking level 2 apprenticeships have changed and are detailed as part of the [apprenticeship funding rules](#). These requirements supersede the current wording in this apprenticeship standard and EPA plan.

End-point assessment plan for Construction Equipment Maintenance Mechanic apprenticeship standard

Apprenticeship standard number	Apprenticeship standard level	Integrated end-point assessment
ST0805	2	No

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Introduction and overview

This document sets out the requirements for end-point assessment (EPA) for the Construction Equipment Maintenance Mechanic apprenticeship standard. It explains how EPA for this apprenticeship must operate.

This document provides the EPA design requirements for end-point assessment organisations (EPAOs) for this apprenticeship standard. It will also be useful for apprentices undertaking this apprenticeship, their employers and training providers.

EPA must be conducted by an EPAO approved to deliver EPA for this apprenticeship standard. Each employer should select an approved EPAO from the Education & Skills Funding Agency's Register of end-point assessment organisations (RoEPAO).

Full-time apprentices will typically spend 24 months on-programme (before the gateway) working towards this occupational standard. All apprentices must spend a minimum of 18 months on-programme. All apprentices must spend a minimum of 20% of on-programme time undertaking off-the-job training.

Before starting EPA, an apprentice must meet the gateway requirements. For this apprenticeship they are:

- the employer must be content that the apprentice is working at or above the occupational standard
- the apprentice must complete and submit a portfolio of evidence
- apprentices without level 1 English and maths will need to achieve this level and apprentices without level 2 English and maths will need to take the tests for this level prior to taking the end-point assessment.¹

The EPAO must confirm that all required gateway evidence has been provided and accepted as meeting the gateway requirements. Once this has been confirmed, the EPA period starts.

This EPA should then be completed within an EPA period lasting typically for 6 months.

This EPA consists of 3 discrete assessment methods.

It will be possible to achieve the following grades in each assessment method:

Assessment method 1: **Practical Assessment with questions**

- fail
- pass
- distinction

Assessment method 2: **Interview (underpinned by a portfolio of evidence)**

- fail

¹ For those with an education, health and care plan or a legacy statement, the apprenticeship's English and maths minimum requirement is Entry Level 3. A British Sign Language (BSL) qualification is an alternative to the English qualification for those whose primary language is BSL.

- pass
- distinction

Assessment method 3: Multiple Choice Test

- fail
- pass

Performance in these assessment methods will determine the overall apprenticeship standard grade of:

- fail
- pass
- distinction

EPA summary table

On-programme (typically 24 months)	<p>Training to develop the knowledge, skills and behaviours (KSBs) of the occupational standard.</p> <p>Training towards mandated qualifications, if required.</p> <p>Training towards English and Mathematics Level 2, if required.</p> <p>Compiling a portfolio of evidence.</p>
End-point assessment gateway	<p>The employer must be content that the apprentice is working at or above the occupational standard.</p> <p>Apprentices without English and Mathematics at Level 1 will need to have achieved this level and apprentices without level 2 English and Mathematics will need to take the tests for this level.</p> <p>Apprentices must submit: A portfolio of evidence to underpin the Interview assessment method.</p>
End-point assessment (typically 6 months)	<p>Assessment method 1: Practical Assessment with questions</p> <ul style="list-style-type: none"> • fail • pass • distinction <p>Assessment method 2: Interview underpinned by a portfolio of evidence</p> <ul style="list-style-type: none"> • fail • pass • distinction <p>Assessment method 3: Multiple-Choice Test</p> <ul style="list-style-type: none"> • fail • pass <p>Performance in these assessment methods will determine the overall apprenticeship standard grade of:</p> <ul style="list-style-type: none"> • fail • pass • distinction

Length of end-point assessment period

The EPA will be completed within an EPA period lasting typically 6 months, starting when the EPAO has confirmed that all Gateway requirements have been met.

The EPA period must last for a minimum of one week.

Order of end-point assessment methods

The assessment methods can be delivered in any order.

The result of one assessment method does not need to be known before starting the next.

Gateway

The apprentice should only enter the gateway once the employer is content that the apprentice is working at or above the occupational standard. In making this decision, the employer may take advice from the apprentice's training provider(s), but the decision must ultimately be made solely by the employer.

The EPAO determines when all other gateway requirements have been met, and the EPA period will only commence once the EPAO has confirmed this.

In addition to the employer's confirmation that the apprentice is working at or above the level in the occupational standard, the apprentice must have completed the following gateway requirement prior to beginning EPA:

- English and Mathematics at Level 1 and taken the test for level 2. For those with an education, health and care plan or a legacy statement, the apprenticeship's English and Mathematics minimum requirement is Entry Level 3. British Sign Language (BSL) qualifications are an alternative to English qualifications for those who have BSL as their primary language.

For Assessment Method 2 – Interview - the apprentice will be required to submit:

- A portfolio of evidence

Portfolio of evidence requirements:

- apprentices must compile a portfolio of evidence during the on-programme period of the apprenticeship
- it must contain evidence related to the KSBs that will be assessed by the Interview
- the portfolio of evidence will typically contain 12 discrete pieces of evidence
- evidence must be mapped against the KSBs
- evidence may be used to demonstrate more than one KSB; a qualitative as opposed to quantitative approach is suggested
- evidence sources may include:
 - workplace documentation, for example workplace policies/procedures, records, job cards

- witness statements
- annotated photographs
- video clips (maximum total duration 3 minutes); the apprentice must be in view and identifiable
- drawings of specifications the apprentice has worked to

This is not a definitive list; other evidence sources are possible.

- it should not include any methods of self-assessment
- any employer contributions should focus on direct observation of performance (for example witness statements) rather than opinions
- the evidence provided must be valid and attributable to the apprentice; the portfolio of evidence must contain a statement from the employer and apprentice confirming this
- the portfolio of evidence must be submitted to the EPAO at the gateway.

The portfolio is not directly assessed. It underpins the Interview and therefore should not be marked by the EPAO. EPAOs should review the portfolio in preparation for the Interview but are not required to provide feedback after this review of the portfolio.

End-point assessment methods

The apprentice will be assessed against the KSBs assigned to the assessment methods outlined below, as shown in the mapping section of this EPA plan.

End-point assessment method 1: Practical Assessment with questions

Overview

This assessment method has 1 component.

A practical assessment with questions involves an independent assessor observing an apprentice undertaking a series of set tasks in a simulated environment and asking questions. The simulated environment must closely relate to their natural working environment.

The independent assessor will ask questions in relation to KSBs that have not been observed although these should be kept to a minimum.

The rationale for this assessment method is:

- this is a practical role, best demonstrated through completing tasks in a realistic work setting
- it makes use of existing test facilities, which will be familiar to the apprentice and thus allow them to perform at their best
- practical assessment allows for accuracy and consistency of activities to be completed and efficiency in scheduling
- questioning allows for the testing of related underpinning knowledge
- it is a holistic assessment method
- it checks and replicates what an apprentice is expected to do unaided on site and/or in a workshop.

Delivery

Practical assessment with questions must take 10 hours and 10 minutes. (Task 1 – 5 hours, Task 2 – 2 hours, Task 3 – 70 minutes, Task 4 – 2 hours).

The practical assessment with questions may be split into discrete sections held over a maximum of 2 working days. A working day is typically considered to be 7.5 hours long. The reason for this split is to ensure thorough testing as a number of tasks must be performed and, in total, their duration is longer than a typical working day.

Where breaks occur, they will not count towards the total assessment time.

EPAOs must manage invigilation of apprentices during breaks in order to maintain security of the assessment in line with their malpractice policy. Invigilators must ensure apprentices don't have opportunity to observe, hear or interact with other apprentices who are being assessed.

The independent assessor has the discretion to increase the time of the practical assessment with questions by up to 10% to allow the apprentice to complete a task or respond to a question.

The independent assessor may observe one apprentice during this assessment method.

Apprentices must be provided with both written and verbal information on the tasks they must complete, including the timescales they will be working to, before the start of the practical assessment. The time taken to give this information is at the discretion of the EPAO but must be exclusive of the assessment time.

The following four tasks must be observed during the practical assessment, as a practical assessment without these activities would seriously hamper the opportunity for the apprentice to demonstrate occupational competence against the KSBs assigned to this assessment method:

1. Remove, dismantle, refit and check functionality - Remove and dismantle (or partially dismantle) either a working power unit, a transmission unit, hydraulic powered or an electrically-powered motor from an item of plant and refit on completion of the rebuild and check for correct function. The activity includes preparing the area and configuring the machine for the activity. (5 hours)
2. Check, test, repair and restore - With one or more given components such as a hydraulically, electrically or pneumatically operated unit with known faults, carry out checks and basic testing to establish the fault or faults, disassemble and carry out the repairs and restore the component to a fully functioning condition. (2 hours)
3. Static and functional checks - Carry out a range of static and functional checks to ensure the plant or equipment is safe, fit-for-purpose and in a condition to perform in the workplace according to manufacturer's requirements. (70 minutes)
4. Welding/thermal joining - Carry out a repair on or modify a component from an item of construction-based plant where welding or other forms of thermal joining are required along with fabrication activities to effect a repair or modification according to a given specification. (2 hours)

The practical assessment should be conducted in the following way to take account of the occupational context in which the apprentice operates:

This must provide an opportunity for the apprentice to demonstrate all of the KSBs assigned to this assessment method during a 10 hour and ten minutes period. This is a holistic assessment method, where the KSBs are assessed across all four tasks. Alongside the specific tasks outlined above, the apprentice must be given the opportunity to demonstrate KSBs relating to the wider considerations that need to be taken out when carrying out the tasks. This includes health and safety issues, risk assessment and environmental considerations.

Task 1 Practical Assessment: Remove, dismantle, refit and check functionality

This task will last 5 hours, +10% at the assessor's discretion, and the apprentice will replicate a removal, refitting and recommissioning task.

The following activities must be observed during this task:

- Prepare the working area, the machine and equipment needed for the activity
- Identify and remove the relevant component or components
- Dismantle the component so that all sub-parts are identifiable
- Prepare the component for re-assembly
- Reassemble the component and refit it back to the relevant machine
- Carry out completion and functioning checks
- Leave the work area in a clean, tidy and safe state.

Task 2 Practical Assessment: Check, test, repair and restore

This task will last 2 hours, +10% at the assessor's discretion, and the apprentice will replicate work on a power-operated component.

The following activities must be observed during this task:

- Establish the function of the component and determine what correct functioning should be
- Carry out checks and test using a range of methods to establish the level and extent of faults with the component
- Dismantle the component sufficiently to identify all faults
- Carry out appropriate repairs and fit replacement or repaired parts
- Re-assemble the component and carry out adjustments during or after assembly
- Carry out functional checks and test to ensure full and effective operation.

Task 3 Practical Assessment: Static and functional checks

This task will last 70 minutes, +10% at the assessor's discretion, and the apprentice will carry out a range of static and functional checks to ensure the plant or equipment is safe, fit-for-purpose and in a condition to perform in the workplace according to manufacturer's requirements.

The following activities must be observed during this task:

- Preparing the working area, the machine or equipment for the activity and establishing an exclusion zone
- Establishing the functional requirements of the machine and determining what correct functioning should be

- Carrying out static checks using a range of methods to establish full functionality of the machine
- Carrying out functional, running checks using a range of methods to establish full functionality and effective operation of the machine

Task 4 Practical Assessment: Welding/thermal joining

This task will last 2 hours, +10% at the assessor's discretion, and the apprentice will carry out a repair on or modify a component from an item of construction-based plant where welding or other forms of thermal joining are required along with fabrication activities to effect a repair or modification according to a given specification.

The following activities must be observed during this task:

- Establishing the type and extent of repairs or modification required
- Establishing the method or thermal joining required
- Establishing and using relevant materials to effect repairs
- Disassembling the component sufficiently for the required repairs or modification
- Carrying out appropriate thermal joining and fabrication activities to repair the given component
- Re-assembling the component and carrying out adjustments during or after assembly.

Knowledge Skills and Behaviours observed and answers to questions must be documented by the independent assessor. EPAOs will provide a standard template for independent assessors to record assessment outcomes.

These tasks will have an overall time frame of 10 and ten minutes, +10% for each separate task at the assessor's discretion to allow the task to be completed.

Apprentices should be encouraged to ask questions and confirm understanding of what is required of them during the pre-assessment discussion when the independent assessor outlines what is required of them. The practical assessment tasks reflect frequent scenarios from the apprentice's normal work activities. The structure of the practical assessment should require the apprentice to demonstrate they can work safely whilst conducting inspection, fault finding, removal & replacement, set-up and repair activities.

The independent assessor must be unobtrusive whilst conducting the observation.

Questions must be asked at the end of each task (within the time allocated for the task), in order not to disturb the apprentice while they are working. The purpose of the questioning is to assess underpinning knowledge, confirm the apprentice's understanding and to draw out the rationale for their decisions.

The independent assessor must ask a minimum of 13 questions divided as follows: task1 - minimum 5 questions; task 2 - minimum 3 questions; task 3 – minimum 3 questions and task 4

- minimum 2 questions. They may ask additional follow-up questions where clarification is required.

The questioning should take place at the end of each task (within the time allocated for the task) devoid of other apprentices within the area to ensure impartiality and quality. The duration for questioning should be fixed at: task 1 - 15 minutes; task 2 - 10 minutes; task 3 - 10 minutes; task 4 - 6 minutes +10% at the independent assessor's discretion. This ensures consistency as all apprentices have the same amount of time for practical work and questioning +10%.

Those KSBs that the apprentice did not have the opportunity to demonstrate during the practical assessment can instead be covered by questioning, although these should be kept to a minimum.

The evidence observed and responses to questions will be assessed holistically.

The independent assessor must use the full time available for questioning to allow the apprentice the opportunity to evidence occupational competence at the highest level available, unless the apprentice has already achieved the highest grade available.

KSBs observed, and answers to questions, must be recorded by the independent assessor.

The independent assessor will make all grading decisions.

Assessment location

Practical assessments take place in a simulated environment under controlled conditions and must be conducted in one of the following locations:

- A suitable venue selected by the EPAO (e.g. a training provider's premises)
- Employer's premises

The venue must:

Be fully equipped for a Construction Equipment Maintenance Mechanic environment and include a range of tools, equipment and PPE to support the above tasks. The EPAO is responsible for ensuring this is available. They may liaise with the employer to provide these.

Specific venue requirements that must be in place include:

All tasks:

- Suitable, clean and safe area to allow the activity to take place which entails a clean hard standing, sheltered from inclement weather and segregated from other vehicle movements
- A pre-constructed risk assessment and method statement for the activity must be provided for apprentices to refer to
- PPE equipment such as gloves, eye protection etc.
- Appropriate tools including relevant specialist tools, equipment including lifting aids and accessories

- Environmental protection and cleaning materials
- Fluids, lubricants, gaskets, seals and other parts for reassembly and refitting purposes
- Access and work-at-height fall-prevention equipment where required
- Barriers/equipment to form an exclusion zone for the activity
- Workshop and equipment manuals
- Other equipment deemed necessary to carry out this activity.

For task 1:

- 1 x item of plant equipped with a suitable working and removable component for this activity which comprises of one of the following:
 - multi-cylinder i/c engine
 - transmission unit
 - hydraulic powered component
 - electric-powered component.

For task 2:

- 1 or more components (e.g. alternator, hydraulic pump, electrical motor) normally fitted to an item of construction-based plant or equipment that has one or more known faults.

For task 3:

- 1 x item of relevant powered plant or equipment with a number of moving components and used to produce an outcome of work, e.g. excavating, pumping, compacting, lifting etc.

For task 4:

- 1 or more components (e.g. panels/covers, pipework, pedals/levers) normally fitted to an item of construction-based plant or equipment that has one or more known faults or defects that requires thermal joining and fabrication activities.

Note: The machine or equipment chosen for all tasks must have sufficient complexity and intricacy to ensure consistency of assessment. A competent and experienced Construction Equipment Maintenance Mechanic would typically take 85% of the given time, and this has then been adjusted to allow for the fact that the apprentice has passed the gateway for occupational competence, but is not experienced, is working under test conditions (so will be questioned), and is potentially using equipment that they are less familiar with.

To ensure parity for apprentices for this assessment method, tasks should be set by the EPAO that fit the time allocated and they should not be possible in a much shorter time than stated for the task. It is acceptable for EPAOs to select machines with a number of

components and/or allocate another machine type that challenges apprentices within the given time.

Where a selected machine or component requires a much larger timescale than stated to complete the activity, then for task 1, a partial strip-down is allowed and for task 3, a partial functional check can be utilised. However, this must be established by the EPAO prior to the assessment commencing and relayed to apprentices via written and verbal instructions.

Question and resource development

EPAOs will create and set open questions to assess KSBs mapped to this assessment method. They must develop 'question banks' of sufficient size to prevent predictability and review them regularly (and at least once a year) to ensure the questions they contain are fit for purpose. Independent assessors must use the question bank as a source for questioning and are expected to use their professional judgment to tailor those questions appropriately. Independent assessors are responsible for generating suitable follow-up questions in line with the EPAO's training and standardisation process. The questions relating to underpinning KSBs must be varied yet allow assessment of the relevant KSBs.

EPAOs will produce specifications to outline in detail how the practical assessment will operate, what it will cover and what should be assessed. It is recommended that this be done in consultation with employers. EPAOs should put in place measures and procedures to maintain the security and confidentiality of their specifications if employers are consulted. Specifications must be standardised by the EPAO.

EPAOs must ensure that apprentices have a different set of questions in the case of re-sits/re-takes.

EPAOs will produce the following material to support this assessment method:

- independent assessor training materials
- assessment specifications
- grading guidance
- question banks
- marking materials
- outline of the practical assessment's requirements
- a pre-devised risk assessment for all tasks, allowing the apprentice to conduct a dynamic risk assessment

End-point assessment method 2: Interview underpinned by a portfolio of evidence

Overview

This assessment method has 1 component.

An interview consists of an independent assessor asking an apprentice a series of questions to assess their competence against the KSBs. The independent assessor leads this process to obtain information from the apprentice to enable a structured assessment decision making process.

The rationale for this assessment method is:

- it allows the apprentice to be assessed against KSBs that would take too long to observe or do not lend themselves to practical demonstration
- it is underpinned by a portfolio of evidence, enabling the apprentice to demonstrate the application of skills and behaviours as well as knowledge
- it allows for testing of responses where there are a number of potential answers that couldn't be tested through the multiple-choice test
- it is a cost effective, as apart from a venue it does not require additional resources.

This assessment will take the form of an interview which must be appropriately structured to draw out the best of the apprentice's competence and excellence and cover the KSBs assigned to this assessment method. Questioning should assess the KSBs assigned to this assessment method and the apprentice may use their portfolio to support their responses.

The purpose of the questions will be to draw out understanding and evidence relating to the KSBs mapped to this assessment method.

Delivery

The independent assessor will conduct and assess the interview.

The interview must last for 90 minutes. The independent assessor has the discretion to increase the time of the interview by up to 10% to allow the apprentice to complete their last answer.

During this method, the independent assessor must conduct and assess the interview on a one-to-one basis. The interview must last for 90 minutes. The independent assessor has the discretion to increase the time of the interview by up to 10% to allow the apprentice to complete their last answer. The independent assessor must typically ask a minimum of 14 open competence-based questions. The independent assessor may combine questions from the EPAO's question bank and those generated by themselves, following a review of the portfolio of evidence. Apprentices can refer to and illustrate their answers with evidence from their portfolio of evidence, however the portfolio of evidence is not directly assessed. Apprentices are expected to understand and use relevant occupational language.

The independent assessor must use the assessment tools and procedures that are set by the EPAO to record the interview.

The questions need not be delivered in any particular order and naturally explanations provided by the apprentice may cover other areas to be asked in different sections. The assessor may explore that area further in order to satisfy the criteria for that topic area before subsequently returning to the original section.

Evidence from the questioning must be assessed holistically using the grading criteria for this assessment method. The independent assessor will make all grading decisions. EPAOs must ensure that apprentices have a different set of questions in the case of re-sits/re-takes. Independent assessors must be developed and trained by the EPAO in the conduct of interviews and reaching consistent judgement.

The topics and themes that must be covered are:

- Types and uses of construction equipment
- Compliance, regulations and best practice
- Dealing with hazards
- Diagnosing, checking and testing
- Tools and resources
- Communicating and reporting
- Producing components
- Teamwork and working with others
- Assertiveness and Resilience.

Although, wherever possible, the interview should be conducted face-to-face, video conferencing can be used to conduct the interview where necessary, but the EPAO must have processes in place to verify the identity of the apprentice and ensure the apprentice is not being aided.

KSBs met, and answers to questions, must be recorded by the independent assessor.

The independent assessor will make all grading decisions.

Assessment location

The interview should take place in a quiet room, free from distractions and influence. As the independent assessor is required to carry out the practical assessment over two days, the interview is usually expected to take place on one of those days in order to minimise cost.

Video conferencing can be used to conduct the interview but the EPAO must have processes in place to verify the identity of the apprentice and ensure the apprentice is not being aided.

The interview can take place in any of the following:

- employer's premises
- a suitable venue selected by the EPAO, for example a training provider's premises or another employer's premises
- video conferencing.

Question and resource development

A 'question bank' must be developed by EPAOs. The 'question bank' must be of sufficient size to prevent predictability and the EPAO must review it regularly (at least once a year) to ensure that it, and its content, are fit for purpose. The questions relating to the underpinning KSBs,

must be varied yet allow assessment of the relevant KSBs. Independent assessors must use the question bank as a source for questioning and are expected to use their professional judgment to tailor those questions appropriately. Independent assessors are responsible for generating suitable questions in line with the EPAO's training and standardisation process.

EPAOs must ensure that apprentices have a different set of questions in the case of re-sits/re-takes.

EPAOs will produce the following material to support this assessment method:

- Question bank
- Interview specification
- Marking materials
- Recording documentation.

End-point assessment method 3: Multiple Choice Test

Overview

This assessment method has 1 component.

A test is a controlled assessment which consists of a series of questions in which apprentices are asked to provide a response.

The rationale for this assessment method is:

- it allows for the efficient testing of knowledge where there is a right or wrong answer
- it does not require independent assessor time, reducing cost
- it allows for flexibility in terms of when, where and how it is taken.

Delivery

Test Format

The test can be:

- computer based
- paper based.

It will consist of 30 questions.

These questions will consist of multiple-choice questions. The multiple-choice questions will have four options of which one will be correct. The questions must be varied, to avoid the test becoming too predictable, yet allow assessment of the relevant KSBs.

Test administration

Apprentices must have 60 minutes to complete the test.

The test is closed which means that the apprentice cannot refer to reference books or materials.

The following equipment is permitted during the test:

- Non-scientific Calculator for basic calculations

This assessment method will be carried out as follows:

This is a multiple choice test. There will be 4 answers, one of which will be the only correct answer. The questions will relate to the KSBs assigned to this assessment method.

When questions for inclusion in each test are selected (for example, through automation), the EPAO must ensure that there is no repetition of the same question within the test. Each question must be different.

Assessment

Tests must be marked by independent assessors or markers employed by the EPAO following a marking guide produced by the EPAO. Alternatively, marking by computer is permissible where question types allow this.

A correct response will be assigned one mark.

Any incorrect or missing answers must be assigned 0 marks.

Assessment location

Apprentices must take the test in a suitably controlled environment that is a quiet space, free from distractions and influence, in the presence of an invigilator. The invigilator may be the independent assessor or another external person employed by the EPAO, or specialised (proctor) software, if the test can be taken on-line. The EPAO is required to have an invigilation policy that will set out how the test is to be carried out. This will include specifying the most appropriate ratio of apprentices to invigilators to best take into account the setting and security required in administering the test.

The EPAO is responsible for ensuring the security of any tests they administer to ensure the test remains valid and reliable (this includes any arrangements made using online tools). The EPAO is responsible for verifying the identity of the person taking the test. The EPAO must also verify the suitability of the venue for test-taking.

Question and resource development

Questions must be written by EPAOs and must be relevant to the occupation. It is recommended that this be done in consultation with employers of this occupation. EPAOs should maintain the security and confidentiality of their questions when consulting employers. EPAOs must develop 'test specifications' and 'question banks' of sufficient size to prevent predictability and review them regularly (and at least once a year) to ensure they, and the questions they contain, are fit for purpose. The specifications, including questions relating to underpinning KSBs must be varied, yet allow assessment of the relevant KSBs.

EPAOs must ensure that apprentices have a different set of questions in the case of re-sits/re-takes.

EPAOs will produce the following material to support this assessment method:

- a question bank
- a test specification
- sample test and mark scheme
- live tests and mark schemes
- assessment recording documentation
- analysis reports which show areas of weakness for completed tests/exams and an invigilation policy.

Reasonable adjustments

The EPAO must have in place clear and fair arrangements for making reasonable adjustments to the assessment methods for the EPA for this apprenticeship standard. This should include how an apprentice qualifies for reasonable adjustment and what reasonable adjustments will be made. The adjustments must maintain the validity, reliability and integrity of the assessment methods outlined in this assessment plan.

Overall EPA grading

All assessment methods are weighted equally in their contribution to the overall EPA pass grade. In order to achieve an overall distinction, the apprentice must achieve distinction in the practical assessment and interview.

The following grade boundaries apply to the test:

Grade	Minimum score	Maximum score
Pass	21	30
Fail	0	20

Performance in the EPA will determine the apprenticeship grade of fail, pass, or distinction.

Independent assessors must individually grade the practical assessment and the interview, according to the requirements set out in this plan.

EPAOs must combine the individual assessment method grades to determine the overall EPA grade.

Apprentices who fail one or more assessment method will be awarded an overall EPA 'fail'.

In order to gain an overall EPA 'pass', apprentices must achieve a pass in all the assessment methods.

Grades from individual assessment methods should be combined in the following way to determine the grade of the EPA as a whole:

Assessment method 1 – Practical Assessment	Assessment method 2 – Interview	Assessment method 3 – Multiple Choice Test	Overall grading
Fail	Any Grade	Any Grade	Fail.
Any Grade	Fail	Any Grade	Fail
Any Grade	Any Grade	Fail	Fail
Pass	Pass	Pass	Pass

Distinction	Pass	Pass	Pass
Pass	Distinction	Pass	Pass
Distinction	Distinction	Pass	Distinction

Any grade = fail, pass, or distinction

Assessment method 1: Practical Assessment

Fail – Does not meet the pass criteria

KSBs	Theme	Pass: Meets all of the pass criteria	Distinction: Meets all of the pass criteria and all of the distinction criteria
K1, S17	Sourcing and applying information	Identifies, checks and applies the appropriate information for the task from a range of information, including assessor's instructions, workshop-type manuals and manufacturers' literature and documentation. (K1, S17)	
K9, K12, K19, S1	Preparing the work area	Prepares the working area, including relevant protection from pollution, inclement weather etc. and checks the work areas for hazards, conducts visual dynamic risk assessment against given risk assessments, methods statements and other work instructions. (K19, S1) Creates exclusion zones for each activity, applies and uses appropriate personal protective equipment, safety aids and other health, safety and welfare equipment and controls others entering or within the working area. (K9, K12)	Lays out required tools relative to the sequence of the task before starting. Selects the correct tool for the task first time. Maintains a tidy workstation, free of hazards. (S1)
K20, S3, S4	Set up and prepare the equipment	Ensures each machine type and component is isolated and configured correctly, disconnects, detaches and removes given components using relevant lifting, securing and handling aids. (K20, S3, S4)	Explains what needs to be taken into consideration when connecting or disconnecting components using lifting, securing and handling aids. (K20, S3, S4)

S5, S6, S7, S8	Parts and components	Removes, dismantles, disconnects, replaces, repairs, renovates, reinstates, reassembles, connects and refits given parts and components in accordance with correct procedures, manufacturer's instructions, the given time and safety requirements. (S5, S6, S7, S8)	Explains at least two potential consequences of not following correct procedures for removing, dismantling, disconnecting, replacing, repairing, renovating, reinstating, reassembling, connecting and refitting given parts. (S5, S6, S7, S8)
S9, S10, S15	Checks and tests	Carries out checks, tests and basic inspections which identified faults and problems and ensures correct function on completion of maintenance activities. (S9, S10, S15)	
S13	Repair and modification	Completes repairs or modifications of given components using fabrication, heating and thermal joining methods according to given instructions and within the given timescales. (S13)	

Assessment method 2: Interview

Fail: Does not meet the pass criteria

KSBs	Theme	Pass: Meets all of the pass criteria	Distinction: Meets all of the pass criteria and all of the distinction criteria
K2	Types and use of construction equipment	Describes the types of plant they have worked on, how they function and are used. (K2)	Describes typical faults and failures that occur in construction equipment and why they occur. Explains the factors that determine the maintenance requirements for a selected machine type from the type of plant they have worked on. (K2)
K8, K11, S18	Compliance, regulation and best practice	Outlines the regulatory requirements, organisational, customer and workplace procedures and best practices that apply including environmental aspects and how they complied with each during maintenance activities. (K8, K11, S18)	States a range (at least two) specific work and environmental regulations that they complied with during maintenance activities and how those regulations add value. Explains the impact of not complying with regulations. (K8, K11, S18)

K14	Dealing with hazards	Describes organisational and site methods and procedures for typical emergencies including fire, evacuations, injuries and environmental aspects. (K14)	
K18, S11, S14, B3	Diagnosing, checking and testing	Describes how they conducted specific diagnostic checks, inspections and testing activities, on a selected range of equipment, what techniques were used, and how they installed and commissioned a range or relevant plant or equipment. (K18, S11, S14) Describes how they planned and delivered the tasks within specific target and timescales. (B3)	Critically analyse why they used particular methods of diagnostic checks and tests over other available methods. (K18, S11)
S2	Tools and Resources	Describe resources, tools and equipment used to maintain construction-based equipment, how these were identified and handled and how any shortages/incomplete stock was reported on. (S2)	
K13, K21, S16, B2	Communicating and reporting	Describes the organisational processes and forms to record work undertaken, measures taken to communicate work progress and issues encountered with co-workers, customers and employers and the consequences of incomplete or poor levels of communication, record-keeping and not complying with deadlines and timetables. Supports this with an example of a report they completed and explains what factors they considered when they discussed this with the customer or employer. (K13, K21, S16) Describes how they have formed and maintained effective customer relationships. (B2)	Describes how they exceeded customer expectations through excellent working practices and effective communication. (K13)

S12	Producing components	Discussed when they have produced one-off components which required fabrication and welding activities that were completed to the required specifications. (S12)	
B1, B5	Teamwork and working with others	Describes how they worked and engaged collaboratively and effectively with co-workers, including those in different occupations, to achieve requisite results safely and efficiently. Using a different example, describes how they worked independently to achieve requisite outcomes safely. (B1) Describes how they created and maintained effective working and commercial relationships with clients, co-workers and employers, dealing equally with people from different backgrounds (for example gender, disability, culture, race and social background). (B5)	
B4	Assertiveness and resilience	Discusses how they dealt with unexpected situations, how they managed internal pressure to complete work safely and on time, how they advised less-informed parties in a correct manner of realistic completion times of particular maintenance or repair activities and provided rationales of the processes involved. (B4)	Evaluates how successful they were in dealing with unexpected situations. Describes how they varied their approach when managing completion times, depending on the customer and their response. (B4)

Re-sits and re-takes

Apprentices who fail one or more assessment method will be offered the opportunity to take a re-sit or a re-take at the employer's discretion. The apprentice's employer will need to agree that either a re-sit or re-take is an appropriate course of action.

A re-sit does not require further learning, whereas a re-take does.

Apprentices should have a supportive action plan to prepare for a re-sit or a re-take.

An apprentice who fails one or more assessment methods, and therefore the EPA in the first instance, will be required to re-sit or re-take the failed assessment method only.

The timescales for a re-sit/re-take is agreed between the employer and EPAO. A re-sit is typically taken within 3 months of the EPA outcome notification. The timescale for a re-take is dependent on how much re-training is required and is typically taken within 3 months of the EPA outcome notification.

All assessment methods must be taken within a 4 month period, otherwise the entire EPA will need to be re-sat/re-taken.

Re-sits and re-takes are not offered to apprentices wishing to move from pass to a higher grade.

Where any assessment method has to be re-sat or re-taken, the apprentice will be awarded a maximum EPA grade of Pass, unless the EPAO determines there are exceptional circumstances requiring a re-sit or re-take.

Roles and responsibilities

Role	Responsibility
Apprentice	<p>As a minimum, apprentices should:</p> <ul style="list-style-type: none"> • participate in and complete on-programme training to meet the KSBs as outlined in the occupational standard for a minimum of 12 months • undertake 20% off-the-job training as arranged by the employer and EPAO • understand the purpose and importance of EPA • undertake the EPA including meeting all gateway requirements
Employer	<p>As a minimum, employers should:</p> <ul style="list-style-type: none"> • work with the training provider (where applicable) to support the apprentice in the workplace to provide the opportunities to develop the KSBs • arrange and support a minimum of 20% off-the-job training to be undertaken by the apprentice • decide when the apprentice is working at or above the occupational standard and so is ready for EPA • select the EPAO • ensure that all supporting evidence required at the gateway is submitted in accordance with this EPA plan • remain independent from the delivery of the EPA • confirm arrangements with the EPAO for the EPA (who, when, where) in a timely manner (including providing access to any employer specific documentations as required, for example company policies) • ensure that the EPA is scheduled with the EPAO for a date and time which allow appropriate opportunity for the KSBs to be met • ensure the apprentice is well prepared for the EPA • ensure the apprentice is given sufficient time away from regular duties to prepare for and

	<p>complete any post-gateway elements of the EPA, and that any required supervision during this time (as stated within this EPA plan) is in place</p> <ul style="list-style-type: none"> • where the apprentice is assessed in the workplace, ensure that the apprentice has access to the resources used on a daily basis
EPAO	<p>As a minimum, EPAOs should:</p> <ul style="list-style-type: none"> • agree the EPA price • understand the occupational standard • appoint administrators (and invigilators where required) to administer the EPA as appropriate • provide training for independent assessors in terms of good assessment practice, operating the assessment tools and grading • provide adequate information, advice and guidance documentation to enable apprentices, employers and training providers to prepare for the EPA • arrange for the EPA to take place, in consultation with the employer • deliver the EPA as outlined in this EPA plan in a timely manner • where the apprentice is not assessed in the workplace, ensure that the apprentice has access to required resources and liaise with the employer to agree this if necessary • use appropriate assessment recording documentation to ensure a clear and auditable process is in place for providing assessment decisions and feedback to all relevant stakeholders • have no direct connection with the apprentice, their employer or training provider. In all instances including when the EPAO is the training provider (i.e. HEI) there must be no conflict of interest • have policies and procedures for internal quality assurance (IQA), and maintain records of regular and robust IQA activity and moderation for external quality assurance (EQA) purposes • conform to the requirements of the nominated external quality assurance provider (EQAP)

	<ul style="list-style-type: none"> • conform to the requirements of the Register of End-Point Assessment Organisations (RoEPAO) • deliver induction training for independent assessors, and for invigilators and markers where used • undertake standardisation activity on this apprenticeship standard for all independent assessors before they conduct an EPA for the first time, if the EPA is updated and periodically as appropriate (a minimum of annually) • manage invigilation of apprentices in order to maintain security of the assessment in line with their malpractice policy • verify the identity of the apprentice being assessed • use language in the development and delivery of the EPA that is appropriate to the level of the occupational standard • request certification via the Apprenticeship Service upon successful achievement of the EPA
Independent assessor	<p>As a minimum, an independent assessor should:</p> <ul style="list-style-type: none"> • have the competence to assess the apprentice at this level and hold any required qualifications and experience in line with the requirements of the independent assessor as detailed in the IQA section of this EPA plan • have or are working towards an assessor qualification. Typical examples include: <ul style="list-style-type: none"> Level 3 Award in Assessing Competence in the Work Environment Level 3 Award in Assessing Vocationally Related Achievement Level 3 Certificate in Assessing Vocationally Related Achievement Level 3 Certificate in Assessing Vocational Achievement an appropriate Assessor qualification as identified by SQA Accreditation or hold one of the following: <ul style="list-style-type: none"> A1 Assess candidates using a range of methods

	<p>D32/33 Assess candidate performance, using differing sources of evidence</p> <p>Assessors holding A1 or D32/D33 should be assessing against the latest standards</p> <ul style="list-style-type: none"> • understand the occupational standard and the requirements of this EPA • have, maintain and be able to evidence up to date knowledge and expertise of the subject matter • deliver the end-point assessment in-line with the EPA plan • comply with the IQA requirements of the EPAO • have no direct connection or conflict of interest with the apprentice, their employer or training provider; in all instances including when the EPAO is the training provider (i.e. HEI) • attend induction training • attend standardisation events when they begin working for the EPAO, before they conduct an EPA for the first time and a minimum of annually on this apprenticeship standard • assess each assessment method, as determined by the EPA plan, and without extending the EPA unnecessarily • assess against the KSBs assigned to each assessment method, as shown in the mapping of assessment methods and as determined by the EPAO, and without extending the EPA unnecessarily • make all grading decisions • record and report all assessment outcome decisions, for each apprentice, following instructions and assessment recording documentation provided by the EPAO in a timely manner • use language in the development and delivery of the EPA that is appropriate to the level of the occupational standard
Training provider	<p>As a minimum, the training provider should:</p> <ul style="list-style-type: none"> • work with the employer and support the apprentice during the off-the-job training to provide the opportunities to develop the

	<p>knowledge, skills and behaviours as listed in the occupational standard</p> <ul style="list-style-type: none"> • conduct training covering any knowledge, skill or behaviour requirement agreed as part of the Commitment Statement (often known as the Individual Learning Plan). • monitor apprentices progress during any training provider led on-programme learning • advise the employer, upon request, on the apprentice's readiness for EPA • remain independent from delivery of the EPA. Where the training provider is the EPA (i.e. HEI) there must be procedures in place to mitigate against any conflict of interest
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Marker	<p>As a minimum, the marker should:</p> <ul style="list-style-type: none"> • attend induction training • have no direct connection or conflict of interest with the apprentice, their employer or training provider in all instances including when the EPAO is the training provider (i.e. HEI) • mark multiple-choice test answers accurately according to the EPAO's mark scheme
Invigilator	<p>As a minimum, the invigilator should:</p> <ul style="list-style-type: none"> • attend induction training • have no direct connection or conflict of interest with the apprentice, their employer or training provider; in all instances, including when the EPAO is the training provider (i.e. HEI) • invigilate and supervise apprentices during tests and in breaks during assessment methods to prevent malpractice
Technician	<p>As a minimum the technician should:</p> <ul style="list-style-type: none"> • ensure all tools and equipment are in working order and on site.

Internal Quality Assurance (IQA)

Internal quality assurance refers to the strategies, policies and procedures that EPA organisations must have in place to ensure valid, consistent and reliable end-point assessment decisions. EPAOs for this EPA must adhere to all requirements within the Roles and Responsibilities section and:

- have effective and rigorous quality assurance systems and procedures that ensure fair, reliable and consistent assessment across employers, places, times and independent assessors
- appoint independent assessors who have recent relevant experience of the occupation/sector at least one level above the occupation
- appoint independent assessors who are competent to deliver the end-point assessment and who meet the following minimum requirements:
 - Current or former experience as a mechanic on the vehicles and machine types that form part of the apprentice's scope of machines worked on with their employer. Where experience was not recent e.g, within the last 5 years, CPD and updating of current maintenance and repair practices must have been undertaken
- operate induction training for independent assessors, markers and invigilators
- provide training for independent assessors in terms of good assessment practice, operating the assessment tools and grading
- where appropriate:
 - provide training for markers
 - provide training for invigilators
- undertake standardisation activity on this apprenticeship standard for all independent assessors:
 - before they conduct an EPA for the first time
 - if the EPA is updated
 - periodically as appropriate (a minimum of annually)
- conduct effective moderation of assessment decisions and grades

Affordability

Affordability of the EPA will be aided by using at least some of the following practices:

- Online assessment
- Using an employer's premises
- Assessing multiple apprentices simultaneously in the Multiple Choice Test
- Assessing the Interview on the same day as the Practical Assessment.

Mapping of knowledge, skills and behaviours (KSBs)

Assessment method 1: Practical Assessment

Knowledge
K1 Types and appropriateness of information sources that would be used to provide repair and maintenance information on construction-based equipment
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
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
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.

Skills
S1 Working area preparation including workshop, facility and construction site-based to carry out maintenance activities on construction-based equipment.
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
S13 Repair or modify existing components from construction-based equipment which requires heating, welding and brazing
S15 Basic fault-finding and diagnostic activities on hydraulic, electric, mechanical and pneumatic systems to identify existing problems on construction-based equipment.

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

Assessment method 2: Interview

Knowledge
K2 Types, uses, core function and operation of construction-based equipment
K8 Company procedures and responsibilities in relation to working with the sector, customer and organisational requirements for working within construction and alongside other colleagues
K11 Environmental regulations and considerations for the containment and disposal of waste materials and equipment
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
K18 Techniques for checks and inspections, why typical components failures and causes of failure of relevant construction-based equipment
K21 Different communication and record-keeping methods, when they are used and the consequences of poor communication and record keeping.

Skills
S2 Identify, handle and store required resources, tools and equipment necessary to maintain construction-based equipment, reporting shortages/incomplete stock as appropriate
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
S14 Install and commission construction-based equipment on site-based environments for operational activities
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.
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 method 3: Multiple Choice Test

Knowledge
K3 Principles, function, operation, application and limitation of energy sources and transmission methods eg. 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, COSHH, PUWER.
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
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
K22: Additional training required for workplace activities 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